Cultus Petroleum NL

PPL1

OTWAY BASIN, VICTORIA

SKULL CREEK-1
WELL COMPLETION REPORT

(W1153)

submitted by R. Jason

August , 1997

Cultus Petroleum NL

PPL1

OTWAY BASIN, VICTORIA

SKULL CREEK-1
WELL COMPLETION REPORT

submitted by R. Jason

August , 1997

CONTENTS

TABLES

FIGURES

APPENDICES

PART 2

DST & RFT Interpretation and Analysis

ENCLOSURES

1	Composite Log	1:500
2	Formation Evaluation Log (Mud Log)	1:500
3	Waarre Formation - Stratigraphic Correlation	1:750
4	Log Analysis - Waarre Formation	1:500
5	Log Analysis - Eumeralla Formation	1:500

INTRODUCTION

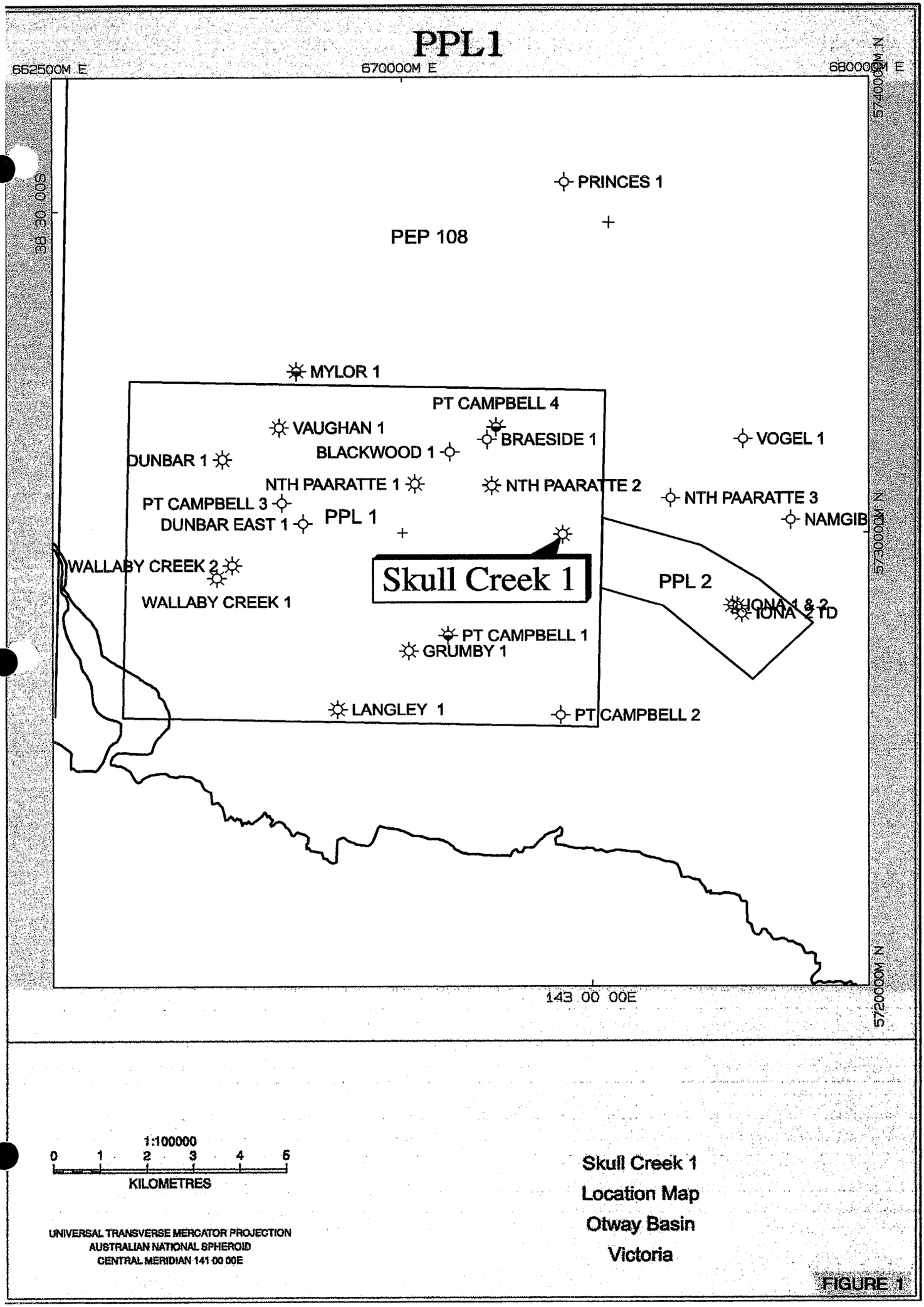
Skull Creek-1 is located onshore in the Port Campbell Embayment in the eastern part of the Otway Basin. The Otway Basin is a northwest to southeast trending sedimentary basin which formed primarily due to extension along the southern margin of Australia during the Late Jurassic - Early Cretaceous. The well is located in production license PPL1, onshore Victoria, approximately 200km west of Melbourne (Figure 1).

Skull Creek-1 was the final well in a three well exploration programme planned for the first half of 1996. This programme was the first for GFE Resources as part of the new parent company Cultus Petroleum NL. Basin Oil, a wholly owned subsiduary of Cultus, acquired PPL1 via an *in specie* distribution of GFE's assets on the 26th June, 1996.

The Skull Creek prospect is a seismically defined central horst fault block on the upthrown side of two major faults. The well was designed to test the presence of hydrocarbons in the sand reserviors of the basal Upper Cretaceous Waarre Formation.

The well was spudded at 0200 on 19 May 1996 and reached a total depth of 1700mMD after 9 days at 0530 on 28 May 1996. The OD & E rig 30 was released at 1700 on 6 June 1996, 18.6 days after spud.

Skull Creek-1 intersected gas saturated sands in the main target Waarre Formation and in the underlying Eumeralla Formation. Seven DST's, conducted primarily from the Warre Formation, produced a combined flow rate of 26 MMCFD of gas. Skull Creek-1 was cased and suspended as a gas producer.



Skull Creek 1

Location Map

Otway Basin

Victoria

FIGURE 1

1.1 Well Data Card

WELL:	**SKULL CREEK #1**	**SPUD:**	0200 hours, 19-05-96
WELL TYPE:	EXPLORATION	**TD REACHED:**	0530 hours, 28-05-96
BLOCK/LICENCE::	PPL1 Otway Basin Victoria	**RIG RELEASED:**	1700 hours, 06-06-96
RIG:	ODE 30	**COMPLETED:**	
LATITUDE:	38 33' 42.4"	**STATUS:**	Cased and Suspended Gas and Condensate discovery
LONGITUDE:	142 59' 25.1"	**TYPE COMPLETION:**	
X coord:	673411 mE	**TYPE STRUCTURE:**	Horst block
Y coord:	5 729 963 mN	**ZONE(S):**	
SEISMIC STATION:	Waarre 3D Xline 2805 Inline 9465	**REMARKS:**	
ELEVATION GL:	88.6 m AHD		
RT:	92.9 m		
TD:	1701.4 **m MD (Logr Ext)**		
	1700.0 **m MD (Driller)**		

CASING SIZE	SHOE DEPTH mRT	TYPE
16"	9.0	
9 5/8"	332.3	
7"	1614.0	

AGE	FORMATION OR ZONE TOPS	DEPTH (m) LOGGERS MD	DEPTH (m) SUBSEA TVD	THICKNESS (metres)	HIGH (H) LOW (L)	Prelim. TWT (msec)
TERTIARY	PORT CAMPBELL LIMESTONE	4.7	88.6	15.3	0	
TERTIARY	GELLIBRAND MARL	20	72.9	209		
TERTIARY	CLIFTON FORMATION	229	-136.1	29	50.9m H	142.0
TERTIARY	NARRAWATURK MARL	258	-165.1	85		172.6
TERTIARY	MEPUNGA FORMATION	343	-250.1	52	14.9m H	261.0
TERTIARY	DILWYN FORMATION	395	-302.1	196	22.9m H	312.8
TERTIARY	PEMBER MUDSTONE	591	-498.1	84		479.0
TERTIARY	PEBBLE POINT FORMATION	675	-582.1	62.5	17.1m L	544.8
LATE CRETACEOUS	PAARATTE FORMATION	737.5	-644.6	360.1	19.6m L	580.1
LATE CRETACEOUS	SKULL CREEK MUDSTONE	1098	-1004.7	77.8		861.6
LATE CRETACEOUS	BELFAST MUDSTONE	1176	-1082.5	26.4	2.5m L	909.2
LATE CRETACEOUS	WAARRE FM: UNIT "C"	1202.5	-1108.9	19.4	75.1m H	932.5
LATE CRETACEOUS	WAARRE FM: UNIT "B"	1222	-1128.3	27		944.0
LATE CRETACEOUS	WAARRE FM: UNIT "A"	1249	-1155.3	23.4		963.2
EARLY CRETACEOUS	EUMERALLA FORMATION	1272.5	-1178.7		76.3m H	1252.0
	T.D. (LOGR. EXTRAP.)	1701.4	-1607.2			

LOG INTERPRETATION (Interval Averages)						PERFORATIONS (4 shots/ft)	
ZONE	INTERVAL m MD	THICKNESS	NP m	POR %	SW %	ZONE	INTERVAL m MD
Waarre C1 sand	1202.9 - 1213.5	10.6	10.6	24.1	12.4	Waarre Unit 'C'	1205 - 1212
Waarre C2 sand	1214.3 - 1221.3	7.0	6.3	22.9	23.1	Eumeralla '1400'	1402 - 1417
Waarre B1 sand	1230.7 - 1232.0	1.3	1.2	22.5	36.7		
Waarre B2 sand	1234.7 - 1236.9	2.2	2.2	26.9	38.2		
Waarre A sand	1249.2 - 1258.4	9.2	7.3	22.5	30.3		
No pay mapped in	Eumeralla						
Hydrocarbon Show Summary							
1512-1525 Gas show - Waarre							
1525-1549 Gas show - Eumeralla Sandstone and Claystone - poor porosity.							

LOG (BPB)	RUN	INTERVAL mRT	BHT/TIME	LOG	RUN	INTERVAL mRT	BHT/TIME
MLL-DLS-SP-CAL -SONIC-GR	1/1	1064.0 - 1369.6		PDS-CNL-GR-CAL	3/2	1350.0 - 1701.4	63.0°C/24.5hrs
PDS-CNL-GR-CAL	2/1	1064.0 - 1369.6		Dipmeter	4/2	1350.0 - 1701.4	63.0°C/28hrs
MLL-DLS-SP-CAL -SONIC-GR	1/2	1350.0 - 1701.4	55.0°C/8.5hrs	SRS (Vel survey)	5/2	96.3 - 1694.5	
RFS-GR	2/2	1350 0 1701.4	48°C	CBL	6/2	800.0 - 1600.0	

FORMATION TESTS

NO.	INTERVAL (mRT)	FORMATION	FLOW (mins)	SHUT IN (mins)	BOTTOM GAUGE IP/FP (psia)	SIP	MAX SURF PRESS (psia)	FLUID TO SURF (mins)	TC/ BC	REMARKS
1	1199.0 - 1221.0	Waarre Unit C								Misrun
2	1200.5 - 1210.5	Waarre Unit C	90	13			540	5	3/4"	GTS @ 8.2 MMCFD
3	1402.0 - 1417.0	Eumeralla '1400 sand	125	30			400	2.5	3/8"	GTS @ 1.1 MMCFD with indet amount of cond.
4	1240.0 - 1255.0	Waarre Unit A	60	36			680	0	3/4"	GTS @ 11.1 MMCFD
5	1500.0 - 1520.0	Eumeralla '1500 sand	8	30						Strong air blow, misrun packer seat failed
6	1225.0 - 1245.0	Waarre Unit B								Misrun
7	1234.0 - 1245.0	Waarre Unit B	120	0			880	1	1/2"	GTS @ 6.2 MMCFD WTS after 24 mins, rec 1.4bbl W (Fm water?)

SUMMARY:

Skull Creek is a new gas field discovery in PPL1, onshore Otway Basin, Victoria. The well tested gas from the Waarre Formation and from sands within the upper Eumeralla Formation, primary and secondary targets respectively. Skull Creek #1 is located approximately 1.9km southeast of North Paaratte #2 and 4.0km northwest of Iona #1. It was drilled near the crest of a horst block, bounded by two major normal faults which extend down to the Early Cretaceous.

Th e top of the Waarre Unit C (75m High) and the top of the Eumeralla (76m High) were encountered high to prognosis. A fault was intersected in Skull Creek #1 at approximately 1160mRT within the Skull Creek Mudstone. It is estimated that approximately 220+ metres of section (including the Nullawarre Greensand) is missing. From the Velocity Survey, the top of the Waarre Unit C was 60 msec TWT less than that prognosed, the result of higher velocities over the Skull Creek Horst.

Strong gas shows were encountered throughout the Waarre Formation in Units C, B and A. Gas shows were also encountered in the Eumeralla Formation with gas peaks of 405 and 497 units within the '1400' and '1500' sands respectively.

From RFT, DST and log interpretation a GWC is present within the Waarre Unit A sand at approximately 1170.1m SS (1263.0m RT). RFT interpretation and DST #7 result suggests a possilbe GWC in the Waarre Unit B2 sand at approximately 1143.8m SS (1237.5m RT)

AUTHOR: RJJ | **DATE**: April, 1997

2.0 GEOLOGICAL DATA

The section penetrated in Skull Creek-1 is summarised in Table 2 below. Interpreted formation tops are based on rate of penetration, cuttings descriptions, palynological analyses and wireline logs. Unless stated otherwise, depths mentioned in this report will be referenced on the well datum, the rotary table (RT). The Onshore - Offshore Operational Stratigraphic Table, from which interpreted formation tops are based, is presented on the following page (Figure 3).

Formation Tops	Prognosed (mRT)	Actual (mRT)	Actual (m TVD SS)	Difference (m)	Thickness (m)
Port Campbell Limestone	4.3	4.3	-88.6		
Gellibrand Marl		20	-72.9		209
Clifton Formation	283	229	136.1	50.9 High	29
Narrawaturk Marl		258	165.1		85
Mepunga Formation	361	345	250.1	14.9 High	52
Dilwyn Formation	421	397	302.1	22.9 High	196
Pember Mudstone		590	498.1		84
Pebble Point Formation	661	651	582.1	17.1 Low	62.5
Paaratte Formation	721	719	644.6		360.1
Skull Creek Mudstone	1031	1139	1004.7	19.6 Low	77.8
Nullawaarre Formation	1121	absent			-
Belfast Mudstone	1201	1183	1082.5	2.5 Low	26.4
Waarre Formation	1266	1203	1108.9	75.1 High	69.8
Eumeralla Formation	1316	1272	1178.7	76.3 High	429+
T.D	1500.0	1700	1607.2	200 Low	

Table 2 : Formation tops and thicknesses.

PE907567

This is an enclosure indicator page.
The enclosure PE907567 is enclosed within the container PE900832 at this location in this document.

The enclosure PE907567 has the following characteristics:

ITEM_BARCODE	= PE907567
CONTAINER_BARCODE	= PE900832
NAME	= Schematic Stratigraphic Table
BASIN	= OTWAY
PERMIT	= PPL/1
TYPE	= WELL
SUBTYPE	= STRAT_COLUMN
DESCRIPTION	= Schematic Stratigraphic Table (enclosure from WCR) for Skull Creek-1
REMARKS	=
DATE_CREATED	= 28/02/97
DATE_RECEIVED	= 31/10/97
W_NO	= W1153
WELL_NAME	= Skull Creek-1
CONTRACTOR	= Cultus Petroluem NL
CLIENT_OP_CO	= Cultus Petroluem NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE907568

This is an enclosure indicator page.
The enclosure PE907568 is enclosed within the container PE900832 at this location in this document.

The enclosure PE907568 has the following characteristics:

ITEM_BARCODE	= PE907568
CONTAINER_BARCODE	= PE900832
NAME	= Predicted vs. Actual Stratigraphic Section
BASIN	= OTWAY
PERMIT	= PPL/1
TYPE	= WELL
SUBTYPE	= STRAT_COLUMN
DESCRIPTION	= Predicted vs. Actual Stratigraphic Section (enclosure from WCR) for Skull Creek-1
REMARKS	=
DATE_CREATED	= 30/05/97
DATE_RECEIVED	= 31/10/97
W_NO	= W1153
WELL_NAME	= Skull Creek-1
CONTRACTOR	= Cultus Petroluem NL
CLIENT_OP_CO	= Cultus Petroluem NL

(Inserted by DNRE - Vic Govt Mines Dept)

2.1 LITHOLOGICAL DESCRIPTIONS

The predicted verses actual stratigraphic section (Figure 4) on the previous page, provides the basis for a summary of the lithological units observed in Skull Creek-1. Descriptions are compiled from the wellsite geologist as well as interpretations from wireline results. Skull Creek-1, situated on a regional high trend, is characterised by the absence of Nullawarre Greensand and Waarre 'D' (Flaxmans Formation) of the Late Cretaceous Sherbrook Group.

HEYTESBURY GROUP (Surface - 124.0 mRT)

Port Campbell Limestone (Surface - 20.0 mRT) This formation was noticably much thinner than anticipated, being only 16m thick. Lithology dominantly consists of:-

Calcarenite: no samples collected.

Gellibrand Marl (20.0 - 229.0 mRT) This formation was much thicker than anticipated. The Gellibrand Marl consists of the following observed lithology:-

Massive Marl: medium grey to medium green grey, minor medium brown grey, abundant bryozoa, forams, shell fragments, trace echinoid spines and sponge spicules, trace pyrite occasionally replacing and infilling fossil fragments, trace glauconite, rare clear fine quartz sand grains, very soft and sticky, non fissile.

Clifton Formation (229.0 - 258.0 mRT) 50.9 metres high to prognosis and comprising the following observed lithology:-

Calcarenite: medium orange brown, yellow-red in part, very coarse grained, abundant fossil fragments including bivalves, gastropods, bryozoa, forams, sponge spicules and echinoid spines, minor strong cryptocrystalline calcite cement, trace to common very fine to grit frosted rounded brown stained quartz sand grains, abundant glauconite, common brown iron oxide pellets and iron oxide rich clay, friable, very poor inferred porosity, no oil fluorescence.

NIRRANDA GROUP (258.0 - 395.0 mRT)

Narrawaturk Marl (258.0 - 343.0 mRT) Thickness and significance greater than anticipated. Consists entirely of:-

Marl: medium brown grey to medium green grey, abundant bryozoa, forams and shell fragments and forams, trace echinoid spines and sponge spicules, trace to common pryite often as fossil infill and replacement, trace to common very fine to fine clear quartz sand grains, trace to common glauconite, very soft and sticky, non fissile.

Mepunga Formation (343.0 - 395.0 mRT) 14.9 meteres high to prognosis. The Mepunga Formation consists of an upper sandstone interval underlain by a claystone dominant interval. Lithological descriptions are as follows:-

Sandstone: light to medium brown, very fine to coarse, dominantly fine to medium, angular to subrounded, moderately to well sorted, very weak silica cement, common to abundant medium brown argillaceous and silt matrix, moderate to strong in general decreasing with depth yellow to orange to brown iron oxide stain on quartz grains, trace multicoloured volcanic lithics, trace coarse muscovite flakes, trace pyrite, trace to common iron oxide pellets, trace glauconite, trace dark brown clay lithics, friable to unconsolidated, fair to good inferred porosity, no oil fluorescence with minor interbedded and becoming dominant with depth.

Claystone: dark brown, moderately silty, trace pyrite, trace glauconite, trace micromica, soft, very dispersive, non fissile.

WANGERRIP GROUP (395.0 - 737.5 mRT)

Dilwyn Formation (395.0 - 591.0 mRT) 22.9 metres high to prognosis. The Dilwyn Formation is dominantly sandstone and consists of several cycles of sandstone and claystone with the following descriptions:-

Sandstone: light grey, very fine to grit, dominantly medium, angular to subrounded, moderately well sorted, very weak silica cement, trace to abundant medium brown grey argillaceous and silt matrix, minor pyrite cement, clear to opaque quartz grains, trace yellow to red stained quartz grains, trace brown red and black lithics, trace coarse mica flakes, friable to unconsolidated, very good inferred porosity, no oil fluorescence, with minor interbedded

Claystone: medium to dark brown grey, moderately to very silty, abundant dispersed very fine to coarse quartz sand grains in part, trace pyrite, trace micromica, very soft, very dispersive, non fissile.

Pember Mudstone (591.0 - 675 mRT) Dominantly claystone with minor interbeds of sandstone and generally described as:-

Claystone: (591-642m) medium to dominantly dark brown grey, moderately to very silty, common dispersed very fine quartz and off white partially altered feldspar sand grains, common glauconite, slightly calcareous in part, trace black coaly detritus often associated with pyrite, trace pyrite, trace micromica, , very soft and sticky, moderately dispersive, non fissile, with minor interbedded

Sandstone: light brown, very fine to fine, subangular to subrounded, moderately to well sorted, very weak silica cement, common to abundant dark brown grey argillaceous and silt matrix, trace glaucontie, common coarse mica flakes, friable, poor inferred porosity, no oil fluorescence.

The lower sequence of Pember Mudstone is characterised by a hot GR log response similar to the lower sequence of Pebble Point Formation otherwise known as the KT shale.

Claystone: (642-675m) medium to dark brown grey to medium grey, trace to common dispersed very fine to grit quartz sand grains, moderately to very silty, trace to common dark green argillaceous glauconite, trace pyrite, trace fine mica flakes, soft, moderately dispersive, non fissile.

Pebble Point Formation (675 - 737.5 mRT) 17 metres low to prognosis. Pebbly sand sequence underlain by claystone sequence (KT shale) with very high GR response. Inferred porosity in sandstone increases with depth, confirmed by sonic log response.

Sandstone: light orange green, very fine to pebble, dominantly medium to coarse, subangular to subrounded, moderately sorted, very weak silica cement, common medium to dark green argillaceous and silt matrix, weak yellow to green stain on quartz grains, common glauconite, common multicoloured volcanic lithics, trace coarse green mica flakes, friable to unconsolidated, very poor to good inferred porosity in general increasing with depth, no oil fluorescence, grading to and in general decreasing with depth

Claystone: medium to dark green, medium brown, moderately to very silty, abundant dispersed very fine to grit green-brown stained quartz grains - grading to argillaceous sandstone, common glauconite, trace pyrite, soft, moderately dispersive, non fissile.

SHERBROOK GROUP (737.5 - 1272.5 mRT)

Paaratte Formation (737.5 - 1098.0 mRT) 19.6 metres low to prognosis. Upper sequence is massive coarse grained sandstone 120 metres thick. Sharp spikes identified on the sonic log and MSFL, matched with slow drilling, are interpreted to be dolomitic bands average 2 metres thick, increasing in frequency with depth. Lower sequences occur as sandstone, becoming finer, interbedded with claystone.

Sandstone: light grey, very fine to grit, dominantly coarse, at base often dominantly fine, subangular to subrounded, moderately sorted, weak silica cement, no visual matrix, clear to translucent quartz grains, trace green grey lithics, trace black coaly detritus, trace pyrite, trace coarse mica flakes, friable, fair to very good inferred porosity, no oil fluorescence, occasionally with towards base minor interbeds of

Claystone: medium to dark brown to medium grey, moderately to very silty, moderately carbonaceous, common black carbonaceous flecks and coaly detritus in part, trace disseminated and nodular pyrite, common micromica, firm, very dispersive and washing from samples, slightly subfissile.

Skull Creek Mudstone (1098.0 - 1176.0 mRT) Basal sequence of Paaratte Formation. Dominantly claystone with minor interbedded sandstone.

Claystone: medium to dark grey, medium brown grey, very silty, common very fine partially altered feldspar grains in part, trace black carbonaceous flecks, trace micromica, trace pyrite, soft, very dispersive, slightly subfissile, interbedded and laminated with

Sandstone: light grey, very fine to coarse, dominantly fine, subangular to subrounded, moderately sorted, moderate silica cement, trace white argillaceous matrix, trace red brown volcanic lithics, trace black carbonaceous matter, common pyrite, friable to moderately hard, very poor visual porosity, no oil fluorescence.

Belfast Mudstone (1176.0 - 1202.5mRT) 2.5 metres low to prognosis. Skull Creek-1 intersected a major fault at around 1160 mRT when drilling through the Skull Creek Mudstone. An estimated 220+ m of missing section have been interpreted from lithology, palynology and dipmeter data. The Belfast Mudstone is in direct contact with the Skull Creek Mudstone. (The Nullawarre Greensand had been faulted out). Belfast Mudstone is dominantly claystone described as:-

Claystone: medium to dark grey, medium to dark brown grey, very silty, common very fine partially altered feldspar grains in part, common black carbonaceous flecks, trace micromica, firm, very dispersive, slightly subfissile with minor laminatied and probably contaminated by cavings
Sandstone: light grey, very fine to coarse, dominantly fine grained, subangular to subrounded, moderately sorted, moderate silica cements, trace white argillaceous matrix - matrix supported, trace red brown lithics, friable, trace carbonaceous matter, common pryite, friable to moderately hard, very poor visual porosity, no oil fluorescence.

Waarre Formation (1510.0 - 1595.0 metres) 75 metres high to prognosis. Units C, B and A present with the following lithology descriptions:-

Unit C (1202.5 - 1222.0 mRT)

Sandstone: very light to light grey, very fine to grit, dominantly medium to very coarse, angular to subrounded, poor to moderate sorting, becoming moderate to well sorted with depth, very weak silica cement, no visual matrix, trace yellow stained quartz grains, trace black carbonaceous detritus, friable, very good inferred porosity, no oil fluorescence.

Unit B (1222.0 - 1249.0 mRT)

Claystone: medium grey to medium brown, very silty grading to siltstone, common very fine off white partially altered feldspar grains in part, common brown to black carbonaceous flecks and fine detritus, trace medium brown cryptocrystalline dolomite, trace glauconite, trace pyrite, trace micromica, soft, very dispersive and washing from sample, slightly subfissile interbedded with
Sandstone: very light brown grey, very fine to medium, dominantly fine, angular to subrounded, moderately sorted, weak silica cement, no visual matrix, common bright red green brown grey and black lithics, common black coaly detritus, trace pyrite, friable, fair inferred porosity, no oil fluorescence.

Unit A (1249.0 - 1272.5 metres)

Sandstone: light orange grey, very fine to grit, dominantly medium, angular to subangular, well sorted, moderate silica cement, trace white argillaceous matrix, common to abundant yellow orange

lithics, trace red green grey and black lithics, trace black coaly detritus, friable, fair visual porosity, no oil fluorescence.

OTWAY GROUP (1272.5 - 1701.4 mRT)

Eumeralla Formation (1272.5- 1701.4 mRT) 76.3 metres high to prognosis. Top Eumeralla unconformity at Skull Creek evidenced by weathering of the uppermost Eumeralla.

Sandstone: weathered at top with abundant white argillaceous matrix, with depth cleaning to Sandstone: medium green grey, mottled, very fine to coarse, dominantly medium, subangular to subrounded, moderately to well sorted, very weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace black coaly detritus, trace mica flakes, rare pyrite, friable, very poor visual porosity, no oil fluorescence, interbedded with

Claystone: very weathered at top to structureless white to light blue grey clay, with depth cleaning to Claystone: light to medium green grey, light to medium grey, medium brown grey, slightly silty, trace very fine partially altered feldspar grains in part, trace brown to black carbonaceous flecks and detritus, trace micromica, firm, slightly subfissile.

Claystone: off white to medium green grey, light to medium grey, light to medium brown grey, slightly to occasionally moderately silty, trace to common very fine partially altered feldspar grains in part, trace to common brown to black carbonaceous flecks and detritus, trace micromica, trace pyrite, firm, slightly subfissile, interbedded with

Sandstone: light to medium green grey, very fine to coarse, dominantly medium, subangular to subrounded, moderately to well sorted, weak silica and calcareous cements, common to abundant white argillaceous matrix, abundant grey green lithics, common red brown and black lithics, trace black coaly detritus, trace mica flakes, rare to trace pyrite, friable, very poor visual porosity, no oil fluorescence.

2.2 HYDROCARBON INDICATIONS

Whilst drilling Skull Creek-1, cuttings and gas levels were carefully monitored. Cuttings were analysed under a fluoroscope to detect any hydrocarbon occurences. Gas equipment used by Haliburton in the monitoring of gas levels comprised an FID Gas Chromatograph and an FID Total Gas tool. Skull Creek-1 intersected several intervals recording significant gas shows as listed below:-

Interval	Formation	Units Peak / Backgnd	ROP	Remarks
1203 - 1214 mRT	Waarre 'C'	727 / 12 units	60 m/hr	Gas show
1214 - 1221 mRT	Waarre 'C'	195 / 6 units	40 m/hr	Gas show
1229 - 1232 mRT	Waarre 'B'	313 / 22 units	28 m/hr	Gas show
1235 - 1238 mRT	Waarre 'B'	134 / 11 units	45 m/hr	Gas show
1249 - 1265 mRT	Waarre 'A'	234 / 21 units	30 m/hr	Gas show
1399 - 1427 mRT	Eumeralla	405 / 45 units	110 m/hr	Gas show
1498 - 1518 mRT	Eumeralla	497 / 72 units	100 m/hr	Gas show
1528 - 1533 mRT	Eumeralla	318 / 29 units	40 m/hr	Gas show

Table 3 : Hydrocarbon Show Summary

2.3 LOG ANALYSIS

Independant interpertations have been conducted on the Waarre and Eumeralla Formations. The evaluation of the Waarre, conducted by A. Pomilio using a deterministic approach is included in Appendix 6a. Conventional resistivity based log analysis of the Eumeralla Formation was not possible. A probablistic approach was conducted by A. Calcraft using Multimin with results presented in Appendix 6b.

Hole Conditions

The 8 1/2"section of the well was drilled with a fresh water mud system down to approximately the base of the Waarre Formation. Because of the inability to run the laterolog tools (the only resistivity log available on location) in this type of mud system, KCl was added and intermediate logs run at 1368 mRT.

Suite #1 comprised the following logs:

DLL-MLL-CALI-SP-GR	1369.6 to 1064 mRT (GR to shoe)	Run #1
SONIC	1369.6 to 1064 mRT	Run #1
NEUTRON/DENSITY	1369.6 to 1064 mRT	Run #2

Because of encouraging results in the Waarre Formation, the well was deepened and a second suite of logs were run to evaluate the Upper Eumeralla sandstones.

At total depth, Suite #2 comprised the following logs:

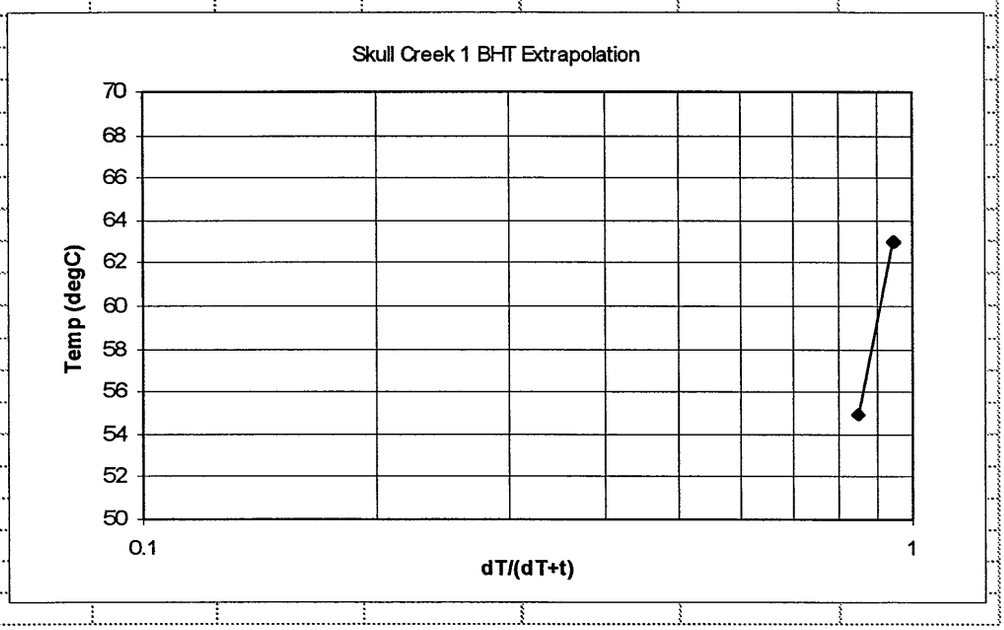
DLL-MLL-CALI-SP-GR	1701.4 to 1350 mRT	Run #1
SONIC	1701.4 to 1350 mRT	Run #1
RFT	1701.4 to 1350 mRT	Run #2
NEUTRON-DENSITY	1701.4 to 1350 mRT	Run #3
DIPMETER	1701.4 to 1350 mRT	Run #4

Side wall cores were not attempted because of concerns regarding borehole stability.

The RFT tool was affected by continuos plugging of the filter probe. The question of the RFT plugging has caused much debate, but the most plausible explanation for the plugging is poor mud properties control upon entering the Waarre Sandstone. Fluid losses into the Waarre have been estimated at greater than 27 cc.

Table 4 : Bottom Hole Temperature Extrapolation

Skull Creek 1							
Log			Run	BHT (degC)	Circ t. (hrs)	dT (hrs)	(dT/(dT+t)
Resistivity			1 of 2	55	1.5	8.5	0.85
Density			3 of 2	63	1.5	24.5	0.94
Dipmeter			4 of 2	63	1.5	28	0.95



The bottom hole temperature for Skull Creek-1 of 67°C was extrapolated using a Horner plot (Table 4). Using a surface hole temperature of 15°C a geothermal gradient of 3.05°C/100m is calculated.

There were seven open hole drill stem tests conducted as follows:

DST-1	1199-1221m	Misrun
DST 2	1200.5-1210.5m	GTS at 8.2 MMCFD on 3/4"
DST 3	1402-1417m	GTS at 1.3 MMCFD on 3/8"
DST-4	1240-1255m	GTS at 11.1 MMCFD on 3/4'
DST-5	1500-1520 m	Misrun
DST-6	1225-1245 m	Misrun
DST-7	1234-1245 m	GTS at 6.2 MMCFD + Fm water

The well was cased and suspended with 7" casing run down to 1600 m where it became stuck.

Correlation of the Waarre Sandstone (Enclosure 3)

The typical Units 'C', 'B' and 'A' into which the Waarre Sandstone is normally subdivided can be easily recognised at Skull Creek-1. This well correlates quite well with nearby Iona 1 & 2 wells and North Paaratte 2, where the Waarre Sandstone displayed very similar log character response. At Iona Field the Waarre is slightly thicker (around 80 m). The shale barriers separating Unit 'C' from 'B' and Unit 'B' from 'A' are clearly continuous, at least in the direction of Iona Field and North Paaratte 2. The correlation in Enclosure 3 is characterised by an absence of Waarre Unit D in both Wallaby Creek 2 and Skull Creek 1.

The implications of this lateral continuity are quite important. At Skull Creek-1, pressure data from DST and RFT indicates that there are at least three gas columns under separate pressure regimes. Therefore, given the clay continuity, it is possible that the accumulations in Units C and B at Iona Field might be separate.

Log evaluation: Waarre Sandstone

Log evaluation (Enclosure 4) has identified three gas accumulations separated by, so far, two water contacts. The gas accumulation in Unit 'B' has no identified GWC from logs at Skull Creek-1.

Accumulation 1 *1202.5-1222 mRT* *UNIT 'C"*

HKG	:	1202.5 mRT
LTG	:	1210.5 mRT
LKG	:	1222.0 mRT (Strong gas indications from logs)
GGC	:	19.5 m
Net	:	15.5 m
N/G	:	80%
Ave Vcl	:	0.04
Ave PHIE	:	0.24
Ave Sw	:	0.15

No GWC identified. However, the decrease in deep resistivity log values at around 1219.0 mRT might indicate, as in nearby Iona that:

1) The GWC is not far downdip from the well
2) An oil leg might be present downdip from the well

or alternatively a change in lithology

Accumulation 2 *1229.0-1237.0 mRT UNIT 'B"*

This accumulation comprises two thin sandstones. It is unclear if the two are communicated by a single pressure regime (ie one GWC).

HKG	:	1229.0 mRT
GWC	:	1237.0 mRT
GGC	:	8.0 m
Net	:	3.4 m
N/G	:	40%
Ave Vcl	:	0.13
Ave PHIE	:	0.24
Ave Sw	:	0.41

The presence of a GWC at 1237.0 mRT is unquestionable; it has been predicted by log evaluation and confirmed by RFT pressure data, RFT sampling and DST results.

Accumulation 3 *Case 1:1249.0 to 1258.0* *Case 2: 1249.0-1263.0 mRT UNIT 'A'*

Accumulation 3 is contained within reservoir Unit 'A'; because of varying and possibly deteriorating reservoir quality with depth, a unique position for the GWC could not be established. Log evaluation suggests that the GWC is around 1258 to 1263 mRT and more likely at 1263 mRT than at the shallower alternative.

HKG	:	1249.0 mRT
LTG	:	1255.0 mRT

Case 1

GWC1	:	1258.0 mRT (?)
GGC	:	9.0 m
Net Pay	:	8.5 m
N/G	:	94%
Ave Vcl	:	0.28 (?)
Ave PHIE	:	0.21
Ave Sw	:	0.33

Case 2 *Additional pay*

GWC2	:	1263.0 mkb
GGC2	:	5 m
Net Pay	:	1.3 m
N/G	:	26%
Ave Vcl	:	0.33
Ave PHIE	:	0.19
Ave Sw	:	0.47

RFT and Drill Stem Test data indicate that the three gas accumulations encountered have three separate pressure regimes. Accumulation 1, the only accumulation without an identified GWC, is therefore likely to have a separate contact.

The possibility also exists that the sands in Unit 'B', grouped under Accumulation 2, might, instead, be two separate and independent accumulations. Therefore, the Waarre Sandstone at Skull Creek-1 might contain up to four gas zones with their respective GWC's.

RFT results in the Waarre Sandstone

The interpretation of RFT data was conducted by B.Richardson and results are presented in a separate report (Appendix 9). However some of the main results are highlighted here:

A gas gradient in Unit 'C'
A valid water point in Unit 'B'
A valid water point in Unit 'A'
A valid formation water sample in Unit 'B' mixed with filtrate

Evaluation of the Eumeralla Gas

Initial evaluations were conducted from a lithology aspect, tests results, raw logs, dipmeter data, gas shows and mudcake build-up. Conventional log evaluation of the Eumeralla was very unreliable due to a number of adverse factors such as:

Complex lithology
Lack of resistivity contrast
Radioactive minerals affecting VCL from GR.

A. Calcraft, of the Modern Log Analysis Company Pty Ltd, employed a complex lithology model of the Eumeralla section (Enclosure 5) in order to evaluate shows encountered in this formation. The use of Multimin, a volume optimisation model, was important for the petrophysical analysis because it allows for small changes in one or more rock components. The felspathic litharenite reservoirs of the Eumeralla Formation were evaluated using a quartz-illite-smectite-chlorite mineralogy (Calcraft,1997). Other minerals known to be present were incorporated by appropriate ajustments, i.e. The properties of the quartz component were adjusted for the commonality of albite.

Several other wells including Iona-2 and Vaughan-1 were investigated together with Skull Creek-1 to form a robust model for determining hydrocarbon bearing zones. Poor reservoir quality was

determined to be a primary reason why zones in the Eumeralla did not flow. High gas ratios are thought to be relate to intervals with low clay bound water (Calcraft, 1997).

The best tested complex lithology model indicated that Smectite acted to fill pore spaces and pore throats. This implied that if there is little or no Smectite present then the reservoir may flow. On the reslutant log analysis plot this criteria is flagged at HF 1. The second flag HF 2 marks the more conventional test of a water saturation - porosity cross plot using an Sw cutoff of 0.6. This criteria is subject to the effects of Zeolite being insignificant (Calcraft, 1997). Intervals that meet both sets of criteria in Skull Creek-1 are 1400 -1420mRT (Tested @ 1.1MMCFD) and 1510 - 1530mRT (Tested but misrun).

In summary, the best quick-look indicators for the Eumeralla are good gas shows followed by the presence of some cross over on a conventional density neutron log plot. In Skull Creek-1 the best evidence of this occurs in the `1400m sand'. Intervals like this should be considered for underbalance drilling which could determine what effect formation damage has on the flowability of Eumeralla sands. A summary of the Eumeralla sands intersected in Skull Creek-1 follows:-

A) The '1300' m sand

This zone comprises, from mud log data, a series of thinly interbedded sandstones and claystones. The sandstones have been described as 'typical Eumeralla' with abundant lithics and poor visible porosity.

Mudlog gas readings in the overlying shale between 1270 and 1312.0 mRT approximately, averaged only 10 units. Gas between 1312.0 and 1355.0 mRT approximately was 100 units in the sands indicating the possibility of a gas column due to the 10 fold increase. Therefore a gross gas column of 43 m can be postulated from the gas detector.

This zone could be considered as a candidate for cased hole testing but does not meet both sets of criteria as set out in the complex lithological analysis. Wireline logs are characteristically featureless and the dipmeter shows uniform low resistivity with no visible thin resistive beds that could be indicative of pay.

Net pay is probably low, however, the N/D logs approaching each other several times suggest that this zone probably has some pay when compared with the other Eumeralla accumulations.

B) The '1400' sand

This gas zone was tested by DST-3 conducted between 1402.0 and 1417.0 mRT, that flowed GTS at 1.3 MMCFD with no water and with a small amount of condensate.

The overall extent of the gas bearing interval is likely to be 1402.0 to 1439.0 mRT, spanning a 37 m gross interval. Log analysis indicated a 20m gross interval.

Lithological descriptions and dipmeter data are as per the zone above and are considered rather useless.

Drill Stem Test results have indicated that most of the gas produced on DST is probably originated from a thin net pay sand with low permeability. Net pay is unlikely to exceed 2 to 3 m and is concentrated around the zone with N/D cross over at 1402.0 mRT.

C) The '1500' sand

Underlying a non-net, argillaceous zone at 1470 to 1500 mRT, another sequence of very poor visual porosity sands displayed attractive gas readings suggestive of an accumulation. The interpreted gas zone comprises the interval 1508.0 to 1532.0 mRT.

DST-5 between 1502.0 and 1522.0 mRT blowed strongly before being aborted as a misrun. Because of the near absence of N/D cross over or the logs approaching each other, this zone is estimated to contain only very little pay and it is anticipated that flow rates will be smaller than at the '1400' m sand.

2.4 STRUCTURAL HISTORY

Uplift and erosion of Eumeralla to the east during the early Cenomanian acted as sediment provinence for the Waarre Formation. The Skull Creek Horst is interpreted to have influenced the palaeotopography since the Late Cenomanian. Firstly, the Waarre 'B' and 'C' units are known to thin in a westerly direction across the Skull Creek Horst. The non deposition or erosion of Waarre Unit 'D' at Skull Creek-1 is a direct result of the horst being high prior to the deposition of Belfast Mudstone. Although the Belfast Mudstone is thin and Nullawarre Greensand is faulted out at Skull Creek-1, the Skull Creek Horst significantly influenced its deposition. The Nullawarre Greensand is not recognised south of the Skull Creek horst and its aerial extent is believed to be influenced by along shore currents and wave action during a period of relative tectonic quiescence.

The Skull Creek Horst probably incurred tilting and uplift of the eastern part of the horst during the mid Miocene compressional event related to collision of the Australian craton with the Banda arc. This event had basin wide effect with contribution to the formation of the Otway Ranges and the Dartmoor uplift. Hydrocarbon generation is believed to have been filling the structure formed at the eastern part of the Skull Creek Horst from Miocene to Recent times.

PE907569

This is an enclosure indicator page.
The enclosure PE907569 is enclosed within the container PE900832 at this location in this document.

The enclosure PE907569 has the following characteristics:

ITEM_BARCODE	= PE907569
CONTAINER_BARCODE	= PE900832
NAME	= Seismic section
BASIN	= OTWAY
PERMIT	= PPL/1
TYPE	= SEISMIC
SUBTYPE	= SECTION
DESCRIPTION	= Seismic Section with Interpretation (enclosure from WCR) for Skull Creek-1
REMARKS	=
DATE_CREATED	=
DATE_RECEIVED	= 31/10/97
W_NO	= W1153
WELL_NAME	= Skull Creek-1
CONTRACTOR	= Cultus Petroluem NL
CLIENT_OP_CO	= Cultus Petroluem NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE907570

This is an enclosure indicator page.
The enclosure PE907570 is enclosed within the container PE900832 at this location in this document.

The enclosure PE907570 has the following characteristics:

ITEM_BARCODE	= PE907570
CONTAINER_BARCODE	= PE900832
NAME	= Structure Map
BASIN	= OTWAY
PERMIT	= PPL/1
TYPE	= SEISMIC
SUBTYPE	= HRZN_CNTR_MAP
DESCRIPTION	= TWT Structure on Top of Waarre Formation, Post Drill Map (enclosure from WCR) for Skull Creek-1
REMARKS	=
DATE_CREATED	= 28/08/97
DATE_RECEIVED	= 31/10/97
W_NO	= W1153
WELL_NAME	= Skull Creek-1
CONTRACTOR	= Cultus Petroluem NL
CLIENT_OP_CO	= Cultus Petroluem NL

(Inserted by DNRE - Vic Govt Mines Dept)

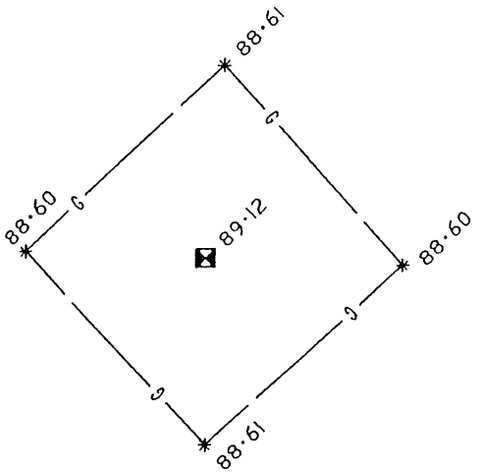
3.0 OPERATIONAL INFORMATION

Operator Personnel on Site	Drilling Supervisor :	Henry Flink
	Engineer/Night Supervisor :	Bruce Richardson /Kevin Kelly
	Geologist :	Dave Horner
Drilling Contractor	Oil Drilling and Exploration Pty Ltd (O.D.&E.) Rig #30	
Drilling Fluids	Independent Drilling Fluid Services Pty Ltd	
Cementing	Halliburton	
Mud Logging	Halliburton	
Coring & Testing	Australian DST	
Wireline Logging	BPB Logging	
Total Cost	$949,000.00	

3.1 Well Location Survey

The Skull Creek-1 location was surveyed by Alan Simpson of Warrnambool (Figure 4) after the well was suspended. The surveyed co-ordinates and ground level are used throughout the text and in the database for the location map.

SKULL CREEK #1
APPROX. CO-ORDINATES
E 673 410
N 5 729 960



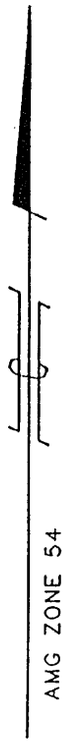


FIGURE 6

SCALE 1 : 50

0·5 0 0·5 1 1·5 2

LENGTHS ARE IN METRES

ALAN H. SIMPSON
• LAND SURVEYOR •
A.C.N. 062 912 510
P.O.BOX 421, WARRNAMBOOL 3280
PHONE (055) 61846 FAX (055) 621775

REF
4511

NOTATIONS

ELEVATIONS ARE TO A.H.D. VIDE PM 14 RL.72·978

ELEVATIONS ARE SHOWN THUS ✳ 127·46

⊠ TOP OF CAST IRON WELL BELOW PRESSURE GAUGE.(PRESSURE GAUGE MISSING)

——C—— —— SURROUNDING STEEL PLATE AT GROUND LEVEL

DATE OF SURVEY : 23-10-96

SURFACE ELEVATION PLAN

CULTUS PETROLEUM N.L.
LEVEL 4, 828 PACIFIC HIGHWAY
GORDON N.S.W. 2072

3.2 Drilling Summary

DATE	DEPTH	OPERATION
19-May-96	306	Mobilised OD & E Rig # 30 from Blackwood-1. Skull Creek-1 spudded at 02:00 hrs on 19th May 1996. Drilled 12.25" hole to 306m
20-May-96	335	Drilled 12¼" hole to 335mRT using Tricone Bit with active mud. Displaced active system with gel mud. Run wiper trip was run with minimal drag. $9^5/_8$" surface casing was run and landed at 332.5mRT. Casing was pressure tested to 2500 psi. Nipple up the BOP's.
21-May-96	481	Continue to nipple up the BOP's, pressure tested the kelly and surface equipment prior to drilling out. Drill out the float collar, cement, float shoe and 5m of new formation with 8½" Rock Bit. A formation integrity test was conducted with 9.2 ppg drilling fluid to 13.5 ppg equivalent. Drill 8.5" hole to 481m.
22-May-96	1158	Circulate and sweep with hi-visc pill. Drill 8.5" from 481 to 642m. Run survey, unable to pass 292m, pull survey. Drill to 651, 11 stand wiper trip, change out corrosion ring. Run survey @ 638m. Drill 8.5" to 954m, circ and survey @ 942m. Drill 8.5" from 954 to 1158m.
23-May-96	1338	Drilled ahead to 1214m (Waarre Fm) and circulated. Wiper trip to shoe. Drilled 8.5" from 1214 to 1338m.
24-May-96	1368	Drilled ahead to 1368m and circulated before running a wiper trip (18units of gas on wiper trip). Pumped pill, dropped survey (3° @ 1360mRT). Pulled out of hole to wireline log, Run 1: MLL-DLS-SP-CAL-SONIC-GR, Run 2: PDS-CNL-GR-CAL. Make up DST tools.
25-May-96	1368	Make up DST tools. RIH with DST#1. Inflate packers, interval 1199 to 1221m. Expected mechanical problem or plugged tool after weak flow. Unseat and reset packers @ 1200 to 1222m. Circ and work stauck pipe. Flow check and POOH with DST tools.
26-May-96	1373	Lay out test tools, make up bit, junk sub, b/sub and r/reamer. Work junk sub and drill 5m new hole to 1373m. POOH to m/u DST #2. Inflate packer and set, open & close tool, re-inflate, open & close tool, re-inflate, still communication past packer. Deflate, drop down 2.5m re-inflate.

DATE	DEPTH	OPERATION
27-May-96	1592	Build mud wt from 8.7 to 9.2 to bal well. POOH with test tools. M/u r/reamer, X/O, motor and bit #4. Pull up kelly and test motor. RIH, 2m fill. Drill 8.5" from 1373 to 1592m.
28-May-96	1700	Drill 8.5" from 1592 to 1700 (1701.4m RT Logger extrapolated). Circ b/u, wiper trip to 1180m. RIH to 1600, wash thru tight hole 1600 to 1604m. Circ hole clean, POOH, run survey (7.5° @ 1696m). Rig up BPB.Run #1: MLL-DLS-SP-CAL-SONIC-GR, Run #2: RFS-GR.
29-May-96	1700	Cont RFS, problem with tool. POH, RIH with new tool, not working, POH. Run #3: PDS-CNL-GR-CAL, Run #4: Dipmeter, Run #5: SRS Velocity survey. Make up BHA for wiper trip prior to DST.
30-May-96	1700	Condition hole. RIH with DST tools, packer depth 1402 - 1417m. Run DST #3. Rig down DST head & surface lines. POH to top packer. R/u DST head & surface lines 1240 to 1255m.
31-May-96	1700	Inflate packer, run DST #4. POH, rec sample
01-Jun-96	1700	Circ and condition mud. R/u BPB, m/u RFS. Problems with tool, POH. M/u BHA and RIH to 1600m. Circ and condition mud. POH to p/u DST tools.
02-Jun-96	1700	M/u DST tools for DST #5 & 6. Run DST's. POH with DST tools, rec sample.
03-Jun-96	1700	Condition hole, flow check, Max gas 100u. POH for DST #7 RIH , set packers @ 1234-1245m, perform DST #7. Unseat packers. Change surface lines circ conventionally.
04-Jun-96	1700	B/out & lay down DST tools. M/u bit, bit sub, 1 RR and RIH to shoe. Slip 33' drill line. RIH to 1582m, work tight spot @ 1515m. Circ and condition mud, flow check, POH. Rack 700m pipe in mast, lay out remainder. P/u kelly, flush rat hole and mouse hole. Break upper kelly joints. Remove kelly/hose, clear floor. Rig up and run 7" casing.

DATE	DEPTH	OPERATION
05-Jun-96	1700	Circ and work 7" casing @ 1622m. Test casing to 1600psi The well was cased and suspended and the rig released at 17:00 hrs 6th June 1996.
06-Jun-96	1700	Install and test packoff to 200psi. R/u BPB and run CBL. N/d BOP, install tubing hanger, blind flange and secure well head. RIG RELEASED @ 17:00.

3.3 Drilling Fluid Summary

12 1/4" Hole, Surface to 329mRT

A gel spud mud, prehydrated with caustic soda to peptise it, was used to drill out the Mouse and Rat holes prior to being used to drill out the conductor pipe and top hole, to the marl. Water with slight additives was used to pass the marl section and drill to 335m where the system was reverted back to the fresh water gel polymer mud which was circulated proir to pulling out to run casing.

Weight (ppg)	:	9.25
Viscosity (API)	:	36
Fluid Loss (BBLS)	:	136 Downhole

8½" Hole, 329 to 1700mRT

The 8 1/2" hole was started with the cement and shoe being drilled out with water. Treated water was used to drill out the rest of the marl until 367mRT when sand returns were observed. The gel polymer mud that was retained from the 12 1/4" section, with appropriate dilution, then displaced the water. The mud system was then diluted to counter weight and viscosity gains.. Flowzan was added as the main objective Waarre was drilled through. Bentonite was added to build wall cake. Drispac was used to raise the yeild point. The down hole loss was minimised once the API fluid loss was reduced.

To assist wireline logging KCl was added towards the base of the Waarre Formation. A wipr trip was initiated at 1212mRT using CaCO3 to slug the pipe. During this trip 56BBLS (12BBLS / hour) were lost down hole. Ammonium Nitrate was used as a tracer for the first DST.

There were signs of overpressured Eumeralla in the cuttings. The 8 1/2" bit was drilled to TD and two check trips were conducted prior to pumping a pill and pulling out to log. Attention was aimed at maintaining a low fluid loss during DST operations.

Weight (ppg)	:	9.2 to 9.5
Viscosity (API)	:	37 to 48
Fluid Loss (BBLS)	:	1034 Downhole

Drilling fluid reports are provided in Appendix 2.

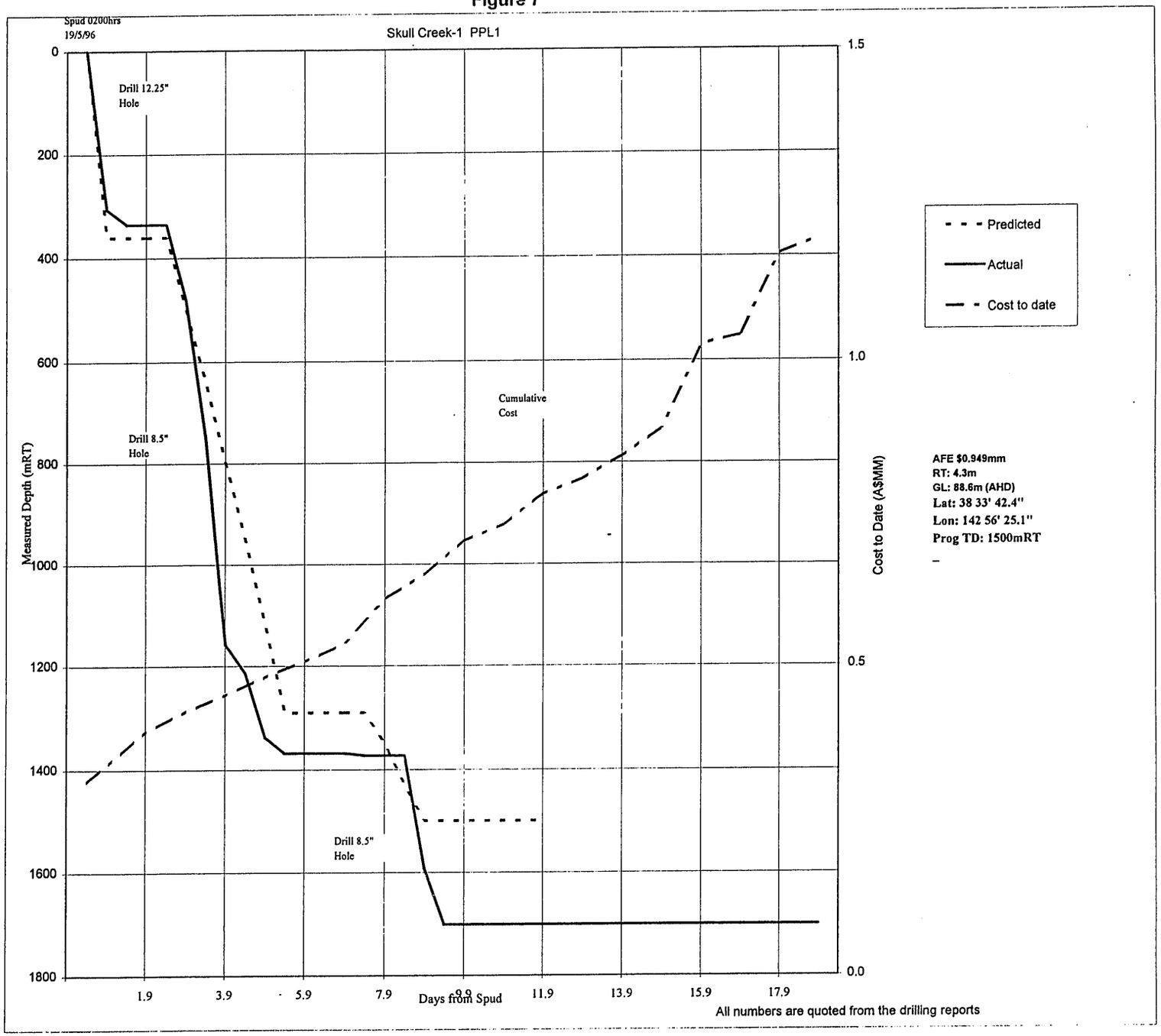
3.4 Casing and Cementing Details

Casing and cementing reports including FIT's are provided in Appendix 8.

3.5 Bit History

To be forwarded at a later date.

Figure 7



3.6 Time Analysis

Figure 7 : Skull Creek-1 Drilling Progress Chart

4.0 FORMATION SAMPLING AND TESTING

4.1 Cuttings

Cuttings samples were collected at ten metre intervals from spud to 9 5/8 casing point. At five metre intervals from 9 5/8 casing to 1300 metres. At three metre intervals from 1300 m to 1700 metres (T.D.) and subdivided into sets as follows;

- 1 set of washed and dried samples in sample bags from spud to 1700 metres (T.D).
- 1 set of washed and dried samples in Samplex trays spud to 1700 metres (T.D).

The set of washed and dried samples in sample bags were subsequently sent to the Department of Energy and Minerals (Petroleum Division) sample store. The remaining samples were retained by Cultus Petroleum N.L.

A summary of the lithological descriptions from daily reports issued during the drilling can be found in Appendix 4. Cuttings descriptions made by the wellsite geologist are provided in Appendix 5.

4.2 Cores

No conventional cores were cut in Skull Creek-1.

4.3 Sidewall Cores

No sidewall cores were cut in Skull Creek-1.

4.4 Drill Stem Testing

Seven Drill Stem Tests (DST's) was conducted in Skull Creek-1. A full report including all sample analysis is provided in Part 2, the DST and RFT interpretation and analysis.

1.	1199.0 - 1221.0mRT Waarre Unit C	Misrun
2.	1200.5 - 1210.5mRT Waarre Unit C	GTS @ 8.2 MMCFD

3.	1402.0 - 1417.0mRT	Eumeralla `1400 sand'	GTS @ 1.1 MMCFD with indeterminate amount of condensate.
4.	1240.0 - 1255.0mRT	Waarre Unit A	GTS @ 11.1 MMCFD
5.	1500.0 - 1520.0mRT	Eumeralla `1500 sand'	Strong air blow, misrun due to packer seat failure.
6.	1225.0 - 1245.0mRT	Waarre Unit B	Misrun
7.	1234.0 - 1245.0mRT	Waarre Unit B	GTS @ 6.2 MMCFD water to surface after 24 minutes, recovered 1/4BBL water (Formation Water Or Filtrate?)

4.5 Wireline Formation Testing

Repeat Formation Test (RFT) pressure readings were carried out in Skull Creek-1 and the results listed in Part 2, the DST and RFT interpretation and analysis.

Test No.	Depth KB	Depth SS	HydroStatic Pressure Initial	HydroStatic Pressure Final	Formation Pressure	Comments
1	1205.0	-1111.4	1984.8	1993.4	1613.4	Hydrostatic Varying
2	1211.3	-1117.7	1990.0	2000.0	1680.7	
3	1212.5	-1118.9	1993.7	2004.9	-	
4	1212.5	-1118.9	1992.0	2003.7	?	Very low perm/stopped
5	1212.2	-1118.6	1993.7	2003.7	-	
6	1212.3	-1118.7	1995.6	2004.5	1614.5	
7	1216.7	-1123.0	2000.0	2008.3	1623.2	
8	1237.5	-1143.8	2031.8		1644.9	Sample taken
9	1237.9	-1144.2	2023.3	2023.1		Pressure dropping
10	1271.5	-1177.7	2076.8	2076.2		Tight-Low perm.
11	1271.0	-1177.2	2076.0	2075.4		Tight
12	1267.4	-1173.6	2069.0	2068.4		Tight
13	1261.4	-1167.6	2059.4	2059.1		Tight

14	1237.5	-1143.8	2020.6	2019.8		Tight
15	1271.5	-1177.7	2078.8	2078.7	1717.5	Good test
16	1266.0	-1172.2	2069.9	2069.7		Tight/plugged
17	1261.4	-1167.6	2061.8	2061.3		Tight/plugged
18	1217.0	-1123.3	1991.5	1991.0		Tight/plugged
19	1217.5	-1123.8	1992.3	1992.1		Tight/plugged

Table 6 : RFT Results

4.6 Palynology

Eight cuttings samples were sent to Roger Morgan for analysis. Palynology results for Skull Creek-1 are provided in Appendix 5.

5.0 LOGGING AND SURVEYS

5.1 Mud Logging

A standard skid-mounted unit equipped for continuous recording of depth, rate of penetration (ROP), mud gas, pump rate and mud volume data, as well as intermittent mud and cuttings gas (blender) analysis was operative from spud until the well was plugged and abandoned. The ROP and gas data is included on the 1:500 scale Composite Log (Enclosure 1), the Formation Evaluation Log (i.e., "Mud Log") at 1:500 scale is provided in Enclosure 2a, and a Gas Ratio Analysis Log at 1:1000 scale is provided in Enclosure 2b.

5.2 Wireline Logging

Wireline logging was performed by BPB using a standard truck-mounted unit. Two logging suites were carried out. Intermediate logs were run at 1368 mRT. The second suite was run at 1700mRT (TD).

Suite 1

Run	Tool	Interval m RT	BHT (°C)	Hours Since Circ	Comments
1/1	MSFL-DLL-GR-CAL-DT	1064 - 1369.6	48	7	
2/1	PDS-CNL-CR-CAL	1064 - 1369.6			

Suite 2

Run	Tool	Interval m RT	BHT (°C)	Hours Since Circ	Comments
1/2	MSFL-DLL-GR-CAL-DT	1350 - 1701.4	55	8.5	
2/2	RFS-GR	1350 - 1701.4			
3/2	PDS-CNL-CR-CAL	1350 - 1701.4	63	24.5	
4/2	DIPMETER	1350 - 1701.4	63	28	
5/2	SRS (Velocity)	96.3 - 1694.5			35 shots, 22 levels
6/2	RFS-GR	1350 - 1701.4			Continued plugging, RFS logging eventually abandoned
7/2	CBL	800 - 1600			

Table 7 : Wireline Logging

Suite 1	Run 1 & 2	Suite 2	Runs 1 to 7
Fluid Type	FW Poly	Fluid Type	KCL
Density (ppg)	9.3	Density (ppg)	9.3
Viscosity (sec)	46	Viscosity (sec)	46
pH	9.5	pH	9.5
Fluid Loss (cc)	9.6	Fluid Loss (cc)	8.7
Rm @ Temp	0.896 @ 16.7 °C	Rm @ Temp	0.618 @ 20.7 °C
Rmf @ Temp	0.795 @ 15.0 °C	Rmf @ Temp	0.528 @ 17.6 °C
Rmc @ Temp	1.500 @ 18.9 °C	Rmc @ Temp	1.293 @ 22.4 °C

Table 8 : Mud Properties While Logging

5.3 Deviation Surveys

Totco deviation surveys were carried out periodically throughout the drilling of Skull Creek-1, with results as shown in Table 9. Using this data a maximum radius of deviation was calculated by summing the products of the component of horizontal shift [*interval length* × sin(*deviation angle*)] for each interval.

Depth (mRT)	*Deviation (degree)*
170	0.3
329	0.0
638	0.5
940	1.8
1199	4.0
1360	3.0
1695	7.5

Table 9 : TOTCO Deviation Surveys

5.4 Velocity Survey

A Velocity Survey (WST-Checkshot) was carried out by Velocity Data. 35 shots were processed and 22 levels recorded. The velocity survey report is provided in Appendix 7.

APPENDIX 1 - RIG SPECIFICATIONS

1 RIG AND CONTRACTOR'S EQUIPMENT

CONTRACTOR'S RIG	:	Rig 30 - rates to 3,350 m (11,000 ft) with 4½" drill pipe
DRAWWORKS	:	Dreco Model 700E, driven by EMD 79 electric motor maximum input: 1,000 HP
ENGINES	:	Four (4) Caterpillar Model 3412 PCTA diesel engines
SUBSTRUCTURE	:	One piece substructure 14' high x 13'6" wide and 50' long with 12' BOP clearance Setback area loading: 250,000 lbs Casing area loading: 275,000 lbs (loading concurrently)
MAST	:	Dreco Model #: M12713-510 Floor Mounted Cantilever Mast designed in accordance with API Specification 4E Drilling & Well Servicing Structures. Hook load Gross Nominal Capacity - 510,000 lbs with:- 10 lines strung - 365,000 lbs 8 lines strung - 340,000 lbs Clear working height of 127' Base width of 13'6 Adjustable racking board with capacity for:- (i) 120 stands of 4½' drill pipe, (ii) 10 stands of 6½" drill collars, (iii) 3 stands of 8" drill collars Designed to withstand an API windload of 84mph with pipe racked and 100 mph with no pipe racked
CATHEADS	:	One (1) Foster Model 37 make-up spinning cathead mounted on drillers side. One (1) Foster Model 24 break-out cathead mounted off drillers side
CROWN BLOCK	:	215 ton with five (5) 36" sheaves and one (1) 36" fastline sheave grooved 1⅛"
TRAVELLING BLOCK	:	One (1) 667 Crosby McKissick 250 ton combination block hook Web Wilson. 250 ton Hydra hook Unit 5 - 36" sheaves

SWIVEL	:	One (1) Oilwell PC-300 ton swivel
RIG LIGHTING	:	Explosion proof fluorescent. As per approved State Specifications
MUD PUMPS	:	Two (2) Gardner Denver mud pumps Model PZ-8 each driven by 800 HP EMD 79 motors - 8" stroke
MIXING PUMPS	:	Five (5) Mission Magnum 5" x 6" x 12" centrifugal pumps complete with 50 HP, 600 Volt, 60 HZ, 3 phase explosion proof electric motors
MUD AGITATORS	:	Six (6) Geolograph/Pioneer 40TD - 15" "Pitbull" mud agitators with 15HP, 600 Volt, 60HZ, 3 phase explosion proof electric motors
SHALE SHAKER	:	Two (2) Derrick high speed sandwich linear motion shale shakers, Model No K48-96-DF3
DEGASSER	:	One (1) Drilco See-Flo
DESILTER	:	One (1) Pioneer T12-4 'Siltmaster' desilter 12 x 4" cones
DESANDER	:	Harrisburg DSN-1000 unit with 2 x 10" cones
GENERATORS	:	Four (4) Brown Boveri 600 Volt, 3 phase, 60HZ AC generators. Powered by four (4) Cat 3412 PCTA diesel engines
DRILL PIPE SAFETY VALVE	:	One (1) Griffith 6½" inside blowout preventers (4" IF) One (1) Griffith 6½" stabbing valve (4" IF)
AIR COMPRESSORS & RECEIVERS	:	Two (2) LeRoi Dresser Model 660A air compressor packages c/w 10 HP motors rated at 600 Volts, 60 HZ, 3 phase Receivers each 120 gallon capacity and fitted with relief valves
AIR WINCH	:	One (1) Ingersol Rand HU-40 with ⅝" wireline. Capacity 2,000 lb
POWER TONGS	:	One (1) Farr 13⅝ - 5½" hydraulic casing tongs c/w hydraulic power pack and hoses and torque gauge assembly
ROTARY TABLE	:	One (1) Oilwell A 20½ rotary table torque tube driven from drawworks

MUD TANKS (SHAKER)	:	One (1) Shaker tank total 265 bbls with sand trap - 15 bbls with desander tank - 120 bbls
(INTERMEDIATE)	:	One (1) Intermediate tank total 240 bbls . with desilter tank - 120 bbls . with settling tank - 120 bbls
(SUCTION)	:	One (1) Suction tank total 241 bbls . with pill tank - 25 bbls . with suction tanks - 108 bbls each Total system: 746 bbls
TRIP TANK PUMP	:	One (1) Mission Magnum 2" x 3" centrifugal pump complete with 20 H, 600 Volts, 60 HZ, 3 phase explosion proof motors
CHOKE MANIFOLD	:	One (1) McEvoy choke and kill manifold 3" 5,000 psi with hydraulic Swaco "super" choke
DRILL PIPE	:	11,000' 4½" 16.60 lb/ft drill pipe, with 4 IF connections - 8,800' "E" Grade - 2,200' "G" Grade
PUP JOINTS	:	One (1) - 4½" OD Grade 'G', 5 foot long One (1) - 4½" OD Grade 'G', 10 foot long One (1) - 4½" OD Grade 'G', 15 foot long
HEVI-WATE DRILL PIPE	:	12 joints of 4½" hwdp
DRILL COLLARS	:	6 - 8" OD drill collars 24 - 6½" OD drill collars 1 - 6½" OD short drill collar
KELLY	:	One (1) 4¼" Square Kellys 40 foot long complete with Scabbard
KELLY DRIVE	:	One (1) 20 HDP Varco kelly drive bushing
KELLY COCK (UPPER)	:	One (1) Griffith Upper Kelly Cock 7¾" with 6⅝" API connections
KELLY COCK (LOWER)	:	One (1) Griffith Lower Kelly Cock 6½" OD with 4" IF connections
FISHING TOOLS	:	One (1) only 8⅛" Bowen series 150 FS overshot c/w grapples & Packoff to catch Contractors downhole equipment

One (1) only 8" OD fishing magnet 4½" reg pin
One (1) only 7⅞" OD Reverse circle junk basket 4" IF box
One (1) only Fishing Jars 6½" OD Griffith Fishing 4" IF pin & box
One (1) only 12" Junk Mill - 6⅝" reg pin
One (1) only 8" Junk Mill - 4½" reg pin

SUBSTITUTES :

Two (2) Bit Subs - 6⅝" reg double box
Two (2) Bit Sbs - 4½" reg x 4" IF double box
One (1) X/O Sub - 7⅝" reg x 6⅝" reg double box
One (1) X/O Sub - 4" IF box x 4½" IF pin
One (1) X/O Sub - 4½" reg x 4" IF double pin
Two (2) X/O Sub - 6⅝" reg pin x 4" IF box
One (1) Junk Sub - 6⅝" reg pin and 6⅝" reg box
One (1) Junk Sub - 4½" reg box x 4½" reg pin
One (1) Junk Sub - 4½" reg box x 4" IF box
Two (2) Kelly Saver Subs c/w rubber 4" IF pin & box
Two (2) Circulating Subs - 4" If x 2" Fig 1502 hammer union

HANDLING TOOLS :

1 only 13⅜" Baash Ross 150 ton side door elevator
1 only 13⅜" single joint elevators
1 only 9⅝" Webb Wilson 150 ton side door elevators
1 only 9⅝" single joint elevator
1 only 7" BJ 200 ton side door elevator
1 only 7" single joint elevator
2 only 4½" BJ 250 ton 18 degree taper D/P elevators
1 only 3½" BJ 100 ton tubing elevator
1 only 2⅞" IUS 100 ton tubing elevator

(all single joint elevators c/w slings & swivel)

1 only 8" Webb Wilson 150 ton single ton door elevator D/C
1 only 6½" Webb Wilson 150 ton single ton door elevator D/C

(above c/w lift nubbing and bails)

1 only 13⅜" Varco CMS-XL casing slips
1 only 9⅝" Varco CMS-XL casing slips
1 only 7" Varco CMS-XL casings slips
2 only 4½" Varco SDXL D/P slips
1 only 3½ Varco SDML tubing slips
1 only 3⅞" Varco SDML tubing slips
2 only 8" - 6½" DCS-R drill collar slips

ROTARY TONG :

One set BJ type 'B' c/w latch & lug jaws 13⅜"-3½"

BIT BREAKERS	:	Four (4) 17½", 12¼", 8½", 6"
FUEL TANK	:	1 only 30,000 litres
WATER TANK	:	1 only 400 bbls
DRILLING RATE RECORDER	:	1 only open 6 drill sentry recorder to record: . weight . penetration (feet) . pump pressure (0-6,000 psi) . electric rotary torque . rotary speed (rpm) . pump spm (with selector switch)
DEVIATION INSTRUMENT	:	1 set Totco 'Double Shot' deviation instrument 0°-8°
INSTRUMENTS & INDICATORS	:	1 only Martin Decker Auto Driller SA-102 satellite 1 only drillers console including the following equipment: . Martin Decker Weight Indicator type 'D' . Electric rotary torque gauge . Pit scan . SPM gauge (2 per console) . Rotary rpm gauge
MUD TESTING	:	1 set Baroid mud testing laboratory (standard kit)
RATHOLE DRILLER	:	One (1) fabricated rotary table chain driven
WATER PUMPS	:	Three (3) Mission Magnum 2" x 3" centrifugal pumps c/w 20 HP, 600 Volts, 69 HZ, 3 phase explosion proof motors
AUGER	:	One (1) 27½" auger 4" IF box
CUP TESTER	:	One (1) Grey Cup Tester c/w test cups for 9⅝" & 13⅜"
DRILLING LINE	:	5,000' 1⅛" - E.I.P.S.

TRANSPORT EQUIPMENT AND MOTOR VEHICLES

1	International 530 Forklift		
1	Mack Oilfield Truck		
2	Toyota 4 x 4 units	-	1 Tray Top Utility
		-	1 Crew Wagon

CAMP EQUIPMENT

4 8-Man Bunkhouses
1 Recreation/Canteen unit
1 Ablution/Laundry/Freezer unit
1 Kitchen/Cooler/Diner unit
2 Toolpushers/Engineer units with bathrooms
1 Combined Water/Fuel Tank unit
2 CAT 3304PC generator sets each 106Kva, 50 HZ

Note: Contractor reserves the right to replace any listed item with a replacement of equal or greater capacity.

EQUIPMENT DATA/SPECIFICATIONS

1 Maximum Pull

(i) **Drill Pipe**

	E Grade	G Grade
4½"	16.6 lbs/ft	16.6 lbs/ft
New	330,560 lbs	462,780 lbs
Used Premium	260,100 lbs	364,140 lbs

(ii) **Kelly - OMSCO**

4¼" Square 40 ft long w/- 6⅝" Reg L/H/ Box & 4" IF Pin

Tensile Yield	
1,488,500 Drive Section	1,924,300 Lower Pin Connection

(iii) **Swivel - OILWELL PC 300** w/- 6⅝" Reg LH Box

Deadload Capacity (AP Strength Rating): 300 tons
API Bearing Load @ 100 rpm: 192 tons

2 Maximum Hook Load

(i) **Drawworks - DRECO 700E** - 750 combined engine hp
Make: Dreco 700E
Model #: D-700-E
Serial #: -48-

	TOTAL LOAD PULL			
SPEED	8 LINES	BLOCK SPEED FT/MIN	10 LINES	BLOCK SPEED FT/MIN
Low	288,000	57	347,000	46
High	135,000	122	163,000	98

Wireline 1⅛" Extra Improved Plow Steel 130,00 lbs single line pull

(ii) Mast DRECO
Model #: M12713-510-1

(a)	**Rating:**	Gross Nominal Capacity	510,000 lbs
(b)	**Mast:**	(Static Load)	8 lines 340,000 lbs 10 lines 365,000 lbs

Max Wind Resistance: 84 mph actual velocity w/- 150,000 lb pipe set back
100 mph actual velocity w/- zero pipe set back & zero hook load

(iii) **Substructure - DRECO: One piece**

Dimensions:	Height:	14 ft
	Width:	13 ft 6 in
	Length:	50 ft
	BOP clearance:	12 ft

Capacity Set Back Area	250,000 lbs
Capacity Rotary Table Beams	275,000 lbs
Simultaneous Capacity	525,000 lbs

(iv) **Blocks - 667 CROSBY McKISSICK TRAVELLING BLOCK**
w/- 250 ton Hydra Hook - combination - total 500,000 lbs

(v) **Rotary Table - OILWELL A20½"**
complete with API Split Master Bushings and 1 & 2 inset bowls
Supportable deadload capacity 350 tons

3 Pumps No 1 & No 2

(i)	**Make:**	GARDNER DENVER (750 hp)
(ii)	**Model:**	PZ-8 : Max Liner Size: 7" x 8" stroke
(iii)	**Power Source:**	800 hp EMD & chain driven
(iv)	**Maximum Discharge Pressure**	

LINER	PSI
7"	1996
6½"	2315
6¼"	2504
6"	2717
5½"	3233
5"	3912

4 BOP Equipment

1 Hydril 13⅝" 3000 psi Spherical Annular BOP - studded top - flanged bottom
1 Hydril 13⅝" 500 psi Double Gate BOP - flanged top & bottom
1 McEvoy Choke Manifold w/- 1 Swaco hydraulic adjustable choke - 5000 psi

5 Generators

Four (4) Brown Boveri 600v, 3 phase, 60 HZ. AC generators and powered by four (4) Cat D3412 PCTA diesel engines.

Note: The above are all original equipment manufacturers specifications.

6 Derrick Shale Shakers

The Derrick - Sandwich Model K-48-96-DF-3-SM Shale Shaker is one of the most advanced designed vibrating Screen systems available to the Oil industry. This Derrick design is a result of 30 years experience in the mining and chemical industries.

The design incorporates the most efficient combination of many variables of pitch, frequency and layouts. The most significant development of these units is a non plugging sandwich type screen panel assembly which is patented to the Derrick Corporation. The assembly uses identical screen cloths bonded together with a backing panel in a sandwich arrangement. The wires of the intermediate cloth interfere with a particle that would plug the top cloth. With the use of a tension bolt compression tool screen panels can be changes in a matter of minutes.

The three section unit with a pitch increasing from 20 to 30 degrees produces excellent results. With a flatter pitch at the feed end of the unit, the maximum amount of fluid is achieved. As fluid is removed, it becomes necessary to increase pitch to convey the solids.

The general layout and installation of unit is similar to most shakers. As an additional feature a hydraulically operated by pass valve has been incorporated in place of mechanical slide gates which tend to jam and are prone to leak.

The vibrator and all electrical equipment on Shaker are division Class 1 Group D for hazardous locations. An electric lubricator on a timed cycles insures that the vibrator is properly lubricated.

These designs coupled with a constant program of research to improve or existing and develop new ideas make Derrick sandwich Shale Shakers one of the most advance unit available to the Drilling industry.

APPENDIX 2 - DRILLING FLUID REPORTS

CULTUS PETROLEUM N.L.

Independent Drilling Fluid Services Pty. Ltd.

Drilling Fluid Report

ACN 010 267 114

Report# 18 Date 5-Jun
Spud Date 19 May 1996
Depth 1,600 (M.) To

WELL NAME and No **Skull Creek # 1** | CONTRACTOR **O. D. & E.**
Block No PPL - 1 | Location Otway Basin | State Victoria | RIG No 30
OPERATOR'S REPRESENTATIVE Henry FLINK / Kevin KELLY | REPORT FOR Dav' BAKER

Drilling Assembly				Casing	Mud Volume Bbls	Circulation Data
Bit size 8 5	Type			16 inch @ 9 0 Metres	Hole 8 Pits	Pump size [2"] 6 0" * 8 0 ins.
DP " 4 5	Type E	Length		9 625 inch @ 332 5 Metres	Drill String Cap Total Volume	Make/Model 1 G D PZ - 8 % Effic 0 95
HWt " 4 5	Type 42	Length		7 0 inch @ 1614 Metres	In Storage 0 Weight ~	Make/Model 2: G D PZ - 8 % Effic 0 95
DC " 6 5	Length		Other	MUD TYPE F. W. Polymer	% O/G ~	Annular Velocity Bbl/stk 0 067 Stk/min ~ Bbl/M ~
DC " ~	Length ~				DP size 4 5	(Ft/M) ###### Bbl/stk 0 067 Stk/min ~ GPM : ~
					DC size 6 5	(Ft/M) ###### Bottoms up : ##### PRESSURE :
					DC size ~	~ (Ft/M) ~ Total Circ. : ##### Type surf/sys. 3

Mud Properties			
SAMPLE From		~	Pit
TIME Sample Taken		~	08.00
Flowline TEMPERATURE	deg. C	~	N.C.
DEPTH	Metres	~	1,700
WEIGHT	ppg.	~	9.50
Funnel VISCOSITY (sec/qt.) API @ 20	deg. C	~	47
PLASTIC VISCOSITY cP @ 30	deg. C	#####	12
YIELD POINT (lb/100ft2)		#####	11
GEL STRENGTH (lb/100ft2) 10 sec. / 10 min.		~ / ~	2 / 12
FILTP " API (cm3 / 30 min.) @		~	6.4
API F. Filtrate (cm3 / 30 min.) @ ~	deg. C	~	~
CAKE Thickness (32nd. in API / HTHP)		~ / ~	1 / ~
SOLIDS Content (% by Vol.) Calc. / Retort		##### / ~	8.6 / ~
LIQUID Content (% by Vol.) Oil/Water		~ / ####	~ / 91.4
SAND Content (% by Vol.)		~	Tr
METHYLENE BLUE CAPACITY x lb/bbl	cm3/cm3	~	15.0
pH Strip	12 deg. C	~	9.4
ALKALINITY Mud (Pm)		~	~
ALKALINITY Filtrate (Pf/Mf)		~	0.27/1.13
CHLORIDE (mg/L)		~	3,100
Total HARDNESS (mg/L)		~	560
[illegible]E (mg/L)		~	Tr
K[illegible] (mg/L)		~	~
KCL (% by Wt.)		~	~
PHPA (Calc. lb/bbl)		~	~
PHPA (Excess lb/bbl)		~	~
RHEOLOGY - 600 / 300 / 6 (readings)		~	35/23/3

MUD PROPERTY SPECIFICATIONS

Weight : Filtrate : Other :
Viscosity : Plastic Viscosity : Yield Point :
By Authority ~ Operator's written ~ Drilling Contractor
Operator's Representative Other

FLUID SUMMARY AND RECOMMENDATIONS

ON COMPLETING THE CEMENT OPERATION, THE SURFACE VOLUME WAS TREATED PRIOR TO DUMPING INTO THE SUMP
THE CHEMICALS WERE SELECTIVELY MIXED TO GAIN COMPATABILITY
ALUMINIUM SULPHATE WAS ADDED AT 2 94 KG / BBL.
LIME WAS ADDED AT 0 21 KG / BBL
DRILLPOL WAS ADDED AT 0 17 LT / BBL

OPERATIONS SUMMARY

CASING WAS RUN WITH NO PROBLEMS TO THE REVISED DEPTH.
THE VOLUME WAS CIRCULATED [1.2 TIMES] AND A SAPP / BIOCIDE (40 BBL) SWEEP WAS PUMPED
FROM THIS POINT THE CEMENT OPERATION FOLLOWED WITH NO PROBLEMS

MUD ACCOUNTING (BBLS.)

Fluid Built & Received		Fluid Lost or Disposed		Summary	
Premix		Desander	0	Initial Volume	722
w/ fresh water	0	Desilter	0		
" recycled "	0	Downhole	31	Fluid Received	0
Drill Water	0	Dumped	684		
Other	0	Other	7	Fluid Lost	722
				Final Total	
Total Received	0	Total Lost	722	(Circulating Vol.)	

SOLIDS CONTROL EQUIPMENT

Type	Man.	Hr.		Cones	Hr.	Shaker#	Screen Size	Hr.
Centrifuge	~	0	D'sand	2	0	1	S210/S175/S175	4.5
Degasser	Drilco	0	D'silter	12	0	2	S210/S175/S175	4.5

SOLIDS EQUIPMENT EFFICIENCY

	Overflow (ppg.)	Underflow (ppg.)	Output (gal/m)
Desander	~	~	0
Desilter	~	~	0

Product	Inventory	Rec'd.	Used	Balance	Unit $	Cost $
Barytes	365		5	360	6 20	31.00
Drillpol	6		4	2	75.75	303.00
Cronox 2-100	1		1		881 15	881.15
			0			
KCL	24		24		25 70	616.80
SAPP	9		9		67 95	611.55
Surflo B54X	1		1		207.75	207.75
			0			
Aluminium Sulphate	56		56		24.00	1,344.00
Lime	18		4	14	5 80	23.20

SOLIDS ANALYSIS (ppb / %)

High Gravity Solids	0 1	0 0	
Bentonite	9 5	1 0	
Drilled Solids	68 6	7 5	
Low Gravity Solids	78 1	8 6	
Average S. G.	2 60	Solids	
Med. "n" #1ck # 2 ck	####	0 605	
Med. "K" " "	####	2 696	
Low "n" " "	####	0 530	
Low "K" " "	####	4 30	

BIT / HYDRAULICS DATA

Jet Velocity	####	FT / SEC
Impact Force	####	LBS
HHP / in2	####	
HHP	####	
Bit Press. Loss	####	PSI
Csg. Seat Frac Pres	0	PSI
Equiv. Mud Wt.	0	PPG
E C D	####	PPG
Crit.Flo @ DC/DP - GPM	359	485

Daily Chemical Cost : $ 1,018 | Cumulative Cost : $ 37,431

ENGINEER EDD PERKINS | ADDRESS South Australia | TELEPHONE 08 - 338 3027

CULTUS PETROLEUM N.L.

Independent Drilling Fluid Services Pty. Ltd.

Drilling Fluid Report

Report#	17	Date	4-Jun
Spud Date	19 May 1996		
Depth	1,700	(M.)To	1,700

WELL NAME and No	Skull Creek # 1	CONTRACTOR	O. D. & E.
Block No	PPL - 1	Location	Otway Basin
State	Victoria	RIG No	30
OPERATOR'S REPRESENTATIVE	Henry FLINK / Kevin KELLY	REPORT FOR	Dav' BAKER

Drilling Assembly					Casing				Mud Volume Bbls				Circulation Data			
Bit size	8 5	Type	SSH	Jets 12/12/14	16	inch @	9 0	Metres	Hole	349	Pits	300	Pump size	[2"] 6 0" *	8 0	ins.
DP "	4 5	Type	E	Length 1402	9 625	inch @	332 5	Metres	Drill String Cap.	73	Total Volume	722	Make/Model 1:	G D	PZ - 8	% Effic 0 95
HWt "	4 5	Type	42	Length 138 8	~	inch @	~	Metres	In Storage :	0	Weight	~	Make/Model 2:	G D	PZ - 8	% Effic 0 95
DC "	6 5	Length	159 5	Other 12 75	MUD TYPE	F. W. Polymer			% O/G:	25 0	Annular Velocity	Bbl/stk 0 067	Stk/min	126	Bbl/M	8 38
DC "	~	Length	~						DP size	4 5	166 (Ft/M)	Lam	Bbl/stk 0 067	Stk/min	~	GPM : 352
									DC size	6 5	287 (Ft/M)	Turb	Bottoms up :	42	PRESSURE :	1,150
									DC size	~	~ (Ft/M)	~	Total Circ. :	86	Type surf/sys.	3

Mud Properties				
SAMPLE From		F/Line	Pit	
TIME Sample Taken		07.30	22.00	
Flowline TEMPERATURE	deg. C	26	N.C.	
DEPTH Metres		1,700	1,700	
WEIGHT ppg.		9.45	9.50	
Funnel VISCOSITY (sec/qt.) API @ 22	deg. C	42	40	
PLASTIC VISCOSITY cP @ 33	deg. C	11	10	
YIELD POINT (lb/100ft2)		8	8	
GEL STRENGTH (lb/100ft2) 10 sec. / 10 min.		2 | 11	2 | 8	
FILTRATE API (cm3 / 30 min.) @		5.7	5.5	
API . ? Filtrate (cm3 / 30 min.) @	~ deg. C	~	~	
CAKE Thickness (32nd. in API / HTHP)		1 | ~	1 | ~	
SOLIDS Content (% by Vol.) Calc. / Retort		8.2 | ~	8.6 | ~	
LIQUID Content (% by Vol.) Oil/Water		~ | 91.8	~ | 91.4	
SAND Content (% by Vol.)		Tr	Tr	
METHYLENE BLUE CAPACITY x lb/bbl	cm3/cm3	14.0	10.0	
pH Strip	15 deg. C	9.8	9.8	
ALKALINITY Mud (Pm)		~	~	
ALKALINITY Filtrate (Pf/Mf)		0.46/1.63	0.36/1.55	
CHLORIDE (mg/L)		3,200	3,000	
Total HARDNESS (mg/L)		600	480	
TE (mg/L)		20	Tr	
K+ (mg/L)		~	~	
KCL (% by Wt.)		~	~	
PHPA (Calc. lb/bbl)		~	~	
PHPA (Excess lb/bbl)		~	~	
RHEOLOGY - 600 / 300 / 6 (readings)		30/19/2	28/18/2	

MUD PROPERTY SPECIFICATIONS

Weight :	> 9 2	Filtrate :	< 6 0	Other :	Chlorides max @ < 10k
Viscosity :	N C	Plastic Viscosity :	< 18	Yield Point :	>7
By Authority :	~	Operator's written	~	Drilling Contractor	
	yes	Operator's Representative	yes	Other	

FLUID SUMMARY AND RECOMMENDATIONS

NO TREATMENT WAS REQUIRED IN THIS PERIOD

THE ID - GEL IS TO BE USED FOR THE CEMENT OPERATION AND HAS BEEN PREHYDRATED [BY HALIBURTON] FOR THIS

THROUGH THE JETTING OF THE CELLAR ON TWO OCCASIONS, WATER WAS PERMITTED INTO THE SURFACE SYSTEM. THIS DID NOT CAUSE ANY PROBLEMS TO THE MUD AT THIS TIME

OPERATIONS SUMMARY

THE SYSTEM WAS CIRCULATED CLEAR OF GAS WITH A BALANCED MUD WEIGHT, PRIOR TO PULLING OUT - USING A BARYTES PILL TO CLEAR THE PIPE AND COROSSION INHIBITOR TO TREAT THE WORK STRING

PICK UP AND RUN 7" CASING

MUD ACCOUNTING (BBLS.)

Fluid Built & Received		Fluid Lost or Disposed		Summary	
Prel.		Desander	6	Initial Volume	717
w/ fresh water	0	Desilter	0		
" recycled "	0	Downhole	19	Fluid Received	35
Drill Water	0	Dumped	0		
Other	35	Other	5	Fluid Lost	30
				Final Total	722
Total Received	35	Total Lost	30	(Circulating Vol.)	

SOLIDS CONTROL EQUIPMENT

Type	Man.	Hr.		Cones	Hr.	Shaker#	Screen Size	Hr.
Centrifuge	~	0	D'sand	2	2	1	S210/S175/S175	2
Degasser	Drilco	0	D'silter	12	0	2	S210/S175/S175	2

SOLIDS EQUIPMENT EFFICIENCY

	Overflow (ppg.)	Underflow (ppg.)	Output (gal/m)
Desander	9.5	12.6	2.3
Desilter	~	~	0

Product	Inventory	Rec'd.	Used	Balance	Unit $	Cost $
Barytes	400		35	365	6 20	217.00
Cronox 2-100	1		0	1	881 15	
Cronox C798M	4		4		132 00	528.00
KCL	24		0	24	25 70	
SAPP	9		0	9	67 95	
Surflo B54X	1		0	1	207 75	
[redacted]	225		20	205	8.13	162.60
			0			

SOLIDS ANALYSIS (ppb / %)

			BIT / HYDRAULICS DATA		
High Gravity Solids	0 1	0 0	Jet Velocity	304	FT / SEC
Bentonite	2 9	0 3	Impact Force	526	LBS
Drilled Solids	75 3	8 3	HHP / in2	2 8	
Low Gravity Solids	78 2	8 6	HHP	161	
Average S. G.	2 60	Solids	Bit Press. Loss	784	PSI
Med. "n" #1ck # 2 ck	0.659	0.637	Csg. Seat Frac Pres	320	PSI
Med. "K" " "	0.313	1.731	" Equiv. Mud Wt.	14 04	PPG
Low "n" " "	0.489	0.477	E C D	9 70	PPG
Low "K" " "	0.901	4 69	Crit.Flo @ DC/DP - GPM	318	443

Daily Chemical Cost :	Cumulative Cost :
$ 908	$ 33,413

ENGINEER EDD PERKINS ADDRESS South Australia TELEPHONE 08 - 338 3027

CULTUS PETROLEUM N.L.

Independent Drilling Fluid Services Pty. Ltd.

Drilling Fluid Report

A.C.N. 009 247 314

Report#	16	Date	3-Jun
Spud Date	19 May 1996		
Depth	1,700	(M.)To	1,700

WELL NAME and No: **Skull Creek # 1**

CONTRACTOR: **O. D. & E.**

Block No: PPL - 1 | Location: Otway Basin | State: Victoria

RIG No.: 30

OPERATOR'S REPRESENTATIVE: Henry FLINK / Kevin KELLY

REPORT FOR: Dav' BAKER

Drilling Assembly				Casing				Mud Volume Bbls				Circulation Data			
Bit size 8 5	Type SSH	Jets 12/12/14		16 inch @ 9 0	Metres	Hole 349	Pits 358	Pump size (2") 6 0" x 8 0	ins.		
DP " 4 5	Type E	Length 1402		9 625 inch @ 332 5	Metres	Drill String Cap. 73	Total Volume 717	Make/Model 1: G D PZ - 8	% Effic 0 95		
HWt " 4 5	Type 42	Length 138 8		~ inch @ ~	Metres	In Storage 0	Weight ~	Make/Model 2: G D PZ - 8	% Effic 0 95		
DC " 6 5	Length 159 5	Other 12 75		MUD TYPE: F. W. Polymer		% O/G: 25 0	Annular Velocity	Bbl/stk 0 067	Stk/min ~	Bbl/M 7 65	
DC " ~	Length ~					DP size 4 5	151 (Ft/M) Lam	Bbl/stk 0 067	Stk/min 115	GPM: 321	
						DC size 6 5	262 (Ft/M) Turb	Bottoms up: 46	PRESSURE: 1,150		
						DC size ~	~ (Ft/M) ~	Total Circ.: 94	Type surf/sys. 3		

Mud Properties	Pit	F/Line
SAMPLE From		
TIME Sample Taken	17.00	20.00
Flowline TEMPERATURE deg. C	N.C.	29
DEPTH Metres	1,700	1,700
WEIGHT ppg.	9.50	9.40
Funnel VISCOSITY (sec/qt.) API @ 14 deg. C	44	44
PLASTIC VISCOSITY cP @ 35 deg. C	8	11
YIELD POINT (lb/100ft2)	12	7
GEL STRENGTH (lb/100ft2) 10 sec. / 10 min.	2 | 8	2 | 11
FILTRATE API (cm3 / 30 min.) @	4.2	5.2
API HTHP Filtrate (cm3 / 30 min.) @ ~ deg. C	~	~
CAKE kness (32nd. in API / HTHP)	1 | ~	1 | ~
SOLIDS Content (% by Vol.) Calc. / Retort	8.6 | ~	7.8 | ~
LIQUID Content (% by Vol.) Oil/Water	~ | 91.4	~ | 92.2
SAND Content (% by Vol.)	Tr	Tr
METHYLENE BLUE CAPACITY x lb/bbl cm3/cm3	13.0	12.0
pH Strip 20 deg. C	10.0	9.6
ALKALINITY Mud (Pm)	~	~
ALKALINITY Filtrate (Pf/Mf)	0.55/1.62	0.38/1.47
CHLORIDE (mg/L)	3,500	3,300
Total HARDNESS (mg/L)	480	640
SULPHATE (mg/L)	40	20
K+ (mg/L)	~	~
KCL (% by Wt.)	~	~
PHPA (Calc. lb/bbl)	~	~
PHPA (Excess lb/bbl)	~	~
RHEOLOGY - 600 / 300 / 6 (readings)	28/20/1	29/18/1

MUD PROPERTY SPECIFICATIONS					
Weight:	> 9 2	Filtrate:	< 6 0	Other: Chlorides max. @	< 10k
Viscosity:	N C	Plastic Viscosity:	< 18	Yield Point:	>7
By Authority:	~ Operator's written		~ Drilling Contractor		
	yes Operator's Representative		yes Other		

FLUID SUMMARY AND RECOMMENDATIONS

CAUSTIC SODA ONLY WAS USED TO MAINTAIN THE DESIRED PROPERTIES BARYTES FOR WEIGHTED PILLS ONLY.

AT THIS POINT, DID NOT RENEW VOLUME AS THE AREA WILL BE NEEDED IN THE NEXT SECTION OF THE OPERATION

MINIMISED THE YIELD POINT TO MINIMISE THE SURGE PRESSURES

THE WATER SAMPLE GATHERED @ 15 00 HOURS SHOWED THE FOLLOWING RESISTIVITY - 0 629 @ 52 DEGREES - F ; pH - 7 2 ; T Hardness - < 50 ppm ; Clondes - 6,100 ppm ; SO3 - Nil. [i.e. TEST EXTRACTION]

OPERATIONS SUMMARY

MADE UP THE TEST STRING AND RAN IN FOR D.S.T. # 7. THIS WAS COMPLETED SUCCESSFULLY AND AFTER REVERSE CIRC - ULATING, THE SYSTEM WAS PUMPED AROUND [AND WHEN IN BALANCE] A PILL WAS PUMPED WITH THE TEST STRING BEING PULLED OUT OF THE HOLE

MUD ACCOUNTING (BBLS.)

Fluid Built & Received		Fluid Lost or Disposed		Summary	
Premix		Desander	0	Initial Volume	780
fresh water	25	Desilter	6		
" recycled "	0	Downhole	45	Fluid Received	25
Drill Water	0	Dumped	0		
Other	0	Other	37	Fluid Lost	88
				Final Total	717
Total Received	25	Total Lost	88	(Circulating Vol.)	

SOLIDS CONTROL EQUIPMENT

Type	Man.	Hr.		Cones	Hr.	Shaker#	Screen Size	Hr.
Centrifuge	~	0	D'sand	2	0	1	S210/S175/S175	3.5
Degasser	Dnlco	0	D'silter	12	1.5	2	S210/S175/S175	3.5

SOLIDS EQUIPMENT EFFICIENCY

	Overflow (ppg.)	Underflow (ppg.)	Output (gal/m)
Desander	~	~	0
Desilter	9.45	12.7	3.0

Product	Inventory	Rec'd.	Used	Balance	Unit $	Cost $
Barytes	460		60	400	6.20	372.00
Drispac - Low Vis	27		0	27	152.28	
Defoam L	6		0	6	84.05	
Caustic Soda	26		1	25	21.38	21.38
Drispac	19		0	19	152.28	
			0			
			0			
			0			

SOLIDS ANALYSIS (ppb / %)

High Gravity Solids	0.1	0 0	
Bentonite	6.4	0.7	
Drilled Solids	64.7	7 1	
Low Gravity Solids	71 2	7 8	
Average S. G.	2.60	Solids	
Med. "n" #1ck # 2 ck	0.485	0.688	
Med. "K" " "	0.971	1.263	
Low "n" " "	0.500	0.477	
Low "K" " "	0.885	4.69	

BIT / HYDRAULICS DATA

Jet Velocity	311	FT / SEC
Impact Force	486	LBS
HHP / in2	2.7	
HHP	152	
Bit Press. Loss	811	PSI
Csg. Seat Frac Pres	320	PSI
Equiv. Mud Wt.	14.04	PPG
Total nozzle area	0.331	SQ INCH

Daily Chemical Cost: $ 393

Cumulative Cost: $ 32,505

ENGINEER: EDD PERKINS ADDRESS: South Australia TELEPHONE: 08 - 338 3027

CULTUS PETROLEUM N.L.

Independent Drilling Fluid Services Pty. Ltd.

Drilling Fluid Report

Report# 15 | Date 2-Jun
Spud Date 19 May 1996
Depth 1,700 (M.) To 1,700

WELL NAME and No: **Skull Creek # 1**
CONTRACTOR: **O. D. & E.**
Block No: PPL - 1 | Location: Otway Basin | State: Victoria
RIG No: 30
OPERATOR'S REPRESENTATIVE: Henry FLINK / Kevin KELLY
REPORT FOR: Dave BAKER

Drilling Assembly				Casing				Mud Volume Bbls			
Bit size 8 5	Type SSH	Jets 12/12/14		16 inch @ 90 Metres		Hole 349	Pits 358		
DP " 4 5	Type E	Length 1402		9.625 inch @ 332 5 Metres		Drill String Cap 73	Total Volume 780		
HWt " 4 5	Type 42	Length 138 8		~ inch @ ~ Metres		In Storage 18	Weight 8 4		
DC " 6 5	Length 159 5	Other 12 75		MUD TYPE F. W. Polymer		% O/G 25 0	Annular Velocity	Bbl/stk 0 067	Stk/min 112	Bbl/M 7 45
DC " ~	Length ~					DP size 4 5	147 (Ft/M) Lam	Bbl/stk 0 067	Stk/min ~	GPM : 313
						DC size 6 5	255 (Ft/M) Turb	Bottoms up : 47	PRESSURE : 1,100
						DC size ~	~ (Ft/M) ~	Total Circ. : 105	Type surf/sys. 3

Mud Properties	Pit	F/L	F.Line
SAMPLE From			
TIME Sample Taken	9.30	16.30	3.30
Flowline TEMPERATURE deg. C	N.C.	25	29
DEPTH Metres	1,700	1,700	1,700
WEIGHT ppg.	9.45	9.50	9.45
Funnel VISCOSITY (sec/qt.) API @ 22 deg. C	46	42	48
PLASTIC VISCOSITY cP @ 35 deg. C	13	12	10
YIELD POINT (lb/100ft2)	8	7	8
GEL STRENGTH (lb/100ft2) 10 sec. / 10 min.	2 / 9		2 / 11
FILTRATE API (cm3 / 30 min.) @	4.5	5.4	4.8
API HTHP Filtrate (cm3 / 30 min.) @ ~ deg. C	~		~
CAKE Thickness (32nd. in API / HTHP)	1 / ~		1 / ~
SOLIDS Content (% by Vol.) Calc. / Retort	8.2 / ~		8.2 / ~
LIQUID Content (% by Vol.) Oil/Water	~	91.8	~ 91.8
SAND Content (% by Vol.)	Tr	Tr	Tr
METHYLENE BLUE CAPACITY x lb/bbl cm3/cm3	8.0	~	14.0
pH Strip 20 deg. C	10.0	10.0	9.8
ALKALINITY Mud (Pm)	~		~
ALKALINITY Filtrate (Pf/Mf)	0.58/1.64		0.52/1.78
CHLORIDE (mg/L)	3,800	3,600	3,300
Total HARDNESS (mg/L)	580	640	520
CALCIUM (mg/L)	60	60	40
K+ (mg/L)	~		~
KCL (% by Wt.)	~		~
PHPA (Calc. lb/bbl)	~		~
PHPA (Excess lb/bbl)	~		~
RHEOLOGY - 600 / 300 / 6 (readings)	34/21/1		28/18/1

MUD PROPERTY SPECIFICATIONS

Weight :	> 9 2	Filtrate :	< 6 0	Other :	Chlorides max @ < 10k
Viscosity :	N C	Plastic Viscosity :	< 18	Yield Point :	>7
By Authority	~ Operator's written		~ Drilling Contractor		
	yes Operator's Representative		yes Other		

FLUID SUMMARY AND RECOMMENDATIONS

AT THIS TIME, VOLUME LEVELS WERE KEPT AT SLIGHTLY HIGHER THAN DRILLING VOLUME. DUE TO THE NATURE OF THE OPERATIONS

A MAINTENANCE PREMIX WAS BUILT (PRIOR TO) AND ADDED ON CIRC - ULATING, AFTER WIPING THE HOLE

THE PRODUCT DRISPAC WAS BLENDED AT 0 2 PPB AND THE DRISPAC "SUPER LOW" WAS MIXED AT 0 19 PPB

WITH THE GAS INTERFERENCE, THE pH HAS BEEN KEPT AT A MIN - IMUM OF 9 5 TO STOP DETERIATION OF THE FLUID

DOWN-HOLE LOSSES WERE NOMINAL IN THIS PERIOD

OPERATIONS SUMMARY

WHEN THE D S T OPERATION WAS COMPLETED AND A CIRCUL - ATION WAS COMPLETED. THE TEST STRING WAS PULLED OUT AND THE WORKING STRING WAS RUN IN TO WIPE AND CIRCULATE BOTTOMS UP ON COMPLETING CIRCULATING, A SLUG WAS PUMPED TO POOH. GAS PEAK 105 UNITS @ BOTTOMS UP

MUD ACCOUNTING (BBLS.)

Fluid Built & Received		Fluid Lost or Disposed		Summary	
Premix		Desander	0	Initial Volume	815
w/ fresh water	0	Desilter	7		
" recycled "	0	Downhole	26	Fluid Received	0
Drill Water	0	Dumped	0		
Other	0	Other	2	Fluid Lost	35
				Final Total	780
Total Received	0	Total Lost	35	(Circulating Vol.)	

SOLIDS CONTROL EQUIPMENT

Type	Man.	Hr.		Cones	Hr.	Shaker#	Screen Size	Hr.
Centrifuge	~	0	D'sand	2	0	1	S210/S175/S175	2
Degasser	Drilco	0	D'silter	12	1.5	2	S210/S175/S175	2

SOLIDS EQUIPMENT EFFICIENCY

	Overflow (ppg.)	Underflow (ppg.)	Output (gal/m)
Desander	~	~	0
Desilter	9.5	13.2	3.4

Product	Inventory	Rec'd.	Used	Balance	Unit $	Cost $
Barytes	520		60	460	6 20	372.00
Drispac - Low Vis	30		3	27	152 28	456.84
Defoam L	6		0	6	84 05	
Caustic Soda	27		1	26	21 38	21.38
Drispac	22		3	19	152 28	456.84
			0			
			0			
			0			

SOLIDS ANALYSIS (ppb / %)

			BIT / HYDRAULICS DATA		
High Gravity Solids	0 1	0 0	Jet Velocity	270	FT / SEC
Bentonite	8 6	0 9	Impact Force	414	LBS
Drilled Solids	66 0	7 2	HHP / in2	2.0	
Low Gravity Solids	74 6	8 2	HHP	112	
Average S. G.	2 60	Solids	Bit Press. Loss	616	PSI
Med. "n" #1ck # 2 ck	0 695	0 637	Csg. Seat Frac Pres	320	PSI
Med. "K" " "	0 276	1.731	" Equiv. Mud Wt.	14.04	PPG
Low "n" " "	0 511	0.477	Total nozzle area	0.371	SQ INCH
Low "K" " "	0.870	4.69			

Daily Chemical Cost : $ 1,307
Cumulative Cost : $ 32,112

ENGINEER EDD PERKINS ADDRESS South Australia TELEPHONE 08 - 338 3027

CULTUS PETROLEUM N.L.

Independent Drilling Fluid Services Pty. Ltd.

Drilling Fluid Report

Report# 14 | Date 15 JUNE
Spud Date 19 May 1996
Depth 1,700 (M) To 1,700

WELL NAME and No	Skull Creek # 1	CONTRACTOR	O. D. & E.
Block No PPL - 1	Location Otway Basin	State Victoria	RIG No 30
OPERATOR'S REPRESENTATIVE	Henry FLINK / Kevin KELLY	REPORT FOR	Dav' BAKER

Drilling Assembly				Casing	Mud Volume Bbls			Circulation Data		
Bit size 8 5	Type SSH	Jets 12/12/14		16 inch @ 9 0 Metres	Hole 345	Pits 393		Pump size [2"] 6 0" * 8 0 ins.		
DP " 4 5	Type E	Length 1402		9 625 inch @ 332 5 Metres	Drill String Cap. 73	Total Volume 815		Make/Model 1 G D PZ - 8	% Effic	0 95
HWt " 4 5	Type 42	Length 138 8		~ inch @ ~ Metres	In Storage 0	Weight		Make/Model 2 G D PZ - 8	% Effic	0 95
DC " 6 5	Length 159 5	Other 12 75		MUD TYPE : F. W. Polymer	% O/G 25 0	Annular Velocity	Bbl/stk 0 067	Stk/min 126	Bbl/M	8 38
DC " ~	Length ~				DP size 4 5	166 (Ft/M) Lam	Bbl/stk 0 067	Stk/min ~	GPM	352
					DC size 6 5	287 (Ft/M) Turb	Bottoms up : 42	PRESSURE :		1,350
					DC size ~	~ (Ft/M) ~	Total Circ. : 97	Type surf/sys.		3

Mud Properties		
SAMPLE From	F.Line	F.Line
TIME Sample Taken	19.30	20.30
Flowline TEMPERATURE deg. C	26	28
DEPTH Metres	1,700	1,700
WEIGHT ppg.	9.40	9.40
Funnel VISCOSITY (sec/qt.) API @ 23 deg. C	44	47
PLASTIC VISCOSITY cP @ 35 deg. C	13	14
YIELD POINT (lb/100ft2)	9	11
GEL STRENGTH (lb/100ft2) 10 sec. / 10 min.	2 | 10	2 | 12
FILTRATE API (cm3 / 30 min.) @	7.1	5.0
API HTHP Filtrate (cm3 / 30 min.) @ ~ deg. C	~	~
CAKE (ness (32nd. in API / HTHP)	1 | ~	1 | ~
SOLIDS Content (% by Vol.) Calc. / Retort	7.8 | ~	7.8 | ~
LIQUID Content (% by Vol.) Oil/Water	~ | 92.2	~ | 92.2
SAND Content (% by Vol.)	Tr	Tr
METHYLENE BLUE CAPACITY x lb/bbl cm3/cm3	12.0	10.0
pH Strip 20 deg. C	9.6	9.8
ALKALINITY Mud (Pm)	~	~
ALKALINITY Filtrate (Pf/Mf)	0.42/1.38	0.5/1.53
CHLORIDE (mg/L)	4,200	3,600
Total HARDNESS (mg/L)	820	640
S[illegible]TE (mg/L)	80	80
K[illegible]/L)	~	~
KCL (% by Wt.)	~	~
PHPA (Calc. lb/bbl)	~	~
PHPA (Excess lb/bbl)	~	~
RHEOLOGY - 600 / 300 / 6 (readings)	35/22/2	39/25/2

MUD PROPERTY SPECIFICATIONS

Weight :	> 9 2	Filtrate :	< 6 0	Other :	Chlorides max @ < 10k
Viscosity :	N C	Plastic Viscosity :	< 18	Yield Point :	>7
By Authority :	~ Operator's written		~ Drilling Contractor		
	yes Operator's Representative		yes Other		

FLUID SUMMARY AND RECOMMENDATIONS

FOR MAINTENANCE, PREHYDRATED POYMERS WERE USED TO ENSURE THE DESIRED PARAMETERS WERE RETAINED

PAC WAS ADDED AT 0 13 PPB & Low Vis WAS ADDED AT 0 3 PPB., WITH THE PREMIX PIT BEING FLUSHED OUT WITH MUD AFTERWARDS

THE FIRST MUD CHECK WAS TAKEN OF THE MUD LEFT DOWN-HOLE DURING THE LAST LOGGING PERIOD

THE SECOND CHECK WAS TAKEN AFTER BOTTOMS - UP

OPERATIONS SUMMARY

LOGGING FOLLOWED AND WHEN FINISHED, A CHECK TRIP TO 1,600 METRES WAS CONDUCTED.

THE SYSTEM WAS CIRCULATED AND A SLUG PUMPED TO CLEAR THE PIPE. THEN THE WORKING STRING WAS CHANGED FOR THE TEST STRING AND D S T 's FOLLOWED

MUD ACCOUNTING (BBLS.)

Fluid Built & Received		Fluid Lost or Disposed		Summary	
Premix		Desander	7	Initial Volume	847
[illegible]esh water	0	Desilter	0		
" recycled "	0	Downhole	22	Fluid Received	0
Drill Water	0	Dumped	0		
Other	0	Other	3	Fluid Lost	32
				Final Total	815
Total Received	0	Total Lost	32	(Circulating Vol.)	

SOLIDS CONTROL EQUIPMENT

Type	Man.	Hr.		Cones	Hr.	Shaker#	Screen Size	Hr.
Centrifuge	~	0	D'sand	2	2.5	1	S210/S175/S175	2.5
Degasser	Drilco	0	D'silter	12	0	2	S210/S175/S175	2.5

SOLIDS EQUIPMENT EFFICIENCY

	Overflow (ppg.)	Underflow (ppg.)	Output (gal/m)
Desander	9.5	12.4	2.0
Desilter	~	~	0

Product	Inventory	Rec'd.	Used	Balance	Unit $	Cost $
Barytes	550		30	520	6.20	186.00
Drispac - Low Vis	35		5	30	152 28	761.40
Defoam L	6		0	6	84 05	
Caustic Soda	27		0	27	21 38	
Drispac	24		2	22	152 28	304.56
			0			
			0			
			0			

SOLIDS ANALYSIS (ppb / %)

High Gravity Solids	0 1	0 0	Jet Velocity	304 FT / SEC
Bentonite	3 8	0 4	Impact Force	521 LBS
Drilled Solids	67 2	7 4	HHP / in2	2.8
Low Gravity Solids	71 0	7 8	HHP	159
Average S. G.	2 60	Solids	Bit Press. Loss	775 PSI
Med. "n" #1ck # 2 ck	0 669	0 641	Csg. Seat Frac Pres	320 PSI
Med. "K" " "	0 338	2 344	" Equiv. Mud Wt.	14 04 PPG
Low "n" " "	0 521	0.548	Total nozzle area	0.371 SQ INCH
Low "K" " "	0.855	4.18		

BIT / HYDRAULICS DATA

Daily Chemical Cost : $ 1,252

Cumulative Cost : $ 30,805

ENGINEER EDD PERKINS ADDRESS South Australia TELEPHONE 08 - 338 3027

CULTUS PETROLEUM N.L.

Independent Drilling Fluid Services Pty. Ltd.

Drilling Fluid Report

A.C.N. 010 282 114

Report# 13 | Date 31-May
Spud Date 19 May 1996
Depth 1,700 (M.)To 1,700

WELL NAME and No: **Skull Creek # 1**
CONTRACTOR: **O. D. & E.**
Block No: PPL - 1 | Location: Otway Basin | State: Victoria
RIG No: 30
TOR'S REPRESENTATIVE: Henry FLINK / Kevin KELLY
REPORT FOR: Dav' BAKER

Drilling Assembly				Casing	Mud Volume Bbls			Circulation Data			
Bit size 8 5	Type SSH	Jets : 12/12/14		16 inch @ 90 Metres	Hole 349	Pits 425		Pump size [2"] 6·0" * 80 ins.			
DP " 4 5	Type E	Length 1402		9 625 inch @ 332 5 Metres	Drill String Cap. 73	Total Volume 847		Make/Model 1: G D PZ - 8	% Effic	0 95	
HWt " 4 5	Type 42	Length 138 8		~ inch @ ~ Metres	In Storage 0	Weight		Make/Model 2: G D PZ - 8	% Effic	0 95	
DC " 6 5	Length 159 5	Other 12 75	MUD TYPE	F. W. Polymer	% O/G 25 0	Annular Velocity	Bbl/stk 0 067	Stk/min 126	Bbl/M	8 38	
DC " ~	Length ~				DP size 4 5	166 (Ft/M) Lam	Bbl/stk 0 067	Stk/min ~	GPM :	352	
					DC size 6 5	287 (Ft/M) Turb	Bottoms up : 42	PRESSURE :	1,300		
					DC size ~	~ (Ft/M) ~	Total Circ. : 101	Type surf/sys.	3		

Mud Properties	F.Line	F.Line
SAMPLE From		
TIME Sample Taken	14.00	24.30
Flowline TEMPERATURE deg. C	29	29
DEPTH Metres	1,700	1,700
WEIGHT ppg.	9.30	9.30
Funnel VISCOSITY (sec/qt.) API @ 26 deg. C	41	38
PLASTIC VISCOSITY cP @ 30 deg. C	11	11
YIELD POINT (lb/100ft2)	9	11
GEL STRENGTH (lb/100ft2) 10 sec. / 10 min.	2 | 11	2 | 8
FILTRATE API (cm3 / 30 min.) @	7.3	5.7
API ? Filtrate (cm3 / 30 min.) @ ~ deg. C	~	~
CAKE thickness (32nd. in API / HTHP)	1 | ~	1 | ~
SOLIDS Content (% by Vol.) Calc. / Retort	7.3 | ~	7.0 | ~
LIQUID Content (% by Vol.) Oil/Water	~ | 92.7	~ | 93.0
SAND Content (% by Vol.)	Tr	Tr
METHYLENE BLUE CAPACITY x lb/bbl cm3/cm3	13.0	11.0
pH Strip 18 deg. C	9.8	10.0
ALKALINITY Mud (Pm)	~	~
ALKALINITY Filtrate (Pf/Mf)	0.58/1.66	0.65/1.63
CHLORIDE (mg/L)	3,800	4,000
Total HARDNESS (mg/L)	420	540
[illegible]TE (mg/L)	60	80
[illegible] (mg/L)	1,200	1,000
KCL (% by Wt.)	0.24	0.21
PHPA (Calc. lb/bbl)	~	~
PHPA (Excess lb/bbl)	~	~
RHEOLOGY - 600 / 300 / 6 (readings)	31/20/2	33/22/2

MUD PROPERTY SPECIFICATIONS

Weight : > 9 1 Filtrate : < 10 0 Other : Chlorides max. @ < 10k
Viscosity : N C Plastic Viscosity : < 18 Yield Point : >10

By Authority : ~ Operator's written ~ Drilling Contractor
yes Operator's Representative ~ Other

FLUID SUMMARY AND RECOMMENDATIONS

ON COMPLETION OF DST # 4 THE SYSTEM WAS CIRCULATED TO WORK THE GAS OUT OF THE MUD DUE TO THE LOW YIELD POINT, THIS WAS READILY ACHIEVED WITH THE ASSISTANCE OF DEFOAMER TO CUT THE ENTRAINMENT WITH THE DEGASSER (DRILCO) OPERATING. NO SOLIDS CONTROL EQUIPMENT WAS RUNNING [BAR THE SHAKERS] TO ENSURE THAT NO AIRATION OF THE FLUID WAS TAKING PLACE ALTHOUGH THIS MAY HAVE CAUSED SOME SOLIDS TO BE ABSORBED. WITH THE BARYTES SLUGS ON TRIPS RAISING THE WEIGHT, THE PRIORITY WAS TO STOP AIRATION AND ENSURE A SAFE BALANCED SYSTEM

WITH A BALANCED & LOW "BACK-GROUND", A SLUG WAS USED TO POH AS PER INSTRUCTIONS [29 MAY] NO FURTHER SODIUM SULPHITE HAS BEEN ADDED TO THE SYSTEM

OPERATIONS SUMMARY

Continued From Above

WITH THE T/TOOLS LAID OUT, A BIT WAS RUN TO 1,600 METRES AND BOTTOMS - UP CIRCULATED DURING THIS TIME. A VOLUME / MAIN - TENANCE MIX WAS BLED INTO THE SYSTEM, TO BRING THE PROPERTIES INTO LINE PRIOR TO PUMPING A BARYTES SLUG AND PULLING OUT. THE MUD WEIGHT IS CLIMBING (DUE TO ALL THE TRIP - SLUGS).

MUD ACCOUNTING (BBLS.)

Fluid Built & Received		Fluid Lost or Disposed		Summary	
Pre[illegible]		Desander	1	Initial Volume	824
w/ fresh water	83	Desilter	0		
" recycled "	0	Downhole	36	Fluid Received	83
Drill Water	0	Dumped	0		
Other	0	Other	23	Fluid Lost	60
				Final Total	847
Total Received	83	Total Lost	60	(Circulating Vol.)	

SOLIDS CONTROL EQUIPMENT

Type	Man.	Hr.		Cones	Hr.	Shaker#	Screen Size	Hr.
Centrifuge	~	0	D'sand	2	0.5	1	S210/S175/S175	8.5
Degasser	Drilco	7	D'silter	12	0	2	S210/S175/S175	8.5

SOLIDS EQUIPMENT EFFICIENCY

	Overflow (ppg.)	Underflow (ppg.)	Output (gal/m)
Desander	9.4	12.6	1.7
Desilter	~	~	0

Product	Inventory	Rec'd.	Used	Balance	Unit $	Cost $
Barytes	580		30	550	6 20	186.00
Drispac - Low Vis		40	5	35	152 28	761.40
CMC - LV	2		2		71 70	143.40
Caustic Soda	29		2	27	21 38	42.76
Drispac	29		5	24	152 28	761.40
Polyphin	2		2		74 35	148.70
D[illegible]n L	10		4	6	84 05	336.20
			0			

SOLIDS ANALYSIS (ppb / %)			BIT / HYDRAULICS DATA		
High Gravity Solids	0 1	0 0	Jet Velocity	304	FT / SEC
Bentonite	6 1	0 7	Impact Force	515	LBS
Drilled Solids	57 9	6 4	HHP / in2	2.8	
Low Gravity Solids	63 9	7 0	HHP	157	
Average S. G.	2.60	Solids	Bit Press. Loss	767	PSI
Med. "n" #1ck # 2 ck	0 632	0 585	Csg. Seat Frac Pres	320	PSI
Med. "K" - -	0 389	2 935	" Equiv. Mud Wt.	14.04	PPG
Low "n" - -	0.500	0.521	Total nozzle area	0.371	SQ INCH
Low "K" - -	0 885	4 37			

Daily Chemical Cost : $ 2,380
Cumulative Cost : $ 29,553

ENGINEER EDD PERKINS ADDRESS South Australia TELEPHONE 08 - 338 3027

CULTUS PETROLEUM N.L.

Independent Drilling Fluid Services Pty. Ltd.

Drilling Fluid Report

Report#	12	Date	30-May
Spud Date	19 May 1996		
Depth	1,700	(M.)To	1,700

WELL NAME and No	Skull Creek # 1	CONTRACTOR	O. D. & E.
Block No	PPL - 1	Location	Otway Basin
State	Victoria	RIG No	30
OPERATOR'S REPRESENTATIVE	Henry FLINK / Kevin KELLY	REPORT FOR	Paul COOPER

Drilling Assembly				Casing			Mud Volume Bbls				Circulation Data			
Bit size 8 5	Type SSH	Jets 12/12/14		16 inch @ 90 Metres			Hole 350	Pits 401			Pump size [2"] 6 0" * 8 0 ins.			
DP " 4 5	Type E	Length 1403		9 625 inch @ 332 5 Metres			Drill String Cap 73	Total Volume 824			Make/Model 1 G D PZ - 8		% Effic	0 95
HWt " 4 5	Type 42	Length 138 8		~ inch @ ~ Metres			In Storage 0	Weight			Make/Model 2 G D PZ - 8		% Effic	0 95
DC " 6 5	Length 158 5	Other 14 54		MUD TYPE F. W. Polymer			% O/G 25 0	Annular Velocity			Bbl/stk 0 067	Stk/min 125	Bbl/M	8 31
DC " ~	Length ~						DP size 4 5	164 (Ft/M)	Lam		Bbl/stk 0 067	Stk/min ~	GPM :	349
							DC size 6 5	285 (Ft/M)	Turb		Bottoms up : 42		PRESSURE :	1,300
							DC size ~	~ (Ft/M)	~		Total Circ. : 99		Type surf/sys.	3

Mud Properties	Pit	Pit
SAMPLE From		
TIME Sample Taken	16.00	16.00
Flowline TEMPERATURE deg. C	N.C.	N.C.
DEPTH Metres	1,700	1,700
WEIGHT ppg.	9.30	9.30
Funnel VISCOSITY (sec/qt.) API @ 17 deg. C	48	48
PLASTIC VISCOSITY cP @ 35 deg. C	12	12
YIELD POINT (lb/100ft2)	11	11
GEL STRENGTH (lb/100ft2) 10 sec. / 10 min.	2 | 13	2 | 13
FLTR API (cm3 / 30 min.) @	4.7	4.7
API HTHP Filtrate (cm3 / 30 min.) @ ~ deg. C	~	~
CAKE Thickness (32nd. in API / HTHP)	1 | ~	1 | ~
SOLIDS Content (% by Vol.) Calc. / Retort	7.3 | ~	7.0 | ~
LIQUID Content (% by Vol.) Oil/Water	~ | 92.7	~ | 93.0
SAND Content (% by Vol.)	Tr	Tr
METHYLENE BLUE CAPACITY x lb/bbl cm3/cm3	12.0	12.0
PH Strip 14 deg. C	9.5	9.5
ALKALINITY Mud (Pm)	~	~
ALKALINITY Filtrate (Pf/Mf)	0.43/1.32	0.43/1.32
CHLORIDE (mg/L)	4,100	4,100
Total HARDNESS (mg/L)	620	620
[redacted] E (mg/L)	80	80
[redacted]/L)	1,500	1,500
MBT (% by Wt.)	0.3	0.3
PHPA (Calc. lb/bbl)	~	~
PHPA (Excess lb/bbl)	~	~
RHEOLOGY - 600 / 300 / 6 (readings)	35/23/2	35/23/2

MUD PROPERTY SPECIFICATIONS

Weight :	> 9 1	Filtrate :	< 10 0	Other :	Chlorides max @ < 10k
Viscosity :	N C	Plastic Viscosity :	< 18	Yield Point :	>10
By Authority	~ Operator's written		~ Drilling Contractor		
	yes Operator's Representative		~ Other		

FLUID SUMMARY AND RECOMMENDATIONS

VOLUME LOSSES WERE BROKEN DOWN THUS
SOLIDS DUMPED FROM THE SAND TRAP (20 BBLS).
SOLIDS CONTROL EQUIPMENT AND SURFACE LOSSES
ESTIMATED DOWN - HOLE LOSSES
THE CHEMICALS CONSUMED IN THE MUD. WERE ADDED AFTER MIDNIGHT DURING THE CIRCULATING TO CONDITION THE MUD

THE DST OPERATION WAS TAKING PLACE. DURING THE REST OF THIS REPORT PERIOD

OPERATIONS SUMMARY

ON COMPLETING THE CONDITIONING OF THE MUD SYSTEM (IN TWO CIRCULATIONS) A BARYTES SLUG WAS PUMPED TO CLEAR THE PIPE AND THE BIT WAS PULLED OUT OF THE HOLE

DST # 3 FOLLOWED

MUD ACCOUNTING (BBLS.)

Built & Received		Fluid Lost or Disposed		Summary	
Premix		Desander	10	Initial Volume	685
w/ fresh water	183	Desilter	0		
" recycled "	0	Downhole	47	Fluid Received	234
Drill Water	51	Dumped	20		
Other	0	Other	18	Fluid Lost	95
				Final Total	824
Total Received	234	Total Lost	95	(Circulating Vol.)	

SOLIDS CONTROL EQUIPMENT

Type	Man.	Hr.		Cones	Hr.	Shaker#	Screen Size	Hr.
Centrifuge	~	0	D'sand	2	3	1	S210/S175/S175	3
Degasser	Drilco	0	D'silter	12	0	2	S210/S175/S175	3

SOLIDS EQUIPMENT EFFICIENCY

	Overflow (ppg.)	Underflow (ppg.)	Output (gal/m)
Desander	9.3	11.8	2.3
Desilter	~	~	0

Product	Inventory	Rec'd.	Used	Balance	Unit $	Cost $
Barytes	617		37	580	6 20	229.40
			0			
PAC - LV	7		5	2	71 70	358.50
Caustic Soda	30		1	29	21 38	21.38
Soda Ash	32		3	29	152 28	456.84
Xanthin	14		12	2	74 35	892.20
[redacted] 54X)	3		2	1	207 75	415.50
			0			

SOLIDS ANALYSIS	(ppb / %)		BIT / HYDRAULICS DATA		
High Gravity Solids	0 1	0 0	Jet Velocity	302	FT / SEC
Bentonite	7.4	0.8	Impact Force	507	LBS
Drilled Solids	56 5	6 2	HHP / in2	2 7	
Low Gravity Solids	63.9	7 0	HHP	154	
Average S. G.	2.60	Solids	Bit Press. Loss	755	PSI
Med. "n" #1ck # 2 ck	0 605	0 605	Csg. Seat Frac Pres	320	PSI
Med. "K" " "	0 528	2.696	" Equiv. Mud Wt.	14.04	PPG
Low "n" " "	0 530	0 530	Total nozzle area	0.371	SQ INCH
Low "K" " "	0.842	4 30			

Daily Chemical Cost : $ 2,374

Cumulative Cost : $ 27,173

ENGINEER EDD PERKINS ADDRESS South Australia TELEPHONE 08 - 338 3027

CULTUS PETROLEUM N.L.

Independent Drilling Fluid Services Pty Ltd.

Drilling Fluid Report

Report#	11	Date	29-May
Spud Date	19 May 1996		
Depth	1,700	(M)To	1,700

WELL NAME and No: **Skull Creek # 1** | CONTRACTOR: **O. D. & E.**

Block No: PPL - 1 | Location: Otway Basin | State: Victoria | RIG No: 30

TOR'S REPRESENTATIVE: Henry FLINK / Kevin KELLY | REPORT FOR: Paul COOPER

Drilling Assembly				Casing				Mud Volume Bbls				Circulation Data			
Bit size 8 5	Type SSH	Jets 12/12/14		16 inch @ 9 0 Metres		Hole 350	Pits 262	Pump size [2"] 6 0" * 8 0 ins.	
DP " 4 5	Type E	Length 1403	9 625 inch @ 332 5 Metres			Drill String Cap. 73	Total Volume 685	Make/Model 1: G D PZ - 8	% Effic 0 95
HWt " 4 5	Type 42	Length 138 8	~ inch @ ~ Metres			In Storage 168	Weight 8 4	Make/Model 2: G D PZ - 8	% Effic 0 95
DC " 6 5	Length 158 5	Other 14 54	MUD TYPE: F. W. Polymer			% O/G 25 0	Annular Velocity	Bbl/stk 0 067	Stk/min 125	Bbl/M 8 31
DC " ~	Length ~					DP size 4 5	164 (Ft/M) Lam	Bbl/stk 0 067	Stk/min ~	GPM: 349
						DC size 6 5	285 (Ft/M) Turb	Bottoms up: 42	PRESSURE: 1,300
						DC size ~	~ (Ft/M) ~	Total Circ.: 82	Type surf/sys. 3

Mud Properties	Pit	F.Line
SAMPLE From		
TIME Sample Taken	12.00	5.00
Flowline TEMPERATURE deg. C	N.C.	28
DEPTH Metres	1,700	1,700
WEIGHT ppg.	9.35	9.30
Funnel VISCOSITY (sec/qt.) API @ 14 deg. C	44	47
PLASTIC VISCOSITY cP @ 35 deg. C	14	12
YIELD POINT (lb/100ft2)	16	10
GEL STRENGTH (lb/100ft2) 10 sec. / 10 min.	4 | 17	2 | 16
FILTRATE API (cm3 / 30 min.) @	6.8	5.8
API Filtrate (cm3 / 30 min.) @ ~ deg. C	~	~
CAKE Thickness (32nd. in API / HTHP)	2 | ~	1 | ~
SOLIDS Content (% by Vol.) Calc. / Retort	7.7 | ~	7.0 | ~
LIQUID Content (% by Vol.) Oil/Water	~ | 92.3	~ | 93.0
SAND Content (% by Vol.)	Tr	Tr
METHYLENE BLUE CAPACITY x (lb/bbl cm3/cm3	12.0	14.0
pH Strip 12 deg. C	9.5	9.7
ALKALINITY Mud (Pm)	~	~
ALKALINITY Filtrate (Pf/Mf)	0.4/1.23	0.54/1.38
CHLORIDE (mg/L)	4,400	3,900
Total HARDNESS (mg/L)	920	480
[illegible]TE (mg/L)	150	100
[illegible] (mg/L)	2,000	1,400
KCL (% by Wt.)	0.42	0.28
PHPA (Calc. lb/bbl)	~	~
PHPA (Excess lb/bbl)	~	~
RHEOLOGY - 600 / 300 / 6 (readings)	44/30/5	34/22/2

MUD PROPERTY SPECIFICATIONS

Weight: > 9 1 | Filtrate: < 10 0 | Other: Chlorides max @ < 10k

Viscosity: N C | Plastic Viscosity: < 18 | Yield Point: >10

By Authority: ~ Operator's written ~ Drilling Contractor

yes Operator's Representative ~ Other

FLUID SUMMARY AND RECOMMENDATIONS

AFTER CONSULTATION WITH CULTUS, THE CONSENSIS WAS TO LOWER THE FLUID LOSS AND ALIGN PROPERTIES

THE INITIAL SUGGESTION OF 3 PPB OF CMC - Low Vis WAS MORE EXPENSIVE THAN TO ADD CMC @ 1 47 PPB , DRISPAC @ 0 47 PPB & DRILLTHIN @ 0 25 LT/BBL , FOR A SIMILAR EFFECT. SO THIS WAS IMPLEMENTED

THE PARAMETERS WERE TO LOWER THE FLUID-LOSS, YIELD POINT, GEL STRENGTHS AND CONTAIN THE WEIGHT

WATER WAS ADDED TO THE FLUID THAT WAS CIRCULATED UP, AS IT WAS DEHYDRATED - BIOCIDE (@ 0 04 LT/BBL) ALSO WAS ADDED AS THERE WAS BACTERIAL DEGRADATION TAKING PLACE

THE WATER ADDITION WAS @ 0 05 LT/BBL

OPERATIONS SUMMARY

ON COMPLETING THE LOGGING, A BIT WAS RUN TO BOTTOM WITH NO TIGHT "SPOTS" BEING OBSERVED

A HIGH VISCOSITY SWEEP WAS INCORPORATED INTO THE BEGINNING OF THE CIRCULATION, FOR CHECKING PURPOSES - MINIMAL CAVINGS.

THE SYSTEM WAS CIRCULATED AND CONDITIONED WITH VOLUME BEING BUILT IN PREPARATION OF SEVERAL D S T 'S AND A CASING RUN.

MUD ACCOUNTING (BBLS.)

Fluid Built & Received		Fluid Lost or Disposed		Summary	
Pre		Desander	0	Initial Volume	757
w/ fresh water	0	Desilter	0		
" recycled "	0	Downhole	43	Fluid Received	0
Drill Water	0	Dumped	0		
Other	0	Other	29	Fluid Lost	72
				Final Total	685
Total Received	0	Total Lost	72	(Circulating Vol.)	

SOLIDS CONTROL EQUIPMENT

Type	Man.	Hr.		Cones	Hr.	Shaker#	Screen Size	Hr.
Centrifuge	~	0	D'sand	2	0	1	S175/S175/S110	0
Degasser	Drilco	0	D'silter	12	0	2	S175/S175/S110	0

SOLIDS EQUIPMENT EFFICIENCY

	Overflow (ppg.)	Underflow (ppg.)	Output (gal/m)
Desander	~	~	0
Desilter	~	~	0

Product	Inventory	Rec'd.	Used	Balance	Unit $	Cost $
Barytes	617	0	617	6 20		
		0				
CMC - LV	27	20	7	71 70	1,434.00	
Caustic Soda	31	1	30	21 38	21.38	
Drispac	40	8	32	152 28	1,218.24	
Enerseal	41	0	41	63 60		
		0				
		0				

SOLIDS ANALYSIS (ppb / %)

			BIT / HYDRAULICS DATA		
High Gravity Solids	0 1	0 0	Jet Velocity	302	FT / SEC
Bentonite	10 0	1 1	Impact Force	507	LBS
Drilled Solids	54 0	5 9	HHP / in2	2.7	
Low Gravity Solids	64 0	7 0	HHP	154	
Average S. G.	2 60	Solids	Bit Press. Loss	755	PSI
Med. "n" #1ck # 2 ck	0 552	0 628	Csg. Seat Frac Pres	320	PSI
Med. "K" " "	0 958	2 244	" Equiv. Mud Wt.	14 04	PPG
Low "n" " "	0 438	0 521	Total nozzle area	0 371	SQ INCH
Low "K" " "	1 959	4 37			

Daily Chemical Cost: $ 2,674 | Cumulative Cost: $ 24,799

ENGINEER EDD PERKINS | ADDRESS South Australia | TELEPHONE 08 - 338 3027

CULTUS PETROLEUM N.L.

Independent Drilling Fluid Services Pty. Ltd.

Drilling Fluid Report

Report#	10	Date	28-May
Spud Date	19 May 1996		
Depth	1,592	(M.)To	1,700

WELL NAME and No	Skull Creek # 1	CONTRACTOR	O. D. & E.
Block No PPL - 1	Location Otway Basin	State Victoria	RIG No. 30
OPERATOR'S REPRESENTATIVE	Henry FLINK / Kevin KELLY	REPORT FOR	Paul COOPER

Drilling Assembly					Casing				Mud Volume Bbls				Circulation Data			
Bit size	8 5	Type	MF15	Jets 12/12/14	16	inch @	90	Metres	Hole	345	Pits	340	Pump size	[2"]	6 0"	* 8 0 ins.
DP "	4 5	Type	E	Length 1388	9 625	inch @	332 5	Metres	Drill String Cap	73	Total Volume	757	Make/Model 1	G D	PZ - 8	% Effic 0 95
HWt "	4 5	Type	42 #	Length 1105	~	inch @	~	Metres	In Storage	0	Weight		Make/Model 2:	G D	PZ - 8	% Effic 0 95
DC "	6 5	Length	2014	Other 1553	MUD TYPE	F. W. Polymer			% O/G:	25 0	Annular Velocity		Bbl/stk 0 067	Stk/min	145	Bbl/M 9 64
DC "	~	Length	~						DP size	4 5	191 (Ft/M)	Lam	Bbl/stk 0 067	Stk/min	~	GPM : 405
									DC size	6 5	331 (Ft/M)	Turb	Bottoms up :	36	PRESSURE :	1,780
									DC size	~	~ (Ft/M)	~	Total Circ. :	78	Type surf/sys.	3

Mud Properties					
SAMPLE From			F.Line		Pit
TIME Sample Taken			11.30		21.00
Flowline TEMPERATURE		deg. C	35		N.C.
DEPTH	Metres		1,700		1,700
WEIGHT	ppg.		9.30		9.30
Funnel VISCOSITY (sec/qt.) API @	33	deg. C	45		47
PLASTIC VISCOSITY cP @	28	deg. C	10		11
YIELD POINT (lb/100ft2)			16		18
GEL STRENGTH (lb/100ft2) 10 sec. / 10 min.			8 | 24		8 | 23
FILTRATE API (cm3 / 30 min.) @			8.7		8.2
API ? Filtrate (cm3 / 30 min.) @	~	deg. C	~		~
CAKE Thickness (32nd. in API / HTHP)			2 | ~		2 | ~
SOLIDS Content (% by Vol.)	Calc. /	Retort	7.3 | ~		7.0 | ~
LIQUID Content (% by Vol.)	Oil/Water		~ | 92.7		~ | 93.0
SAND Content (% by Vol.)			Tr		Tr
METHYLENE BLUE CAPACITY	x lb/bbl	cm3/cm3	15.0		16.0
pH	Strip	17 deg. C	9.6		9.5
ALKALINITY Mud (Pm)			~		~
ALKALINITY Filtrate (Pf/Mf)			0.35/1.28		0.33/1.4
CHLORIDE (mg/L)			4,300		4,300
Total HARDNESS (mg/L)			680		560
CALCIUM (mg/L)			150		170
[illegible] g/L)			2,100		2,200
KCL (% by Wt.)			0.43		0.45
PHPA (Calc. lb/bbl)			~		~
PHPA (Excess lb/bbl)			~		~
RHEOLOGY - 600 / 300 / 6 (readings)			36/26/9		40/29/9

MUD PROPERTY SPECIFICATIONS

Weight :	> 9 1	Filtrate :	< 10 0	Other :	Chlorides max. @ < 10k
Viscosity :	N C	Plastic Viscosity :	< 18	Yield Point :	15 - 20

By Authority : ~ Operator's written ~ Drilling Contractor
yes Operator's Representative ~ Other

FLUID SUMMARY AND RECOMMENDATIONS

THERE WERE SIGNS OF OVER-PRESSURED EUMERALLA FORMATION IN THE CUTTINGS, AT THE END OF EACH CIRCULATION, AT T D., PRIOR TO LOGGING

CONTINUED EFFORTS TO LOWER THE TOTAL HARDNESS WERE HAMPERED BY THE FORMATION CUTTINGS (INTRODUCING MORE OF THE SAME). COMPLEX CARBONATES WERE ALSO BUILT FROM THE RE-USE OF THE SUMP FLUID, THOUGH ON THE POSITIVE SIDE, THE SUMP IS [ONLY] A THIRD FULL

ALUM AND CMC - Low Vis CONTINUED TO BE USED TO CONTAIN THE GELS, WITH THE LATTER AIDING IN FLUID LOSS CONTROL.

***THE Ammonium Nitrate WAS USED FOR THE FIRST D S T AS A TRACER.

OPERATIONS SUMMARY

THE 8 5" BIT WAS DRILLED TO T D AND TWO CHECK TRIPS WERE CONDUCTED, PRIOR TO PUMPING A PILL AND PULLING OUT TO LOG.

AT THE TIME OF THE REPORT, THE LOGGING OPERATION WAS ON - GOING

MUD ACCOUNTING (BBLS.)

Fluid Built & Received		Fluid Lost or Disposed		Summary	
Prev		Desander	34	Initial Volume	753
w/ fresh water	0	Desilter	0		
" recycled "	120	Downhole	58	Fluid Received	120
Drill Water	0	Dumped	0		
Other	0	Other	24	Fluid Lost	116
				Final Total	757
Total Received	120	Total Lost	116	(Circulating Vol.)	

SOLIDS CONTROL EQUIPMENT

Type	Man.	Hr.		Cones	Hr.	Shaker#	Screen Size	Hr.
Centrifuge	~	0	D'sand	2	9.5	1	S175/S175/S110	7.5
Degasser	Drilco	0	D'silter	12	0	2	S175/S175/S110	7.5

SOLIDS EQUIPMENT EFFICIENCY

	Overflow (ppg.)	Underflow (ppg.)	Output (gal/m)
Desander	9.3	11.7	2.5
Desilter	~	~	0

Product	Inventory	Rec'd.	Used	Balance	Unit $	Cost $
Barytes	657		40	617	6.20	248.00
Sodium Sulphate	24		2	22	23.56	47.12
			0			
CMC - LV	33		6	27	71.70	430.20
Caustic Soda	38		7	31	21.38	149.66
Alum. Sulphate	64		8	56	24.00	192.00
Enerseal	42		1	41	63.60	63.60
D[illegible]	47		7	40	152.28	1,065.96
*[illegible]monium Nitrate	1		1		66.20	66.20

SOLIDS ANALYSIS	(ppb / %)		BIT / HYDRAULICS DATA		
High Gravity Solids	0.1	0 0	Jet Velocity	350	FT / SEC
Bentonite	12 7	1 4	Impact Force	682	LBS
Drilled Solids	51 1	5 6	HHP / in2	4.2	
Low Gravity Solids	63 8	7 0	HHP	240	
Average S. G.	2.60	Solids	Bit Press. Loss	1016	PSI
Med. "n" #1ck # 2 ck	0 469	0.464	Csg. Seat Frac Pres	320	PSI
Med. "K" " "	1 394	8 224	" Equiv. Mud Wt.	14.04	PPG
Low "n" " "	0 256	0 280	Total nozzle area	0 371	SQ INCH
Low "K" " "	5.270	25.91			

Daily Chemical Cost : $ 2,263 Cumulative Cost : $ 22,126

ENGINEER EDD PERKINS ADDRESS South Australia TELEPHONE 08 - 338 3027

CULTUS PETROLEUM N.L.

Independent Drilling Fluid Services Pty. Ltd.

Drilling Fluid Report

Report# 9 | Date 27-May
Spud Date 19 May 1996
Depth 1,373 (M.)To 1,592

WELL NAME and No: **Skull Creek # 1**
CONTRACTOR: **O. D. & E.**
Block No: PPL - 1 | Location: Otway Basin | State: Victoria
RIG No: 30
TOR'S REPRESENTATIVE: Henry FLINK / Kevin KELLY
REPORT FOR: Paul COOPER

Drilling Assembly				Casing				Mud Volume Bbls			
Bit size 8 5	Type MF15	Jets 12/12/14		16 inch @ 9 0	Metres	Hole	322	Pits	363
DP " 4 5	Type E	Length 1280		9 625 inch @ 332 5	Metres	Drill String Cap	68	Total Volume	753
HWt " 4 5	Type 42 #	Length 110 5		~ inch @ ~	Metres	In Storage	63	Weight	8 6
DC " 6 5	Length 201 4	Other	15 53	MUD TYPE: F. W. Polymer		% O/G	25 0	Annular Velocity	Bbl/stk 0 067 Stk/min 143 Bbl/M 9 51
DC " ~	Length ~					DP size 4 5	188 (Ft/M) Lam		Bbl/stk 0 067 Stk/min ~ GPM : 399
						DC size 6 5	326 (Ft/M) Turb		Bottoms up : 34 PRESSURE : 1,500
						DC size ~	~ (Ft/M) ~		Total Circ. : 79 Type surf/sys. 3

Circulation Data: Pump size (2") 5 0" * 8 0 ins.; Make/Model 1: G D PZ - 8 % Effic 0 95; Make/Model 2: G D PZ - 8 % Effic 0 95

Mud Properties	Pit	F.Line
SAMPLE From		
TIME Sample Taken	14.00	24:30
Flowline TEMPERATURE deg. C	N.C.	35
DEPTH Metres	1,373	1,615
WEIGHT ppg.	9.20	9.20
Funnel VISCOSITY (sec/qt.) API @ 27 deg. C	42	44
PLASTIC VISCOSITY cP @ 25 deg. C	10	11
YIELD POINT (lb/100ft2)	14	16
GEL STRENGTH (lb/100ft2) 10 sec. / 10 min.	4 | 21	3 | 25
FILTRATE API (cm3 / 30 min.) @	9.2	9.1
API HT Filtrate (cm3 / 30 min.) @ ~ deg. C	~ ~	~
CAKE Thickness (32nd. in API / HTHP)	2 | ~	2 | ~
SOLIDS Content (% by Vol.) Calc. / Retort	6.5 | ~	6.3 | ~
LIQUID Content (% by Vol.) Oil/Water	~ | 93.5	~ | 93.7
SAND Content (% by Vol.)	Tr	Tr
METHYLENE BLUE CAPACITY x lb/bbl cm3/cm3	18.0	13.0
pH Strip 19 deg. C	9.0	9.0
ALKALINITY Mud (Pm)	~ ~	~
ALKALINITY Filtrate (Pf/Mf)	0.2/1.23	0.23/1.27
CHLORIDE (mg/L)	4,400	4,100
Total HARDNESS (mg/L)	960	1220
SULPHATE (mg/L)	160	160
POTASSIUM (mg/L)	2,300	2,300
KCL (% by Wt.)	0.48	0.47
PHPA (Calc. lb/bbl)	~	~
PHPA (Excess lb/bbl)	~ ~	~
RHEOLOGY - 600 / 300 / 6 (readings)	34/24/5	38/27/5

MUD PROPERTY SPECIFICATIONS

Weight : > 9 1 Filtrate : < 10 0 Other : Chlorides max @ < 10k
Viscosity : N C Plastic Viscosity : < 18 Yield Point : 15 - 20
By Authority : ~ Operator's written ~ Drilling Contractor
yes Operator's Representative ~ Other

FLUID SUMMARY AND RECOMMENDATIONS

IN REFERENCE TO "OTHER LOSSES" - 43 BBLS [G/C] TO FLARE PIT
GAS CUT MUD REQUIRED THAT THE MUD WEIGHT BE INCREASED TO STABLIZE THE SYSTEM BARYTES WAS USED TO RAISE THE WEIGHT TO 9 2 PPG [BOTH IN & OUT] PRIOR TO PULLING OUT OF THE HOLE A BARYTES PILL WAS USED TO CLEAR THE PIPE.
THE EFFECTS OF THE "PIPE-FREE" WAS STILL INFLUENCING THE FLUID LOSS AND MORE POLYMER WAS BEING CONSUMED IN THIS PERIOD TO COUNTER IT
THE CLAY CONTENT WAS HIGHER, AFTER THE TEST
CMC - Low Vis AND ALUM WAS INCORPORATED TO RESTRAIN THE RISING GEL STRENGTHS
DUE TO THE HARDNESS OF THE FLUID AND THE CARBONATES INDUCED FROM THE TEST, THERE WAS A HIGHER CONSUMPTION OF

OPERATIONS SUMMARY

Continued from above
CAUSTIC SODA
THE INITIAL TREATMENT, AFTER RUNNING BACK IN THE HOLE WITH THE BIT, WAS AIMED AT ENSURING THAT THE GAS WAS WORKED OUT OF THE MUD [SO THE YIELD WAS KEPT AT THE LOW END OF THE SPEC'S]
THIS WAS CHANGED AS THE PENETRATION RATE INCREASED

MUD ACCOUNTING (BBLS.)

Fluid Built & Received		Fluid Lost or Disposed		Summary	
Premix		Desander	66	Initial Volume	636
w/ fresh water	75	Desilter	0		
" recycled "	251	Downhole	85	Fluid Received	326
Drill Water	0	Dumped	0		
Other	0	Other	58	Fluid Lost	209
				Final Total	753
Total Received	326	Total Lost	209	(Circulating Vol.)	

SOLIDS CONTROL EQUIPMENT

Type	Man.	Hr.		Cones	Hr.	Shaker#	Screen Size	Hr.
Centrifuge	~	0	D'sand	2	15	1	S175/S175/S110	15
Degasser	Drilco	0	D'silter	12	0	2	S175/S175/S110	15

SOLIDS EQUIPMENT EFFICIENCY

	Overflow (ppg.)	Underflow (ppg.)	Output (gal/m)
Desander	9.2	12.6	3.1
Desilter	~	~	0

Product	Inventory	Rec'd.	Used	Balance	Unit $	Cost $
Barytes	784		127	657	6 20	787.40
Sodium Sulphate	28		4	24	23 56	94.24
			0			
CMC - LV	42		9	33	71 70	645.30
Caustic Soda	44		6	38	21 38	128.28
Alum Sulphate	76		12	64	24 00	288.00
Poly -Thin	14		0	14	74 35	
Drill	55		8	47	152 28	1,218.24
			0			

SOLIDS ANALYSIS (ppb / %)			BIT / HYDRAULICS DATA		
High Gravity Solids	0 1	0 0	Jet Velocity	345	FT / SEC
Bentonite	9 6	1 1	Impact Force	656	LBS
Drilled Solids	47 4	5 2	HHP / in2	4.0	
Low Gravity Solids	57 0	6 3	HHP	228	
Average S. G.	2 60	Solids	Bit Press. Loss	977	PSI
Med. "n" #1ck # 2 ck	0 502	0 493	Csg. Seat Frac Pres	320	PSI
Med. "K" " "	1 047	6 387	" Equiv. Mud Wt.	14 04	PPG
Low "n" " "	0 389	0 477	Total nozzle area	0.371	SQ.INCH
Low "K" " "	2 120	7 04			

Daily Chemical Cost : $ 3,161
Cumulative Cost : $ 19,863

ENGINEER EDD PERKINS ADDRESS South Australia TELEPHONE 08 - 338 3027

CULTUS PETROLEUM N.L.

Independent Drilling Fluid Services Pty. Ltd.

Drilling Fluid Report

Report#	8	Date	26-May
Spud Date	19 May 1996		
Depth	1,368	(M.)To	1,373

WELL NAME and No	Skull Creek # 1	CONTRACTOR	O. D. & E.
Block No PPL - 1	Location Otway Basin	State Victoria	RIG No 30
OPERATOR'S REPRESENTATIVE	Henry FLINK / Kevin KELLY	REPORT FOR	Paul COOPER

Drilling Assembly					Casing				Mud Volume Bbls			
Bit size	8 5	Type	SSH	Jets 12/13/14	16	inch @	9 0	Metres	Hole	277	Pits	302
DP "	4 5	Type	E	Length 1061	9 625	inch @	332 5	Metres	Drill String Cap	57	Total Volume	636
HWt "	4 5	Type	42 #	Length 110 5	~	inch @	~	Metres	In Storage	48	Weight	8 6
DC "	6 5	Length	201 4	Other 15 53	MUD TYPE	F. W. Polymer			% O/G	25 0	Annular Velocity	
DC "	~	Length	~						DP size	4 5	164 (Ft/M)	Lam
									DC size	6 5	285 (Ft/M)	Turb
									DC size	~	~ (Ft/M)	~

Circulation Data					
Pump size	[2"] 6 0" * 8 0 ins.				
Make/Model 1	G D PZ - 8	% Effic	0 95		
Make/Model 2	G D PZ - 8	% Effic	0 95		
Bbl/stk 0 067	Stk/min 125	Bbl/M	8 31		
Bbl/stk 0 067	Stk/min ~	GPM	349		
Bottoms up	33	PRESSURE	1,150		
Total Circ.	76	Type surf/sys.	3		

Mud Properties		
SAMPLE From	Pit	Pit
TIME Sample Taken	6.30	23.30
Flowline TEMPERATURE deg. C	N.C.	N.C.
DEPTH Metres	1,373	1,373
WEIGHT ppg.	9.20	9.15
Funnel VISCOSITY (sec/qt.) API @ 29 deg. C	44	42
PLASTIC VISCOSITY cP @ 25 deg. C	9	8
YIELD POINT (lb/100ft2)	18	15
GEL STRENGTH (lb/100ft2) 10 sec. / 10 min.	9 | 28	6 | 21
FILTRATE API (cm3 / 30 min.) @	9.7	8.8
API HTHP Filtrate (cm3 / 30 min.) @ ~ deg. C	~ ~	~
CAKE Thickness (32nd. in API / HTHP)	2 | ~	2 | ~
SOLIL ntent (% by Vol.) Calc. / Retort	6.5 | ~	5.9 | ~
LIQUID Content (% by Vol.) Oil/Water	~ | 93.5	~ | 94.1
SAND Content (% by Vol.)	Tr	Tr
METHYLENE BLUE CAPACITY x lb/bbl cm3/cm3	17.0	13.0
pH Strip 17 deg. C	9.0	9.5
ALKALINITY Mud (Pm)	~ ~	~
ALKALINITY Filtrate (Pf/Mf)	0.15/0.93	0.28/1.22
CHLORIDE (mg/L)	4,300	4,100
Total HARDNESS (mg/L)	840	720
ITE (mg/L)	120	160
g/L)	2,800	2,600
KCL (% by Wt.)	0.58	0.54
PHPA (Calc. lb/bbl)	~	~
PHPA (Excess lb/bbl)	~ ~	~
RHEOLOGY - 600 / 300 / 6 (readings)	36/27/9	31/23/8

MUD PROPERTY SPECIFICATIONS

Weight : > 9 0 Filtrate : < 10 0 Other : Chlorides max. @ < 10k

Viscosity : N C Plastic Viscosity : < 18 Yield Point : 15 - 20

By Authority : yes Operator's written ~ Drilling Contractor

yes Operator's Representative ~ Other

FLUID SUMMARY AND RECOMMENDATIONS

CMC - Low Vis USAGE WAS UP DUE TO THE EFFECTS OF THE PIPE - FREE [AS NEEDED DURING THE PREVIOUS REPORT PERIOD]. ANOTHER VOLUME PREMIX WAS BUILT AND PLACED ON STANDBY, IN PREPARATION FOR D S T # 3 [THIS WAS PUT TO GOOD USE DURING THE END OF THE TEST OPERATION]. MORE VOLUME WAS PREPARED FOR THE NEXT PHASE OF THIS HOLE

**** THE BIOCIDE (B54X) WAS USED DURING THE PREVIOUS REPORT PERIOD THE BARYTES WAS USED FOR A TRIP SLUG. ENERSEAL WAS USED FOR THE MOPPING UP OF SPILLAGE ETC.

OPERATIONS SUMMARY

THE CLEAN OUT AND DRILLING OF 5 METRES WAS COMPLETED AND A BARYTES SLUG USED TO CLEAR THE PIPE. ON PULLING OUT ON FINISHING THE D S T VOLUME WAS LOST [DURING DISPLACING]. A SLUG WAS BUILT (TO BE USED, TO PULL OUT WITH) REVERSE PROCEDURES WERE IN PLACE, AT REPORT TIME.

MUD ACCOUNTING (BBLS.)

Fluid Built & Received		Fluid Lost or Disposed		Summary	
Premix		Desander	7	Initial Volume	655
fresh water	45	Desilter	5		
recycled "	66	Downhole	95	Fluid Received	111
Drill Water	0	Dumped	0		
Other	0	Other	23	Fluid Lost	130
				Final Total	636
Total Received	111	Total Lost	130	(Circulating Vol.)	

SOLIDS CONTROL EQUIPMENT

Type	Man.	Hr.		Cones	Hr.	Shaker#	Screen Size	Hr.
Centrifuge	~	0	D'sand	2	3	1	S175/S175/S110	7
Degasser	Drilco	0	D'silter	12	3	2	S175/S175/S110	7

SOLIDS EQUIPMENT EFFICIENCY

	Overflow (ppg.)	Underflow (ppg.)	Output (gal/m)
Desander	9.2	10.3	1.6
Desilter	9.2	12.7	1.3

Product	Inventory	Rec'd.	Used	Balance	Unit $	Cost $
Barytes	824		40	784	6.20	248.00
Sodium Sulphate	34		6	28	23.56	141.36
Enerseal	94		15	79	63.60	954.00
CMC - LV	52		10	42	71.70	717.00
Caustic Soda	45		1	44	21.38	21.38
Alum. Sulphate	78		2	76	24.00	48.00
Poly -Thin	14		0	14	74.35	
cide (B54X)	5		2	3	207.75	415.50
Agn	24		0	24	25.70	
Flowzan	2		1	1	400.00	400.00

SOLIDS ANALYSIS (ppb / %)			BIT / HYDRAULICS DATA		
High Gravity Solids	0 1	0 0	Jet Velocity	287	FT / SEC
Bentonite	10 1	1 1	Impact Force	474	LBS
Drilled Solids	43.5	4 8	HHP / in2	2.4	
Low Gravity Solids	53 6	5 9	HHP	137	
Average S. G.	2 60	Solids	Bit Press. Loss	672	PSI
Med. "n" #1ck # 2 ck	0.415	0 430	Csg. Seat Frac Pres	320	PSI
Med. "K" " "	2 032	8.027	" Equiv. Mud Wt.	14.04	PPG
Low "n" " "	0.239	0.292	Total nozzle area	0.390	SQ INCH
Low "K" " "	6.099	19.05			

Daily Chemical Cost : $ 2,945

Cumulative Cost : $ 16,701

ENGINEER EDD PERKINS ADDRESS South Australia TELEPHONE 08 - 338 3027

CULTUS PETROLEUM N.L.

Independent Drilling Fluid Services Pty. Ltd.

Drilling Fluid Report

Report#	7	Date	25-May
Spud Date	19 May 1996		
Depth	1,368	(M.)To	1,368

WELL NAME and No	Skull Creek # 1	CONTRACTOR	O. D. & E.
Block No	PPL - 1	RIG No	30
Location	Otway Basin	State	Victoria
TOR'S REPRESENTATIVE	Henry FLINK / Kevin KELLY	REPORT FOR	Paul COOPER

Drilling Assembly				Casing	Mud Volume Bbls			Circulation Data			
Bit size 8 5	Type ~	Jets ~		16 inch @ 9 0 Metres	Hole 276	Pits 322		Pump size [2"] 6 0" * 8 0 ins.			
DP " 4 5	Type E	Length 1056		9 625 inch @ 332 5 Metres	Drill String Cap. 57	Total Volume 655		Make/Model 1: G D PZ - 8	% Effic	0 95	
HWt " 4 5	Type 42 #	Length 110 5		~ inch @ ~ Metres	In Storage 0	Weight ~		Make/Model 2: G D PZ - 8	% Effic	0 95	
DC " 6 5	Length 201 4	Other 15 53		MUD TYPE F. W. Polymer	% O/G: 25 0	Annular Velocity	Bbl/stk 0 067	Stk/min 55	Bbl/M	3 66	
DC " ~	Length ~				DP size 4 5	72 (Ft/M) Lam	Bbl/stk 0 067	Stk/min ~	GPM :	154	
					DC size 6 5	125 (Ft/M) Lam	Bottoms up : 75	PRESSURE :	800		
					DC size ~	~ (Ft/M) ~	Total Circ. : 179	Type surf/sys.	3		

Mud Properties	F/Line	Pit
SAMPLE From		
TIME Sample Taken	13.30	22.30
Flowline TEMPERATURE deg. C	35	N.C.
DEPTH Metres	1,368	1,368
WEIGHT ppg.	9.30	9.20
Funnel VISCOSITY (sec/qt.) API @ 28 deg. C	43	44
PLASTIC VISCOSITY cP @ 25 deg. C	9	10
YIELD POINT (lb/100ft2)	16	17
GEL STRENGTH (lb/100ft2) 10 sec. / 10 min.	10 | 24	7 | 18
FILT . API (cm3 / 30 min.) @	9.4	8.6
API HTHP Filtrate (cm3 / 30 min.) @ ~ deg. C	~ ~	~
CAKE Thickness (32nd. in API / HTHP)	2 | ~	2 | ~
SOLIDS Content (% by Vol.) Calc. / Retort	7.3 | ~	6.3 | ~
LIQUID Content (% by Vol.) Oil/Water	~ | 92.7	~ | 93.7
SAND Content (% by Vol.)	Tr	Tr
METHYLENE BLUE CAPACITY x lb/bbl cm3/cm3	18.0	16.0
pH Strip 17 deg. C	9.0	9.0
ALKALINITY Mud (Pm)	~ ~	~
ALKALINITY Filtrate (Pf/Mf)	0.2/1.37	0.18/1.04
CHLORIDE (mg/L)	4,000	3,700
Total HARDNESS (mg/L)	1200	1600
S[redacted]E (mg/L)	160	140
K[redacted]g/L)	2,700	2,500
KCL (% by Wt.)	0.56	0.52
PHPA (Calc. lb/bbl)	~	~
PHPA (Excess lb/bbl)	~ ~	~
RHEOLOGY - 600 / 300 / 6 (readings)	34/25/12	37/27/9

MUD PROPERTY SPECIFICATIONS			
Weight :	> 9 0 Filtrate :	< 10 0 Other :	Chlorides max @ < 10k
Viscosity :	N C Plastic Viscosity :	< 18 Yield Point :	15 - 20
By Authority :	yes Operator's written	~ Drilling Contractor	
	yes Operator's Representative	~ Other	

FLUID SUMMARY AND RECOMMENDATIONS

WHILE CIRCULATING, ON COMPLETION OF DST #1, FURTHER VOLUME (HELD IN STORAGE) WAS ADDED TO THE ACTIVE SYSTEM. THIS PRACTICE WAS CONTINUED WHEN - EVER CIRCULATING WAS TAKING PLACE.

THE ABOVE PROCEDURE ASSISTED IN REDUCING THE MUD WEIGHT TO 9.15 PPG . AS OF THE 16.00 HOUR CHECK.

DUE TO THE DRILL-STRING CONDITION, A "FREE-PIPE" AND DIESEL (20 BARREL) MIX WAS PUMPED AND SPOTTED [WITH AN INITIAL 16 BBL. SPOT IN THE ANNULUS AND 4 BBLS LEFT IN THE STRING].

THE PRODUCT ENERSEAL WAS USED TO SOAK UP THE DIESEL [ETC.] SPILLAGE. WHEN THE TANK WAS CLEANED OUT, AFTER THE OPERATION. WITH THE DRILL-STRING FREE, WHAT DIESEL MIX AS COULD BE TAKEN FROM THE SYSTEM, WAS CIRCULATED OUT & INTO THE FLARE PIT.

OPERATIONS SUMMARY

LOSSES FROM THIS WERE REPLACED AND FURTHER VOLUME WAS BUILT.

ATTENTION WAS AIMED AT MAINTAINING A LOW FLUID LOSS, AS IT WAS CLIMBING AFTER THE PREVIOUS EXERCISE.

BARYTES WAS USED TO TRIP OUT WITH. POLY-THIN WAS INTRODUCED TO ENSURE CONTROL OVER THE FINAL GEL STRENGTHS [FOR TRIPS].

MUD ACCOUNTING (BBLS.)

Fluid Built & Received		Fluid Lost or Disposed		Summary	
Premix		Desander	25	Initial Volume	625
w/ fresh water	85	Desilter	20		
" recycled "	175	Downhole	57	Fluid Received	260
Drill Water	0	Dumped	110		
Other	0	Other	18	Fluid Lost	230
				Final Total	655
Total Received	260	Total Lost	230	(Circulating Vol.)	

SOLIDS CONTROL EQUIPMENT

Type	Man.	Hr.		Cones	Hr.	Shaker#	Screen Size	Hr.
Centrifuge	~	0	D'sand	2	8	1	S175/S175/S110	6
Degasser	Drilco	0	D'silter	12	8	2	S175/S175/S110	6

SOLIDS EQUIPMENT EFFICIENCY

	Overflow (ppg.)	Underflow (ppg.)	Output (gal/m)
Desander	9.3	10.5	2.2
Desilter	9.3	11.4	1.7

Product	Inventory	Rec'd.	Used	Balance	Unit $	Cost $
Barytes	871		47	824	6 20	291.40
Sodium Sulphate		40	6	34	23 56	141.36
Enerseal	71		14	57	63 60	890.40
CMC - LV	65		13	52	71 70	932.10
Caustic Soda	46		1	45	21 38	21.38
Alum. Sulphate		82	4	78	24 00	96.00
Poly -Thin	20		6	14	74.35	446.10
[redacted]	23		13	10	19 28	250.64
C[redacted] Agri	26		2	24	25.70	51.40
Pipe - Free	2		1	1	606.15	606.15

SOLIDS ANALYSIS (ppb / %)			BIT / HYDRAULICS DATA		
High Gravity Solids	0 1	0 0	Jet Velocity	####	FT / SEC
Bentonite	13 6	1 5	Impact Force	####	LBS
Drilled Solids	43 7	4 8	HHP / in2	####	
Low Gravity Solids	57 3	6 3	HHP	####	
Average S. G.	2 60	Solids	Bit Press. Loss	####	PSI
Med. "n" #1ck # 2 ck	0 443	0 454	Csg. Seat Frac Pres	320	PSI
Med. "K" " "	1 575	8 118	" Equiv. Mud Wt.	14.04	PPG
Low "n" " "	0.199	0.293	Total nozzle area		SQ INCH
Low "K" " "	7.228	22.17			

Daily Chemical Cost : $ 3,727

Cumulative Cost : $ 13,756

ENGINEER EDD PERKINS ADDRESS South Australia TELEPHONE 08 - 338 3027

CULTUS PETROLEUM N.L.

Independent Drilling Fluid Services Pty. Ltd.

Drilling Fluid Report

Report#	6	Date	23-May
Spud Date	19 May 1996		
Depth	1,338	(M.)To	1,368

WELL NAME and No. **Skull Creek # 1** | CONTRACTOR **O. D. & E.**

Block No PPL - 1 | Location Otway Basin | State Victoria | RIG No 30

OPERATOR'S REPRESENTATIVE Henry FLINK / Kevin KELLY | REPORT FOR Paul COOPER

Drilling Assembly						Casing				Mud Volume Bbls.				Circulation Data			
Bit size	8 5	Type	M05D	Jets	11/11/12	16 inch @	9 0	Metres	Hole	276	Pits	292	Pump size	[2"]	6 0" *	8 0	ins.
DP "	4 5	Type	E	Length	1056	9 625 inch @	332 5	Metres	Drill String Cap.	57	Total Volume	625	Make/Model 1	G D	PZ - 8	% Effic	0 95
DWt "	4 5	Type	42 #	Length	110 5	~ inch @	~	Metres	In Storage	80	Weight	8 7	Make/Model 2	G D	PZ - 8	% Effic	0 95
DC "	6 5	Length	201 4	Other	15 53	MUD TYPE	F. W. Polymer		% O/G	25 0	Annular Velocity		Bbl/stk	0 067	Stk/min	125	Bbl/M 8 31
DC "	~	Length	~						DP size	4 5	164 (Ft/M)	Lam	Bbl/stk	0 067	Stk/min	~	GPM 349
									DC size	6 5	285 (Ft/M)	Lam	Bottoms up	33	PRESSURE		1,500
									DC size	~	~ (Ft/M)	~	Total Circ.	75	Type surf/sys.		3

Mud Properties	F/Line	F/Line
SAMPLE From		
TIME Sample Taken	9.30	21.00
Flowline TEMPERATURE deg. C	35	N.C.
DEPTH Metres	1,368	1,368
WEIGHT ppg.	9.30	9.30
Funnel VISCOSITY (sec/qt.) API @ 32 deg. C	46	48
PLASTIC VISCOSITY cP @ 28 deg. C	10	12
YIELD POINT (lb/100ft2)	18	20
GEL STRENGTH (lb/100ft2) 10 sec. / 10 min.	12 | 34	12 | 26
FILTRATE API (cm3 / 30 min.) @	9.5	8.8
API HTHP Filtrate (cm3 / 30 min.) @ ~ deg. C	~ ~	~
CAKE kness (32nd. in API / HTHP)	2 | ~	2 | ~
SOLIDS Content (% by Vol.) Calc. / Retort	7.3 | ~	7.1 | ~
LIQUID Content (% by Vol.) Oil/Water	~ | 92.7	~ | 92.9
SAND Content (% by Vol.)	Tr	Tr
METHYLENE BLUE CAPACITY x lb/bbl cm3/cm3	22.0	23.0
PH Strip 19 deg. C	9.3	9.5
ALKALINITY Mud (Pm)	~ ~	~
ALKALINITY Filtrate (Pf/Mf)	0.22/0.86	0.27/0.95
CHLORIDE (mg/L)	3,100	3,300
Total HARDNESS (mg/L)	840	700
CALCITE (mg/L)	20	20
[redacted]	2,200	~
OIL (% by Wt.)	0.46	~
APPA (Calc. lb/bbl)	~	~
APPA (Excess lb/bbl)	~ ~	~
RHEOLOGY - 600 / 300 / 6 (readings)	38/28/10	44/32/12

MUD PROPERTY SPECIFICATIONS

Weight : > 9 0 Filtrate : < 10 0 Other : Chlondes max. @ < 10k

Viscosity : N C Plastic Viscosity : < 18 Yield Point : 15 - 20

By Authority : yes Operator's written ~ Drilling Contractor

yes Operator's Representative ~ Other

FLUID SUMMARY AND RECOMMENDATIONS

AFTER THE WIPER TRIP, THE CLAY CONTENT HAD BUILT UP DUE TO SOME OF THE WALL-CAKE BEING SCRAPED OFF

WITH THIS TYPE OF MUD, IT IS MORE VULNERABLE TO DEHYDRATION AND WILL NEED A GOOD "DRINK", ONCE CIRCULATING BACK ON BOTTOM.

LOSES DOWN-HOLE WERE 2 5 BARRELS PER HOUR, WHILE THE LOG - ING OPERATION WAS TAKING PLACE

FURTHER VOLUME WAS BUILT IN PREPARATION FOR THE TEST

OPERATIONS SUMMARY

DRILLED TO 1368 METRES AND PERFORMED A WIPER TRIP (WITH - OUT A "SLUG"). THERE WAS NO FILL ON BOTTOM.

FOLLOWING THIS, THE BIT WAS PULLED OUT WITH A CALCIUM CHLORIDE PILL TO CLEAR THE PIPE

THE LOGGING OPERATION PROCEEDED WITH NO HOLE PROBLEMS.

MUD ACCOUNTING (BBLS.)

Fluid Built & Received		Fluid Lost or Disposed		Summary	
Premix		Desander	19	Initial Volume	718
Fresh water	0	Desilter	26		
" recycled "	57	Downhole	78	Fluid Received	57
Drill Water	0	Dumped	0		
Other	0	Other	27	Fluid Lost	150
				Final Total	625
Total Received	57	Total Lost	150	(Circulating Vol.)	

SOLIDS CONTROL EQUIPMENT

Type	Man.	Hr.		Cones	Hr.	Shaker#	Screen Size	Hr.
Centrifuge	~	0	D'sand	2	7	1	S175/S175/S110	21
Degasser	Dnlco	0	D'silter	12	7	2	S175/S175/S110	0

SOLIDS EQUIPMENT EFFICIENCY

	Overflow (ppg.)	Underflow (ppg.)	Output (gal/m)
Desander	9.3	11.2	1.9
Desilter	9.3	12.8	2.6

Product	Inventory	Rec'd.	Used	Balance	Unit $	Cost $
Barytes	871		0	871	6.20	
Gel						
Gypsum	22		4	18	152 28	609.12
CMC - LV	73		8	65	71.70	573.60
Caustic Soda	46		0	46	21 38	
Mag Sulphate			0		24 00	
DFL (ligno)	4		4		36 00	144.00
[redacted]	40		40		4 52	180.80
[redacted]grl	33		7	26	25 70	179.90

SOLIDS ANALYSIS (ppb / %)

High Gravity Solids	0 1	0 0	
Bentonite	21 9	2 4	
Drilled Solids	42 5	4 7	
Low Gravity Solids	64 3	7 1	
Average S. G.	2 60	Solids	
Med. "n" #1ck # 2 ck	0 440	0 459	
Med. "K" - -	1 798	9 333	
Low "n" - -	0 184	0.213	
Low "K" - -	8 889	43 32	

BIT / HYDRAULICS DATA

Jet Velocity	378	FT / SEC
Impact Force	636	LBS
HHP / in2	4 3	
HHP	242	
Bit Press. Loss	1187	PSI
Csg. Seat Frac Pres	320	PSI
" Equiv. Mud Wt.	14.04	PPG
Total nozzle area	0.296	SQ INCH

Daily Chemical Cost : $ 1,687 | Cumulative Cost : $ 10,355

ENGINEER EDD PERKINS | ADDRESS South Australia | TELEPHONE 08 - 338 3027

CULTUS PETROLEUM N.L.

Independent Drilling Fluid Services Pty. Ltd.

ACN 009 087 314

Drilling Fluid Report

Report# 5 | Date 23-May

Spud Date 19 May 1996

Depth 1,158 (M.)To 1,338

WELL NAME and No: **Skull Creek # 1**

CONTRACTOR: **O. D. & E.**

Block No: PPL - 1 | Location: Otway Basin | State: Victoria

RIG No: 30

OPERATOR'S REPRESENTATIVE: Henry FLINK / Kevin KELLY

REPORT FOR: Paul COOPER

Drilling Assembly				Casing				Mud Volume Bbls			
Bit size 8 5	Type M05D	Jets 11/11/12		16 inch @ 9 0	Metres	Hole 270	Pits 392				
DP " 4 5	Type E	Length 1026		9 625 inch @ 332 5	Metres	Drill String Cap 56	Total Volume 718				
HWt " 4 5	Type 42 #	Length 110 5		~ inch @ ~	Metres	In Storage 43	Weight 8 8				
DC " 6 5	Length 201 4	Other 15 53		MUD TYPE: F. W. Polymer		% O/G 25 0	Annular Velocity				
DC " ~	Length ~					DP size 4 5	164 (Ft/M) Lam				
						DC size 6 5	285 (Ft/M) Lam				
						DC size ~	~ (Ft/M) ~				

Circulation Data					
Pump size	[2*] 5 0" * 8 0	ins.			
Make/Model 1:	G D PZ - 8	% Effic	0 95		
Make/Model 2:	G D PZ - 8	% Effic	0 95		
Bbl/stk 0 067	Stk/min 125	Bbl/M	8 31		
Bbl/stk 0 067	Stk/min ~	GPM:	349		
Bottoms up:	32	PRESSURE:	1,540		
Total Circ.:	86	Type surf/sys.	3		

Mud Properties			
SAMPLE From	F / Line	F/L	F / Line
TIME Sample Taken	11.00	18.00	24.00
Flowline TEMPERATURE deg. C	27	33	36
DEPTH Metres	1,212	1,293	1,338
WEIGHT ppg.	9.20	9.30	9.30
Funnel VISCOSITY (sec/qt.) API @ 24 deg. C	45	40	46
PLASTIC VISCOSITY cP @ 23 deg. C	16	11	11
YIELD POINT (lb/100ft2)	17	14	17
GEL STRENGTH (lb/100ft2) 10 sec. / 10 min.	7 / 26		9 / 32
FILTRATE API (cm3 / 30 min.) @	8.5	8.0	9.6
API Filtrate (cm3 / 30 min.) @ ~ deg. C	~ ~		~
CAKE Thickness (32nd. in API / HTHP)	2 / ~		2 / ~
SOLIDS Content (% by Vol.) Calc. / Retort	6.5 / ~		7.1 / ~
LIQUID Content (% by Vol.) Oil/Water	~	93.5	~ / 92.9
SAND Content (% by Vol.)	0.75	Tr	Tr
METHYLENE BLUE CAPACITY x lb/bbl cm3/cm3	16.0	13.0	20.0
pH Strip 17 deg. C	9.5	9.2	9.5
ALKALINITY Mud (Pm)	~ ~		~
ALKALINITY Filtrate (Pf/Mf)	0.33/1.02		0.27/0.92
CHLORIDE (mg/L)	800	870	3,200
Total HARDNESS (mg/L)	680	720	920
[redacted]ITE (mg/L)	80	40	40
[redacted]g/L)	~		~
KCL (% by Wt.)	~		~
PHPA (Calc. lb/bbl)	~		~
PHPA (Excess lb/bbl)	~ ~		~
RHEOLOGY - 600 / 300 / 6 (readings)	49/33/5	36/25/4	39/28/9
	Gels: 5/28		

MUD PROPERTY SPECIFICATIONS

Weight: > 9 0 Filtrate: < 10 0 Other: Chlorides max. @ < 10k

Viscosity: N C Plastic Viscosity: < 18 Yield Point: 15 - 20

By Authority: yes Operator's written ~ Drilling Contractor

yes Operator's Representative ~ Other

FLUID SUMMARY AND RECOMMENDATIONS

DUE TO THE RESTRICTION OF BEING UNABLE TO ADD L.C.M. (JET BLOCKAGE) THERE WAS NO CHECK TO THE LOSS DOWN-HOLE AND SO NEW VOLUME NEEDED TO BE BUILT AND ADDED CONSTANTLY WITH THE SAND SECTIONS BEING DRILLED AND ADDING SOLIDS TO THE SYSTEM, LOSES ASSISTED IN KEEPING THE WEIGHT DOWN. CHLORIDES WERE PICKED UP FROM THE FORMATION (# 1 CHECK). TO ASSIST LOGGING, KCL WAS ADDED [PARAMETERS 3,000 PPM APP.] **** FLOWZAN WAS ADDED IN THE PREVIOUS REPORT, BUT NOT NOTED. AS THE SANDS WERE DRILLED THROUGH, MORE BENTONITE WAS NEEDED TO BUILD WALL-CAKE [AND WAS BEING DEPLETED QUICKLY] DRISPAC WAS USED TO RAISE & MAINTAIN THE YIELD POINT. THE DOWN-HOLE LOSS WAS MINIMISED, ONCE THE API FLUID-LOSS WAS REDUCED

OPERATIONS SUMMARY

A WIPER TRIP WAS INITIATED AT 1,212 METRES, USING CALCIUM CARBONATE TO "SLUG" THE PIPE. DURING THIS TRIP 56 BBLS. WERE LOST DOWN-HOLE [A STATIC CHECK SHOWED A 12 BBL LOSS PER HOUR]. ONCE BACK ON BOTTOM, THE FLUID LOSS WAS REDUCED FROM 17.3cc's (THE 09 00 AM CHECK) TO 8.3cc's (THE 11 00 AM CHECK). DRILLING CONTINUED.

MUD ACCOUNTING (BBLS.)

Fluid Built & Received		Fluid Lost or Disposed		Summary	
Prev		Desander	62	Initial Volume	562
w/ fresh water	45	Desilter	54		
" recycled "	340	Downhole	99	Fluid Received	385
Drill Water	0	Dumped	0		
Other	0	Other	14	Fluid Lost	229
				Final Total	718
Total Received	385	Total Lost	229	(Circulating Vol.)	

SOLIDS CONTROL EQUIPMENT

Type	Man.	Hr.		Cones	Hr.	Shaker#	Screen Size	Hr.
Centrifuge	~	0	D'sand	2	19	1	S175/S175/S110	21
Degasser	Drilco	0	D'silter	12	12	2	S175/S175/S110	21

SOLIDS EQUIPMENT EFFICIENCY

	Overflow (ppg.)	Underflow (ppg.)	Output (gal/m)
Desander	9.3	11.5	2.3
Desilter	9.3	13.6	3.2

Product	Inventory	Rec'd.	Used	Balance	Unit $	Cost $
Drispac	29		7	22	152.28	1,065.96
Soda Ash	9		9		15 75	141.75
d - Gel	240		55	185	8.13	447.15
CMC - LV	10	80	17	73	71 70	1,218.90
Caustic Soda	16	40	10	46	21.38	213.80
Alum. Sulphate	10		10		24.00	240.00
CFL (ligno)	7		3	4	36.00	108.00
Ca[redacted]h	80		40	40	4.52	180.80
[redacted]owzan	4		2	2	400.00	800.00
KCL - Agri.		46	13	33	25.70	334.10

SOLIDS ANALYSIS (ppb / %)			BIT / HYDRAULICS DATA		
High Gravity Solids	0 1	0.0	Jet Velocity	378	FT / SEC
Bentonite	17 9	2 0	Impact Force	636	LBS
Drilled Solids	46 5	5.1	HHP / in2	4.3	
Low Gravity Solids	64.4	7 1	HHP	242	
Average S. G.	2.60	Solids	Bit Press. Loss	1187	PSI
Med. "n" #1ck # 2 ck	0 570	0.478	Csg. Seat Frac Pres	320	PSI
Med. "K" " "	0.944	7.272	" Equiv. Mud Wt.	14.04	PPG
Low "n" " "	0 337	0.246	Total nozzle area	0.296	SQ INCH
Low "K" " "	4.042	30.77			

Daily Chemical Cost: $ 4,750

Cumulative Cost: $ 8,667

ENGINEER EDD PERKINS ADDRESS South Australia TELEPHONE 08 - 338 3027

CULTUS PETROLEUM N.L.

Independent Drilling Fluid Services Pty. Ltd.

A.C.N. 000 287 314

Drilling Fluid Report

Report# 4 | Date 22-May

Spud Date 19 May 1996

Depth 481 (M.)To 1,158

WELL NAME and No **Skull Creek # 1** | CONTRACTOR **O. D. & E.**

Block No PPL - 1 | Location : Otway Basin | State Victoria | RIG No 30

OP'S REPRESENTATIVE Henry FLINK / Bruce RICHARDSON | REPORT FOR Paul COOPER

Drilling Assembly				Casing			Mud Volume Bbls			Circulation Data			
Bit size 8 5	Type M05D	Jet size 11/11/12		16 inch @ 9 0 Metres	Hole	232	Pits	386	Pump size [2*]	6 0" * 8 0 ins.			
DP " 4 5	Type E	Length 846 1		9 625 inch @ 332 5 Metres	Drill String Cap	47	Total Volume	562	Make/Model 1:	G D PZ - 8	% Effic	0 95	
HWt " 4 5	Type 42 #	Length 110 5		~ inch @ ~ Metres	In Storage	85	Weight	8 6	Make/Model 2:	G D PZ - 8	% Effic	0 95	
DC " 6 5	Length 201 4	Other 15 53		MUD TYPE : Relaxed Native Clay	% O/G:	25 0	Annular Velocity	Bbl/stk 0 067	Stk/min 125	Bbl/M 8 31			
DC " ~	Length ~				DP size 4 5	164 (Ft/M)	Lam	Bbl/stk 0 067	Stk/min ~	GPM : 349			
					DC size 6 5	285 (Ft/M)	Turb	Bottoms up : 28	PRESSURE : 1,450				
					DC size ~	~ (Ft/M)	~	Total Circ. : 68	Type surf/sys. 3				

Mud Properties	F / Line	F / Line
SAMPLE From		
TIME Sample Taken	11.30	24.00
Flowline TEMPERATURE deg. C	32	32
DEPTH Metres	727	1,158
WEIGHT ppg.	9.25	9.20
Funnel VISCOSITY (sec/qt.) API @ 29 deg. C	45	35
PLASTIC VISCOSITY cP @ 25 deg. C	7	6
YIELD POINT (lb/100ft2)	22	11
GEL STRENGTH (lb/100ft2) 10 sec. / 10 min.	12 | 34	6 | 24
FILTRATE API (cm3 / 30 min.) @	>35.0	26.2
API HT, Filtrate (cm3 / 30 min.) @ ~ deg. C	~ ~	~
CAKE Thickness (32nd. in API / HTHP)	4 | ~	3 | ~
SOLIDS Content (% by Vol.) Calc. / Retort	6.9 | ~	6.5 | ~
LIQUID Content (% by Vol.) Oil/Water	~ 93.1	~ 93.5
SAND Content (% by Vol.)	0.75	1.5
METHYLENE BLUE CAPACITY X lb/bbl cm3/cm3	21.0	15.0
PH Strip 17 deg. C	8.5	8.5
ALKALINITY Mud (Pm)	~ ~	~
ALKALINITY Filtrate (Pf/Mf)	0.08/0.6	0.1/0.38
CHLORIDE (mg/L)	270	390
Total HARDNESS (mg/L)	1440	980
[illegible] (mg/L)	160	120
[illegible] /	~	~
OIL (% by Wt.)	~	~
MBT (Calc. lb/bbl)	~	~
MBT (Excess lb/bbl)	~ ~	~
RHEOLOGY - 600 / 300 / 6 (readings)	36/29/16	23/17/6

MUD PROPERTY SPECIFICATIONS

Weight : Min | Filtrate : NC | Other : Chlorides max @ < 10k

Viscosity : N C | Plastic Viscosity : ~ | Yield Point : 10

By Authority : ~ Operator's written | ~ Drilling Contractor

yes Operator's Representative | ~ Other

FLUID SUMMARY AND RECOMMENDATIONS

THE SYSTEM WAS BALANCED WITH THE NEED TO LOWER WEIGHT & VISCOSITY GAINS [WITH DILUTION]& VOLUME NEEDED FOR HOLE LOSS. ALL ADDITIONS WERE PRETREATED WITH ALUM [TO INHIBIT THE CLAYS AND ASSIST IN THE SEPARATION OF THE WATER PHASE. FROM THE SOLIDS - ONCE IN THE SUMP]. CFL (ligno) WAS USED TO LIMIT THE CLIMBING GELS STRENGTHS CAUSTIC SODA WAS ADDED IN MEAS - URED QUANTITIES [AS THE NATIVE CLAYS ARE VOLATILE TO ANY INCREASE OF THE pH]

DUE TO THE NEED TO MINIMISE THE SUMP VOLUME, THIS SOURCE OF "HARDNESS" [FROM THE CEMENT OPERATION] WAS ACCEPTED IN THIS PERIOD NOTE THE FORMATION CUTTINGS ARE THE PRIMARY SOURCE OF THE INCREASE IN THE HARDNESS

OPERATIONS SUMMARY

THE POINT IN WHICH TO REDUCE THE FLUID - LOSS TO BELOW 10 0cc's, HAS BEEN REVISED DOWN-WARD TO SUITE THE FORMATIONS BEING DRILLED THE MAIN AIM IS TO ENSURE THAT THE DESIRED PROPERTIES ARE ACHIEVED PRIOR TO DRILLING THE BASE OF THE BELFAST SECTION [SO THAT THE WAARRE HAS THE CORRECT PROPER- TIES A WIPER TRIP WAS CONDUCTED AT 651 METRES.

MUD ACCOUNTING (BBLS.)

Fluid & Received		Fluid Lost or Disposed		Summary	
Premix		Desander	48	Initial Volume	433
w/ fresh water	104	Desilter	33		
" recycled "	428	Downhole	226	Fluid Received	532
Drill Water	0	Dumped	65		
Other	0	Other	32	Fluid Lost	403
				Final Total	562
Total Received	532	Total Lost	403	(Circulating Vol.)	

SOLIDS CONTROL EQUIPMENT

Type	Man.	Hr.		Cones	Hr.	Shaker#	Screen Size	Hr.
Centrifuge	~	0	D'sand	2	23	1	S175/S175/S175	23
Degasser	Drilco	0	D'silter	12	18	2	S175/S175/S175	23

SOLIDS EQUIPMENT EFFICIENCY

	Overflow (ppg.)	Underflow (ppg.)	Output (gal/m)
Desander	9.2	10.0	1.5
Desilter	9.2	11.8	1.3

Product	Inventory	Rec'd.	Used	Balance	Unit $	Cost $
Barytes	871		0	871	6 20	
Gel	264		24	240	8 13	195.12
Sod Sulphite	7		7		23 56	164.92
Caustic Soda	21		5	16	21 38	106.90
Mm Sulphate	36		26	10	24 00	624.00
CL (ligno)	35		28	7	36 00	1,008.00
[illegible]			0			
			0			

SOLIDS ANALYSIS (ppb / %)

			BIT / HYDRAULICS DATA		
High Gravity Solids	0 0	0 0	Jet Velocity	378	FT / SEC
Bentonite	12 0	1.3	Impact Force	629	LBS
Drilled Solids	47.2	5.2	HHP / in2	4.2	
Low Gravity Solids	59.2	6.5	HHP	239	
Average S. G.	2 60	Solids	Bit Press. Loss	1174	PSI
Med. "n" #1ck. # 2 ck	0.312	0 436	Csg. Seat Frac Pres	320	PSI
Med. "K" " "	4.150	5.734	" Equiv. Mud Wt.	14 04	PPG
Low "n" " "	0 192	0 226	Total nozzle area	0.296	SQ INCH
Low "K" " "	8.779	21.20			

Daily Chemical Cost : $ 2,099

Cumulative Cost : $ 3,917

ENGINEER EDD PERKINS ADDRESS South Australia TELEPHONE 08 - 338 3027

CULTUS PETROLEUM N.L.

Independent Drilling Fluid Services Pty. Ltd.

Drilling Fluid Report

ACN 009 287 314

Report#	3	Date	21-May
Spud Date :	19 May 1996		
Depth	335	(M.)To	481

WELL NAME and No. : **Skull Creek # 1**

CONTRACTOR **O. D. & E.**

Block No. : PPL - 1 | Location : Otway Basin | State : Victoria

RIG No. 30

OPERATOR'S REPRESENTATIVE : Henry FLINK / Bruce RICHARDSON

REPORT FOR Paul COOPER

Drilling Assembly				Casing			Mud Volume Bbls			Circulation Data			
Bit size 8 5	Type : M05D	Jet size 11/11/12		16 inch @ 9 0 Metres	Hole : 81	Pits 369		Pump size [2*] 6 0" * 8 0 ins.					
DP " 4 5	Type E	Length 169 1		9 625 inch @ 332 5 Metres	Drill String Cap. 16	Total Volume 433		Make/Model 1: G D PZ - 8	% Effic 0 95				
HWt " 4 5	Type : 42 #	Length 110 5		~ inch @ ~ Metres	In Storage 165	Weight 8 4		Make/Model 2: G D PZ - 8	% Effic 0 95				
DC " 6 5	Length 201 4	Other 15 53		MUD TYPE : Relaxed Native Clay	% O/G: 10 0	Annular Velocity	Bbl/stk 0 067	Stk/min 75	Bbl/M 9 98				
DC " ~	Length ~				DP size 4 5	197 (Ft/M) Turb	Bbl/stk 0 067	Stk/min 75	GPM : 419				
					DC size 6 5	342 (Ft/M) Turb	Bottoms up : 8		PRESSURE : 2,000				
					DC size ~	~ (Ft/M) ~	Total Circ. : 43		Type surf/sys. 3				

Mud Properties	F / Line	F / Line
SAMPLE From		
TIME Sample Taken	20.00	24.00
Flowline TEMPERATURE deg. C	22	25
DEPTH Metres	367	481
WEIGHT ppg.	9.00	9.20
Funnel VISCOSITY (sec/qt.) API @ 21 deg. C	37	38
PLASTIC VISCOSITY cP @ 24 deg. C	7	8
YIELD POINT (lb/100ft2)	8	9
GEL STRENGTH (lb/100ft2) 10 sec. / 10 min.	2 | 17	2 | 23
FILTRATE API (cm3 / 30 min.) @	28.6	26.4
API Filtrate (cm3 / 30 min.) @ ~ deg. C	~ ~	~
CAKE Thickness (32nd. in API / HTHP)	4 | ~	4 | ~
SOLIDS Content (% by Vol.) Calc. / Retort	5.0 | ~	6.5 | ~
LIQUID Content (% by Vol.) Oil/Water	~ 95.0	~ 93.5
SAND Content (% by Vol.)	1.25	2.25
METHYLENE BLUE CAPACITY x lb/bbl cm3/cm3	22.0	24.0
pH Strip 19 deg. C	9.0	9.2
ALKALINITY Mud (Pm)	~ ~	~
ALKALINITY Filtrate (Pf/Mf)	0.15/0.32	0.2/0.35
CHLORIDE (mg/L)	380	380
Total HARDNESS (mg/L)	360	240
SULPHITE (mg/L)	~	80
(K2CO3)	~	~
KCL (% by Wt.)	~	~
PHPA (Calc. lb/bbl)	~	~
PHPA (Excess lb/bbl)	~ ~	~
RHEOLOGY - 600 / 300 / 6 (readings)	22/15/2	25/17/2

MUD PROPERTY SPECIFICATIONS

Weight : Min | Filtrate : NC | Other : Chlorides max. @ < 10k

Viscosity : N C | Plastic Viscosity : ~ | Yield Point : 10

By Authority : yes Operator's written | ~ Drilling Contractor

yes Operator's Representative | ~ Other

FLUID SUMMARY AND RECOMMENDATIONS

THE INITIAL WATER PHASE ON DRILLING OUT THE MARL SECTION WAS TREATED WITH SOD. BICARB., THE SECONDARY WATER PHASE WAS TREATED WITH ALUM. AS THE CEMENT CONTAMINATED FLUID WAS DISPLACED, EXTRA VOLUME WAS MADE UP WITH SUMP WATER [SEPARATED FROM THE CEMENT WATER - BY A PARTITION].

THE MARL WAS DRILLED WITH THE TREATED FLUID UNTIL SAND RETURNS WERE OBSERVED AT THE SHAKERS. AT THIS POINT, THE MUD WITH APPROPRIATE DILUTION, THAT WAS RETAINED FROM THE 12.25" SECTION, DISPLACED THE ABOVE MENTIONED FLUID. THE pH WAS RAISED AND THIS WAS SUFFICIENT TO ACTIVATE THE CLAY BEING DRILLED, TO GIVE THE NECESSARY PROPERTIES. ALUM TREATED WATER WAS USED TO INHIBIT THE ACTIVE SYSTEM AND CAUSTIC WATER WAS USED TO BUILD VOLUME AND PROPERTIES.

OPERATIONS SUMMARY

THE 8 5" SECTION WAS STARTED WITH THE CEMENT BEING DRILL - ED OUT WITH WATER, WHICH WAS DISPOSED OF, ONCE THE SHOE WAS PENETRATED. TREATED WATER WAS USED FOR THE MARL SEC - TION FROM 367 METRES, WHEN SAND RETURNS WERE OBSERVED, THE FLUID WAS BROUGHT INTO LINE WITH THE DESIRED PROGRAMME SPECIFICATIONS

MUD ACCOUNTING (BBLS.)

Fluid Built & Received		Fluid Lost or Disposed		Summary	
rem		Desander	10	Initial Volume	99
w/ fresh water	90	Desilter	7		
" recycled "	149	Downhole	67	Fluid Received	576
Drill Water	0	Dumped	137		
Other	337	Other	21	Fluid Lost	242
				Final Total	433
otal Received	576	Total Lost	242	(Circulating Vol.)	

SOLIDS CONTROL EQUIPMENT

Type	Man.	Hr.		Cones	Hr.	Shaker#	Screen Size	Hr.
Centrifuge	~	0	D'sand	2	5	1	S175/S175/S175	8
Degasser	Drilco	0	D'silter	12	3	2	S175/S175/S175	8

SOLIDS EQUIPMENT EFFICIENCY

	Overflow (ppg.)	Underflow (ppg.)	Output (gal/m)
Desander	8.8	10.1	1.4
Desilter	8.8	9.8	1.7

Product	Inventory	Rec'd.	Used	Balance	Unit $	Cost $
arytes	871		0	871	6 20	
- Gel	278		14	264	8 13	113.82
od Sulphite	11		4	7	23 56	94.24
me	18		0	18	5.80	
APP	4		0	4	67 95	
austic Soda	25		4	21	21.38	85.52
od rbonate	26		0	26	16.38	
ul ulphate		42	6	36	24.00	144.00

SOLIDS ANALYSIS (ppb / %)

High Gravity Solids	0 0	0 0	Jet Velocity	454 FT / SEC
Bentonite	23 9	2.6	Impact Force	906 LBS
Drilled Solids	35.3	3.9	HHP / in2	7.3
Low Gravity Solids	59 2	6 5	HHP	413
Average S. G.	2.60	Solids	Bit Press. Loss	1691 PSI
Med. "n" #1ck. # 2 ck	0.552	0.556	Csg. Seat Frac Pres	320 PSI
Med. "K" " "	0.479	2.710	" Equiv. Mud Wt.	14.04 PPG
Low "n" " "	0.438	0.465	Total nozzle area	0.296 SQ INCH
Low "K" " "	0.980	4.79		

Daily Chemical Cost : $ 438

Cumulative Cost : $ 1,818

ENGINEER EDD PERKINS ADDRESS South Australia TELEPHONE 08 - 338 3027

CULTUS PETROLEUM N.L.

Independent Drilling Fluid Services Pty. Ltd.

Drilling Fluid Report

ACN 009 287 374

Report#	2	Date	19-May
Spud Date :	19 May 1996		
Depth	306	(M.)To	335

WELL NAME and No: **Skull Creek # 1**

CONTRACTOR: **O. D. & E.**

Block No: PPL - 1 | Location: Otway Basin | State: Victoria

RIG No: 30

TOR'S REPRESENTATIVE: Henry FLINK / Bruce RICHARDSON

REPORT FOR: Paul COOPER

Drilling Assembly				Casing				Mud Volume Bbls			
Bit size	12 3	Type :	1GJ	Jet size 20/20/15	16	inch @	90 Metres	Hole :	144	Pits :	18
DP "	4 5	Type :	E	Length 94 37		inch @	Metres	Drill String Cap. :	10	Total Volume :	99
HWt "	4 5	Type :	42 #	Length 110 5	~	inch @	~ Metres	In Storage :	0	Weight :	~
DC "	6 5	Length	103 2	Other 13 34							
DC "	8	Length	26 94								

MUD TYPE : Spud Mud

Circulation Data						
Pump size	[2"]	6 0"	*	8 0	ins.	
Make/Model 1:	G D	PZ - 8	% Effic	0 95		
Make/Model 2:	G D	PZ - 8	% Effic	0 95		
% O/G:	10 0	Annular Velocity	Bbl/stk	0 067	Stk/min	130
DP size	4 5	137 (Ft/M) ######	Bbl/stk	0 067	Stk/min	130
DC size	6 5	165 (Ft/M) ######	Bottoms up :	8	PRESSURE :	1,000
DC size	8	~ (Ft/M) ######	Total Circ. :	6	Type surf/sys.	3

Mud Properties				
SAMPLE From		Pit		Pit
TIME Sample Taken		10.00		17.00
Flowline TEMPERATURE	deg. C	N.C.		N.C.
DEPTH Metres		335		335
WEIGHT ppg.		9.30		8.33
Funnel VISCOSITY (sec/qt.) API @ 26 deg. C		35		27
PLASTIC VISCOSITY cP @ 22 deg. C		8		
YIELD POINT (lb/100ft2)		6		
GEL STRENGTH (lb/100ft2) 10 sec. / 10 min.		1 / 3		/
FILTRATE API (cm3 / 30 min.) @		21.4		N.C.
API HTHP Filtrate (cm3 / 30 min.) @ ~ deg. C		~ ~		~
CAKE kness (32nd. in API / HTHP)		4 / ~		/ ~
SOLIDS Content (% by Vol.) Calc. / Retort		7.3 / ~		0.0 / ~
LIQUID Content (% by Vol.) Oil/Water		~ / 92.7		~ / 100.0
SAND Content (% by Vol.)		Tr		N.C.
METHYLENE BLUE CAPACITY x lb/bbl	cm3/cm3	16.0		N.C.
pH Strip	N.C. deg. C	8.8		6.2
ALKALINITY Mud (Pm)		~ ~		~
ALKALINITY Filtrate (Pf/Mf)		0.1/0.22		0.0/0.08
CHLORIDE (mg/L)		260		180
Total HARDNESS (mg/L)		400		440
SULPHATE (mg/L)		~		~
(+ -)		~		~
KCL (% by Wt.)		~		~
HPA (Calc. lb/bbl)		#####		#####
HPA (Excess lb/bbl)		~ ~		~
RHEOLOGY - 600 / 300 / 6 (readings)		22/14/1		

MUD PROPERTY SPECIFICATIONS

Weight : Min | Filtrate : NC | Other : Chlorides max @ < 15k

Viscosity : N C | Plastic Viscosity : ~ | Yield Point : 10

By Authority : yes Operator's written ~ Drilling Contractor

yes Operator's Representative ~ Other

FLUID SUMMARY AND RECOMMENDATIONS

WHILE THE HOLE WAS BEING DRILLED WITH WATER, SAPP WAS USED IN LUE OF ALUM, TO ENSURE THAT NO FURTHER PROBLEMS WERE ENCOUNTERED AS PREVIOUSLY MENTIONED, PRIOR TO PULLING OUT, MUD DISPLACED THE WATER AT T D AND WAS CIRCULATED.

ON COMPLETION OF THE CEMENT OPERATION, IT WAS FOUND FURTHER WATER HAD MIXED IN WITH THE MUD; AT THIS TIME NO TREATMENT WILL BE DONE [TO THE MUD] UNTIL THE NEXT SECTION HAS BEEN DRILLED.

MORE WORK WAS DONE TO THE SOLIDS CONTROL EQUIPMENT DURING THIS PERIOD

OPERATIONS SUMMARY

CASING WAS RUN TO BOTTOM WITHOUT ANY PROBLEMS. THE SYSTEM WAS CIRCULATED AND THEN THE CEMENT OPERATION FOL - LOWED THE PITS WERE THEN CLEANED. WHILE LITTLE OF THE MUD WAS LOST A PIT WAS LINED UP TO DRILL OUT THE CEMENT AND SHOE, WITH A SECOND PIT OF TREATED WATER, TO COMPLETE DRILL - ING THE MARL SECTION [AND A THIRD PIT OF WATER ON STAND-BY].

MUD ACCOUNTING (BBLS.)

Fluid Built & Received		Fluid Lost or Disposed		Summary	
Premix		Desander	6	Initial Volume	458
fresh water	0	Desilter	0		
" recycled "	0	Downhole	34	Fluid Received	110
Drill Water	110	Dumped	92		
Other	0	Other	337	Fluid Lost	469
				Final Total	99
Total Received	110	Total Lost	469	(Circulating Vol.)	

SOLIDS CONTROL EQUIPMENT

Type	Man.	Hr.		Cones	Hr.	Shaker#	Screen Size	Hr.
Centrifuge	~	0	D'sand	2	3.5	1	S175/S175/S175	4.5
Degasser	Drilco	0	D'silter	12	0	2	S175/S175/S175	4.5

SOLIDS EQUIPMENT EFFICIENCY

	Overflow (ppg.)	Underflow (ppg.)	Output (gal/m)
Desander	9.3	10.5	1.2
Desilter	~	~	0

Product	Inventory	Rec'd.	Used	Balance	Unit $	Cost $
arytes	871		0	871	6 20	
- Gel	278		0	278	8 13	
rill pol	6		0	6	75.75	
me	18		0	18	5 80	
APP	7		3	4	67 95	203.85
austic Soda	25		0	25	21 38	
rbonate	30		4	26	16.38	65.52
um Sulphate			0		24.00	

SOLIDS ANALYSIS (ppb / %)

High Gravity Solids			
Bentonite	####	####	
Drilled Solids	####	####	
Low Gravity Solids	-0.1	0.0	
Average S. G.	2.60	Solids	
Med. "n"	#1ck. # 2 ck.	0.652	####
Med. "K"	- -	0.241	####
Low "n"	- -	0.573	####
Low "K"	- -	0.393	####

BIT / HYDRAULICS DATA

Jet Velocity	296	FT / SEC
Impact Force	928	LBS
HHP / in2	2.3	
HHP	276	
Bit Press. Loss	652	PSI
Csg. Seat Frac Pres		PSI
" Equiv. Mud Wt.		PPG
Total nozzle area	0.786	SQ INCH

Daily Chemical Cost : $ 269

Cumulative Cost : $ 1,380

ENGINEER EDD PERKINS ADDRESS South Australia TELEPHONE 08 - 338 3027

CULTUS PETROLEUM N.L.

Independent Drilling Fluid Services Pty. Ltd.

Drilling Fluid Report

Report#	1	Date	19-May
Spud Date	19 May 1996		
Depth	9 (M.)To	332	

WELL NAME and No	Skull Creek # 1	CONTRACTOR	O. D. & E.
Block No PPL - 1	Location Otway Basin	State : Victoria	RIG No 30
ERATOR'S REPRESENTATIVE	Henry FLINK / Bruce RICHARDSON	REPORT FOR	Paul COOPER

Drilling Assembly				Casing		Mud Volume Bbls				Circulation Data			
Bit size 12 3	Type 1GJ	Jet size 20/20/15	16 inch @ 90 Metres	Hole 146	Pits 302	Pump size [2"] 6 0" * 8 0 ins.			
DP " 4 5	Type E	Length 91 37	~ inch @ Metres	Drill String Cap 10	Total Volume 458	Make/Model 1 G D PZ - 8 % Effic 0 95			
HWt " 4 5	Type 42 #	Length 110 5	~ inch @ ~ Metres	In Storage 0	Weight ~	Make/Model 2: G D PZ - 8 % Effic 0 95			
DC " 6 5	Length 103 2	Other 13 34	MUD TYPE Spud Mud	% O/G 10 0	Annular Velocity	Bbl/stk 0 067	Stk/min 130	Bbl/M 17 29	
DC " 8	Length 26 94			DP size 4 5	137 (Ft/M) Turb	Bbl/stk 0 067	Stk/min 130	GPM : 726	
				DC size 6 5	165 (Ft/M) Turb	Bottoms up : 8	PRESSURE : 1,000		
				DC size 8	~ (Ft/M) Turb	Total Circ. : 26	Type surf/sys. 3		

Mud Properties	F / Line	Pit
SAMPLE From		
TIME Sample Taken	17.30	5.00
Flowline TEMPERATURE deg. C	28	NC
DEPTH Metres	226	335
WEIGHT ppg.	9.25	9.25
Funnel VISCOSITY (sec/qt.) API @ 25 deg. C	36	35
PLASTIC VISCOSITY cP @ 24 deg. C	9	8
YIELD POINT (lb/100ft2)	9	7
GEL STRENGTH (lb/100ft2) 10 sec. / 10 min.	1 | 3	1 | 4
FILTRATE API (cm3 / 30 min.) @	8.5	17.9
API HTHP Filtrate (cm3 / 30 min.) @ ~ deg. C	~ ~	~
CAK ckness (32nd. in API / HTHP)	1 | ~	3 | ~
SOLIDS Content (% by Vol.) Calc. / Retort	6.9 | ~	6.9 | ~
LIQUID Content (% by Vol.) Oil/Water	~ | 93.1	~ | 93.1
SAND Content (% by Vol.)	Tr	Tr
METHYLENE BLUE CAPACITY x lb/bbl cm3/cm3	22.0	19.0
pH Strip 19 deg. C	9.2	8.8
ALKALINITY Mud (Pm)	~ ~	~
ALKALINITY Filtrate (Pf/Mf)	0.18/0.32	0.14/0.27
CHLORIDE (mg/L)	350	220
Total HARDNESS (mg/L)	240	340
PHITE (mg/L)	~	~
,mg/L)	~	~
KCL (% by Wt.)	~	~
PHPA (Calc. lb/bbl)	#####	#####
PHPA (Excess lb/bbl)	~ ~	~
RHEOLOGY - 600 / 300 / 6 (readings)	27/18/1	23/15/1

MUD PROPERTY SPECIFICATIONS

Weight : Min Filtrate : NC Other : Chlondes max @ < 15k
Viscosity : N C Plastic Viscosity : ~ Yield Point : ~

By Authority : yes Operator's written ~ Drilling Contractor
yes Operator's Representative ~ Other

FLUID SUMMARY AND RECOMMENDATIONS

IG - Gel was prehydrated with Caustic Soda to peptise it.
This was used to drill out the Mouse and Rat holes, prior to being used to drill out the conductor pipe and top hole, to the Marl. From this point water was used to pass the Marl section with slight additives being incorporated after that. Lime was to adjust the pH and Drillpol was used for lubrication.

THE MAKE - UP WATER CONSISTED OF

6 2 pH , 180 ppm. Chlorides , 440 ppm Total Hardness 0 0 / 0 08 pf / Mf. This was retrieved from both a dam on site and suplemented with pipe-line water, trucked in.

With only 3 joints to drill, the viscosity was slowly being raised with Drillpol (37 sec/qut being the last check) but a mud ring delayed the operation.

OPERATIONS SUMMARY

From there [299m] water (treated with SAPP) was used to drill to T.D. [335m] and then the system was reverted to mud, once again.
A wiper trip found no fill (back on bottom) and the bit was pulled out to run Csg..

Spud Time was at 02 00 hours, drilling ahead with a 12.25" bit.

MUD ACCOUNTING (BBLS.)

Fluid Built & Received		Fluid Lost or Disposed		Summary	
Premix		Desander	39	Initial Volume	
/ fresh water	200	Desilter	4		
" recycled "	0	Downhole	102	Fluid Received	649
Drill Water	449	Dumped	0		
Other	0	Other	47	Fluid Lost	191
				Final Total	458
Total Received	649	Total Lost	191	(Circulating Vol.)	

SOLIDS CONTROL EQUIPMENT

Type	Man.	Hr.		Cones	Hr.	Shaker#	Screen Size	Hr.
Centrifuge	~	0	D'sand	2	19	1	S110/S110/S84	22
Degasser	Drilco	0	D'silter	12	3	2	S110/S84/S84	22

SOLIDS EQUIPMENT EFFICIENCY

	Overflow (ppg.)	Underflow (ppg.)	Output (gal/m)
Desander	9.2	10.1	1.4
Desilter	9.1	11.5	0.8

Product	Inventory	Rec'd.	Used	Balance	Unit $	Cost $
Barytes	871		0	871	6.20	
Id - Gel	316		70	246	8.13	569.10
Drill pol	8		2	6	75 75	151.50
Lime	23		5	18	5 80	29.00
SAPP	12		5	7	67 95	339.75
Caustic Soda	26		1	25	21 38	21.38
			0			
			0			

SOLIDS ANALYSIS (ppb / %)

High Gravity Solids	0 0	0 0
Bentonite	16 8	1 8
Drilled Solids	45 9	5 0
Low Gravity Solids	62.7	6 9
Average S. G.	2.60	Solids
Med. "n" #1ck # 2 ck	0 585	0 616
Med. "K" " "	0 470	1 642
Low "n" " "	0 628	0.588
Low "K" " "	0 359	1 96

BIT / HYDRAULICS DATA

Jet Velocity	296	FT / SEC
Impact Force	1,030	LBS
HHP / in2	2.6	
HHP	307	
Bit Press. Loss	724	PS
Csg. Seat Frac Pres		PS
" Equiv. Mud Wt.		PPG
Total nozzle area	0.786	SQ INCH

Daily Chemical Cost : $ 1,111 Cumulative Cost : $ 1,111

ENGINEER EDD PERKINS ADDRESS South Australia TELEPHONE 08 - 338 3027

APPENDIX 3 - DAILY DRILLING REPORTS

Cultus

DAILY DRILLING REPORT

Skull Creek #1

REPORT# : 18 Report Date: 5/06/96 Issue Date : 6/06/96 Page Number : 1

Basic Data

DRILL CO. :	ODE	DEPTH :	1,700.0	HOLE SIZE :	8.50	TOT PERS ON SITE :	28
RIG	30	PROGRESS :	0.0	LAST CSG SIZE	9-5/8"	DAILY COST :	$130,106.00
KB TO GRND LVL	4 98	DAYS FROM SPUD	17 92	SHOE DEPTH :	332.50	CUM COST :	$1,170,626.00
GRND LVL AMSL	92 0	DAYS +/- CURVE	0 0	LEAK-OFF :	13.50	AFE COST :	$940,000.00

Gas and General Data

FORMATION : Eumeralla
MAX GAS :
B/G GAS % :

WEATHER : Cold, windy, occasional showers
STATUS @ 0600 : Energise "B" section, test to 2000 psi, reinstalling BOP's.

Bit/Hydraulics

BIT # :		ROTATE HRS :	
SIZE :		AVE WOB :	
MFR :		AVE RPM :	
TYPE :		FLOW :	
SERIAL # :		PUMP PRESS. :	
DEPTH IN m :		NOZZLES :	
DEPTH OUT m :		HHSI :	
METERAGE :		ANN VEL DP :	
TOT HRS :		ANN VEL DC :	
		BIT VEL mps :	

BIT # : IADC #

WEAR I: O1: D: L: B: G: O2: R:

Mud Properties

SAMPLE FROM :	Pit	%LGS :	9
TYPE :	F.W.Poly	%DS :	8
TIME :	8:00	SAND :	Tr
WEIGHT :	9.50	MBT :	15.0
VISCOSITY :	47	PH :	9.4
PV :	12	CI :	3,100
YP :	11	K+ :	
GEL 10 sec :	2	HARD/Ca :	560
GEL 10 min :	12	6RPM :	3
API FL :	6.4		
FILTER CAKE :	1	DAILY COST :	$4,018.00
SOLIDS :	8.6	CUM. COST :	$37,431.00

BHA and Drilling Information

BHA # :	WT BLW JAR :	STRING WT :	TRQE MAX :
BHA LENGTH :	BHA WT :	PICK UP WT :	TRQE ON :
HRS ON JARS :		SLK 0FF WT :	TRQE OFF :

BHA DESCRIPTION :

Survey

(5 points only)

MD	TVD	INCL	AZ.
1,199.0		4.0	
1,360.0		3.0	
1,695.0		7.5	

Pumps

Pump Data - last 24 hrs / Slow Pump Rates

#	MAKE/TYPE	LINR	AVSPM	AVFLOW	AVEPRESS	SLWSPM	SLWPRE
1	GD-PZ8	6.00					
2	GD-PZ8	6.00	115	320	300		

Bulk Stocks

Drill Water		Pot. Water		Fuel		Barite		Gel		Cement		Diesel	
Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock
	0		0		0	5	360	0	185	0	750	2,000	8,000

Personnel

JOB TITLE	NAME	COMPANY NAME	#
		Haliburton Cementin	2
		IDFS	1
DRILLING ENGINEER	Kevin Kelly	Weatherford	1
DRILLING SUPERVISO	Henry Flink	ODE	21
WELLSITE GEOLOGIST	Dave Horner		

Drills and Inspections

DRILL TYPE	TIMING	INSPECTIONS	TIMING
		DAYS SINCE LTA	290
FIRE		BOP TEST	21/5/96
INCIDENT		RIG INSPECTION	20/5/96
PIT DRILL	27/05/96	NEXT TEST DUE DATE	4/6/96
TRIP DRILL	4/06/96	SAFETY MEETING	5/6/96

FROM	TO	HRS	DEPTH	DESCRIPTION-ACTIVITY
0:00	1:00	1.0	1,700.0	Run 7" casing
1:00	2:30	1.5	1,700.0	Circ and work casing at 1622. No progress
2:30	3:30	1.0	1,700.0	Layout 1 joint of casing. Rig up cement head and lines.
3:30	4:30	1.0	1,700.0	Circ 120 % casing contents. Pump 40 bbl of SAPP
4:30	6:30	2.0	1,700.0	Hold safety meeting. Perform cement job; 482 sx, 12.8ppg Lead w/2.5% BWOC PHB, 250 sx, 15.8ppg Tail w/1% Halad 322, displ w/201 bbl inhibited mud. Full returns throughout job, no cement to surface. Bump plug,test casing to 1600psi. Floats held OK.
6:30	10:30	4.0	1,700.0	Drain and flush BOP's. Set casing in rotary table; 100000 lbs. Prepare to lift BOP's. Remove bell nipple, lift BOP, install casing sub, lower BOP's.
10:30	11:30	1.0	1,700.0	Rig down casing gear, cement head and lines.
11:30	15:00	3.5	1,700.0	Lay out D/pipe in mouse hole while waiting on cement.
15:00	17:00	2.0	1,700.0	WOC - Prepare to release rig; Laydown kelly & swivel & rat hole, flush #1 & 2 mud pumps, BOP, HCR line, choke manifold, flare line, and poor boy degasser.
17:00	0:00	7.0	1,700.0	WOC - Hangoff BOP. Pickup 7 " csg & set slips w/- 98k lbs, rough cut csg, remove stick up, final cut csg, dress and install "B" section, prep to set down BOP.

Cultus | DAILY DRILLING REPORT | Skull Creek #1

REPORT# : 17 Report Date: 4/06/96 Issue Date : 5/06/96 Page Number 1

Basic Data

DRILL CO	ODE	DEPTH	1,700.0	HOLE SIZE	8.50	TOT PERS ON SITE	32
RIG	30	PROGRESS	0.0	LAST CSG SIZE	9-5/8"	DAILY COST	$24,924.00
:B TO GRND LVL	4.98	DAYS FROM SPUD	16.92	SHOE DEPTH	332.50	CUM COST	$1,040,520.00
GRND LVL AMSL	92.0	DAYS +/- CURVE	0.0	LEAK-OFF	13.50	AFE COST	$940,000.00

Gas and General Data

FORMATION :	Eumeralla	WEATHER :	Cold, windy, occasional showers
MAX GAS :	-	STATUS @ 0600 :	Ran 7" casing. Unable to pass 1620, set shoe at 1614. Bumped plug at 6.00
B/G GAS % :			

Bit/Hydraulics

BIT # :	7 RR	ROTATE HRS :	
SIZE :	8.50	AVE WOB :	
MFR :	SM	AVE RPM :	
TYPE :	MFDSSH	FLOW :	
SERIAL # :	LFG918	PUMP PRESS. :	
DEPTH IN m :		NOZZLES :	14 12 12
DEPTH OUT m :		HHSI :	
METERAGE :		ANN VEL DP :	
TOT HRS :		ANN VEL DC :	
		BIT VEL mps :	

BIT # : 7 RR IADC #

WEAR I: O1: D: L: B: G: O2: R:

Mud Properties

SAMPLE FROM :	Pit	%LGS :	9
TYPE :	F.W.Poly	%DS :	8
TIME :	22:00	SAND :	Tr
WEIGHT :	9.50	MBT :	10.0
VISCOSITY :	40	PH :	9.8
PV :	10	Cl :	3,000
YP :	8	K+ :	
GEL 10 sec :	2	HARD/Ca :	480
GEL 10 min :	8	6RPM :	2
API FL :	5.5		
FILTER CAKE :	1	DAILY COST :	$908.00
SOLIDS :	8.6	CUM. COST :	$33,413.00

BHA and Drilling Information

BHA # :	7	WT BLW JAR :		STRING WT :	138	TRQE MAX :	
BHA LENGTH :	311	BHA WT :		PICK UP WT :		TRQE ON :	
HRS ON JARS :				SLK OFF WT :		TRQE OFF :	

BHA DESCRIPTION : Check Trip. Bit, B/S, 6 1/2" D/C, R/R, 14 x 6 1/2" D/C's, Jars, 2 x 6 1/2" D/C's, 15 x 4 1/2" HWDP

Survey

(points only)

MD	TVD	INCL	AZ.
1,199.0		4.0	
1,360.0		3.0	
1,695.0		7.5	

Pumps

Pump Data - last 24 hrs | Slow Pump Rates

#	MAKE/TYPE	LINR	AVSPM	AVFLOW	AVEPRESS	SLWSPM	SLWPRE
1	GD-PZ8	6.00					
2	GD-PZ8	6.00	115	320	1,150		

Bulk Stocks

Drill Water		Pot. Water		Fuel		Barite		Gel		Cement		Diesel	
Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock
	0		0		0	35	365	0	185	0	750	2,000	10,000

Personnel

JOB TITLE	NAME	COMPANY NAME	#
		Australian DST	2
		Haliburton Cementin	2
		IDFS	1
DRILLING ENGINEER	Kevin Kelly	Weatherford	1
DRILLING SUPERVISO	Henry Flink	ODE	20
WELLSITE GEOLOGIST	Dave Horner	Halliburton Mudloggi	3

Drills and Inspections

DRILL TYPE	TIMING	INSPECTIONS	TIMING
		DAYS SINCE LTA	289
FIRE		BOP TEST	21/5/96
INCIDENT		RIG INSPECTION	20/5/96
PIT DRILL	27/05/96	NEXT TEST DUE DATE	4/6/96
TRIP DRILL	4/06/96	SAFETY MEETING	2/6/96

FROM	TO	HRS	DEPTH	DESCRIPTION-ACTIVITY
0:00	2:30	2.5	1,700.0	B/out & lay down DST Tools
2:30	3:00	.5	1,700.0	Make up bit, bit sub, 1 RR and RIH to shoe
3:00	3:30	.5	1,700.0	Slip 33' drill line
3:30	5:30	2.0	1,700.0	RIH to 1582m Work tight spot at 1515 m with 15000 lbs
5:30	6:00	.5	1,700.0	Wash from 1582 to 1600 m
6:00	8:00	2.0	1,700.0	Circulate and condition mud. Pump pill
8:00	9:00	1.0	1,700.0	Flow check, POH. Rack 700 m pipe in mast
9:00	11:30	2.5	1,700.0	Layout remaining drill pipe.
11:30	12:30	1.0	1,700.0	Pick up kelly, flush rat hole and mouse hole. Break upper Kelly joints. Remove Kelly/hose. lower cock and saver sub.
12:30	14:30	2.0	1,700.0	Layout HWDP, 6 1/2" DC
14:30	15:00	.5	1,700.0	Clear floor
15:00	16:00	1.0	1,700.0	Rig up to run 7 " casing
16:00	0:00	8.0	1,700.0	Run 7" casing.

Cultus

DAILY DRILLING REPORT

Skull Creek #1

REPORT# : 16 Report Date: 3/06/95 Issue Date : 4/06/96 Page Number : 1

Basic Data

DRILL CO :	ODE	DEPTH	1,700 0	HOLE SIZE :	8 50	TOT PERS ON SITE :	38
	30	PROGRESS	0 0	LAST CSG SIZE :	9-5/8"	DAILY COST :	$138,197.00
[redacted] TO GRND LVL	4 98	DAYS FROM SPUD	15 92	SHOE DEPTH :	332 50	CUM COST :	$1,026,396.00
GRND LVL AMSL :	92 0	DAYS +/- CURVE	0 0	LEAK-OFF	13.50	AFE COST :	$940,000.00

Gas and General Data

FORMATION :	Eumeralla	WEATHER :	Cold and raining.
MAX GAS :		STATUS @ 0600 :	Circulating and conditioning mud prior to running casing.
B/G GAS % :			

Bit/Hydraulics

BIT # :	7 RR	ROTATE HRS :	
SIZE :	8.50	AVE WOB :	
MFR :	SM	AVE RPM :	
TYPE :	MFDSSH	FLOW :	
SERIAL # :	LFG918	PUMP PRESS. :	
DEPTH IN m :		NOZZLES :	14 12 12
DEPTH OUT m :		HHSI :	
METERAGE :		ANN VEL DP :	
TOT HRS :		ANN VEL DC :	
		BIT VEL mps :	

BIT # : 7 RR IADC #

WEAR I: O1: D: L: B: G: O2: R:

Mud Properties

SAMPLE FROM :	FL	%LGS :	8
TYPE :	F.W.Poly	%DS :	7
TIME :	20:00	SAND :	Tr
WEIGHT :	9.40	MBT :	12.0
VISCOSITY :	44	PH :	9.6
PV :	11	Cl :	3,300
YP :	7	K+ :	
GEL 10 sec :	2	HARD/Ca :	640
GEL 10 min :	11	6RPM :	1
API FL :	5.2		
FILTER CAKE :	1	DAILY COST :	$393.00
SOLIDS :	7.8	CUM. COST :	$32,505.00

BHA and Drilling Information

BHA # :	7	WT BLW JAR :		STRING WT :	138	TRQE MAX :	
BHA LENGTH :	311	BHA WT :		PICK UP WT :		TRQE ON :	
HRS ON JARS :				SLK 0FF WT :		TRQE OFF :	

BHA DESCRIPTION : Check Trip. Bit, B/S, 6 1/2" D/C, R/R, 14 x 6 1/2" D/C's, Jars, 2 x 6 1/2" D/C's, 15 x 4 1/2" HWDP

[redacted]ey (points only)

MD	TVD	INCL	AZ.
1,199.0		4.0	
1,360.0		3.0	
1,695.0		7.5	

Pumps

Pump Data - last 24 hrs						Slow Pump Rates	
#	MAKE/TYPE	LINR	AVSPM	AVFLOW	AVEPRESS	SLWSPM	SLWPRE
1	GD-PZ8	6.00					
2	GD-PZ8	6.00	115	320	1,150		

Bulk Stocks

Drill Water		Pot. Water		Fuel		Barite		Gel		Cement		Diesel	
Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock
	0	.	0		0	60	400	0	185	0	750	2,700	12,000

Personnel

JOB TITLE	NAME	COMPANY NAME	#
		Australian DST	2
		Haliburton Cementin	2
		Weatherford	1
DRILLING ENGINEER	Kevin Kelly	BPB	5
DRILLING SUPERVISO	Henry Flink	ODE	20
GEOLOGIST	Alex Pumillio	IDFS	1
WELLSITE GEOLOGIST	Dave Horner	Halliburton Mudloggi	3

Drills and Inspections

DRILL TYPE	TIMING	INSPECTIONS	TIMING
		DAYS SINCE LTA	288
FIRE		BOP TEST	21/5/96
INCIDENT		RIG INSPECTION	20/5/96
PIT DRILL	27/05/96	NEXT TEST DUE DATE	4/6/96
TRIP DRILL	3/06/96	SAFETY MEETING	2/6/96

FROM	TO	HRS	DEPTH	DESCRIPTION-ACTIVITY
0:00	1:30	1.5	1,700.0	RIH to 1505 m
1:30	2:00	.5	1,700.0	Wash and ream from 1505 to 1528 m
2:00	2:30	.5	1,700.0	RIH from 1505 to 1600 m
2:30	4:00	1.5	1,700.0	Circulate and condition mud, flow check. Max gas 100 units.
4:00	7:00	3.0	1,700.0	Pump pill and POH for DST # 7
7:00	9:00	2.0	1,700.0	Pick up and make up DST tools
9:00	11:30	2.5	1,700.0	RIH with DST tools, SLM
[redacted]	12:00	.5	1,700.0	Pick up and make up head lines and manifold.
[redacted]	12:30	.5	1,700.0	Pressure test manifold, surface lines, and fail safe to 1500 psi for 10 minutes.
[redacted]:30	13:30	1.0	1,700.0	Set packers at 1234 to 1245 m for DST # 7. Hold safety meeting.
13:30	17:30	4.0	1,700.0	Perform DST; one 2 hour flow period and one 2 hour shut in.
17:30	19:00	2.0	1,700.0	Unseat packers, drop bar and chase with 18 bbls. Open test manifold, shut rams and reverse circ 69 bbls.
19:00	20:30	1.5	1,700.0	Change surface lines circulate conventionally 233 bbls.

FROM	TO	HRS	DEPTH	DESCRIPTION-ACTIVITY
20:30	21:00	.5	1,700.0	Rig down, clean and layout surface lines and test manifold. Flow check, static, pump slug.
1:00	0:00	3.0	1,700.0	POH with DST tool (slow).

Cultus

DAILY DRILLING REPORT

Skull Creek #1

REPORT# : 15 Report Date: 2/06/96 Issue Date : 3/06/96 Page Number : 1

Basic Data

DRILL CO	ODE	DEPTH	1 700 0	HOLE SIZE	8.50	TOT PERS ON SITE :	37
RIG :	30	PROGRESS	0 0	LAST CSG SIZE	9-5/8"	DAILY COST :	$44,388.00
RKB TO GRND LVL	4 98	DAYS FROM SPUD	14 92	SHOE DEPTH	332.50	CUM COST :	$888,199.00
GRND LVL AMSL	92 0	DAYS +/- CURVE	0 0	LEAK-OFF	13.50	AFE COST :	$940,000.00

Gas and General Data

FORMATION	Eumeralla	WEATHER	Clear, warm in day, cold at night
MAX GAS :		STATUS @ 0600	Tripping out of hole from check trip prior to DST #7
B/G GAS %			

Bit/Hydraulics

BIT # :	7 RR	ROTATE HRS	
SIZE :	8 50	AVE WOB	
MFR :	SM	AVE RPM	
TYPE :	MFDSSH	FLOW	
SERIAL # :	LFG918	PUMP PRESS. :	
DEPTH IN m :		NOZZLES :	14 12 12
DEPTH OUT m :		HHSI :	
METERAGE :		ANN VEL DP :	
TOT HRS :		ANN VEL DC	
		BIT VEL mps :	

BIT # : 7 RR IADC #

WEAR I: O1: D L. B G: O2: R:

Mud Properties

SAMPLE FROM :	FL	%LGS :	8
TYPE	F.W.Poly	%DS :	7
TIME	3:30	SAND :	Tr
WEIGHT :	9.45	MBT :	14.0
VISCOSITY :	48	PH :	9.8
PV :	10	Cl :	3,300
YP :	8	K+ :	
GEL 10 sec :	2	HARD/Ca :	520
GEL 10 min :	11	6RPM :	1
API FL :	4.8		
FILTER CAKE :	1	DAILY COST :	$1,307.00
SOLIDS :	8.2	CUM. COST :	$32,112.00

BHA and Drilling Information

BHA # :	7	WT BLW JAR :		STRING WT :	138	TRQE MAX :	
BHA LENGTH :	311	BHA WT .		PICK UP WT :		TRQE ON :	
HRS ON JARS .				SLK 0FF WT :		TRQE OFF :	

BHA DESCRIPTION Check Trip. Bit. B/S. 6 1/2" D/C. R/R. 14 x 6 1/2" D/C's. Jars. 2 x 6 1/2" D/C's. 15 x 4 1/2" HWDP

Survey

(? points ly)

MD	TVD	INCL	AZ.
1,199.0		4.0	
1,360.0		3 0	
1,695.0		7.5	

Pumps

Pump Data - last 24 hrs						Slow Pump Rates	
#	MAKE/TYPE	LINR	AVSPM	AVFLOW	AVEPRESS	SLWSPM	SLWPRE
1	GD-PZ8	6.00					

Bulk Stocks

Drill Water		Pot. Water		Fuel		Barite		Gel		Cement		Diesel	
Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock
	0		0		0	60	460	0	185	0	750	2,300	14,700

Personnel

JOB TITLE	NAME	COMPANY NAME	#
		Australian DST	2
		Haliburton Cementin	2
DRILLING ENGINEER	Kevin Kelly	BPB	5
DRILLING SUPERVISO	Henry Flink	ODE	20
GEOLOGIST	Alex Pumillio	IDFS	1
WELLSITE GEOLOGIST	Dave Horner	Halliburton Mudloggi	3

Drills and Inspections

DRILL TYPE	TIMING	INSPECTIONS	TIMING
		DAYS SINCE LTA	287
FIRE		BOP TEST	21/5/96
INCIDENT		RIG INSPECTION	20/5/96
PIT DRILL	27/05/96	NEXT TEST DUE DATE	4/6/96
TRIP DRILL	2/06/96	SAFETY MEETING	2/6/96

FROM	TO	HRS	DEPTH	DESCRIPTION-ACTIVITY
0:00	1:30	1.5	1,700.0	Make up DST tools for DST#5&6
1:30	6:00	4.5	1,700.0	RIH with DST tools, install pump out and impact subs
6:00	7:30	1.5	1,700.0	Rig up head, lines & manifold. P/test surface lines, position packers @ 1500 to 1520 m for DST # 5. Pump up packers and set. Hold safety meeting.
7:30	10:00	2.5	1,700.0	Open tool. DST head not torqued up, shut in, tighten head, set packers and open tool. Communication on final flow period, shut in.
10:00	11:00	1.0	1,700.0	Lower packers 2 m to 1502 to 1522 m. Attempt to set packers twice, unsuccessful, abandon DST #5.
11:00	13:30	2.5	1,700.0	Pick up 1 single and POH 10 stands. Position packers at 1225 to 1245 m for DST #6.
13:30	14:00	.5	1,700.0	Attempt to set packers, unsuccessful, suspect blow packer. Abandon DST #6.
:00	15:00	1.0	1,700.0	Drop bar, fill annulus with 249 stks (17 bbl). Shut in test manifold, change over surface lines.
15:00	16:00	1.0	1,700.0	Pump conventionally total cap of drill pipe and annulus.
16:00	19:00	3.0	1,700.0	POH with DST tools, flow check, OK
19:00	22:00	3.0	1,700.0	POH. Break and layout test tools, recover sample, clean and service tools and packer. Change packer.

FROM	TO	HRS	DEPTH	DESCRIPTION-ACTIVITY
22:00	0.00	2.0	1,700.0	Make up BHA and RIH for check trip.

Cultus

DAILY DRILLING REPORT

Skull Creek #1

REPORT# : 14 Report Date: 1/6/96 Issue Date : 2/6/96 Page Number : 1

Basic Data

DRILL CO.	ODE	DEPTH :	1,700.0	HOLE SIZE :	8.50	TOT PERS ON SITE :	34
IG	30	PROGRESS	0.0	LAST CSG SIZE	9-5/8"	DAILY COST :	$ 24, 343
RKB TO GRND LVL	4.98	DAYS FROM SPUD	13.92	SHOE DEPTH :	332.50	CUM COST :	$ 843, 811
GRND LVL AMSL	92.0	DAYS +/- CURVE :	0.0	LEAK-OFF :	13.50	AFE COST :	$ 940, 000

Gas and General Data

FORMATION :	Eumeralla	WEATHER :	Rain, windy, and cold
MAX GAS % :		STATUS @ 0600 :	RIH for DST # 5.Testing surface equipment.prior to set packers and open tool.
B/G GAS % :			

Bit/Hydraulics

BIT # :	6 RR	ROTATE HRS :	
SIZE :	8.50	AVE WOB :	
MFR :	SM	AVE RPM :	
TYPE :	MFDSSH	FLOW :	
SERIAL # :	LFG918	PUMP PRESS. :	
DEPTH IN m :		NOZZLES :	14 12 12
DEPTH OUT m :		BIT HHSI :	
METERAGE :		ANN VEL DP :	
HRS :		ANN VEL DC :	
		BIT VEL mps :	

BIT # : 6 RR IADC #

WEAR I: O1: D: L: B: G: O2: R:

Mud Properties

SAMPLE FROM :	FL	%LGS :	8
TYPE :	F.W.Poly	%DS :	7
TIME :	20:30	SAND :	Tr
WEIGHT :	9.40	MBT :	10.0
VISCOCITY :	47	PH :	9.8
PV :	14	CI :	3,600
YP :	11	K+ :	
GEL10S :	2	HARD/Ca :	640
GEL10M :	12	6RPM :	2
APIFL :	5.0		
FILTER CAKE :	1	DAILY COST :	$1,252.00
SOLIDS :	7.8	CUM. COST :	$30,805.00

BHA and Drilling Information

BHA # :	6	WT BLW JAR :		STRING WT :	138	TRQE MAX :	
BHA LENGTH :	311	BHA WT :		PICK UP WT :		TRQE ON :	
HRS ON JARS :				SLK OFF WT :		TRQE OFF :	

DESCRIPTION : Check Trip. Bit, B/S, 6 1/2" D/C, R/R, 14 x 6 1/2" D/C's, Jars, 2 x 6 1/2" D/C's, 15 x 4 1/2" HWDP

Survey (3 points only)

MD	TVD	INCL	AZ.
1,199.0		4.0	
1,360.0		3.0	
1,695.0		7.5	

Pumps

Pump Data - last 24 hrs						Slow Pump Rates	
#	MAKE/TYPE	LINR	AVSPM	AVFLOW	AVEPRESS	SLWSPM	SLWPRES
1	GD-PZ8	6.00					
2	GD-PZ8	6.00	125	350	1,300		

Bulk Stocks

Drill Water		Pot. Water		Fuel		Barite		Gel		Cement		Diesel	
Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock
	0		0		0	30	520	0	185	0	750	2,000	17,000

Personnel

JOB TITLE	NAME	COMPANY NAME	#
		Australian DST	2
		IDFS	1
DRILLING ENGINEER	Kevin Kelly	BPB	5
DRILLING SUPERVISOR	Henry Flink	ODE	20
WELLSITE GEOLOGIST	Dave Horner	Halliburton Mudloggin	3

Drills and Inspections

DRILL TYPE	TIMING	INSPECTIONS	TIMING
		DAYS SINCE LTA	286
FIRE		BOP TEST	21/5/96
INCIDENT		RIG INSPECTION	20/5/96
PIT DRILL	27/05/96	NEXT TEST DUE DATE	4/6/96
TRIP DRILL	1/06/96	SAFETY MEETING	30/5/96

LABEL

FROM	TO	HRS	DEPTH	DESCRIPTION-ACTIVITY
0:00	0:30	.5	1,700.0	Circulate and condition mud
0:30	3:30	3.0	1,700.0	Flow check, pump pill, POH
3:30	15:30	12.0	1,700.0	R/U BPB. M/U RFT. Replace BPB wt indicator sensator. RFT in 5:30, out 8:00. Clean out tool. In 9:45, out 11:35. Tool not working. Rig down
15:30	19:00	3.5	1,700.0	M/U BHA and RIH to 1600 m
19:00	21:00	2.0	1,700.0	Circulate and condition mud
21:00	0:00	3.0	1,700.0	POH to pick up DST tools.

Cultus | DAILY DRILLING REPORT | Skull Creek #1

REPORT# : 13 Report Date: 31/5/96 Issue Date : 1/6/96 Page Number : 1

Basic Data

DRILL CO	ODE	DEPTH	1,700 0	HOLE SIZE	8 50	TOT PERS ON SITE :	35
RIG	30	PROGRESS	0 0	LAST CSG SIZE	9-5/8"	DAILY COST :	$37, 421
RKB TO GRND LVL	4 98	DAYS FROM SPUD	12 92	SHOE DEPTH	332 50	CUM COST :	$806, 390
GRND LVL AMSL	92 0	DAYS +/- CURVE	0 0	LEAK-OFF	13 50	AFE COST :	$940,000

Gas and General Data

FORMATION :	Eumeralla	WEATHER :	Clear and cool
MAX GAS % :		STATUS @ 0600 :	RIH with RFT tool
B/G GAS % :			

Bit/Hydraulics

BIT # :	5 RR	ROTATE HRS :	
SIZE :	8.50	AVE WOB :	
MFR :	SM	AVE RPM :	
TYPE :	MFDSSH	FLOW :	
SERIAL # :	LFG918	PUMP PRESS. :	
DEPTH IN m :		NOZZLES :	14 12 12
DEPTH OUT m :		BIT HHSI :	
TERAGE :		ANN VEL DP :	
OUT HRS :		ANN VEL DC :	
		BIT VEL mps :	

BIT # : 5 RR IADC #

WEAR I: O1: D: L: B: G: O2: R:

Mud Properties

SAMPLE FROM :	FL	%LGS :	7
TYPE :	F W Poly	%DS :	6
TIME :	0:30	SAND :	Tr
WEIGHT :	9.30	MBT :	11.0
VISCOCITY :	38	PH :	10.0
PV :	11	Cl :	4,000
YP :	11	K+ :	1,000.0
GEL10S :	2	HARD/Ca :	540
GEL10M :	8	6RPM :	2
APIFL :	5.7		
FILTER CAKE :	1	DAILY COST :	$2,380.00
SOLIDS :	7	CUM. COST :	$29,553.00

BHA and Drilling Information

BHA # :	5	WT BLW JAR :		STRING WT :	138	TRQE MAX :	
BHA LENGTH :	311	BHA WT :		PICK UP WT :		TRQE ON :	
HRS ON JARS :				SLK OFF WT :		TRQE OFF :	

BHA DESCRIPTION : Check Trip. Bit, B/S, 6 1/2" D/C, R/R, 14 x 6 1/2" D/C's, Jars, 2 x 6 1/2" D/C's, 15 x 4 1/2" HWDP

Survey (3 points only)

MD	TVD	INCL	AZ.
1,199.0		4.0	
1,360.0		3.0	
1,695.0		7.5	

Pumps

Pump Data - last 24 hrs						Slow Pump Rates	
#	MAKE/TYPE	LINR	AVSPM	AVFLOW	AVEPRESS	SLWSPM	SLWPRES
1	GD-PZ8	6.00	35	100	500		
2	GD-PZ8	6.00					

Bulk Stocks

Drill Water		Pot. Water		Fuel		Barite		Gel		Cement		Diesel	
Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock
	0		0		0	30	550	0	185	0	750	3,000	19,000

Personnel

JOB TITLE	NAME	COMPANY NAME	#
		Australian DST	2
DRILLING ENGINEER	Kevin Kelly	BPB	5
DRILLING SUPERVISOR	Henry Flink	ODE	20
RESERVOIR ENGINEER	Rod Harris	IDFS	1
WELLSITE GEOLOGIST	Dave Horner	Halliburton Mudloggin	3

Drills and Inspections

DRILL TYPE	TIMING	INSPECTIONS	TIMING
		DAYS SINCE LTA	285
FIRE		BOP TEST	21/5/96
INCIDENT		RIG INSPECTION	20/5/96
PIT DRILL	27/05/96	NEXT TEST DUE DATE	4/6/96
TRIP DRILL	31/05/96	SAFETY MEETING	30/5/96

LABEL

FROM	TO	HRS	DEPTH	DESCRIPTION-ACTIVITY
0:00	4:30	4.5	1,700.0	Inflate packer & set . Open tool @ 0:50, close @ 1:00, open @ 1:46, close @ 2:46. Pull packer free @ 4:16
4:30	5:30	1.0	1,700.0	Fill 1000 ft of d/pipe with mud. Drob bar, didn't shear pins.
5:30	6:00	.5	1,700.0	Fill pipe, blow pump out sub at 1100 psi.
10	10:00	4.0	1,700.0	Circulate gas through BPM and Poor Boy. Max 22%, LMW 8.1%
:00	10:30	.5	1,700.0	Flow check. RIH 7 stds. Top packer @ 1430
10:30	13:00	2.5	1,700.0	Circulate out gas and condition mud. Max 28%, LMW 8.7%
13:00	13:30	.5	1,700.0	Break and layout test head and DST surface equipment.
13:30	14:00	.5	1,700.0	F/check (static) POH 2 stds, P/U kelly pump pill.
14:00	16:30	2.5	1,700.0	POH slow with DST tools. Flow check on way out (static)
16:30	19:30	3.0	1,700.0	Recover samples from chamber. Break and layout test tools, service and clean.
19:30	20:30	1.0	1,700.0	M/U BHA and RIH for check trip

FROM	TO	HRS	DEPTH	DESCRIPTION-ACTIVITY
20:30	21:00	.5	1,700.0	Slip and cut line
21:00	23:00	2.0	1,700.0	Cont RIH to 1600 m
23:00	0:00	1.0	1,700.0	Circulate and condition mud.

Cultus

DAILY DRILLING REPORT

Skull Creek #1

REPORT# : 12 Report Date: 30/05/96 Issue Date : 31/05/96 Page Number : 1

Basic Data

DRILL CO	ODE	DEPTH	1,700 0	HOLE SIZE	8.50	TOT PERS ON SITE	35
RIG	30	PROGRESS	0 0	LAST CSG SIZE	9-5/8"	DAILY COST	$50,405.00
.B TO GRND LVL	4 98	DAYS FROM SPUD	11 92	SHOE DEPTH	332.50	CUM COST	$782,047.00
GRND LVL AMSL	92 0	DAYS +/- CURVE	0 0	LEAK-OFF	13 50	AFE COST	$853,600.00

Gas and General Data

FORMATION	Eumeralla	WEATHER	Clear and cool
MAX GAS		STATUS @ 0600	Completed DST #3 & 4 Circulating conventionally.
B/G GAS %			

Bit/Hydraulics

BIT #		ROTATE HRS	
SIZE		AVE WOB	
MFR		AVE RPM	
TYPE		FLOW	
SERIAL #		PUMP PRESS	
DEPTH IN m		NOZZLES	
DEPTH OUT m		HHSI	
METERAGE		ANN VEL DP	
TOT HRS		ANN VEL DC	
		BIT VEL mps	

BIT # : IADC #

WEAR I: O1: D: L: B: G: O2: R:

Mud Properties

SAMPLE FROM	PIT	%LGS	7
TYPE	F.W.Poly	%DS	6
TIME	16:00	SAND	TR
WEIGHT	9.30	MBT	12.0
VISCOSITY	48	PH	9.5
PV	12	CI	4,100
YP	11	K+	1,500.0
GEL 10 sec	2	HARD/Ca	620
GEL 10 min	13	6RPM	2
API FL	4.7		
FILTER CAKE	1	DAILY COST	$2,374.00
SOLIDS	7	CUM. COST	$27,173.00

BHA and Drilling Information

BHA #	WT BLW JAR	STRING WT	TRQE MAX
BHA LENGTH	BHA WT	PICK UP WT	TRQE ON
HRS ON JARS		SLK OFF WT	TRQE OFF

BHA DESCRIPTION : DST # 3 & 4

vey
oints
ly)

MD	TVD	INCL	AZ.
1,199.0		4.0	
1,360.0		3 0	
1,695.0		7.5	

Pumps

	Pump Data - last 24 hrs					Slow Pump Rates	
#	MAKE/TYPE	LINR	AVSPM	AVFLOW	AVEPRESS	SLWSPM	SLWPRE
1	GD-PZ8	6.00					
2	GD-PZ8	6.00					

Bulk Stocks

Drill Water		Pot. Water		Fuel		Barite		Gel		Cement		Diesel	
Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock
	0		0		0	37	580	0	185	0	750	2,200	7,000

Personnel

JOB TITLE	NAME	COMPANY NAME	#
		Australian DST	2
DRILLING ENGINEER	Kevin Kelly	BPB	5
DRILLING SUPERVISO	Henry Flink	ODE	20
RESERVOIR ENGINEE	Rod Harris	IDFS	1
WELLSITE GEOLOGIST	Dave Horner	Halliburton Mudloggi	3

Drills and Inspections

DRILL TYPE	TIMING	INSPECTIONS	TIMING
		DAYS SINCE LTA	284
FIRE		BOP TEST	21/5/96
INCIDENT		RIG INSPECTION	20/5/96
PIT DRILL	27/05/96	NEXT TEST DUE DATE	4/6/96
TRIP DRILL	30/05/96	SAFETY MEETING	30/5/96

FROM	TO	HRS	DEPTH	DESCRIPTION-ACTIVITY
0:00	2:30	2.5	1,700.0	Cont m/up BHA and RIH to 1679 m
2:30	3:00	.5	1,700.0	Wash from 1679 to 1700 m, 2 m fill.
3:00	6:30	3.5	1,700.0	Circulate and condition mud, Flow check.
6:30	9:30	3.0	1,700.0	Pump pill, POH. Break out 2 x R/reamer, bit sub, bit.
9:30	11:30	2.0	1,700.0	Prepare and pick up DST tools.
11:30	15:00	3.5	1,700.0	RIH with DST tools. Strap in, no corrections.
15:00	23:00	8.0	1,700.0	P/U & M/U DST head and surface lines, check pump 1 & 2 on k/line & function test fail safe valve on DST head. Packer depth - 1402 - 1417 m. Set packers 15:21 to 15:42, tool open 15:55, tool closed 16:00. Reopen tool 16:39, close tool 18:39. Pull packer free 22:43
J0	0:00	1.0	1,700.0	Rig down DST head & surface lines. POH to top packer 1240 to 1255m. R/u DST head and surface lines.

Cultus

DAILY DRILLING REPORT

Skull Creek #1

REPORT# : 11 Report Date: 29/05/96 Issue Date : 30/05/96 Page Number : 1

Basic Data

DRILL CO. :	ODE	DEPTH :	1,700.0	HOLE SIZE :	8.50	TOT PERS ON SITE :	36
RIG :	30	PROGRESS :	0.0	LAST CSG SIZE	9-5/8"	DAILY COST :	$25,455.00
B TO GRND LVL	4.98	DAYS FROM SPUD	10.92	SHOE DEPTH :	332.50	CUM COST :	$731,642.00
GRND LVL AMSL	92.0	DAYS +/- CURVE	0.0	LEAK-OFF :	13.50	AFE COST :	$853,600.00

Gas and General Data

FORMATION : Eumeralla
MAX GAS :
B/G GAS % :

WEATHER : Showers, clearing in afternoon
STATUS @ 0600 : Circulating and conditioning mud prior to DST. Max gas 0.6%

Bit/Hydraulics

BIT # :	ROTATE HRS :
SIZE :	AVE WOB :
MFR :	AVE RPM :
TYPE :	FLOW :
SERIAL # :	PUMP PRESS. :
DEPTH IN m :	NOZZLES :
DEPTH OUT m :	HHSI :
METERAGE :	ANN VEL DP :
TOT HRS :	ANN VEL DC :
	BIT VEL mps :

BIT # : IADC #

WEAR I: O1: D: L: B: G: O2: R:

Mud Properties

SAMPLE FROM :	FL	%LGS :	7
TYPE :	F.W.Poly	%DS :	6
TIME :	5:00	SAND :	Tr
WEIGHT :	9.30	MBT :	14.0
VISCOSITY :	47	PH :	9.7
PV :	12	Cl :	3,900
YP :	10	K+ :	1,400.0
GEL 10 sec :	2	HARD/Ca :	480
GEL 10 min :	16	6RPM :	2
API FL :	5.8		
FILTER CAKE :	1	DAILY COST :	$2,674.00
SOLIDS :	7	CUM. COST :	$24,799.00

BHA and Drilling Information

BHA # :	WT BLW JAR :	STRING WT :	TRQE MAX :
BHA LENGTH :	BHA WT :	PICK UP WT :	TRQE ON :
HRS ON JARS :		SLK OFF WT :	TRQE OFF :

BHA DESCRIPTION : Logging

Survey (Joints ly)

MD	TVD	INCL	AZ.
1,199.0		4.0	
1,360.0		3.0	
1,695.0		7.5	

Pumps

Pump Data - last 24 hrs						Slow Pump Rates	
#	MAKE/TYPE	LINR	AVSPM	AVFLOW	AVEPRESS	SLWSPM	SLWPRE
1	GD-PZ8	6.00					
2	GD-PZ8	6.00					

Bulk Stocks

Drill Water		Pot. Water		Fuel		Barite		Gel		Cement		Diesel	
Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock
	0		0		0	0	617	0	185	0	750	2,000	9,200

Personnel

JOB TITLE	NAME	COMPANY NAME	#
		Australian DST	2
		IDFS	1
		Velocity Data	1
DRILLING ENGINEER	Kevin Kelly	BPB	5
DRILLING SUPERVISO	Henry Flink	ODE	21
WELLSITE GEOLOGIST	Dave Horner	Halliburton Mudloggi	3

Drills and Inspections

DRILL TYPE	TIMING	INSPECTIONS	TIMING
		DAYS SINCE LTA	283
FIRE		BOP TEST	21/5/96
INCIDENT		RIG INSPECTION	20/5/96
PIT DRILL	27/05/96	NEXT TEST DUE DATE	4/6/96
TRIP DRILL	28/05/96	SAFETY MEETING	29/5/96

FROM	TO	HRS	DEPTH	DESCRIPTION-ACTIVITY
0:00	23:30	23.5	1,700.0	Con't RFT log. Problems with tool, POH. RIH wit new tool, not working, POH. Abandon RFT's, Run #3 - LDL-CNL-GR-CAL. Run #4 - Dipmeter. Perform velocity survey.
23:30	0:00	.5	1,700.0	Make up BHA for wiper trip prior to DST

Cultus | DAILY DRILLING REPORT | Skull Creek #1

REPORT# : 10 Report Date: 28/05/96 Issue Date : 29/05/96 Page Number : 1

Basic Data

DRILL CO	ODE	DEPTH	1,700 0	HOLE SIZE	8 50	TOT PERS ON SITE	37
RIG	30	PROGRESS	108 0	LAST CSG SIZE	9-5/8"	DAILY COST	$56,282.00
KB TO GRND LVL	4 98	DAYS FROM SPUD	9 92	SHOE DEPTH	332 50	CUM COST	$706,187.00
GRND LVL AMSL	92 0	DAYS +/- CURVE	0 0	LEAK-OFF	13 50	AFE COST	$853,600.00

Gas and General Data

FORMATION :	Eumeralla	WEATHER :	Rain, clearing in afternoon,cool
MAX GAS :		STATUS @ 0600 :	POH with RFT tool. Swap tool, RIH to complete RFT logging.
B/G GAS % :			

Bit/Hydraulics

BIT # :	4	ROTATE HRS :	9.2
SIZE :	8.50	AVE WOB :	30
MFR :	SM	AVE RPM :	200
TYPE :	MF15	FLOW :	400
SERIAL # :	LC2089	PUMP PRESS. :	1,500
DEPTH IN m :	1,373.0	NOZZLES :	14 12 12
DEPTH OUT m :	1,700.0	HHSI :	3
METERAGE :	327.0	ANN VEL DP :	189
TOT HRS :	13.0	ANN VEL DC :	327
		BIT VEL mps :	325

BIT # : 4 IADC # 4 4 7

WEAR I: 2 O1:2 D:N L:A B:E G:I O2:N R:TD

Mud Properties

SAMPLE FROM :	PIT	%LGS :	7
TYPE :	F.W.Poly	%DS :	6
TIME :	21:00	SAND :	Tr
WEIGHT :	9.30	MBT :	16.0
VISCOSITY :	47	PH :	9.5
PV :	11	CI :	4,300
YP :	18	K+ :	2,200.0
GEL 10 sec :	8	HARD/Ca :	560
GEL 10 min :	23	6RPM :	9
API FL :	8.2		
FILTER CAKE :	2	DAILY COST :	$2,263.00
SOLIDS :	7	CUM. COST :	$22,126.00

BHA and Drilling Information

BHA # :	4	WT BLW JAR :	41	STRING WT :	146	TRQE MAX :	100
BHA LENGTH :	328	BHA WT :	64	PICK UP WT :	154	TRQE ON :	100
HRS ON JARS :	195			SLK 0FF WT :	144	TRQE OFF :	70

BHA DESCRIPTION : Bit, 6 1/2" motor, X/O, R/Reamer, 6 1/2" DC, R/Reamer, 15 x 6 1/2" DC's, Jars, 2 x 6 1/2" DC's, 15 x 4 1/2" HWDP

Survey (3 points only)

MD	TVD	INCL	AZ.
1,199.0		4.0	
1,360.0		3.0	
1,695.0		7.5	

Pumps

Pump Data - last 24 hrs						Slow Pump Rates	
#	MAKE/TYPE	LINR	AVSPM	AVFLOW	AVEPRESS	SLWSPM	SLWPRE
1	GD-PZ8	6.00				45	32

Bulk Stocks

Drill Water		Pot. Water		Fuel		Barite		Gel		Cement		Diesel	
Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock
	0		0		0	40	617	0	185	0	750	3,500	11,200

Personnel

JOB TITLE	NAME	COMPANY NAME	#
		Australian DST	2
		BPB	5
		IDFS	1
		Velocity Data	1
DRILLING ENGINEER	Kevin Kelly	Halliburton Dir Drill	1
DRILLING SUPERVISO	Henry Flink	ODE	21
WELLSITE GEOLOGIST	Dave Horner	Halliburton Mudloggi	3

Drills and Inspections

DRILL TYPE	TIMING	INSPECTIONS	TIMING
		DAYS SINCE LTA	282
FIRE		BOP TEST	21/5/96
INCIDENT		RIG INSPECTION	20/5/96
PIT DRILL	27/05/96	NEXT TEST DUE DATE	4/6/96
TRIP DRILL	28/05/96	SAFETY MEETING	28/5/96

FROM	TO	HRS	DEPTH	DESCRIPTION-ACTIVITY
0:00	5:30	5.5	1,700.0	Drill 8 1/2 " hole from 1592 to 1700 m
5:30	6:00	.5	1,700.0	Circulate bottom's up
6:00	9:00	3.0	1,700.0	Wiper trip to 1180. RIH to 1600. B/circ, wash thru tight hole 1600 to 1604m. Cont RIH to 1628m. B/circ wash thru t/hole 1628 to 1630 m. Cont RIH to 1695 m.
9:00	9:30	.5	1,700.0	B/circ wash to btm, 5 m of fill, circulate bottoms up.
9:30	10:30	1.0	1,700.0	POH to 1409 m. RIH to 1695, Hole good.
10:30	11:30	1.0	1,700.0	B/circ and circulate hole clean.
30	12:00	.5	1,700.0	Drop survey, Pump pill, POH SLM out
.00	14:00	2.0	1,700.0	POH SLM. Flow check 5 stnds.
14:00	15:00	1.0	1,700.0	Slip and cut drill line
15:00	16:30	1.5	1,700.0	POH. L/D BHA, 2 x R/R, 1 x 6 1/2 DC, X/O. Recover survey (7.5 deg at 1696m). Service motor.
16:30	0:00	7.5	1,700.0	Rig up BPB. Log # 1 - DLL-MSFL-SP-SONIC-GR-CAL. Run # 2 - RFT.

Cultus

DAILY DRILLING REPORT

Skull Creek #1

REPORT# : 9 Report Date: 27/05/96 Issue Date : 28/05/96 Page Number : 1

Basic Data

DRILL CO.	ODE	DEPTH	1,592.0	HOLE SIZE :	8.50	TOT PERS ON SITE :	33
RIG	30	PROGRESS	219.0	LAST CSG SIZE :	9-5/8"	DAILY COST :	$40,041.00
KB TO GRND LVL :	4.98	DAYS FROM SPUD	8.92	SHOE DEPTH :	332.50	CUM COST :	$649,905.00
GRND LVL AMSL :	92.0	DAYS +/- CURVE	0.0	LEAK-OFF :	13.50	AFE COST :	$853,600.00

Gas and General Data

FORMATION	Eumeralla	WEATHER	Clear and Cool
MAX GAS :	497.0	STATUS @ 0600 :	Drill to 1700 m (TD). Circ. Btms up. prior to WT and logging run.
B/G GAS % :	80.0		

Bit/Hydraulics

BIT # :	4	ROTATE HRS :	5.3
SIZE :	8.50	AVE WOB :	30
MFR :	SM	AVE RPM :	200
TYPE :	MF15	FLOW :	400
SERIAL # :	LC2089	PUMP PRESS. :	1,500
DEPTH IN m :	1,373.0	NOZZLES :	14 12 12
DEPTH OUT m :		HHSI :	3
METERAGE :	219.0	ANN VEL DP :	189
TOT HRS :	7.5	ANN VEL DC :	327
		BIT VEL mps :	325

BIT # : 4 IADC # 4 4 7

WEAR I: O1: D: L: B: G: O2: R:

Mud Properties

SAMPLE FROM :	FL	%LGS :	6
TYPE :	F.W.Poly	%DS :	5
TIME :	0:30	SAND :	Tr
WEIGHT :	9.20	MBT :	13.0
VISCOSITY :	44	PH :	9.0
PV :	11	CI :	4,100
YP :	16	K+ :	2,300.0
GEL 10 sec :	3	HARD/Ca :	1,220
GEL 10 min :	25	6RPM :	5
API FL :	9.1		
FILTER CAKE :	2	DAILY COST :	$3,161.00
SOLIDS :	6.3	CUM. COST :	$19,863.00

BHA and Drilling Information

BHA # :	4	WT BLW JAR :	41	STRING WT :	140	TRQE MAX :	110
BHA LENGTH :	328	BHA WT :	64	PICK UP WT :	144	TRQE ON :	110
HRS ON JARS :	8			SLK OFF WT :	136	TRQE OFF :	60

BHA DESCRIPTION : Bit, 6 1/2" motor, X/O, R/Reamer, 6 1/2" DC, R/Reamer, 15 x 6 1/2" DC's, Jars, 2 x 6 1/2" DC's, 15 x 4 1/2" HWDP

rvey (points only)

MD	TVD	INCL	AZ.
940.0		1.8	
1,199.0		4.0	
1,360.0		3.0	

Pumps

Pump Data - last 24 hrs						Slow Pump Rates	
#	MAKE/TYPE	LINR	AVSPM	AVFLOW	AVEPRESS	SLWSPM	SLWPRE
1	GD-PZ8	6.00				45	24
2	GD-PZ8	6.00	143	400	1,500	55	30

Bulk Stocks

Drill Water		Pot. Water		Fuel		Barite		Gel		Cement		Diesel	
Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock
	0		0		0	127	657	0	185	0	150	2,800	14,700

Personnel

JOB TITLE	NAME	COMPANY NAME	#
		Halliburton Mudloggi	3
		Velocity Data	1
DRILLING ENGINEER	Kevin Kelly	IDFS	1
DRILLING SUPERVISO	Henry Flink	ODE	21
RESERVOIR ENGINEE	Andy Ion	Australian DST	2
WELLSITE GEOLOGIST	Dave Horner	Halliburton Dir Drill	1

Drills and Inspections

DRILL TYPE	TIMING	INSPECTIONS	TIMING
		DAYS SINCE LTA	281
FIRE		BOP TEST	21/5/96
INCIDENT		RIG INSPECTION	20/5/96
PIT DRILL	27/05/96	NEXT TEST DUE DATE	4/6/96
TRIP DRILL	27/05/96	SAFETY MEETING	25/5/96

FROM	TO	HRS	DEPTH	DESCRIPTION-ACTIVITY
0:00	7:00	7.0	1,373.0	Cont reverse circ 940 stks. R/u & circ conventionally 5099 stks. Open bag & cont circ to build mud weight from 8.7 to 9.2 to bal well
7:00	10:00	3.0	1,373.0	POH with test tools. L/O 2 drill collars.
10:00	12:30	2.5	1,373.0	B/dn & l/o DST tools.
12:30	13:00	.5	1,373.0	P/u and m/u R/reamer, 6 1/2 DC, R/reamer, X/O, motor and # 4 bit.
13:00	13:30	.5	1,373.0	P/up kelly and test motor
13:30	16:00	2.5	1,373.0	RIH with bit # 4 to 1361 m
16:00	16:30	.5	1,373.0	Wash and ream from 1361 to 1373 m - 2 m fill
30	0:00	7.5	1,592.0	Drill 8 1/2 " hole from 1373 to 1592 m

Cultus

DAILY DRILLING REPORT

Skull Creek #1

REPORT# : 8 Report Date: 26/05/96 Issue Date : 27/05/96

Basic Data

DRILL CO :	ODE	DEPTH	1,373.0	HOLE SIZE :	8.50	TOT PERS ON SITE :	36
RIG :	30	PROGRESS	5.0	LAST CSG SIZE :	9-5/8"	DAILY COST :	$73,844.00
KB TO GRND LVL	4.98	DAYS FROM SPUD :	7.92	SHOE DEPTH :	332.50	CUM COST :	$609,864.00
GRND LVL AMSL :	92.0	DAYS +/- CURVE :	0.0	LEAK-OFF :	13.50	AFE COST :	$853,600.00

Gas and General Data

FORMATION	Eumeralla	WEATHER :	Sunny and cool
MAX GAS :		STATUS @ 0600 :	Complete rev circ after DST. Circ. building MW up to 9.2. Max gas 13%/LW 8.6
B/G GAS % :			

Bit/Hydraulics

BIT # :	RR#2	ROTATE HRS :	.5
SIZE :	8.50	AVE WOB :	20
MFR :	OT	AVE RPM :	80
TYPE :	MFDSSH	FLOW :	350
SERIAL # :	LF6918	PUMP PRESS. :	1,100
DEPTH IN m :	1,368.0	NOZZLES :	14 13 12
DEPTH OUT m :	1,373.0	HHSI :	2
METERAGE :	5.0	ANN VEL DP :	152
TOT HRS :	.5	ANN VEL DC :	286
		BIT VEL mps :	288

BIT # : RR#2 IADC # 1 1 7

WEAR I: 1 O1:2 D:R L:G B:E G:I O2:N R:DS

Mud Properties

SAMPLE FROM :	Pit	%LGS :	6
TYPE :	F.W.Poly	%DS :	5
TIME :	23:30	SAND :	Tr
WEIGHT :	9.15	MBT :	13.0
VISCOSITY :	42	PH :	9.5
PV :	8	Cl :	4,100
YP :	15	K+ :	2,600.0
GEL 10 sec :	6	HARD/Ca :	720
GEL 10 min :	21	6RPM :	8
API FL :	8.8		
FILTER CAKE :	2	DAILY COST :	$2,945.00
SOLIDS :	5.9	CUM. COST :	$16,701.00

BHA and Drilling Information

BHA # :	3	WT BLW JAR :		STRING WT :	60	TRQE MAX :	
BHA LENGTH :	321	BHA WT :		PICK UP WT :		TRQE ON :	
HRS ON JARS :				SLK 0FF WT :		TRQE OFF :	

BHA DESCRIPTION : Bit, J/sub, B/sub, 6 1/2" D/C, R/R, 18 x 6 1/2" D/C, Jars, 2 x 6 1/2" D/C, 12 x HWDP

rvey (points only)

MD	TVD	INCL	AZ.
940.0		1.8	
1,199.0		4.0	
1,360.0		3.0	

Pumps

Pump Data - last 24 hrs						Slow Pump Rates	
#	MAKE/TYPE	LINR	AVSPM	AVFLOW	AVEPRESS	SLWSPM	SLWPRE
1	GD-PZ8	6.00					

Bulk Stocks

Drill Water		Pot. Water		Fuel		Barite		Gel		Cement		Diesel	
Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock
	0		0		0	40	784	0	185	0	150	2,400	17,500

Personnel

JOB TITLE	NAME	COMPANY NAME	#
		BPB Loggers	4
		Halliburton Mudloggi	3
		Velocity Data	1
DRILLING ENGINEER	Kevin Kelly	IDFS	1
DRILLING SUPERVISO	Henry Flink	ODE	21
RESERVOIR ENGINEE	Andy Ion	Australian DST	2
WELLSITE GEOLOGIST	Dave Horner	Halliburton Cemente	0

Drills and Inspections

DRILL TYPE	TIMING	INSPECTIONS	TIMING
		DAYS SINCE LTA	280
FIRE		BOP TEST	21/5/96
INCIDENT		RIG INSPECTION	20/5/96
PIT DRILL	2/05/96	NEXT TEST DUE DATE	4/6/96
TRIP DRILL	26/05/96	SAFETY MEETING	25/5/96

FROM	TO	HRS	DEPTH	DESCRIPTION-ACTIVITY
0:00	1:00	1.0	1,368.0	Cont b/dn and lay out test tools
1:00	2:00	1.0	1,368.0	Make up bit, junk sub, b/sub and r/reamer. RIH to shoe
2:00	2:30	.5	1,368.0	Slip 33 feet drill line Reset COM
2:30	4:00	1.5	1,368.0	Cont RIH to 1193
4:00	4:30	.5	1,368.0	B/circ and wash from 1193 to 1224m
4:30	5:00	.5	1,368.0	Cont RIH to 1354m
5:00	5:30	.5	1,373.0	B/circ and wash to btm 1368 m. Work junk sub and drill 5 m new hole to 1373 m
5:30	6:00	.5	1,373.0	Circ btm's up, pump pill
0	8:30	2.5	1,373.0	POH to m/u DST #2 tools
.30	10:30	2.0	1,373.0	P/u and m/u DST tools
10:30	14:30	4.0	1,373.0	RIH with DST # 2 tools.
14:30	15:00	.5	1,373.0	Rig up head, manifold and surface lines
15:00	20:00	5.0	1,373.0	Inflate packer and set, open & close tool, re inflate, open & close tool. communication past packer. re inflate/open - communication. Deflate, drop down 2.5 meter, re inflate, open tool at 16:31, close at 18:03.

FROM	TO	HRS	DEPTH	DESCRIPTION-ACTIVITY
20:00	0:00	4.0	1,373.0	Pull packer free at 20:30. Fill hole, reverse circ 220 stks, circ to clean out ports, reverse circ 147 stks, circ to clean out ports, reverse circ.

Cultus

DAILY DRILLING REPORT

Skull Creek #1

REPORT# : 7 Report Date: 25/5/96 Issue Date : 26/5/96

Basic Data

DRILL CO	ODE	DEPTH	1,368 0	HOLE SIZE	8.50	TOT PERS ON SITE	37
RIG	30	PROGRESS	0.0	LAST CSG SIZE	9-5/8"	DAILY COST	$ 28, 023
RKB TO GRND LVL	4 98	DAYS FROM SPUD	6 92	SHOE DEPTH	332.50	CUM COST	$ 536, 020
GRND LVL AMSL	92 0	DAYS +/- CURVE	0.0	LEAK-OFF	13.50	AFE COST	$ 853, 600

Gas and General Data

FORMATION :	Eumeralla	WEATHER :	Rain periods, cool
MAX GAS % :		STATUS @ 0600 :	RIH and work junk bit to 1373 m. Circulating bottoms up.
B/G GAS % :			

Bit/Hydraulics

BIT # :		ROTATE HRS :	
SIZE :		AVE WOB :	
MFR :	OT	AVE RPM :	
TYPE :		FLOW :	
SERIAL # :		PUMP PRESS. :	
DEPTH IN m :		NOZZLES :	
TH OUT m :		BIT HHSI :	
METERAGE :		ANN VEL DP :	
TOT HRS :		ANN VEL DC :	
		BIT VEL mps :	

BIT # : IADC #

WEAR I: O1: D: L: B: G: O2: R:

Mud Properties

SAMPLE FROM :	PIT	%LGS :	6
TYPE :	F.W.Poly	%DS :	5
TIME :	22:30	SAND :	Tr
WEIGHT :	9.20	MBT :	16.0
VISCOCITY :	44	PH :	9.0
PV :	10	CI :	3,700
YP :	17	K+ :	2,500.0
GEL10S :	7	HARD/Ca :	1,600
GEL10M :	18	6RPM :	9
APIFL :	8.6		
FILTER CAKE :	2	DAILY COST :	$3,727.00
SOLIDS :	6.3	CUM. COST :	$13,756.00

BHA and Drilling Information

BHA # :	WT BLW JAR :	STRING WT :	TRQE MAX :
BHA LENGTH :	BHA WT :	PICK UP WT :	TRQE ON :
HRS ON JARS :		SLK OFF WT :	TRQE OFF :

BHA DESCRIPTION : DST # 1

Survey (3 points only)

MD	TVD	INCL	AZ.
940.0		1.8	
1,199.0		4.0	
1,360.0		3.0	

Pumps

Pump Data - last 24 hrs						Slow Pump Rates	
#	MAKE/TYPE	LINR	AVSPM	AVFLOW	AVEPRESS	SLWSPM	SLWPRES
1	GD-PZ8	6.00	100	110	500		
2	GD-PZ8	6.00					

Bulk Stocks

Drill Water		Pot. Water		Fuel		Barite		Gel		Cement		Diesel	
Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock
	0		0		0	47	824	0	185	0	150	6,100	19,900

Personnel

JOB TITLE	NAME	COMPANY NAME	#
		BPB Loggers	4
		Velocity Data	1
DRILLING ENGINEER	Bruce Richardson	Halliburton Mudloggin	3
DRILLING ENGINEER	Kevin Kelly	IDFS	1
DRILLING SUPERVISOR	Henry Flink	ODE	21
RESERVOIR ENGINEER	Andy Ion	Australian DST	2
WELLSITE GEOLOGIST	Dave Horner	Halliburton Cementers	0

Drills and Inspections

DRILL TYPE	TIMING	INSPECTIONS	TIMING
		DAYS SINCE LTA	278
FIRE		BOP TEST	21/5/96
INCIDENT		RIG INSPECTION	20/5/96
PIT DRILL	2/05/96	NEXT TEST DUE DATE	4/6/96
TRIP DRILL	25/05/96	SAFETY MEETING	25/5/96

LABEL

FROM	TO	HRS	DEPTH	DESCRIPTION-ACTIVITY
0:00	1:00	1.0	1,368.0	Cont. P/u and Make up DST tools.
1:00	2:00	1.0	1,368.0	RIH to 350 m
2:00	2:30	.5	1,368.0	Slip 33 ft drill line. Reset C.O.M.
30	3:30	1.0	1,368.0	Fill Pipe with sodium nitrate bumper 350 m.
3:30	5:00	1.5	1,368.0	Cont RIH with DST #1. S.L.M. in.
5:00	5:30	.5	1,368.0	P/u and m/u test head and surface lines.
5:30	6:00	.5	1,368.0	Rig service
6:00	6:30	.5	1,368.0	Inflate packers.
6:30	7:00	.5	1,368.0	Check head up and surface lines.
7:00	7:30	.5	1,368.0	Hold safety meeting - pre DST

FROM	TO	HRS	DEPTH	DESCRIPTION-ACTIVITY
30	12:00	4.5	1,368.0	DST#1 intervals 1199 to 1221 m. Open tool @ 8:25 for 10 min, S/I for 30 m. Weak flow with bubbles down to 3 in. Open tool at 9:12 for main flow, still weak flow. Expect mechanical problem or plugged tool. Unseat packers and reset @ 1200 to 1222m. Open tool @ 12:11. Afetr 20 min bubble started getting stronger (bottom of bucket). Opened to flareline and bubble died. S/I @ 11:00, unseated packers and reversed circulated. Circulated gas flaring.
12:00	14:00	2.0	1,368.0	Continue to reverse circ and conventionally circulate.
14:00	16:30	2.5	1,368.0	Circ and work stuck pipe. 140 k overpull.
16:30	17:00	.5	1,368.0	Pump and spot Pipe Lax. Set down 60 k and hold 300 amp torque.
17:00	17:30	.5	1,368.0	Rig up BPB. Pipe came free. Rig down down BPB.
17:30	19:00	1.5	1,368.0	Work pipe. circ out Pipe Lax
19:00	22:00	3.0	1,368.0	Flow check, POOH with DST tools.
22:00	0:00	2.0	1,368.0	B/out DST tools.

Cultus

DAILY DRILLING REPORT

Skull Creek #1

REPORT# : 6 Report Date: 24/5/96 Issue Date : 25/5/96 Page Number : 1

Basic Data

DRILL CO	ODE	DEPTH	1,368.0	HOLE SIZE	8.50	TOT PERS ON SITE :	36
RIG	30	PROGRESS	30.0	LAST CSG SIZE	9-5/8"	DAILY COST :	$ 25,161
RKB TO GRND LVL	4.98	DAYS FROM SPUD	5.92	SHOE DEPTH	332.50	CUM COST :	$ 507 997
GRND LVL AMSL	92.0	DAYS +/- CURVE	9	LEAK-OFF	13.50	AFE COST :	$ 853,600

Gas and General Data

FORMATION :	Eumeralla	WEATHER :	Rain periods, mod. winds, cold
MAX GAS % :		STATUS @ 0600 :	RIH with DST#1. Waiting for daylight to run test.
B/G GAS % :			

Bit/Hydraulics

BIT # :	2	ROTATE HRS :	40.7
SIZE :	8.50	AVE WOB :	15
MFR :	HU	AVE RPM :	100
TYPE :	ATJ M05D	FLOW :	350
SERIAL # :	SO2W5	PUMP PRESS. :	1,500
DEPTH IN m :	335.0	NOZZLES :	11 11 12
DEPTH OUT m :	1,368.0	BIT HHSI :	
METERAGE :	1,033.0	ANN VEL DP :	164
TOT HRS :	47.5	ANN VEL DC :	285
		BIT VEL mps :	378

BIT # : 2 IADC # 4 2 7

WEAR I: 8 O1:8 D:WT L:A B:E G:I O2:BT R:ROP

Mud Properties

SAMPLE FROM :	FL	%LGS :	7
TYPE :	F.W.Poly	%DS :	5
TIME :	21:00	SAND :	Tr
WEIGHT :	9.30	MBT :	23.0
VISCOCITY :	48	PH :	9.5
PV :	12	CI :	3,300
YP :	20	K+ :	
GEL10S :	12	HARD/Ca :	700
GEL10M :	26	6RPM :	12
APIFL :	8.8		
FILTER CAKE :	2	DAILY COST :	$1,687.00
SOLIDS :	7.1	CUM. COST :	$10,355.00

BHA and Drilling Information

BHA # :	2	WT BLW JAR :	62	STRING WT :	144	TRQE MAX :	220
BHA LENGTH :	327	BHA WT :	69	PICK UP WT :	146	TRQE ON :	220
HRS ON JARS :	182			SLK OFF WT :	140	TRQE OFF :	180

BHA DESCRIPTION : 8.5" bit, near bit R/R, 6.5" pony DC, string R/R, 6.5" DC, string R/R, 18x6.5" DC, 6.5" jars, 2x6.5" DC, 12xHWDP

Survey (3 points only)

MD	TVD	INCL	AZ.
940.0		1.8	
1,199.0		4.0	
1,360.0		3.0	

Pumps

Pump Data - last 24 hrs						Slow Pump Rates	
#	MAKE/TYPE	LINR	AVSPM	AVFLOW	AVEPRESS	SLWSPM	SLWPRES
1	GD-PZ8	6.00	125	350	1,500	45	280
2	GD-PZ8	6.00				55	380

Bulk Stocks

Drill Water		Pot. Water		Fuel		Barite		Gel		Cement		Diesel	
Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock
	0		0		0	0	871	0	185	0	150	3,500	26,000

Personnel

JOB TITLE	NAME	COMPANY NAME	#
		BPB	5
DRILLING ENGINEER	Bruce Richardson	Halliburton Mudloggin	2
DRILLING ENGINEER	Kevin Kelly	IDFS	1
DRILLING SUPERVISOR	Henry Flink	ODE	21
RESERVOIR ENGINEER	Andy Ion	Australian DST	2
WELLSITE GEOLOGIST	Dave Horner	Halliburton Cementers	0

Drills and Inspections

DRILL TYPE	TIMING	INSPECTIONS	TIMING
		DAYS SINCE LTA	278
FIRE		BOP TEST	21/5/96
INCIDENT		RIG INSPECTION	20/5/96
PIT DRILL	2/05/96	NEXT TEST DUE DATE	4/6/96
TRIP DRILL	23/05/96	SAFETY MEETING	24/5/96

LABEL

FROM	TO	HRS	DEPTH	DESCRIPTION-ACTIVITY
0:00	6:00	6.0	1,368.0	Drill 8.5" hole from 1338 to 1368 mRT
6:00	6:30	.5	1,368.0	Circ btm's up
6:30	8:00	1.5	1,368.0	POH 10 std wiper trip to 1076m. RIH to 1360m. 18 units of gas on wiper trip.
8:00	9:00	1.0	1,368.0	B/circ wash to bottom. Circ hole clean.
9:00	13:30	4.5	1,368.0	Pump pill, drop survey and POH to log. SLM out. Break out bit. Recover survey - 3 deg at 1360 m.
13:30	22:00	8.5	1,368.0	Rig up BPB. Run # 1: LCS/DFE - 1368 to 330 m. Run # 2: PDS/CNS. Rig down BPB
22:00	0:00	2.0	1,368.0	P/up 6 1/2" D/C. P/u and Make up DST tools.

Cultus

DAILY DRILLING REPORT

Skull Creek #1

REPORT# : 5 Report Date: 23/05/96 Issue Date : 24/05/96 Page Number : 1

Basic Data

DRILL CO. :	ODE	DEPTH	1,338.0	HOLE SIZE :	8.50	TOT PERS ON SITE :	30
RIG :	30	PROGRESS :	180.0	LAST CSG SIZE :	9-5/8"	DAILY COST :	$29,356.00
RKB TO GRND LVL :	4.98	DAYS FROM SPUD :	4.92	SHOE DEPTH :	332.50	CUM COST :	$482,836.00
GRND LVL AMSL :	95.0	DAYS +/- CURVE :	.9	LEAK-OFF :	13.50	AFE COST :	$853,600.00

Gas and General Data

FORMATION :	Eumeralla	WEATHER :	Rain periods, mod. winds, cold
MAX GAS :	6.2	STATUS @ 0600 :	Drilled to 1368 m. ROP 1.5 m/hr. Circulating btm's up prior to wiper trip and POH.
B/G GAS % :	.6		

Bit/Hydraulics

BIT # :	2	ROTATE HRS :	40.7
SIZE :	8.50	AVE WOB :	15
MFR :	HU	AVE RPM :	100
TYPE :	ATJ M05D	FLOW :	350
SERIAL # :	SO2W5	PUMP PRESS. :	1,500
DEPTH IN m :	335.0	NOZZLES :	11 11 12
DEPTH OUT m :		HHSI :	4
METERAGE :	1,003.0	ANN VEL DP :	164
TOT HRS :	41.5	ANN VEL DC :	285
		BIT VEL mps :	378

BIT # : 2 IADC # 4 2 7

WEAR I: O1: D: L: B: G: O2: R:

Mud Properties

SAMPLE FROM :	FL	%LGS :	7
TYPE :	F.W.Poly	%DS :	5
TIME :	24:00	SAND :	Tr
WEIGHT :	9.30	MBT :	20.0
VISCOSITY :	46	PH :	9.5
PV :	11	Cl :	3,200
YP :	17	K+ :	
GEL 10 sec :	9	HARD/Ca :	920
GEL 10 min :	32	6RPM :	9
API FL :	9.6		
FILTER CAKE :	2	DAILY COST :	$4,750.00
SOLIDS :	7.1	CUM. COST :	$8,667.00

BHA and Drilling Information

BHA # :	2	WT BLW JAR :	62	STRING WT :	142	TRQE MAX :	220
BHA LENGTH :	327	BHA WT :	69	PICK UP WT :	144	TRQE ON :	180
HRS ON JARS :	176			SLK 0FF WT :	140	TRQE OFF :	100

BHA DESCRIPTION : 8.5" bit, near bit R/R, 6.5" pony DC, string R/R, 6.5" DC, string R/R, 18x6.5" DC, 6.5" jars, 2x6.5" DC, 12xHWDP

Survey (3 points only)

MD	TVD	INCL	AZ.
638.0		.5	
940.0		1.8	
1,199.0		4.0	

Pumps

Pump Data - last 24 hrs						Slow Pump Rates	
#	MAKE/TYPE	LINR	AVSPM	AVFLOW	AVEPRESS	SLWSPM	SLWPRE
1	GD-PZ8	6.00	125	350	1,500	45	27
2	GD-PZ8	6.00				55	38

Bulk Stocks

Drill Water		Pot. Water		Fuel		Barite		Gel		Cement		Diesel	
Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock
	0		0		0	0	871	55	185	0	150	3,800	29,500

Personnel

JOB TITLE	NAME	COMPANY NAME	#
		Australian DST	2
DRILLING ENGINEER	Bruce Richardso	Halliburton Mudloggi	3
DRILLING ENGINEER	Kevin Kelly	IDFS	1
DRILLING SUPERVISO	Henry Flink	ODE	20
WELLSITE GEOLOGIST	Dave Horner	Halliburton Cemente	0

Drills and Inspections

DRILL TYPE	TIMING	INSPECTIONS	TIMING
		DAYS SINCE LTA	277
FIRE		BOP TEST	21/5/96
INCIDENT		RIG INSPECTION	20/5/96
PIT DRILL	23/05/96	NEXT TEST DUE DATE	4/6/96
TRIP DRILL	23/05/96	SAFETY MEETING	23/5/96

FROM	TO	HRS	DEPTH	DESCRIPTION-ACTIVITY
0:00	3:30	3.5	1,212.0	Drill 8.5" hole from 1158 to 1212 mRT
3:30	4:00	.5	1,212.0	Circulate and survey at 1199m, 4 deg.
4:00	4:30	.5	1,214.0	Drill 8.5" hole from 1212 to 1214 mRT
4:30	6:30	2.0	1,214.0	Circulate sample at Geo's request. Pull back one stand and cont. to circ. Mix and pump pill.
6:30	9:00	2.5	1,214.0	POH. Wiper trip to shoe. RIH to 1209m.
9:00	11:00	2.0	1,214.0	B/circ, wash to Btm and circ 5 mins. Pull back one std and circ and cond mud.
11:00	0:00	13.0	1,338.0	Drill 8.5" hole from 1214 to 1338 mRT

Cultus

DAILY DRILLING REPORT

Skull Creek #1

REPORT# : 4 Report Date: 22/05/96 Issue Date : 23/05/96 Page Number : 1

Basic Data

DRILL CO. :	ODE	DEPTH :	1,158.0	HOLE SIZE :	8.50	TOT PERS ON SITE :	30
RIG	30	PROGRESS :	677.0	LAST CSG SIZE :	9-5/8"	DAILY COST :	$26,500.00
KB TO GRND LVL	4.98	DAYS FROM SPUD :	3.92	SHOE DEPTH :	332.50	CUM COST :	$453,500.00
GRND LVL AMSL :	95.0	DAYS +/- CURVE :	.9	LEAK-OFF :	13.50	AFE COST :	$853,600.00

Gas and General Data

FORMATION :	Skull Creek	WEATHER :	Rain periods, mod. winds, cold
MAX GAS % :	14.0	STATUS @ 0600 :	POH for wiper trip from 1214 mRT to shoe prior to DST (likely Waare zone)
B/G GAS % :	.0		

Bit/Hydraulics

BIT # :	2	ROTATE HRS :	20.0
SIZE :	8.50	AVE WOB :	15
MFR :	HU	AVE RPM :	100
TYPE :	ATJ-S05D	FLOW :	350
SERIAL # :	SO2W5	PUMP PRESS. :	1,450
DEPTH IN m :	335.0	NOZZLES :	11 11 12
DEPTH OUT m :	1,158.0	HHSI :	4
METERAGE :	823.0	ANN VEL DP :	164
TOT HRS :	24.5	ANN VEL DC :	285
		BIT VEL mps :	378

BIT # : 2 IADC # 4 2 7

WEAR I: O1: D: L: B: G: O2: R:

Mud Properties

SAMPLE FROM :	FL	%LGS :	7
TYPE :	NativeClay	%DS :	5
TIME :	00:00	SAND :	1.5
WEIGHT :	9.20	MBT :	15.0
VISCOSITY :	35	PH :	8.5
PV :	6	CI :	390
YP :	11	K+ :	
GEL 10 sec :	6	HARD/Ca :	980
GEL 10 min :	24	6RPM :	6
API FL :	26.2		
FILTER CAKE :	3	DAILY COST :	$2,099.00
SOLIDS :	6.5	CUM. COST :	$3,917.00

BHA and Drilling Information

BHA # :	2	WT BLW JAR :	62	STRING WT :	128	TRQE MAX :	220
BHA LENGTH :	327	BHA WT :	69	PICK UP WT :	130	TRQE ON :	180
HRS ON JARS :	159			SLK OFF WT :	126	TRQE OFF :	100

BHA DESCRIPTION : 8.5" bit, near bit R/R, 6.5" pony DC, string R/R, 6.5" DC, string R/R, 18x6.5" DC, 6.5" jars, 2x6.5" DC, 12xHWDP

Survey (3 points only)

MD	TVD	INCL	AZ.
329.0		0.0	
638.0		.5	
940.0		1.8	

Pumps

Pump Data - last 24 hrs						Slow Pump Rates	
#	MAKE/TYPE	LINR	AVSPM	AVFLOW	AVEPRESS	SLWSPM	SLWPRE
1	GD-PZ8	6.00	125	350	1,450	45	33
2	GD-PZ8	6.00				55	43

Bulk Stocks

Drill Water		Pot. Water		Fuel		Barite		Gel		Cement		Diesel	
Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock
	0		0		0	0	871	24	240	0	150	5,200	33,300

Personnel

JOB TITLE	NAME	COMPANY NAME	#
		Australian DST	1
		IDFS	1
DRILLING ENGINEER	Bruce Richardso	Halliburton Mudloggi	3
DRILLING SUPERVISO	Henry Flink	ODE	20
WELLSITE GEOLOGIST	Dave Horner	Halliburton Cemente	2

Drills and Inspections

DRILL TYPE	TIMING	INSPECTIONS	TIMING
		DAYS SINCE LTA	276
FIRE		BOP TEST	21/5/96
INCIDENT		RIG INSPECTION	20/5/96
PIT DRILL		NEXT TEST DUE DATE	4/6/96
TRIP DRILL		SAFETY MEETING	20/5/96

FROM	TO	HRS	DEPTH	DESCRIPTION-ACTIVITY
00:00	00:30	.5	481.0	Circulate hole clean, 7m of fill, sweep hole with Hi-vis pill
00:30	01:00	.5	481.0	Pump up and recalibrate geolograph ROP sensor
01:00	06:00	5.0	642.0	Drill 8.5" hole from 481m to 642 mRT
06:00	06:30	.5	642.0	Circulate to run survey, unable to pass 292m, pull survey.
06:30	07:00	.5	651.0	Drill 8.5" hole from 642 to 651 mRT
07:00	08:30	1.5	651.0	Circulate for 15mins, POH 11 stands for wiper trip, change out corrosion ring, RIH to 639 mRT
08:30	09:00	.5	651.0	Circulate and wash to bottom @651mRT
09:00	09:30	.5	651.0	Run survey @ 638 mRT
09:30	16:30	7.0	954.0	Drill 8.5" hole from 651 to 954 mRT
16:30	17:00	.5	954.0	Circulate and survey @ 942 mRT
17:00	00:00	7.0	1,158.0	Drill 8.5" hole from 954 1158 mRT

Cultus

DAILY DRILLING REPORT

Skull Creek #1

REPORT# : 3 Report Date: 21/05/96 Issue Date : 22/05/96 Page Number : 1

Basic Data

DRILL CO	ODE	DEPTH :	481 0	HOLE SIZE :	8.50	TOT PERS ON SITE :	28
RIG	30	PROGRESS :	146 0	LAST CSG SIZE :	9-5/8"	DAILY COST :	$31,300.00
KB TO GRND LVL	4 98	DAYS FROM SPUD :	2 92	SHOE DEPTH :	332.50	CUM COST :	$426,900.00
GRND LVL AMSL	95 0	DAYS +/- CURVE :	0 0	LEAK-OFF :	13 50	AFE COST :	$853,600.00

Gas and General Data

FORMATION :	Pember	WEATHER :	Cloudy, occ. showers,cold, moderate winds
MAX GAS % :	0.0	STATUS @ 0600 :	Drill ahead in 8.5" hole @ 642 mRT. Run survey
B/G GAS % :	0.0		

Bit/Hydraulics

BIT # :	2	ROTATE HRS :	3.1
SIZE :	8.50	AVE WOB :	20
MFR :	HU	AVE RPM :	110
TYPE :	ATJ- S05D	FLOW :	420
SERIAL # :	SO2W5	PUMP PRESS :	2,000
DEPTH IN m :	335.0	NOZZLES :	11 11 12
DEPTH OUT m :	481.0	HHSI :	7
METERAGE :	146.0	ANN VEL DP :	197
TOT HRS :	5.0	ANN VEL DC :	342
		BIT VEL mps :	454

BIT # : 2 IADC # 4 2 7

WEAR I: O1: D: L: B: G: O2: R:

Mud Properties

SAMPLE FROM :	FL	%LGS :	7
TYPE :	NativeClay	%DS :	4
TIME :	00:00	SAND :	2.3
WEIGHT :	9.20	MBT :	24.0
VISCOSITY :	38	PH :	9.2
PV :	8	CI :	380
YP :	9	K+ :	
GEL 10 sec :	2	HARD/Ca :	240
GEL 10 min :	23	6RPM :	2
API FL :	26.4		
FILTER CAKE :	4	DAILY COST :	$438.00
SOLIDS :	6.5	CUM. COST :	$1,818.00

BHA and Drilling Information

BHA # :	2	WT BLW JAR :	62	STRING WT :	92	TRQE MAX :	220
BHA LENGTH :	327	BHA WT :	69	PICK UP WT :	95	TRQE ON :	220
HRS ON JARS :	140			SLK 0FF WT :	89	TRQE OFF :	100

BHA DESCRIPTION : 8.5" bit, near bit R/R, 6.5" pony DC, string R/R, 6.5" DC, string R/R, 18x6.5" DC, 6.5" jars, 2x6.5" DC, 12xHWDP

Survey

(points only)

MD	TVD	INCL	AZ.
170.0		.3	
329.0		0.0	

Pumps

Pump Data - last 24 hrs						Slow Pump Rates	
#	MAKE/TYPE	LINR	AVSPM	AVFLOW	AVEPRESS	SLWSPM	SLWPRE
1	GD-PZ8	6.00	75	210	2,000	45	24
2	GD-PZ8	6.00	75	210	2,000	55	34

Bulk Stocks

Drill Water		Pot. Water		Fuel		Barite		Gel		Cement		Diesel	
Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock
	0		0		0	0	871	14	264	0	150	1,600	13,500

Personnel

JOB TITLE	NAME	COMPANY NAME	#
		IDFS	1
DRILLING ENGINEER	Bruce Richardso	Halliburton Mudloggi	2
DRILLING SUPERVISO	Henry Flink	ODE	20
WELLSITE GEOLOGIST	Dave Horner	Halliburton Cemente	2

Drills and Inspections

DRILL TYPE	TIMING	INSPECTIONS	TIMING
		DAYS SINCE LTA	274
FIRE		BOP TEST	21/5/96
INCIDENT		RIG INSPECTION	
PIT DRILL		NEXT TEST DUE DATE	4/6/96
TRIP DRILL		SAFETY MEETING	20/5/96

FROM	TO	HRS	DEPTH	DESCRIPTION-ACTIVITY
00:00	07:30	7.5	335.0	Continue BOP nipple up, pressure test kelly & surface eqiupment
07:30	11:30	4.0	335.0	Pick up cup tester, flush surface equipment, pressure test manifold, BOP's, HCR & kill line valves. Layout cup tester
11:30	12:30	1.0	335.0	RIH 8" drill collars, layout same
12:30	15:30	3.0	335.0	Pick up and make up new BHA, RIH and tag cement @ 316mRT
15:30	16:00	.5	335.0	Pressure test FOSV
16:00	17:30	1.5	335.0	Drill out cementing plug and shoe track
17:30	18:00	.5	340.0	Drill 5m of new 8.5" hole from 335 to 340mRT prior to FIT
18:00	19:00	1.0	340.0	Circulate hole clean prior to FIT, limited test 13.5 ppg EMW
19:00	20:00	1.0	367.0	Drill 8.5" hole from 340 o 367mRT
0	20:30	.5	367.0	Repair mudlogging block/ROP indicator
30	00:00	3.5	481.0	Drill ahead 8.5" hole from 367 - 481 mRT

Cultus

DAILY DRILLING REPORT

Skull Creek #1

REPORT# : 2 Report Date: 20/05/96 Issue Date : 21/05/96 Page Number : 1

Basic Data

DRILL CO	ODE	DEPTH	335.0	HOLE SIZE	12.25	TOT PERS ON SITE	29
RIG	30	PROGRESS	29.0	LAST CSG SIZE	9-5/8"	DAILY COST	$56,500.00
:B TO GRND LVL	4.98	DAYS FROM SPUD	1.92	SHOE DEPTH	332.50	CUM COST	$394,900.00
:ND LVL AMSL	95.0	DAYS +/- CURVE	0.0	LEAK-OFF		AFE COST	$853,600.00

Gas and General Data

FORMATION	Narrawaturk	WEATHER	Cloud patches, occas. showers, cool to cold
MAX GAS %	0.0	STATUS @ 0600	Continue to nipple up BOP's, pressure test surface equipment.
B/G GAS %	0.0		

Bit/Hydraulics

BIT #	1	ROTATE HRS	11.5
SIZE	12.25	AVE WOB	15
MFR	HU	AVE RPM	120
TYPE	OSC IGJ	FLOW	726
SERIAL #	HK93489	PUMP PRESS.	1,000
DEPTH IN m	9.0	NOZZLES	15 20 20
DEPTH OUT m	335.0	HHSI	3
METERAGE	326.0	ANN VEL DP	137
TOT HRS	19.0	ANN VEL DC	165
		BIT VEL mps	296

BIT # : 1 IADC # 1 1 1

WEAR I: 1 O1:1 D:N L:A B:7 G:I O2:N R:TD

Mud Properties

SAMPLE FROM	Pit	%LGS	0
TYPE	Water/Clay	%DS	0
TIME	17:00	SAND	0
WEIGHT	8.33	MBT	0.0
VISCOSITY	27	PH	6.2
PV		CI	180
YP		K+	
GEL 10 sec		HARD/Ca	440
GEL 10 min		6RPM	
API FL			
FILTER CAKE		DAILY COST	$269.00
SOLIDS	0	CUM. COST	$1,380.00

BHA and Drilling Information

BHA #	1	WT BLW JAR	47	STRING WT	76	TRQE MAX	150
BHA LENGTH	254	BHA WT	64	PICK UP WT	78	TRQE ON	150
HRS ON JARS	135			SLK OFF WT	72	TRQE OFF	80

BHA DESCRIPTION : 12.25" bit, bit sub, 2x8" DC, 12.25" stabiliser, 8" DC, x/o, 9x6.5" DC, 6.5" jars, 2x6.5" DC, 12xHWDP

Survey

MD	TVD	INCL	AZ.
170.0		.3	
329.0		0.0	

Pumps

Pump Data - last 24 hrs | Slow Pump Rates

#	MAKE/TYPE	LINR	AVSPM	AVFLOW	AVEPRESS	SLWSPM	SLWPRE
1	GD-PZ8	6.00	130	363	1,000		

Bulk Stocks

Drill Water		Pot. Water		Fuel		Barite		Gel		Cement		Diesel	
Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock
	0		0		0	0	871		246	490	150	1,900	15,100

Personnel

JOB TITLE	NAME	COMPANY NAME	#
		HiTorque	1
		IDFS	1
DRILLING ENGINEER	Bruce Richardso	Halliburton Mudloggi	2
DRILLING SUPERVISO	Henry Flink	ODE	20
WELLSITE GEOLOGIST	Dave Horner	Halliburton Cemente	2

Drills and Inspections

DRILL TYPE	TIMING	INSPECTIONS	TIMING
		DAYS SINCE LTA	274
FIRE		BOP TEST	30/4/96
INCIDENT		RIG INSPECTION	
PIT DRILL		NEXT TEST DUE DATE	21/5/96
TRIP DRILL		SAFETY MEETING	20/5/96

FROM	TO	HRS	DEPTH	DESCRIPTION-ACTIVITY
00:00	01:30	1.5	335.0	Drill ahead from 306 to 335mRT
01:30	02:00	.5	335.0	Circulate and survey @ 329m, displace active system to gel mud
02:00	03:30	1.5	335.0	POH for wiper trip, RIH to 329, wash to bottom, no fill.
03:30	04:00	.5	335.0	Circulate shakers clean
04:00	05:00	1.0	335.0	POH to run 9-5/8" casing, break out bit, recover survey.
05:00	06:00	1.0	335.0	Rig up to run casing
06:00	09:30	3.5	335.0	Run 9-5/8" mixed casing string to 332.5 mRT, circulate last joint down.
09:30	11:00	1.5	335.0	Circulate casing and condition mud
11:00	12:30	1.5	335.0	Rig in cementing head and lines, hold JSA, cement 9-5/8" casing, displace with water, bump plug, pressure test casing to 2500psi
12:30	18:30	6.0	335.0	Clean out cellar, drain conductor and cut window in same for top up job. Mix and pump top up job, prepare to slack off, wait on cement.
[illegible]0	19:00	.5	335.0	Slack off on 9-5/8" casing, no movement. Layout casing landing joint and conductor
19:00	20:00	1.0	335.0	Pick up and make up bradenhead to surface casing
20:00	00:00	4.0	335.0	Nipple up BOP's

Cultus

DAILY DRILLING REPORT

Skull Creek #1

REPORT# : 1 Report Date: 19/5/96 Issue Date : 20/5/96

Basic Data

DRILL CO	ODE	DEPTH	306 0	HOLE SIZE	12.25	TOT PERS ON SITE	28
RIG	30	PROGRESS	306 0	LAST CSG SIZE	16"	DAILY COST	$ 26, 670
RKB TO GRND LVL	4.98	DAYS FROM SPUD	0 92	SHOE DEPTH	9.00	CUM COST	$ 340, 700
GRND LVL AMSL	95.0	DAYS +/- CURVE	0 0	LEAK-OFF		AFE COST	$ 853, 600

Gas and General Data

FORMATION	Narrawaturk	WEATHER	Cloud patches, occas. showers, cool
MAX GAS %	0.0	STATUS @ 0600	Drill from 306 to 335 mRT. Rig to run 9-5/8" casing, pick up shoe & float joint and check same
B/G GAS %	0.0		

Bit/Hydraulics

BIT #	1	ROTATE HRS	10.0
SIZE	12.25	AVE WOB	10
MFR	HU	AVE RPM	120
TYPE	OSC IGJ	FLOW	726
SERIAL #	HK93489	PUMP PRESS.	1,000
DEPTH IN m	9.0	NOZZLES	15 20 20
DEPTH OUT m	306.0	BIT HHSI	
METERAGE	297.0	ANN VEL DP	137
HRS	17.5	ANN VEL DC	165
		BIT VEL mps	296

BIT # : 1 IADC # 1 1 1

WEAR I: O1: D: L: B: G: O2: R:

Mud Properties

SAMPLE FROM	Pit	%LGS	7
TYPE	Water/Clay	%DS	5
TIME	5:00	SAND	Tr
WEIGHT	9.25	MBT	19.0
VISCOCITY	35	PH	8.8
PV	8	CI	220
YP	7	K+	
GEL10S	1	HARD/Ca	340
GEL10M	4	6RPM	1
APIFL	17.9		
FILTER CAKE	3	DAILY COST	$1,111.00
SOLIDS	6.9	CUM. COST	$1,111.00

BHA and Drilling Information

BHA #	1	WT BLW JAR	47	STRING WT	74	TRQE MAX	150
BHA LENGTH	254	BHA WT	64	PICK UP WT	76	TRQE ON	150
HRS ON JARS	134			SLK OFF WT	70	TRQE OFF	80

BHA DESCRIPTION : 12.25" bit, bit sub, 2x8" DC, 12.25" stabiliser, 8" DC, x/o, 9x6.5" DC, 6.5" jars, 2x6.5" DC, 12xHWDP

Survey (3 points only)

MD	TVD	INCL	AZ.
170.0		.3	
329.0		0.0	

Pumps

Pump Data - last 24 hrs						Slow Pump Rates	
#	MAKE/TYPE	LINR	AVSPM	AVFLOW	AVEPRESS	SLWSPM	SLWPRES
1	GD-PZ8	6.00	130	363	1,000		
2	GD-PZ8	6.00	130	363	1,000		

Bulk Stocks

Drill Water		Pot. Water		Fuel		Barite		Gel		Cement		Diesel	
Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock	Used	Stock
	0		0		0	0	871	70	246	0	640	3,000	17,000

sonnel

JOB TITLE	NAME	COMPANY NAME	#
		IDFS	1
DRILLING ENGINEER	Bruce Richardson	Halliburton Mudloggin	2
DRILLING SUPERVISOR	Henry Flink	ODE	20
WELLSITE GEOLOGIST	Dave Horner	Halliburton Cementers	2

Drills and Inspections

DRILL TYPE	TIMING	INSPECTIONS	TIMING
		DAYS SINCE LTA	273
FIRE		BOP TEST	30/4/96
INCIDENT		RIG INSPECTION	
PIT DRILL		NEXT TEST DUE DATE	21/5/96
TRIP DRILL		SAFETY MEETING	19/5/96

LABEL

FROM	TO	HRS	DEPTH	DESCRIPTION-ACTIVITY
02:00	02:30	.5	9.0	SPUD WELL @ 02:00 hrs 19/5/96 Hold pre-spud and safety meetings, make up BHA
02:30	14:00	11.5	183.0	Drill 12.25" hole from surface to 183mRT
14:00	14:30	.5	183.0	Circulate and survey @170m.
14:30	17:00	2.5	220.0	Drill 12.25" hole from 183 to 220mRT
17:00	17:30	.5	220.0	Install mudloggers ROP line on blocks
17:30	20:30	3.0	299.0	Drill 12.25" hole from 220 to 299mRT
20:30	23:30	3.0	299.0	Mud rings to surface, blocked bell nipple, flowline & shaker possum bellys. Clear same. Circulate and use mud pump flowline jet to remove further material.
23:30	00:00	.5	306.0	Drill ahead from 299 to 306mRT

Cultus Petroleum NL

Skull Creek #1

MORNING REPORT - Pre Spud
19/5/96

Lay pit liners, take on water, mix spud mud, 200 bbls @ 17.5 ppb gel
Pressure test surface lines to 2000 psi
Drill rat hole, drill mouse hole
Replace two liners in #2 pump
Hold pre-spud & safety meeting
Pick up 12.25" bit, bit sub & 8" drill collar and make up BHA.
RIH, **Spud well @ 02:00 hrs 19/5/96**
Initially drill ahead with one pump at 145 SPM, 400 GPM, maximum available WOB, 50 RPM.

06:00 hrs update
Drill ahead in 12.25" hole @ 20m, maximum available WOB, 560 GPM, 80-100 RPM

APPENDIX 4 - DAILY GEOLOGICAL REPORTS

CULTUS PETROLEUM N.L.

GEOLOGY OPERATIONS REPORT NO. 1

Well Name: Skull Creek-1 **Permit:** PPL1 **Report Date:** 20/ 5 /96

Rig:	ODE-30	**GL(AHD):**	95.0m	**Report to 0600 for 24hrs**	
Cultus Rep:	Henry Flink	**KB(AHD):**	99.3m *(datum)*	**0600 Depth:**	335m
Geologist:	Dave Horner	**Last Casing:**	at m	**Progress to 0600:**	335m

Comments:

Spud Skull Creek-1 with 12.25" hole at 0200hrs 19th May, 1996. Drill to 335m, wiper trip, POOH to run 9.625" casing.

Lithological and Fluorescence Summary:

Interval (m)	*Description*
Spud - 20	Calcarenite - Port Campbell Limestone - No Show
20 - 229	Massive Marl - Gellibrand Marl - No Show
229 - 257	Calcarenite - Clifton Formation - No Show
257 - 335	Massive Marl - Narrawaturk Marl - No Show

Gas Summary:

Interval (m)	*ROP (m/hr)*	*Total (units)*	*C1*	*C2*	*C3*	*C4*	*C5*	*Comments*
			←		(ppm)		→	
Spud - 20	22	0	0	0	0	0	0	Port Campbell Limestone
20 - 229	60	0	0	0	0	0	0	Gellibrand Marl - No Show
229 - 257	100	0	0	0	0	0	0	Clifton - No Show
257 - 335	45	0	0	0	0	0	0	Narrawaturk - No Show

Formation Tops:

	Prognosed (mKB)	*Actual * (mKB)*	*Difference * (m High/Low)*	*Thickness * (m)*

Port Campbell Limestone	4.3 *(surface)*	4.3	0	16
Gellibrand Marl	-	20	-	201
Clifton Formation	283	229	54 High	28
Narrawaturk Marl	-	257	-	
Mepunga Formation	361			
Dilwyn Formation	421			
Pember Mudstone	-			
Pebble Point Formation	661			
Paaratte Formation	721			
Skull Creek Mudstone	-			
Nullawarre Greensand	1056			
Belfast Mudstone	1176			
Waarre Formation Unit D	-			
Waarre Formation Unit C	1280			
Waarre Formation Unit B	-			
Waarre Formation Unit A	-			
Eumeralla Formation	1351			
T.D.	1500			

* *Provisional, based on mud log.*

Lithological and Fluorescence Description:

Interval (m)	*ROP (Av.) (m/hr)*	*Description*
Spud-20	17-30 (22)	No samples collected.
20-229	14-120 (60)	Marl: medium grey to medium green grey, minor medium brown grey, abundant bryozoa, formas, shell fragments, trace echinoid spines and sponge spicules, trace pyrite occasionally replacing and infilling fossil fragments, trace glauconite, rare clear quartz sand grains, very soft and sticky, non fissile.
229-257	21-200 (100)	Calcarenite: medium orange brown, yellow-red in part, very coarse grained, abundant fossil fragments including bivalves, gastropods, bryozoa, forams, sponge spicules and echinoid spines, minor strong cryptocrystalline calcite cement, common very fine to grit frosted rounded brown stained quartz sand grains, abundant glauconite, common brown iron oxide pellets and iron oxide rich clay, friable, poor inferred porosity, no oil fluorescence.
257-335	6-300 (45)	Marl: medium brown grey to medium green grey, abundant bryozoa, shell fragments and forams, trace echinoid spines and sponge spicules, trace to common pyrite aoften as fossil infill and replacement, trace to common glauconite, trace to common very fine to fine clear quartz sand grains, very soft and sticky, non fissile.

CULTUS PETROLEUM N.L.

GEOLOGY OPERATIONS REPORT NO. 2

Well Name: Skull Creek-1 **Permit:** PPL1 **Report Date:** 21/ 5 /96

Rig:	ODE-30	**GL*(AHD)*:**	95.0m	**Report to 0600 for 24hrs**	
Cultus Rep:	Henry Flink	**KB*(AHD)*:**	99.3m *(datum)*	**0600 Depth:**	335m
Geologist:	Dave Horner	**Last Casing:**	9.625" at 332.27m	**Progress to 0600:**	0m

Comments:

Run 9.625" casing to 332.27m, cement casing, WOC, nipple up and pressure test BOP's.

Lithological and Fluorescence Summary:

Interval (m)	*Description*
-	No new formation drilled.

Gas Summary:

Interval (m)	*ROP (m/hr)*	*Total (units)*	*C1* ← *C2* *C3* (ppm) *C4* *C5* →	*Comments*
-				

Formation Tops:

	Prognosed (mKB)	*Actual * (mKB)*	*Difference * (m High/Low)*	*Thickness * (m)*

Port Campbell Limestone	4.3 *(surface)*	4.3	0	16
Gellibrand Marl	-	20	-	201
Clifton Formation	283	229	54 High	28
Narrawaturk Marl	-	257	-	
Mepunga Formation	361			
ilwyn Formation	421			
Pember Mudstone	-			
Pebble Point Formation	661			
Paaratte Formation	721			
Skull Creek Mudstone	1031			
Nullawarre Greensand	1121			
Belfast Mudstone	1201			
Waarre Formation Unit D	-			
Waarre Formation Unit C	1266			
Waarre Formation Unit B	-			
Waarre Formation Unit A	-			
Eumeralla Formation	1316			
T.D.	1500			

* *Provisional, based on mud log.*

Lithological and Fluorescence Description:

Interval (m)	*ROP (Av.) (m/hr)*	*Description*

CULTUS PETROLEUM N.L.

GEOLOGY OPERATIONS REPORT NO. 3

Well Name: Skull Creek-1 **Permit:** PPL1 **Report Date:** 22/ 5 /96

Rig:	ODE-30	**GL*(AHD)*:**	95.0m	**Report to 0600 for 24hrs**	
Cultus Rep:	Henry Flink	**KB*(AHD)*:**	99.3m *(datum)*	**0600 Depth:**	642m
Geologist:	Dave Horner	**Last Casing:**	9.625" at 332.27m	**Progress to 0600:**	307m

Comments:

Pressure test BOP's, drill out shoe track and 5m of new hole, run FIT to 13.5lb/gal equivalent mudweight with no leak off, drill ahead with 8.5" hole.

Lithological and Fluorescence Summary:

Interval (m)	*Description*
335 - 345	Massive Marl - Gellibrand Marl - No Show
345 - 397	Sandstone with minor interbedded Claystone - Mepunga - No Show
397 - 590	Sandstone grading to and interbedded with minor Claystone - Dilwyn - No Show
590 - 642	Claystone with minor interbedded Sandstone - Pember - No Show

Gas Summary:

Interval (m)	*ROP (m/hr)*	*Total (units)*	*C_1*	*C_2*	*C_3*	*C_4*	*C_5*	*Comments*
			←		(ppm)		→	
335 - 345	50	0	0	0	0	0	0	Gellibrand - No Show
345 - 397	70	0	0	0	0	0	0	Mepunga - No Show
397 - 590	80	0	0	0	0	0	0	Dilwyn - No Show
590 - 642	35	0.1	28	0	0	0	0	Pember - No Show

Formation Tops:

	Prognosed (mKB)	*Actual * (mKB)*	*Difference * (m High/Low)*	*Thickness * (m)*

Port Campbell Limestone	4.3 *(surface)*	4.3	0	16
Gellibrand Marl	-	20	-	201
Clifton Formation	283	229	54 High	28
Narrawaturk Marl	-	257	-	88
Mepunga Formation	361	345	16 High	52
Dilwyn Formation	421	397	24 High	193
Pember Mudstone	-	590	-	
Pebble Point Formation	661			
Paaratte Formation	721			
Skull Creek Mudstone	1031			
Nullawarre Greensand	1121			
Belfast Mudstone	1201			
Waarre Formation Unit D	-			
Waarre Formation Unit C	1266			
Waarre Formation Unit B	-			
Waarre Formation Unit A	-			
Eumeralla Formation	1316			
T.D.	1500			

* *Provisional, based on mud log.*

Lithological and Fluorescence Description:

Interval (m)	*ROP (Av.) (m/hr)*	*Description*
335-345	26-120 (50)	Marl: medium brown grey, common bryozoa, shell fragments and forams, trace pyrite, trace glauconite, trace very fine to fine dispersed clear quartz sand grains, very soft, very dispersive, non fissile.
345-397	13-150 (70)	Sandstone: light to medium brown, very fine to coarse, dominantly fine to medium, angular to subrounded, moderately to well sorted, very weak silica cement, common to abundant medium brown argillaceous and silt matrix, moderate to strong in general decreasing with depth yellow to orange to brown stain on quartz grains, trace multicoloured volcanic lithics, trace coarse muscovite flakes, trace pyrite, trace to common iron oxide pellets, trace glauconite, trace dark brown clay lithics, friable to unconsolidated, fair to good inferred porosity, no oil fluorescence, with minor interbedded Claystone: dark brown, moderately silty, trace pyrite, trace glauconite, trace micromica, soft, very dispersive, non fissile.
397-590	17-600 (80)	Sandstone: light grey, very fine to grit, dominantly medium, angular to subrounded, moderately well sorted, very weak silica cement, minor pyrite cement, trace to abundant medium brown grey argillaceous and silt matrix, clear to opaque quartz grains, trace yellow to red quartz grains, trace brown red and black lithics, trace coarse mica flakes, friable to unconsolidated, very good inferred porosity, no oil fluorescence, grading to and interbedded with minor Claystone: medium to dark brown grey, moderately to very silty, abundant dispersed very fine to coarse quartz sand grains in part, trace pyrite, trace micromica, very soft, very dispersive, non fissile.

590-642	14-75 (35)	Claystone: medium to dominantly dark brown grey, moderately to very silty, common dispersed very fine quartz and off white partially altered feldspar sand grains, trace pyrite, common glauconite,trace black coaly detritus often with associated pyrite, trace micromica, very soft and sticky, moderately dispersive, non fissile, with minor interbedded Sandstone: light brown, very fine to fine, subangular to subrounded, moderately to well sorted, very weak silica cement, common to abundant dark brown grey argillaceous and silt matrix, trace glauconite, common caorse mica flakes, friable, poor inferred porosity, no oil fluorescence.

CULTUS PETROLEUM N.L.

GEOLOGY OPERATIONS REPORT NO. 4

Well Name: Skull Creek-1 **Permit:** PPL1 **Report Date:** 23/ 5 /96

Rig:	ODE-30	**GL(AHD):**	95.0m	**Report to 0600 for 24hrs**	
Cultus Rep:	Henry Flink	**KB(AHD):**	99.3m *(datum)*	**0600 Depth:**	1214m
Geologist:	Dave Horner	**Last Casing:**	9.625" at 332.27m	**Progress to 0600:**	572m

Comments:

Drill to 651m, wiper trip to shoe, drill ahead. Circulate sample at 1214m, begin wiper trip prior to running DST-1. Identification of lower formations may not be correct and are best guess only based on presently available data.

Lithological and Fluorescence Summary:

Interval (m)	*Description*
642 - 651	Claystone with minor interbedded Sandstone - Pember - No Show
651 - 719	Sandstone grading to Claystone - Pebble Point - No Show
719 - 1139	Sandstone with minor interbeds towards base of Claystone - Paaratte - No Show
1139 - 1183	Claystone laminated/interbedded with Claystone - Skull Creek - No Show
1183 - 1203	Massive Claystone minor laminated Sandstone - Belfast? - No Show
1203 - 1214	Massive Sandstone - Waarre? "C" - Gas Show
-	
-	
-	
-	
-	

Gas Summary:

Interval (m)	*ROP (m/hr)*	*Total (units)*	C_1	C_2	C_3	C_4	C_5	*Comments*
			←		(ppm)		→	
642 - 651	35	0.1	11	0	0	0	0	Pember - No Show
651 - 719	90	0.4	74	0	0	0	0	Pebble Point - No Show
719 - 1139	120	27	5326	32	0	0	0	Paaratte - No Show
1139 - 1183	25	31	5927	59	0	0	0	Skull Creek - No Show
1183 - 1203	12	12	1954	18	0	0	0	Belfast? - No Show
1203 - 1214	60	727	144000	690	0	0	0	Waarre? C - Gas Show
-								
-								
-								
-								
-								
-								
-								
-								

Formation Tops:	*Prognosed (mKB)*	*Actual * (mKB)*	*Difference * (m High/Low)*	*Thickness * (m)*
Port Campbell Limestone	4.3 *(surface)*	4.3	0	16
Gellibrand Marl	-	20	-	201
Clifton Formation	283	229	54 High	28
Narrawaturk Marl	-	257	-	88
Mepunga Formation	361	345	16 High	52
Dilwyn Formation	421	397	24 High	193
Pember Mudstone	-	590	-	61
Pebble Point Formation	661	651	10 High	68
Paaratte Formation	721	719	2 High	420
Skull Creek Mudstone	1031	1139	108 Low	64
Nullawarre Greensand	1121	absent	-	0
Belfast Mudstone	1201	1183	18 High	20
Waarre Formation Unit D	-	absent	-	0
Waarre Formation Unit C	1266	1203	63 High	
Waarre Formation Unit B	-			
Waarre Formation Unit A	-			
Eumeralla Formation	1316			
T.D.	1500			

* *Provisional, based on mud log.*

Lithological and Fluorescence Description:

Interval (m)	*ROP (Av.) (m/hr)*	*Description*
642-651	30-45 (35)	Claystone: dark green grey to dark brown grey, moderately to very silty, abundant dispersed very fine to grit clear to opaque quartz sand grains, common glauconite, common pyrite, trace light brown cryptocrystalline dolomite, rare micromica, soft and sticky, moderately dispersive, non fissile.
651-719	25-300 (90)	Sandstone: light orange green, very fine to pebble, dominantly medium to coarse, subangular to subrounded, moderately sorted, very weak silica cement, common medium to dark green argillaceous and silt matrix, weak yellow-green stain on quartz grains, common glauconite, common multicoloured volcanic lithics, trace coarse green mica flakes, friable to unconsolidated, very poor to good inferred porosity in general increasing with depth, no oil fluorescence, grading to and in general decreasing with depth Claystone: medium to dark green, medium brown, moderately to very silty, abundant dispersed very fine to grit green-brown stained quartz grains - grading to argillaceous sandstone, common glauconite, trace pyrite, soft, moderately dispersive, non fissile.

719-1139	8-600 (120)	Sandstone: light orange brown, very fine to pebble, dominantly very coarse, subangular to subrounded, moderately sorted, weak silica cement, trace medium brown argillaceous matrix, common weakly yellow orange stained quartz grains, common to abundant red green and varicoloured volcanic lithics, nil to common black coal detritus, trace pyrite, friable to unconsolidated, very good inferred porosity, no oil fluorescence grading with depth to Sandstone: light grey, very fine to grit, dominantly coarse, at base often dominantly fine, subangular to subrounded, moderately sorted, weak silica cement, no visual matrix, clear to translucent quartz grains, trace green grey lithics, trace black coal detritus, trace pyrite, friable, fair to very good inferred porosity, no oil fluorescence, occasionally with towards base minor interbeds of Claystone: medium to dark brown to medium grey, moderately to very silty, moderately carbonaceous, common black carbonaceous flecks and coaly detritus in part, trace disseminated and nodular pyrite, common micromica, firm, very dispersive and washing from samples, slightly subfissile.
1139-1183	8.6-86 (25)	Claystone: medium to dark grey, medium brown grey, very silty, common very fine partially altered feldspar grains in part, trace black carbonaceous flecks, trace micromica, trace pyrite, soft, very dispersive, slightly subfissile, interbedded and laminated with Sandstone: light grey, very fine to coarse, dominantly fine, subangular to subrounded, moderately sorted, moderate silica cement, trace white argillaceous matrix, trace red brown lithics, trace carbonaceous matter, common pyrite, friable to moderately hard, very poor visual porosity, no oil fluorescence.
1183-1203	6.8-14 (12)	Claystone: medium to dark grey, medium to dark brown grey, very silty, common very fine partially altered feldspar grains in part, common black carbonaceous flecks, trace micromica, firm, very dispersive, slightly subfissile, with minor laminated and probably contaminated by cavings Sandstone: light grey, very fine to coarse, dominantly very fine, subangular to subrounded, moderately sorted, moderate silica cement, trace white argillaceous matrix, trace red brown lithics, trace carbonaceous matter, common pyrite, friable to moderately hard, very poor visual porosity, no oil fluorescence.
1203-1214	24-120 (60)	Sandstone: very light grey, very fine to grit, dominantly coarse to very coarse, subangular to subrounded, poor to moderate sorting, very weak silica cement, no visual matrix, trace yellow stained quartz grains, trace black carbonaceous detritus, friable, very good inferred porosity, no oil fluorescence.

CULTUS PETROLEUM N.L.

GEOLOGY OPERATIONS REPORT NO. 5

Well Name: Skull Creek-1 **Permit:** PPL1 **Report Date:** 24/ 5 /96

Rig:	ODE-30	**GL(AHD):**	95.0m	**Report to 0600 for 24hrs**	
Cultus Rep:	Henry Flink	**KB(AHD):**	99.3m *(datum)*	**0600 Depth:**	1368m
Geologist:	Dave Horner	**Last Casing:**	9.625" at 332.27m	**Progress to 0600:**	154m

Comments:

Wiper trip at 1214m, condition mud, drill ahead (probable gas saturation from 1203 to 1265m). Reach 1368m - Total Depth - at 0600hrs 24th May, 1996.

Lithological and Fluorescence Summary:

Interval (m)	*Description*
1214 - 1221	Massive Sandstone - Waarre "C" - Gas Show
1221 - 1249	Claystone with minor interbedded Sandstone - Waarre "B" - Gas Shows
1249 - 1265	Sandstone - Waarre "A" - Gas Show
-	Probable Gas/Water contact 1265m.
1265 - 1272	Sandstone - Waarre "A" - No Show
1272 - 1368	Sandstone interbedded with Claystone - Eumeralla - No Show
-	
-	
-	
-	
-	

Gas Summary:

Interval (m)	*ROP (m/hr)*	*Total (units)*	C_1	C_2	C_3 (ppm)	C_4	C_5	*Comments*
1214 - 1221	40	195	36521	150	0	0	0	Waarre C - Gas Show
1221 - 1229	10	6	1193	6	0	0	0	Waarre B - Clay
1229 - 1232	28	313	37714	562	0	0	0	Waarre B - Gas Show
1232 - 1235	12	22	4350	42	0	0	0	Waarre B - Clay
1235 - 1238	45	134	20796	187	0	0	0	Waarre B - Gas Show
1238 - 1249	10	11	3403	32	0	0	0	Waarre B - Clay
1249 - 1265	30	234	41079	702	0	0	0	Waarre A - Gas Show
1265 - 1272	35	21	3204	30	0	0	0	Waarre A - No Show
1272 - 1368	8	64	13100	1020	421	202	42	Eumeralla - No Show
-								
-								
-								
-								
-								

Formation Tops:

	Prognosed (mKB)	*Actual * (mKB)*	*Difference * (m High/Low)*	*Thickness * (m)*

Port Campbell Limestone	4.3 *(surface)*	4.3	0	16
Gellibrand Marl	-	20	-	201
Clifton Formation	283	229	54 High	28
Narrawaturk Marl	-	257	-	88
Mepunga Formation	361	345	16 High	52
Dilwyn Formation	421	397	24 High	193
Pember Mudstone	-	590	-	61
Pebble Point Formation	661	651	10 High	68
Paaratte Formation	721	719	2 High	420
Skull Creek Mudstone	1031	1139	108 Low	64
Nullawarre Greensand	1121	absent	-	0
Belfast Mudstone	1201	1183	18 High	20
Waarre Formation Unit D	-	absent	-	0
Waarre Formation Unit C	1266	1203	63 High	18
Waarre Formation Unit B	-	1221	-	28
Waarre Formation Unit A	-	1249	-	23
Eumeralla Formation	1316	1272	44 High	96+
T.D.	1500	1368	132 High	

* *Provisional, based on mud log.*

Lithological and Fluorescence Description:

Interval (m)	*ROP (Av.) (m/hr)*	*Description*
1214-1221	17-46 (40)	Sandstone: light grey, very fine to grit, dominantly medium, angular to subrounded, moderate to well sorted, weak silica cement, no visual matrix, trace black coaly detritus, friable, very good to good inferred porosity, no oil fluorescence.
1221-1249	5.2-50 (12)	Claystone: medium grey to medium brown, very silty, common very fine off white partially altered feldspar grains in part, common brown to black carbonaceous flecks and fine detritus, trace medium brown cryptocrystalline dolomite, trace glauconite, trace pyrite, trace micromica, soft, very dispersive and washing from sample, slightly subfissile, interbedded with Sandstone: very light brown grey, very fine to medium, dominantly fine, angular to subrounded, moderately sorted, weak silica cement, no visual matrix, common bright red green brown grey and black lithics, common black coaly detritus, trace pyrite, friable, fair inferred porosity, no oil fluorescence.
1249-1272	16-57 (32)	Sandstone: light orange grey, very fine to grit, dominantly medium, angular to subangular, well sorted, moderate silica cement, trace white argillaceous matrix, common to abundant yellow orange lithics, trace red green grey and black lithics, trace black coaly detritus, friable, fair visual porosity, no oil fluorescence.

1272-1368 T.D.	1.3-40 (8)	Sandstone: weathered at top with abundant white argillaceous matrix, with depth cleaning to - Sandstone: medium green grey, very fine to coarse, dominantly medium, subangular to subrounded, moderately to well sorted, weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace black coaly detritus, trace mica flakes, rare pyrite, friable, very poor visual porosity, no oil fluorescence, interbedded with Claystone: very weathered at top to structureless white to light blue grey clay, with depth cleaning to Claystone: light to medium green grey, light to medium grey, medium brown grey, slightly silty, trace very fine partially alterered feldspar grains in part, trace brown to black carbonaceous flecks and detritus, trace micromica, firm, slighttly subfissile

CULTUS PETROLEUM N.L.
ELECTIC LOGGING REPORT SHEET

Well Name: Skull Creek-1 **Permit:** PPL1 **Observer:** Dave Horner **Date:** 25-5-96

TIME	OPERATION
0900	BPB arrive on site.
1400	Rig-up LCS/DFE.
1420	Run tool in hole.
1445	Run casing check.
1530	Log repeat section
1550	Log main log -LCS/DFE 1368-330m.
1740	Out of hole.
1800	Rig-up PDS/CNS
1830	Run tool in hole.
1915	Log repeat section.
1945	Log main log - PDS/CNS.
2015	End PDS/CNS.
2045	Rig down.

CULTUS PETROLEUM N.L.

GEOLOGY OPERATIONS REPORT NO. 6

Well Name: Skull Creek-1 **Permit:** PPL1 **Report Date:** 25/ 5 /96

Rig:	ODE-30	**GL*(AHD)*:**	95.0m	**Report to 0600 for 24hrs**	
Cultus Rep:	Henry Flink	**KB*(AHD)*:**	99.3m *(datum)*	**0600 Depth:**	1368m
Geologist:	Dave Horner	**Last Casing:**	9.625" at 332.27m	**Progress to 0600:**	0m

Comments:

Circulate bottoms up, 10 stand wiper trip, circulate hole clean, POOH. Rig-up BPB, run-1 DLL-MSFL-GR-SP-Cal-Sonic, run-2 LDL-CNL-GR-Cal, rig down BPB, make-up inflate straddle test tool for DST-1, run test tool in hole in preparation for testing interval 1199-1221m.

Lithological and Fluorescence Summary:

Interval (m)	*Description*
-	No new formation drilled

Gas Summary:

Interval (m)	*ROP (m/hr)*	*Total (units)*	C_1	C_2	C_3	C_4	C_5	*Comments*
			←		*(ppm)*		→	
-								

Formation Tops:	*Prognosed (mKB)*	*Actual * (mKB)*	*Difference * (m High/Low)*	*Thickness * (m)*
Port Campbell Limestone	4.3 *(surface)*	4.3	0	16
Gellibrand Marl	-	20	-	201
Clifton Formation	283	229	54 High	28
Jarrawaturk Marl	-	257	-	88
Mepunga Formation	361	345	16 High	52
Dilwyn Formation	421	397	24 High	193
Pember Mudstone	-	590	-	61
Pebble Point Formation	661	651	10 High	68
Paaratte Formation	721	719	2 High	420
Skull Creek Mudstone	1031	1139	108 Low	64
Nullawarre Greensand	1121	absent	-	0
Belfast Mudstone	1201	1183	18 High	20
Waarre Formation Unit D	-	absent	-	0
Waarre Formation Unit C	1266	1203	63 High	18
Waarre Formation Unit B	-	1221	-	28
Waarre Formation Unit A	-	1249	-	23
Eumeralla Formation	1316	1272	44 High	96+
T.D.	1500	1368	132 High	

* *Provisional, based on mud log.*

Lithological and Fluorescence Description:

Interval (m)	*ROP (Av.) (m/hr)*	*Description*

CULTUS PETROLEUM N.L.

GEOLOGY OPERATIONS REPORT NO. 7

Well Name: Skull Creek-1 **Permit:** PPL1 **Report Date:** 26/ 5 /96

Rig:	ODE-30	**GL*(AHD)*:**	92.0m	**Report to 0600 for 24hrs**	
Cultus Rep:	Henry Flink	**KB*(AHD)*:**	96.3m *(datum)*	**0600 Depth:**	1373m
Geologist:	Dave Horner	**Last Casing:**	9.625" at 332.27m	**Progress to 0600:**	5m

Comments:

Continue RIH test string, DST-1 inflate straddle 1199-1221m - weak blow to bubble hose only, close and unseat tool, reseat tool 1200-1222m - weak blow, increased to strong blow before dying - tool assumed to be plugged - close tool, reverse cirulate out gas cut water cushion, tool differentially stuck, spot pipe lax, work pipe free, POOH test string - sample chamber 1225 PSI containing gas and rathole mud. Gas analysis - 95.8%=C1: 4.1%=C2 : No C3C4C5: 0.1%= CO2 No H2S, charts show test tool blocked above both mechanical charts - no solid physical blockage found in tool but hydraulic tool and entry ports covered with thick filtercake. RIH with bit and junk sub for cleanout trip, work junk sub and drill 5m new hole, circulate hole clean, POOH in preparation for running DST-2 across interval 1198-1208m.

hological and Fluorescence Summary:

Interval (m)	*Description*
1368 - 1373	Claystone interbedded with Sandstone - Eumeralla - No Show.

Gas Summary:

Interval (m)	*ROP (m/hr)*	*Total (units)*	*C1*	*C2*	*C3*	*C4*	*C5*	*Comments*
			←	*(ppm)*			→	
1368 - 1373	17	17	3150	118	0	0	0	Eumeralla - No Show

-
-
-
-
-

Formation Tops:	*Prognosed (mKB)*	*Actual * (mKB)*	*Difference * (m High/Low)*	*Thickness * (m)*
Port Campbell Limestone	4.3 *(surface)*	4.3	0	16
Gellibrand Marl	-	20	-	201
Clifton Formation	283	229	54 High	28
Narrawaturk Marl	-	257	-	88
Mepunga Formation	361	345	16 High	52
Dilwyn Formation	421	397	24 High	193
Pember Mudstone	-	590	-	61
Pebble Point Formation	661	651	10 High	68
Paaratte Formation	721	719	2 High	420
Skull Creek Mudstone	1031	1139	108 Low	64
Nullawarre Greensand	1121	absent	-	0
Belfast Mudstone	1201	1183	18 High	20
Waarre Formation Unit D	-	absent	-	0
Waarre Formation Unit C	1266	1203	63 High	18
Waarre Formation Unit B	-	1221	-	28
Waarre Formation Unit A	-	1249	-	23
Eumeralla Formation	1316	1272	44 High	96+
T.D.	1500	1368	132 High	

* *Provisional, based on mud log.*

Lithological and Fluorescence Description:

Interval (m)	*ROP (Av.) (m/hr)*	*Description*
1368-1373	2-21 (17)	Claystone: medium green grey, light to medium grey, medium brown grey, slightly silty, trace very fine partially alterered feldspar grains in part, trace brown to black carbonaceous flecks and detritus, trace micromica, trace pyrite, firm, slightly subfissile, interbedded with Sandstone: light to medium green grey, very fine to coarse, dominantly medium, subangular to subrounded, moderately to well sorted, weak silica and calcareous cements, common to abundant white argillaceous matrix, abundant grey green lithics, common red brown and black lithics, trace black coaly detritus, trace mica flakes, rare pyrite, friable, very poor visual porosity, no oil fluorescence.

)

CULTUS PETROLEUM N.L.

GEOLOGY OPERATIONS REPORT NO. 8

Well Name: Skull Creek-1 **Permit:** PPL1 **Report Date:** 27/ 5 /96

Rig:	ODE-30	**GL*(AHD)*:**	92.0m	**Report to 0600 for 24hrs**	
Cultus Rep:	Henry Flink	**KB*(AHD)*:**	96.3m *(datum)*	**0600 Depth:**	1373m
Geologist:	Dave Horner	**Last Casing:**	9.625" at 332.27m	**Progress to 0600:**	0m

Comments:

Continue POOH, make-up inflate straddle tool, RIH, run DST-2 1198-1208m - packer seat leaking - close tool, reinflate rubbers, packer seat still leaking, unseat tool and reset across interval 1200.5-1210.5m. No water cushion was used - one flow period only was used due to suspect nature of packer seats - IF=90min, ISI=120min, Q = 8.2 MMCFD, no formation water Gas analysis C1=93.8%, C2=6.2%, C3=C4=C5=0, H2S=0, CO2=0.69%. Reverse circulate drill string, balance mud weight to 9.2lb/gal.

Lithological and Fluorescence Summary:

Interval (m)	*Description*
-	No new formation drilled

Gas Summary:

Interval (m)	*ROP (m/hr)*	*Total (units)*	*C1*	*C2*	*C3*	*C4*	*C5*	*Comments*
			←	(ppm)			→	
-								

Formation Tops:	*Prognosed (mKB)*	*Actual * (mKB)*	*Difference * (m High/Low)*	*Thickness * (m)*
Port Campbell Limestone	4.3 *(surface)*	4.3	0	16
Gellibrand Marl	-	20	-	201
Clifton Formation	283	229	54 High	28
Narrawaturk Marl	-	257	-	88
Mepunga Formation	361	345	16 High	52
Dilwyn Formation	421	397	24 High	193
Pember Mudstone	-	590	-	61
Pebble Point Formation	661	651	10 High	68
Paaratte Formation	721	719	2 High	420
Skull Creek Mudstone	1031	1139	108 Low	64
Nullawarre Greensand	1121	absent	-	0
Belfast Mudstone	1201	1183	18 High	20
Waarre Formation Unit D	-	absent	-	0
Waarre Formation Unit C	1266	1203	63 High	18
Waarre Formation Unit B	-	1221	-	28
Waarre Formation Unit A	-	1249	-	23
Eumeralla Formation	1316	1272	44 High	
T.D.	1500			

* *Provisional, based on mud log.*

Lithological and Fluorescence Description:

Interval (m)	*ROP (Av.) (m/hr)*	*Description*

CULTUS PETROLEUM N.L.

GEOLOGY OPERATIONS REPORT NO. 9

Well Name: Skull Creek-1 **Permit:** PPL1 **Report Date:** 28/ 5 /96

Rig:	ODE-30	**GL*(AHD)*:**	92.0m	**Report to 0600 for 24hrs**	
Cultus Rep:	Henry Flink	**KB*(AHD)*:**	96.3m *(datum)*	**0600 Depth:**	1700m
Geologist:	Dave Horner	**Last Casing:**	9.625" at 332.27m	**Progress to 0600:**	1373m

Comments:

POOH and break down test string, make up and RIH mud motor/drilling assembly, drill ahead to 1700m Total Depth reached at 0500hrs 28th May, 1996, circulate hole clean.

Lithological and Fluorescence Summary:

Interval (m)	*Description*
1373 - 1399	Claystone interbedded with Sandstone - Eumeralla - No Show
1399 - 1427	Sandstone with minor interbedded Claystone - Eumeralla - Gas Show
1427 - 1484	Sandstone with minor interbedded Claystone - Eumeralla - No Show
1484 - 1498	Claystone with minor interbedded Sandstone - Eumeralla - No Show
1498 - 1518	Sandstone with minor interbedded Claystone - Eumeralla - Gas Show
1518 - 1528	Claystone with minor interbedded Sandstone - Eumeralla - No Show
1528 - 1533	Sandstone with minor interbedded Claystone - Eumeralla - Gas Show
1533 - 1615	Sandstone with minor interbedded Claystone - Eumeralla - No Show
1615 - 1700	Claystone interbedded with Sandstone - Eumeralla - No Show
-	
-	

Gas Summary:

Interval (m)	*ROP (m/hr)*	*Total (units)*	*C_1*	*C_2*	*C_3*	*C_4*	*C_5*	*Comments*
			←	(ppm)		→		
1373 - 1399	20	117	22904	1655	409	98	20	Eumeralla - No Show
1399 - 1427	110	405	33143	1167	370	121	26	Eumeralla - Gas Show
1427 - 1484	95	45	8521	599	188	74	18	Eumeralla - No Show
1484 - 1498	40	49	8274	603	165	57	16	Eumeralla - No Show
1498 - 1518	100	497	45086	5525	1375	330	57	Eumeralla - Gas Show
1518 - 1528	50	72	12384	939	248	73	13	Eumeralla - No Show
1528 - 1533	40	318	29083	3514	867	204	37	Eumeralla - Gas Show
1533 - 1615	60	29	5557	406	123	46	1	Eumeralla - No Show
1615 - 1700	30	12	2132	147	35	18	0	Eumeralla - No Show
-								
-								
-								
-								
-								

Formation Tops:	*Prognosed (mKB)*	*Actual * (mKB)*	*Difference * (m High/Low)*	*Thickness * (m)*

Port Campbell Limestone	4.3 *(surface)*	4.3	0	16
Gellibrand Marl	-	20	-	201
Clifton Formation	283	229	54 High	28
Narrawaturk Marl	-	257	-	88
Mepunga Formation	361	345	16 High	52
Dilwyn Formation	421	397	24 High	193
Pember Mudstone	-	590	-	61
Pebble Point Formation	661	651	10 High	68
Paaratte Formation	721	719	2 High	420
Skull Creek Mudstone	1031	1139	108 Low	64
Nullawarre Greensand	1121	absent	-	0
Belfast Mudstone	1201	1183	18 High	20
Waarre Formation Unit D	-	absent	-	0
Waarre Formation Unit C	1266	1203	63 High	18
Waarre Formation Unit B	-	1221	-	28
Waarre Formation Unit A	-	1249	-	23
Eumeralla Formation	1316	1272	44 High	428+
T.D.	1500	1700	200 Low	

* *Provisional, based on mud log.*

Lithological and Fluorescence Description:

Interval (m)	*ROP (Av.) (m/hr)*	*Description*
1373-1399	13-60 (20)	Claystone: off white to medium green grey, light to medium brown, medium brown grey, slightly to occasionally moderately silty, common very fine partially alterered feldspar grains in part, trace to common brown to black carbonaceous flecks and detritus especially where brown, trace micromica, trace pyrite, firm, slightly subfissile, interbedded with Sandstone: medium green grey, fine to coarse, dominantly medium, angular to subrounded, moderately to well sorted, weak silica and trace weak calcareous cement, common white argillaceous matrix, abundant grey green lithics, common red brown and black lithics, trace black coaly detritus, trace mica flakes, trace pyrite, friable, very poor visual porosity, no oil fluorescence.
1399-1484	12-600 (100)	Sandstone: medium green grey, fine to coarse, dominantly medium, angular to subrounded, moderately to well sorted, weak silica and trace weak calcareous cement, common white argillaceous matrix, abundant grey green lithics, common red lithics, trace to common black to very dark green lithics, trace black coaly detritus, trace brown and green black mica flakes, trace pyrite, friable, very poor visual porosity, no oil fluorescence, with minor interbedded Claystone: off white to medium green grey, light to medium brown, medium brown grey, slightly to occasionally moderately silty, trace to common brown to black carbonaceous flecks and detritus especially where brown, trace micromica, trace pyrite, firm, slightly subfissile.

1484-1498	25-150 (40)	Sandstone: medium green grey, fine to coarse, dominantly medium, angular to subangular, well sorted, weak silica and trace weak calcareous cement, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace feldspars, trace brown black mica flakes, trace pyrite, friable, very poor visual porosity, no oil fluorescence, interbedded with minor Claystone: off white to medium grey to medium brown grey to medium green grey, slightly silty, trace brown to black carbonaceous flecks, trace pyrite, trace micromica, firm to moderately hard, slightly subfissile.
1498-1518	50-300 (100)	Sandstone: medium green grey, fine to coarse, dominantly medium to coarse, angular to subangular, moderately to well sorted, weak silica and calcareous cements, trace to common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace black mica flakes, trace black carbonaceous matter, friable, poor inferred porosity, no oil fluorescence, interbedded with minor Claystone: off white to medium grey to medium brown grey to medium green grey, slightly silty, trace brown to black carbonaceous flecks, trace pyrite, trace micromica, firm to moderately hard, slightly subfissile.
1518-1528	23-60 (50)	Claystone: off white to medium grey to medium green grey, slightly silty, trace brown to black carbonaceous flecks, trace pyrite, trace micromica, firm to moderately hard, slightly subfissile, interbedded with minor Sandstone: medium green grey, very fine to coarse, dominantly fine to medium, angular to subangular, moderately to well sorted, weak silica and calcareous cements, trace to common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace brown to black mica flakes, trace black carbonaceous matter, friable, very poor inferred porosity, no oil fluorescence.
1528-1615	15-400 (60)	Sandstone: medium green grey, fine to coarse, dominantly medium, angular to subangular, moderately to well sorted, weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, common brown to black mica flakes, trace black carbonaceous matter, friable, very poor inferred porosity, no oil fluorescence, interbedded with minor Claystone: off white to medium grey to medium green grey, slightly to rarely very silty, trace brown to black carbonaceous flecks, trace pyrite, trace micromica, firm to moderately hard, slightly subfissile.
1615-1700 T.D.	8.6-300 (30)	Sandstone: medium green grey, fine to coarse, dominantly fine to medium, angular to subangular, moderately to well sorted, weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common orange brown and black lithics, trace brown mica flakes, trace black carbonaceous matter, friable, nil to very poor visual porosity, no oil fluorescence, interbedded with Claystone: off white to medium, light to medium brown grey, light to medium green grey, slightly to very silty, trace to common brown to black carbonaceous flecks, trace black coaly detritus, trace pyrite, trace micromica, trace coarse brown mica flakes, firm to moderately hard, moderately dispersive, slightly subfissile

CULTUS PETROLEUM N.L.

GEOLOGY OPERATIONS REPORT NO. 10

Well Name: Skull Creek-1 **Permit:** PPL1 **Report Date:** 29/ 5 /96

Rig:	ODE-30	**GL*(AHD)*:**	92.0m	**Report to 0600 for 24hrs**	
Cultus Rep:	Henry Flink	**KB*(AHD)*:**	96.3m *(datum)*	**0600 Depth:**	1700m
Geologist:	Dave Horner	**Last Casing:**	9.625" at 332.27m	**Progress to 0600:**	0m

Comments:

Wiper trip, circulate hole clean, POOH to run BPB electric logs. Run-1 DLL-MSFL-SP-GR-Sonic-Cal, Run-2 RFS-GR 5 pressure points & sample (hole very sticky to cable) POOH RFS due to inability to achieve stabilized pressure readings - suspect possible problem with tool.

Lithological and Fluorescence Summary:

Interval (m)	*Description*
-	No new formation drilled.

Gas Summary:

Interval (m)	*ROP (m/hr)*	*Total (units)*	*C1* ← *C2* *C3* (ppm) *C4* *C5* →	*Comments*
-				

Formation Tops:	*Prognosed (mKB)*	*Actual * (mKB)*	*Difference * (m High/Low)*	*Thickness * (m)*
Port Campbell Limestone	4.3 *(surface)*	4.3	0	16
Gellibrand Marl	-	20	-	201
Clifton Formation	283	229	54 High	28
Jarrawaturk Marl	-	257	-	88
Mepunga Formation	361	345	16 High	52
Dilwyn Formation	421	397	24 High	193
Pember Mudstone	-	590	-	61
Pebble Point Formation	661	651	10 High	68
Paaratte Formation	721	719	2 High	420
Skull Creek Mudstone	1031	1139	108 Low	64
Nullawarre Greensand	1121	absent	-	0
Belfast Mudstone	1201	1183	18 High	20
Waarre Formation Unit D	-	absent	-	0
Waarre Formation Unit C	1266	1203	63 High	18
Waarre Formation Unit B	-	1221	-	28
Waarre Formation Unit A	-	1249	-	23
Eumeralla Formation	1316	1272	44 High	428+
T.D.	1500	1700	200 Low	

* *Provisional, based on mud log.*

Lithological and Fluorescence Description:

Interval (m)	*ROP (Av.) (m/hr)*	*Description*

CULTUS PETROLEUM N.L.
RFT - PRESSURE TEST REPORT SHEET

Well Name: Skull creek-1 **Permit:** PPL1 **Observer:** D.Horner **Date:** 29-5-96

Test No.	File No.	Depth	SEAT Y	SEAT N	Hydrostatic Pressure Initial	Hydrostatic Pressure Final	Formation Pressure Quartz Gauge	Formation Pressure Strain Gauge	Time to Stabilization	Sample Y	Sample N	Formation - Remarks
1	1	1205.0	Y		1984.8	1993.4	1613.4		465		N	Hydrostatic varying
2	2	1211.3	Y		1990.0	2000.0	1680.7		205		N	
3	X	1212.5		N	1993.7	2004.9	-					
4	3	1212.5	Y		1992.0	2003.7	?		?		N	Very low perm/stopped
5	X	1212.2		N	1993.7	2003.7	-					
6	4	1212.3	Y		1995.6	2004.5	1614.5		166		N	
7	5	1216.7	Y		2000.0	2008.3	1623.2		15		N	
8	6	1237.5	Y		2031.8		1644.9		150	Y		
												Samples
												Large Tank filled initially Small Tank filled second at same interval - partial plugging of tool during flow.
												Large Tank Rw = 0.655 @ 61.1F 850 PSI 12 cu ft gas 4 litres water C1 = 95.9% C2 = 4.1% C3=C4=C5=0 CO2=H2S=0 pH = 7.7 SO3 = 160 ppm Pmf = 0.0-1.13 Cl = 3600 ppm Ca = 2500+ppm
												Small Tank Rw = 0.702 @ 63.2F 400 PSI 3 cu ft gas 300 ml water C1 = 93.7% C2 = 6.3% C3=C4=C5=0

CULTUS PETROLEUM N.L.
RFT - PRESSURE TEST REPORT SHEET

Well Name: Skull creek-1 **Permit:** PPL1 **Observer:** D.Horner **Date:** 29-5-96

Test No.	File No.	Depth	SEAT Y	SEAT N	Hydrostatic Pressure Initial	Hydrostatic Pressure Final	Formation Pressure Quartz Gauge	Formation Pressure Strain Gauge	Time to Stabilization	Sample Y	Sample N	Formation - Remarks
1	1	1205.0	Y		1984.8	1993.4	1613.4		465		N	Hydrostatic varying
2	2	1211.3	Y		1990.0	2000.0	1680.7		205		N	
3	X	1212.5		N	1993.7	2004.9	-					
4	3	1212.5	Y		1992.0	2003.7	?		?		N	Very low perm/stopped
5	X	1212.2		N	1993.7	2003.7	-					
6	4	1212.3	Y		1995.6	2004.5	1614.5		166		N	
7	5	1216.7	Y		2000.0	2008.3	1623.2		15		N	
8	6	1237.5	Y		2031.8		1644.9		150	Y		

CULTUS PETROLEUM N.L.
ELECTIC LOGGING REPORT SHEET

Well Name: Skull Creek-1 **Permit:** PPL1 **Observer:** D. Horner **Date:** 30-5-95

TIME	OPERATION
0930	BPB arrive on site
1635	Rig-up
1700	Assemble DFE
1745	Run DFE in hole
1800	Casing check LCS-DFE
1845	Log repeat section
1900	Main log LCS-DFE (1700-1350m)
1945	Finish main log
2100	Rig up RFT - 5 pressure points plus sample
0730	Rig down RFT
0730	Begin rig-up PDS-CNS
0900	Log repeat section PDS-CNS
0930	Main Log PDS-CNS (1700-1350m - Max temp = 63C)
1045	Out of hole with PDS-CNS
1130	Rig down PDS-CNS
1130	Rig up PSD (dipmeter)
1245	Log repeat section PSD
1300	Main log PSD (1700-700m - Max temp = 63C)
1530	Rig down PSD
1530	Rig up VD (velocity data - 22 levels)
2220	Rig down

CULTUS PETROLEUM N.L. GEOLOGY OPERATIONS REPORT NO. 11

Well Name: Skull Creek-1 **Permit:** PPL1 **Report Date:** 30/ 5 /96

Rig:	ODE-30	**GL*(AHD)*:**	92.0m	**Report to 0600 for 24hrs**	
Cultus Rep:	Henry Flink	**KB*(AHD)*:**	96.3m *(datum)*	**0600 Depth:**	1700m
Geologist:	Dave Horner	**Last Casing:**	9.625" at 332.27m	**Progress to 0600:**	0m

Comments:

POOH RFS, retrieve samples (see RFT report), rig up Run-3 LDL-CNL-GR-Cal, Run-4 Dipmeter, Run-5 Velocity Survey, 22 levels, rig down BPB. RIH for clean-up trip and condition mud.

Lithological and Fluorescence Summary:

Interval (m)	*Description*
-	No new formation drilled.

Gas Summary:

Interval (m)	*ROP (m/hr)*	*Total (units)*	C_1	C_2	C_3	C_4	C_5	*Comments*
			←	(ppm)			→	

Formation Tops:

	Prognosed (mKB)	*Actual * (mKB)*	*Difference * (m High/Low)*	*Thickness * (m)*

Port Campbell Limestone	4.3 *(surface)*	4.3	0	16
Gellibrand Marl	-	20	-	201
Clifton Formation	283	229	54 High	28
Narrawaturk Marl	-	257	-	88
Mepunga Formation	361	345	16 High	52
Dilwyn Formation	421	397	24 High	193
Pember Mudstone	-	590	-	61
Pebble Point Formation	661	651	10 High	68
Paaratte Formation	721	719	2 High	420
Skull Creek Mudstone	1031	1139	108 Low	64
Nullawarre Greensand	1121	absent	-	0
Belfast Mudstone	1201	1183	18 High	20
Waarre Formation Unit D	-	absent	-	0
Waarre Formation Unit C	1266	1203	63 High	18
Waarre Formation Unit B	-	1221	-	28
Waarre Formation Unit A	-	1249	-	23
Eumeralla Formation	1316	1272	44 High	428+
T.D.	1500	1700	200 Low	

* *Provisional, based on mud log.*

Lithological and Fluorescence Description:

Interval (m)	*ROP (Av.) (m/hr)*	*Description*

CULTUS PETROLEUM N.L. # GEOLOGY OPERATIONS REPORT NO. 12

Well Name: Skull Creek-1 **Permit:** PPL1 **Report Date:** 31/ 5 /96

Rig:	ODE-30	**GL*(AHD)*:**	92.0m	**Report to 0600 for 24hrs**	
Cultus Rep:	Henry Flink	**KB*(AHD)*:**	96.3m *(datum)*	**0600 Depth:**	1700m
Geologist:	Dave Horner	**Last Casing:**	9.625" at 332.27m	**Progress to 0600:**	0m

Comments:

Condition mud, POOH, make up inflate straddle tool with no water cushion, RIH test string and run DST-3 (1402-1417m) IF 5min ISI 30 min FF 120min FSI 240min GTS 2.5min Q = 1.1 MMCFD through 0.375" choke, C1=58.9% C2=23.5% C3=14.2% C4=7.7% C5=1.7% CO2=0.05% H2S=0 deflate tool and move to DST-4 (1240-1255m) IF 10min, ISI 36min, FF 60min, FSI 90min, GTS 1 min, Q=11.1 MMCFD through 0.75" choke, C1=99.45%, C2=C3=C4=C5=0.0%, CO2=0.55%, H2S=0. Deflate packers, Reverse circulate out test string.

Lithological and Fluorescence Summary:

Interval (m)	*Description*
-	No new formation drilled.
-	
-	
-	
-	
-	
-	
-	
-	
-	
-	

Gas Summary:

Interval (m)	*ROP (m/hr)*	*Total (units)*	*C_1*	*C_2*	*C_3*	*C_4*	*C_5*	*Comments*
			←		*(ppm)*		→	
-								
-								
-								
-								
-								
-								
-								
-								
-								
-								
-								
-								
-								

Formation Tops:	*Prognosed (mKB)*	*Actual * (mKB)*	*Difference * (m High/Low)*	*Thickness * (m)*
Port Campbell Limestone	4.3 *(surface)*	4.3	0	16
Gellibrand Marl	-	20	-	201
Clifton Formation	283	229	54 High	28
Narrawaturk Marl	-	257	-	88
Mepunga Formation	361	345	16 High	52
Dilwyn Formation	421	397	24 High	193
Pember Mudstone	-	590	-	61
Pebble Point Formation	661	651	10 High	68
Paaratte Formation	721	719	2 High	420
Skull Creek Mudstone	1031	1139	108 Low	64
Nullawarre Greensand	1121	absent	-	0
Belfast Mudstone	1201	1183	18 High	20
Waarre Formation Unit D	-	absent	-	0
Waarre Formation Unit C	1266	1203	63 High	18
Waarre Formation Unit B	-	1221	-	28
Waarre Formation Unit A	-	1249	-	23
Eumeralla Formation	1316	1272	44 High	428+
T.D.	1500	1700	200 Low	

* *Provisional, based on mud log.*

Lithological and Fluorescence Description:

Interval (m)	*ROP (Av.) (m/hr)*	*Description*

CULTUS PETROLEUM N.L.

GEOLOGY OPERATIONS REPORT NO. 13

Well Name: Skull Creek-1 **Permit:** PPL1 **Report Date:** 1/6/96

Rig:	ODE-30	**GL(AHD):**	92.0m	**Report to 0600 for 24hrs**	
Cultus Rep:	Henry Flink	**KB(AHD):**	96.3m *(datum)*	**0600 Depth:**	1700m
Geologist:	Dave Horner	**Last Casing:**	9.625" at 332.27m	**Progress to 0600:**	0m

Comments:

Continue reverse circulation after DST-4, POOH and lay out test string, RIH to 1600m, circulate hole clean, POOH, RIH BPB RFS tool.

Lithological and Fluorescence Summary:

Interval (m)	*Description*
-	No new formation drilled.

Gas Summary:

Interval (m)	*ROP (m/hr)*	*Total (units)*	*C1*	*C2*	*C3*	*C4*	*C5*	*Comments*
			←	*(ppm)*			→	

Formation Tops:

	Prognosed (mKB)	*Actual * (mKB)*	*Difference * (m High/Low)*	*Thickness * (m)*

Port Campbell Limestone	4.3 *(surface)*	4.3	0	16
Gellibrand Marl	-	20	-	201
Clifton Formation	283	229	54 High	28
Narrawaturk Marl	-	257	-	88
Mepunga Formation	361	345	16 High	52
Dilwyn Formation	421	397	24 High	193
Pember Mudstone	-	590	-	61
Pebble Point Formation	661	651	10 High	68
Paaratte Formation	721	719	2 High	420
Skull Creek Mudstone	1031	1139	108 Low	64
Nullawarre Greensand	1121	absent	-	0
Belfast Mudstone	1201	1183	18 High	20
Waarre Formation Unit D	-	absent	-	0
Waarre Formation Unit C	1266	1203	63 High	18
Waarre Formation Unit B	-	1221	-	28
Waarre Formation Unit A	-	1249	-	23
Eumeralla Formation	1316	1272	44 High	428+
T.D.	1500	1700	200 Low	

* *Provisional, based on mud log.*

Lithological and Fluorescence Description:

Interval (m)	*ROP (Av.) (m/hr)*	*Description*

CULTUS PETROLEUM N.L.

GEOLOGY OPERATIONS REPORT NO. 15

Well Name: Skull Creek-1 **Permit:** PPL1 **Report Date:** 3/ 6 /96

Rig:	ODE-30	**GL*(AHD)*:**	92.0m	**Report to 0600 for 24hrs**	
Cultus Rep:	Henry Flink	**KB*(AHD)*:**	96.3m *(datum)*	**0600 Depth:**	1700m
Geologist:	Dave Horner	**Last Casing:**	9.625" at 332.27m	**Progress to 0600:**	0m

Comments:

RIH inflate straddle, DST-5 1500-1520m - strong air blow - packer seat failed after 8 mins, reseat at 1502-1522m - strong air blow - packer seat failed after 2 mins, abandon DST-5, attempt DST-6 1225-1245m unable to seat packers, abandon test, POOH test string (top packer burst) rig down test string, RIH with bit, circulate hole clean, POOH.

Lithological and Fluorescence Summary:

Interval (m)	*Description*
-	No new formation drilled.

Gas Summary:

Interval (m)	*ROP (m/hr)*	*Total (units)*	*C1*	*C2*	*C3*	*C4*	*C5*	*Comments*
			←	(ppm)			→	

Formation Tops:	*Prognosed (mKB)*	*Actual * (mKB)*	*Difference * (m High/Low)*	*Thickness * (m)*
Port Campbell Limestone	4.3 *(surface)*	4.3	0	16
Gellibrand Marl	-	20	-	201
Clifton Formation	283	229	54 High	28
Narrawaturk Marl	-	257	-	88
Mepunga Formation	361	345	16 High	52
Dilwyn Formation	421	397	24 High	193
Pember Mudstone	-	590	-	61
Pebble Point Formation	661	651	10 High	68
Paaratte Formation	721	719	2 High	420
Skull Creek Mudstone	1031	1139	108 Low	64
Nullawarre Greensand	1121	absent	-	0
Belfast Mudstone	1201	1183	18 High	20
Waarre Formation Unit D	-	absent	-	0
Waarre Formation Unit C	1266	1203	63 High	18
Waarre Formation Unit B	-	1221	-	28
Waarre Formation Unit A	-	1249	-	23
Eumeralla Formation	1316	1272	44 High	428+
T.D.	1500	1700	200 Low	

* *Provisional, based on mud log.*

Lithological and Fluorescence Description:

Interval (m)	*ROP (Av.) (m/hr)*	*Description*

APPENDIX 5 - CUTTINGS REPORTS

CULTUS PETROLEUM N.L. APPENDIX

CUTTINGS DESCRIPTION

WELL NAME:	Skull Creek-1	DATE:	28-5-96
GEOLOGIST:	Dave Horner	PAGE:	1

Interval (m)	%	Description
Continuation for geology report-9		
1650-1653	20	Sandstone: medium green grey, fine to coarse, dominantly fine to medium, angular to subangular, moderately to well sorted, weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common orange brown and black lithics, trace brown mica flakes, trace black carbonaceous matter, friable, very poor inferred porosity, no oil fluorescence.
	80	Claystone: off white to medium brown grey to medium grey to medium green grey, dominantly medium grey, slightly to rarely very silty, trace brown to black carbonaceous flecks, trace black coal detritus, trace pyrite, trace micromica, firm to moderately hard, very dispersive, slightly subfissile.
1653-1656	10	Sandstone: medium green grey, fine to coarse, dominantly fine to medium, angular to subangular, moderately to well sorted, weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common orange brown and black lithics, trace brown mica flakes, trace black carbonaceous matter, friable, very poor inferred porosity, no oil fluorescence.
	90	Claystone: off white to medium brown grey to medium grey to medium green grey, dominantly medium grey, slightly to rarely very silty, trace brown to black carbonaceous flecks, trace black coal detritus, trace pyrite, trace micromica, firm to moderately hard, very dispersive, slightly subfissile.
1656-1680	100	Claystone: off white to medium, light to medium brown grey, light to medium green grey, slightly to very silty, trace to common brown to black carbonaceous flecks, trace black coaly detritus, trace pyrite, trace micromica, trace coarse brown mica flakes, firm to moderately hard, moderately dispersive, slightly subfissile.
	Tr	Sandstone: medium green grey, very fine to medium, dominantly fine, angular to subangular, moderately to well sorted, weak to moderate silica and calcareous cements, common to abundant white argillaceous matrix, abundant grey green lithics, trace to common orange brown and black lithics, common fine brown mica flakes, trace black carbonaceous matter, friable, no visual porosity, no oil fluorescence.
1680-1683	95	Claystone: off white to medium, light to medium brown grey, light to medium green grey, slightly to very silty, trace to common brown to black carbonaceous flecks, trace black coaly detritus, trace pyrite, trace micromica, trace coarse brown mica flakes, firm to moderately hard, moderately dispersive, slightly subfissile.
	5	Sandstone: medium green grey, very fine to medium, dominantly fine, angular to subangular, moderately to well sorted, weak to moderate silica and calcareous cements, common to abundant white argillaceous matrix, abundant grey green lithics, trace to common orange brown and black lithics, common fine brown mica flakes, trace black carbonaceous matter, friable, no visual porosity, no oil fluorescence.
1686-1689	40	Claystone: off white to medium, light to medium brown grey, light to medium green grey, occasionally dark brown,slightly to very silty, trace to common brown to black carbonaceous flecks, trace black coaly detritus, trace pyrite, trace micromica, trace coarse brown mica flakes, firm to moderately hard, moderately dispersive, slightly subfissile.

Interval (m)	%	Description
	10	Claystone: off white to medium brown grey to medium grey to medium green grey, dominantly light brown, slightly to rarely very silty, trace brown to black carbonaceous flecks, trace black coal detritus, trace pyrite, trace micromica, firm to moderately hard, very dispersive, slightly subfissile.
1641-1644	80	Sandstone: medium green grey, fine to coarse, dominantly medium, angular to subangular, moderately to well sorted, weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common orange brown and black lithics, trace brown mica flakes, trace black carbonaceous matter, friable, very poor inferred porosity, no oil fluorescence.
	20	Claystone: off white to medium brown grey to medium grey to medium green grey, dominantly medium grey, slightly to rarely very silty, trace brown to black carbonaceous flecks, trace black coal detritus, trace pyrite, trace micromica, firm to moderately hard, very dispersive, slightly subfissile.
1644-1650	40	Sandstone: medium green grey, fine to coarse, dominantly fine to medium, angular to subangular, moderately to well sorted, weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common orange brown and black lithics, trace brown mica flakes, trace black carbonaceous matter, friable, very poor inferred porosity, no oil fluorescence.
	60	Claystone: off white to medium brown grey to medium grey to medium green grey, dominantly medium grey, slightly to rarely very silty, trace brown to black carbonaceous flecks, trace black coal detritus, trace pyrite, trace micromica, firm to moderately hard, very dispersive, slightly subfissile.

Interval (m)	%	Description
1602-1608	80	Sandstone: medium green grey, fine to coarse, dominantly fine to medium, angular to subangular, moderately to well sorted, weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, common brown to black mica flakes, trace black carbonaceous matter, friable, very poor inferred porosity, no oil fluorescence.
	20	Claystone: off white to medium brown grey to medium grey to medium green grey, slightly to rarely very silty, trace brown to black carbonaceous flecks, rare pyrite, trace micromica, firm to moderately hard, very dispersive, slightly subfissile.
1608-1620	90	Sandstone: medium green grey, fine to coarse, dominantly fine to medium, angular to subangular, moderately to well sorted, weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, common brown to black mica flakes, trace black carbonaceous matter, friable, very poor inferred porosity, no oil fluorescence.
	10	Claystone: off white to medium brown grey to medium grey to medium green grey, slightly to rarely very silty, trace brown to black carbonaceous flecks, rare pyrite, trace micromica, firm to moderately hard, very dispersive, slightly subfissile.
1620-1626	80	Sandstone: medium green grey, fine to coarse, dominantly fine to medium, angular to subangular, moderately to well sorted, weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, common brown mica flakes, common black coaly detritus, friable, very poor inferred porosity, no oil fluorescence.
	20	Claystone: off white to medium brown grey to medium grey to medium green grey, slightly to rarely very silty, trace brown to black carbonaceous flecks, rare pyrite, trace micromica, firm to moderately hard, very dispersive, slightly subfissile.
1626-1632	80	Sandstone: medium green grey, fine to coarse, dominantly fine to medium, angular to subangular, moderately to well sorted, weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, common brown to black mica flakes, trace black carbonaceous matter, friable, very poor inferred porosity, no oil fluorescence.
	20	Claystone: off white to medium brown grey to medium grey to medium green grey, slightly to rarely very silty, trace brown to black carbonaceous flecks, rare pyrite, trace micromica, firm to moderately hard, very dispersive, slightly subfissile.
1632-1635	50	Sandstone: medium green grey, fine to coarse, dominantly fine to medium, angular to subangular, moderately to well sorted, weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, common brown to black mica flakes, trace black carbonaceous matter, friable, very poor inferred porosity, no oil fluorescence.
	50	Claystone: off white to medium brown grey to medium grey to medium green grey, dominantly light brown, slightly to rarely very silty, trace brown to black carbonaceous flecks, trace black coal detritus, trace pyrite, trace micromica, firm to moderately hard, very dispersive, slightly subfissile.
1635-1638	60	Sandstone: medium green grey, fine to coarse, dominantly fine to medium, angular to subangular, moderately to well sorted, weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, common brown to black mica flakes, trace black carbonaceous matter, friable, very poor inferred porosity, no oil fluorescence.
	40	Claystone: off white to medium brown grey to medium grey to medium green grey, dominantly light brown, slightly to rarely very silty, trace brown to black carbonaceous flecks, trace black coal detritus, trace pyrite, trace micromica, firm to moderately hard, very dispersive, slightly subfissile.
1638-1641	90	Sandstone: medium green grey, fine to coarse, dominantly medium, angular to subangular, moderately to well sorted, weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common orange brown and black lithics, trace brown mica flakes, trace black carbonaceous matter, friable, very poor inferred porosity, no oil fluorescence.

Interval (m)	%	Description
	30	Claystone: off white to medium grey to medium green grey, light brown, slightly silty, trace brown to black carbonaceous flecks, trace pyrite, trace micromica, firm to moderately hard, slightly subfissile.
1554-1560	80	Sandstone: medium green grey, very fine to medium, dominantly medium, angular to subangular, moderately to well sorted, weak silica and calcareous cements, trace to common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace brown to black mica flakes, trace black carbonaceous matter, friable, very poor inferred porosity, no oil fluorescence.
	20	Claystone: off white to medium grey to medium green grey, light brown, slightly silty, trace brown to black carbonaceous flecks, trace pyrite, trace micromica, firm to moderately hard, slightly subfissile.
1560-1566	90	Sandstone: medium green grey, very fine to medium, dominantly medium, angular to subangular, moderately to well sorted, weak silica and calcareous cements, trace to common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace brown to black mica flakes, trace black carbonaceous matter, friable, very poor inferred porosity, no oil fluorescence.
	10	Claystone: off white to medium grey to medium green grey, light brown, slightly silty, trace brown to black carbonaceous flecks, trace pyrite, trace micromica, firm to moderately hard, slightly subfissile.
1566-1572	90	Sandstone: medium green grey, very fine to medium, dominantly medium, angular to subangular, moderately to well sorted, weak silica and calcareous cements, trace to common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace brown to black mica flakes, trace black carbonaceous matter, friable, very poor inferred porosity, no oil fluorescence.
	10	Claystone: off white to medium grey to medium green grey, slightly to rarely very silty, trace brown to black carbonaceous flecks, trace pyrite, trace micromica, firm to moderately hard, slightly subfissile.
1572-1581	90	Sandstone: medium green grey, very fine to medium, dominantly medium, angular to subangular, moderately to well sorted, weak silica and calcareous cements, trace to common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, common brown to black mica flakes, trace black carbonaceous matter, friable, very poor inferred porosity, no oil fluorescence.
	10	Claystone: off white to medium grey to medium green grey, slightly to rarely very silty, trace brown to black carbonaceous flecks, trace pyrite, trace micromica, firm to moderately hard, slightly subfissile.
1581-1593	90	Sandstone: medium green grey, fine to coarse, dominantly medium, angular to subangular, moderately to well sorted, weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, common brown to black mica flakes, trace black carbonaceous matter, friable, very poor inferred porosity, no oil fluorescence.
	10	Claystone: off white to medium grey to medium green grey, slightly to rarely very silty, trace brown to black carbonaceous flecks, trace pyrite, trace micromica, firm to moderately hard, slightly subfissile.
1593-1602	90	Sandstone: medium green grey, fine to coarse, dominantly fine to medium, angular to subangular, moderately to well sorted, weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, common brown to black mica flakes, trace black carbonaceous matter, friable, very poor inferred porosity, no oil fluorescence.
	10	Claystone: off white to medium grey to medium green grey, slightly to rarely very silty, trace brown to black carbonaceous flecks, trace pyrite, trace micromica, firm to moderately hard, slightly subfissile.

Interval (m)	%	Description
1500-1503	100	Sandstone: medium green grey, very fine to coarse, dominantly medium to coarse, angular to subangular, moderately to well sorted, weak silica and calcareous cements, trace to common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace black mica flakes, trace black carbonaceous matter, friable, poor inferred porosity, no oil fluorescence.
	Tr	Claystone: off white to medium grey to medium brown grey to medium green grey, slightly silty, trace brown to black carbonaceous flecks, trace pyrite, trace micromica, firm to moderately hard, slightly subfissile.
1503-1512	70	Sandstone: medium green grey, fine to coarse, dominantly medium to coarse, angular to subangular, moderately to well sorted, weak silica and calcareous cements, trace to common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace black mica flakes, trace black carbonaceous matter, friable, poor inferred porosity, no oil fluorescence.
	30	Claystone: off white to medium grey to medium brown grey to medium green grey, slightly silty, trace brown to black carbonaceous flecks, trace pyrite, trace micromica, firm to moderately hard, slightly subfissile.
1512-1518	20	Sandstone: medium green grey, fine to coarse, dominantly medium to coarse, angular to subangular, moderately to well sorted, weak silica and calcareous cements, trace to common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace brown to black mica flakes, trace black carbonaceous matter, friable, very poor inferred porosity, no oil fluorescence.
	80	Claystone: off white to medium grey to medium brown grey to medium green grey, slightly silty, trace brown to black carbonaceous flecks, trace pyrite, trace micromica, firm to moderately hard, slightly subfissile.
1518-1524	50	Sandstone: medium green grey, very fine to coarse, dominantly fine to medium, angular to subangular, moderately to well sorted, weak silica and calcareous cements, trace to common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace brown to black mica flakes, trace black carbonaceous matter, friable, very poor inferred porosity, no oil fluorescence.
	50	Claystone: off white to medium grey to medium green grey, slightly silty, trace brown to black carbonaceous flecks, trace pyrite, trace micromica, firm to moderately hard, slightly subfissile.
1524-1530	90	Sandstone: medium green grey, very fine to coarse, dominantly medium, angular to subangular, moderately to well sorted, weak silica and calcareous cements, trace to common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace brown to black mica flakes, trace black carbonaceous matter, friable, very poor inferred porosity, no oil fluorescence.
	10	Claystone: off white to medium grey to medium green grey, slightly silty, trace brown to black carbonaceous flecks, trace pyrite, trace micromica, firm to moderately hard, slightly subfissile.
1530-1536	80	Sandstone: medium green grey, very fine to coarse, dominantly medium, angular to subangular, moderately to well sorted, weak silica and calcareous cements, trace to common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace brown to black mica flakes, trace black carbonaceous matter, friable, very poor inferred porosity, no oil fluorescence.
	20	Claystone: off white to medium grey to medium green grey, light brown, slightly silty, trace brown to black carbonaceous flecks, trace pyrite, trace micromica, firm to moderately hard, slightly subfissile.
1536-1554	70	Sandstone: medium green grey, very fine to medium, dominantly medium, angular to subangular, moderately to well sorted, weak silica and calcareous cements, trace to common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace brown to black mica flakes, trace black carbonaceous matter, friable, very poor inferred porosity, no oil fluorescence.

Interval (m)	%	Description
	Tr	Claystone: off white to medium green grey, light to medium brown, medium brown grey, slightly to occasionally moderately silty, trace to common brown to black carbonaceous flecks and detritus especially where brown, trace micromica, trace pyrite, firm, slightly subfissile.
1455-1461	80	Sandstone: medium green grey, fine to coarse, dominantly medium, angular to subangular, well sorted, weak silica and trace weak calcareous cement, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace feldspars, trace brown black mica flakes, trace pyrite, friable, very poor visual porosity, no oil fluorescence.
	20	Claystone: off white to medium green grey, light to medium brown, medium brown grey, dominantly medium grey, slightly to occasionally moderately silty, trace to common brown to black carbonaceous flecks and detritus especially where brown, trace micromica, trace pyrite, firm, slightly subfissile.
1461-1467	90	Sandstone: medium green grey, fine to coarse, dominantly medium, angular to subangular, well sorted, weak silica and trace weak calcareous cement, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace feldspars, trace brown black mica flakes, trace pyrite, friable, very poor visual porosity, no oil fluorescence.
	10	Claystone: off white to medium green grey, light to medium brown, medium brown grey, dominantly medium grey, slightly to occasionally moderately silty, trace to common brown to black carbonaceous flecks and detritus especially where brown, trace micromica, trace pyrite, firm, slightly subfissile.
1467-1473	80	Sandstone: medium green grey, fine to coarse, dominantly medium, angular to subangular, well sorted, weak silica and trace weak calcareous cement, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace feldspars, trace brown black mica flakes, trace pyrite, friable, very poor visual porosity, no oil fluorescence.
	20	Claystone: off white to medium green grey, light to medium brown, medium brown grey, dominantly medium grey, slightly to occasionally moderately silty, trace to common brown to black carbonaceous flecks and detritus especially where brown, trace micromica, trace pyrite, firm, slightly subfissile.
1473-1482	60	Sandstone: medium green grey, fine to coarse, dominantly medium, angular to subangular, well sorted, weak silica and trace weak calcareous cement, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace feldspars, trace brown black mica flakes, trace pyrite, friable, very poor visual porosity, no oil fluorescence.
	40	Claystone: off white to medium grey to medium brown grey to medium green grey, slightly silty, trace brown to black carbonaceous flecks, trace pyrite, trace micromica, firm to moderately hard, slightly subfissile.
1482-1494	20	Sandstone: medium green grey, fine to coarse, dominantly medium, angular to subangular, well sorted, weak silica and trace weak calcareous cement, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace feldspars, trace brown black mica flakes, trace pyrite, friable, very poor visual porosity, no oil fluorescence.
	80	Claystone: off white to medium grey to medium brown grey to medium green grey, slightly silty, trace brown to black carbonaceous flecks, trace pyrite, trace micromica, firm to moderately hard, slightly subfissile.
1494-1500	40	Sandstone: medium green grey, very fine to coarse, dominantly medium to coarse, angular to subangular, moderately to well sorted, weak silica and calcareous cements, trace to common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace black mica flakes, trace black carbonaceous matter, friable, poor inferred porosity, no oil fluorescence.
	60	Claystone: off white to medium grey to medium brown grey to medium green grey, slightly silty, trace brown to black carbonaceous flecks, trace pyrite, trace micromica, firm to moderately hard, slightly subfissile.

Interval (m)	%	Description
	30	Claystone: off white to medium green grey, light to medium brown, medium brown grey, dominantly off white to light green grey, slightly to occasionally moderately silty, trace to common brown to black carbonaceous flecks and detritus especially where brown, trace micromica, trace pyrite, firm, slightly subfissile.
1407-1413	90	Sandstone: medium green grey, fine to coarse, dominantly medium, angular to subrounded, moderately to well sorted, weak silica and trace weak calcareous cement, common white argillaceous matrix, abundant grey green lithics, common red brown and black lithics, trace black coaly detritus, trace brown and dark green mica flakes, trace pyrite, friable, very poor visual porosity, no oil fluorescence.
	10	Claystone: off white to medium green grey, light to medium brown, medium brown grey, dominantly off white to light green grey, slightly to occasionally moderately silty, trace to common brown to black carbonaceous flecks and detritus especially where brown, trace micromica, trace pyrite, firm, slightly subfissile.
1413-1419	100	Sandstone: medium green grey, fine to coarse, dominantly medium, angular to subrounded, moderately to well sorted, weak silica and trace weak calcareous cement, common white argillaceous matrix, abundant grey green lithics, common red lithics, trace to common black to very dark green lithics, trace black coaly detritus, trace brown and green black mica flakes, trace pyrite, friable, very poor visual porosity, no oil fluorescence.
1419-1431	100	Sandstone: medium green grey, fine to coarse, dominantly medium, angular to subrounded, moderately to well sorted, weak silica and trace weak calcareous cement, common white argillaceous matrix, abundant grey green lithics, common red lithics, trace to common black to very dark green lithics, trace black coaly detritus, common brown and green black mica flakes, trace pyrite, friable, very poor visual porosity, no oil fluorescence.
	Tr	Claystone: off white to medium green grey, light to medium brown, medium brown grey, slightly to occasionally moderately silty, trace to common brown to black carbonaceous flecks and detritus especially where brown, trace micromica, trace pyrite, firm, slightly subfissile.
1431-1440	100	Sandstone: medium green grey, fine to coarse, dominantly medium, angular to subrounded, moderately to well sorted, weak silica and trace weak calcareous cement, common to abundant white argillaceous matrix, abundant grey green lithics, common red lithics, trace to common black to very dark green lithics, trace black coaly detritus, common brown and green black mica flakes, trace pyrite, friable, very poor visual porosity, no oil fluorescence.
	Tr	Claystone: off white to medium green grey, light to medium brown, medium brown grey, slightly to occasionally moderately silty, trace to common brown to black carbonaceous flecks and detritus especially where brown, trace micromica, trace pyrite, firm, slightly subfissile.
1440-1443	100	Sandstone: medium green grey, fine to coarse, dominantly medium, angular to subangular, well sorted, weak silica and trace weak calcareous cement, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace feldspars, trace brown black mica flakes, trace pyrite, friable, poor visual porosity, very poor inferred porosity, no oil fluorescence.
1443-1449	90	Sandstone: medium green grey, fine to coarse, dominantly medium, angular to subangular, well sorted, weak silica and trace weak calcareous cement, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace feldspars, trace brown black mica flakes, trace pyrite, friable, poor visual porosity, very poor inferred porosity, no oil fluorescence.
	10	Claystone: off white to medium green grey, light to medium brown, medium brown grey, slightly to occasionally moderately silty, trace to common brown to black carbonaceous flecks and detritus especially where brown, trace micromica, trace pyrite, firm, slightly subfissile.
1449-1455	100	Sandstone: medium green grey, fine to coarse, dominantly medium, angular to subangular, well sorted, weak silica and trace weak calcareous cement, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace feldspars, trace brown black mica flakes, trace pyrite, friable, poor visual porosity, very poor inferred porosity, no oil fluorescence.

CULTUS PETROLEUM N.L. APPENDIX

CUTTINGS DESCRIPTION

WELL NAME:	Skull Creek-1	DATE:	28-5-97
GEOLOGIST:	Dave Horner	PAGE:	1

For geology report-9

Interval (m)	%	Description
1373-1380	70	Sandstone: medium green grey, fine to coarse, dominantly medium, angular to subrounded, moderately to well sorted, weak silica and trace weak calcareous cement, common white argillaceous matrix, abundant grey green lithics, common red brown and black lithics, trace black coaly detritus, trace mica flakes, trace pyrite, friable, very poor visual porosity, no oil fluorescence.
	30	Claystone: off white to medium green grey, light to medium brown, medium brown grey, slightly to occasionally moderately silty, common very fine partially alterered feldspar grains in part, trace to common brown to black carbonaceous flecks and detritus especially where brown, trace micromica, trace pyrite, firm, slightly subfissile.
1380-1383	30	Sandstone: medium green grey, fine to coarse, dominantly medium, angular to subrounded, moderately to well sorted, weak silica and trace weak calcareous cement, common white argillaceous matrix, abundant grey green lithics, common red brown and black lithics, trace black coaly detritus, trace mica flakes, trace pyrite, friable, very poor visual porosity, no oil fluorescence.
	70	Claystone: off white to medium green grey, light to medium brown, medium brown grey, slightly to occasionally moderately silty, common very fine partially alterered feldspar grains in part, trace to common brown to black carbonaceous flecks and detritus especially where brown, trace micromica, trace pyrite, firm, slightly subfissile.
1383-1395	10	Sandstone: medium green grey, fine to coarse, dominantly medium, angular to subrounded, moderately to well sorted, weak silica and trace weak calcareous cement, common white argillaceous matrix, abundant grey green lithics, common red brown and black lithics, trace black coaly detritus, trace mica flakes, trace pyrite, friable, very poor visual porosity, no oil fluorescence.
	90	Claystone: off white to medium green grey, light to medium brown, medium brown grey, dominantly off white to light green grey, slightly to occasionally moderately silty, trace to common brown to black carbonaceous flecks and detritus especially where brown, trace micromica, trace pyrite, firm, slightly subfissile.
1395-1401	30	Sandstone: medium green grey, fine to coarse, dominantly medium, angular to subrounded, moderately to well sorted, weak silica and trace weak calcareous cement, common white argillaceous matrix, abundant grey green lithics, common red brown and black lithics, trace black coaly detritus, trace brown and dark green mica flakes, trace pyrite, friable, very poor visual porosity, no oil fluorescence.
	70	Claystone: off white to medium green grey, light to medium brown, medium brown grey, dominantly off white to light green grey, slightly to occasionally moderately silty, trace to common brown to black carbonaceous flecks and detritus especially where brown, trace micromica, trace pyrite, firm, slightly subfissile.
1401-1407	70	Sandstone: medium green grey, fine to coarse, dominantly medium, angular to subrounded, moderately to well sorted, weak silica and trace weak calcareous cement, common white argillaceous matrix, abundant grey green lithics, common red brown and black lithics, trace black coaly detritus, trace brown and dark green mica flakes, trace pyrite, friable, poor visual porosity, very poor inferred porosity no oil fluorescence.

CULTUS PETROLEUM N.L. APPENDIX

CUTTINGS DESCRIPTION

WELL NAME:	Skull Creek-1	DATE:	26-5-97
GEOLOGIST:	Dave Horner	PAGE:	1

Interval (m)	%	Description
For geology report-7		
1368-1371	20	Sandstone: light to medium green grey, very fine to coarse, dominantly medium, subangular to subrounded, moderately to well sorted, weak silica and calcareous cements, common to abundant white argillaceous matrix, abundant grey green lithics, common red brown and black lithics, trace black coaly detritus, trace mica flakes, rare pyrite, friable, very poor visual porosity, no oil fluorescence.
	80	Claystone: medium green grey, light to medium grey, medium brown grey, slightly silty, trace very fine partially alterered feldspar grains in part, trace brown to black carbonaceous flecks and detritus, trace micromica, trace pyrite, firm, slightly subfissile
1371-1373	40	Sandstone: light to medium green grey, very fine to coarse, dominantly medium, subangular to subrounded, moderately to well sorted, weak silica and calcareous cements, common to abundant white argillaceous matrix, abundant grey green lithics, common red brown and black lithics, trace black coaly detritus, trace mica flakes, rare pyrite, friable, very poor visual porosity, no oil fluorescence.
	60	Claystone: medium green grey, light to medium grey, medium brown grey, slightly silty, trace very fine partially alterered feldspar grains in part, trace brown to black carbonaceous flecks and detritus, trace micromica, trace pyrite, firm, slightly subfissile

Interval (m)	%	Description
	80	Claystone: light to medium green grey, light to medium grey, medium brown grey, slightly silty, trace very fine partially altererd feldspar grains in part, trace brown to black carbonaceous flecks and detritus, trace micromica, firm, slighttly subfissile
		Total Depth : 1368m.

Interval (m)	%	Description
1338-1344	40	Sandstone: medium green grey, very fine to coarse, dominantly medium, subangular to subrounded, moderately to well sorted, weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace black coaly detritus, trace mica flakes, rare pyrite, friable, very poor visual porosity, no oil fluorescence.
	60	Claystone: light to medium green grey, light to medium grey, medium brown grey, slightly silty, trace brown to black carbonaceous flecks and detritus, trace micromica, firm, slighttly subfissile
1344-1347	50	Sandstone: medium green grey, very fine to coarse, dominantly medium, subangular to subrounded, moderately to well sorted, weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace black coaly detritus, trace mica flakes, rare pyrite, friable, very poor visual porosity, no oil fluorescence.
	50	Claystone: light to medium green grey, light to medium grey, medium brown grey, slightly silty, trace brown to black carbonaceous flecks and detritus, trace micromica, firm, slighttly subfissile
1347-1350	30	Sandstone: medium green grey, very fine to coarse, dominantly medium, subangular to subrounded, moderately to well sorted, weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace black coaly detritus, trace mica flakes, rare pyrite, friable, very poor visual porosity, no oil fluorescence.
	70	Claystone: light to medium green grey, light to medium grey, medium brown grey, slightly silty, trace brown to black carbonaceous flecks and detritus, trace micromica, firm, slighttly subfissile
1350-1356	40	Sandstone: medium green grey, very fine to coarse, dominantly medium, subangular to subrounded, moderately to well sorted, weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace black coaly detritus, trace mica flakes, rare pyrite, friable, very poor visual porosity, no oil fluorescence.
	60	Claystone: light to medium green grey, light to medium grey, medium brown grey, slightly silty, trace very fine partially alterered feldspar grains in part, trace brown to black carbonaceous flecks and detritus, trace micromica, firm, slighttly subfissile
1356-1362	30	Sandstone: medium green grey, very fine to coarse, dominantly medium, subangular to subrounded, moderately to well sorted, weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace black coaly detritus, trace mica flakes, rare pyrite, friable, very poor visual porosity, no oil fluorescence.
	70	Claystone: light to medium green grey, light to medium grey, medium brown grey, slightly silty, trace very fine partially alterered feldspar grains in part, trace brown to black carbonaceous flecks and detritus, trace micromica, firm, slighttly subfissile
1362-1365	40	Sandstone: medium green grey, very fine to coarse, dominantly medium, subangular to subrounded, moderately to well sorted, weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace black coaly detritus, trace mica flakes, rare pyrite, friable, very poor visual porosity, no oil fluorescence.
	60	Claystone: light to medium green grey, light to medium grey, medium brown grey, slightly silty, trace very fine partially alterered feldspar grains in part, trace brown to black carbonaceous flecks and detritus, trace micromica, firm, slighttly subfissile
1368-1368	20	Sandstone: medium green grey, very fine to coarse, dominantly medium, subangular to subrounded, moderately to well sorted, weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace black coaly detritus, trace mica flakes, rare pyrite, friable, very poor visual porosity, no oil fluorescence.

	90	Claystone: light to medium green grey, light brown grey, slightly silty in part, trace very fine brown to black carbonaceous flecks, trace micromica, rare pyrite, soft and sticky, non to slightly subfissile.
1314-1317	20	Sandstone: light grey to light green grey, very fine to coarse, dominantly fine to medium, angular to subrounded, moderately to well sorted, weak silica and calcareous cements, abundant white argillaceous matrix, abundant green grey lithics, trace to common red brown black lithics, trace black carbonaceous detritus, friable, very poor visual porosity, no oil fluorescence.
	80	Claystone: light to medium green grey, light brown grey, slightly silty in part, trace very fine brown to black carbonaceous flecks, trace micromica, rare pyrite, soft and sticky, non to slightly subfissile.
1317-1323	60	Sandstone: light grey to light green grey, very fine to coarse, dominantly medium, angular to subrounded, moderately to well sorted, weak silica and calcareous cements, abundant white argillaceous matrix, abundant green grey lithics, trace to common red brown black lithics, trace black carbonaceous detritus, friable, very poor visual porosity, no oil fluorescence.
	40	Claystone: light to medium green grey, light brown grey, slightly silty in part, trace very fine brown to black carbonaceous flecks, trace micromica, rare pyrite, soft and sticky, non to slightly subfissile.
1323-1326	80	Sandstone: light grey to light green grey, very fine to coarse, dominantly medium, angular to subrounded, moderately to well sorted, weak silica and calcareous cements, abundant white argillaceous matrix, abundant green grey lithics, trace to common red brown black lithics, trace black carbonaceous detritus, friable, very poor visual porosity, no oil fluorescence.
	20	Claystone: light to medium green grey, light brown grey, slightly silty in part, trace very fine brown to black carbonaceous flecks, trace micromica, rare pyrite, soft and sticky, non to slightly subfissile.
1326-1329	30	Sandstone: light grey to light green grey, very fine to coarse, dominantly medium, angular to subrounded, moderately to well sorted, weak silica and calcareous cements, abundant white argillaceous matrix, abundant green grey lithics, trace to common red brown black lithics, trace black carbonaceous detritus, friable, very poor visual porosity, no oil fluorescence.
	70	Claystone: light to medium green grey, light brown grey, slightly silty in part, trace very fine brown to black carbonaceous flecks, trace micromica, rare pyrite, soft and sticky, non to slightly subfissile.
1329-1335	40	Sandstone: medium green grey, very fine to coarse, dominantly medium to coarse, subangular to subrounded, moderately to well sorted, weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace black coaly detritus, trace mica flakes, rare pyrite, friable, very poor visual porosity, no oil fluorescence.
	60	Claystone: light to medium green grey, light brown grey, slightly silty in part, trace very fine brown to black carbonaceous flecks, trace micromica, rare pyrite, soft and sticky, non to slightly subfissile.
1335-1338	50	Sandstone: medium green grey, very fine to coarse, dominantly medium, subangular to subrounded, moderately to well sorted, weak silica and calcareous cements, common white argillaceous matrix, abundant grey green lithics, trace to common red brown and black lithics, trace black coaly detritus, trace mica flakes, rare pyrite, friable, very poor visual porosity, no oil fluorescence.
	50	Claystone: light to medium green grey, light brown grey, slightly silty in part, trace very fine brown to black carbonaceous flecks, trace micromica, rare pyrite, soft and sticky, non to slightly subfissile.

Interval (m)	%	Description
1284-1287	70	Sandstone: medium blue grey, very fine to coarse, dominantly fine, angular to subrounded, moderately to well sorted, weak silica and calcareous cement, common to abundant white argillaceous matrix, abundant green grey lithics, common red brown and black lithics, common fine black carbonaceous detritus, friable, very poor visual porosity, no oil fluorescence.
	30	Claystone: off white to light blue grey to light green grey,occasionally medium brown, trace pyrite, structureless, soft and sticky.
1287-1290	10	Sandstone: medium blue grey, very fine to coarse, dominantly fine, angular to subrounded, moderately to well sorted, weak silica and calcareous cement, common to abundant white argillaceous matrix, abundant green grey lithics, common red brown and black lithics, common fine black carbonaceous detritus, friable, very poor visual porosity, no oil fluorescence.
	90	Claystone: off white to light blue grey to light green grey,occasionally medium brown, trace pyrite, structureless, soft and sticky.
1290-1293	30	Sandstone: light grey to light green grey, very fine to coarse, dominantly medium, angular to subrounded, moderately to well sorted, weak silica and calcareous cements, abundant white argillaceous matrix, abundant green grey lithics, trace to common red brown black lithics, trace black carbonaceous detritus, friable, very poor visual porosity, no oil fluorescence.
	70	Claystone: off white to light green grey to light blue grey, occasionally light to medium brown, slightly silty in part, trace very fine carbonaceous flecks, rare pyrite, trace micromica, soft and sticky, slightly subfissile.
1293-1299	20	Sandstone: light grey to light green grey, very fine to coarse, dominantly medium, angular to subrounded, moderately to well sorted, weak silica and calcareous cements, abundant white argillaceous matrix, abundant green grey lithics, trace to common red brown black lithics, trace black carbonaceous detritus, friable, very poor visual porosity, no oil fluorescence.
	80	Claystone: off white to light green grey to light blue grey, occasionally light to medium brown, slightly silty in part, trace very fine carbonaceous flecks, rare pyrite, trace micromica, soft and sticky, slightly subfissile.
1299-1302	10	Sandstone: light grey to light green grey, very fine to coarse, dominantly medium, angular to subrounded, moderately to well sorted, weak silica and calcareous cements, abundant white argillaceous matrix, abundant green grey lithics, trace to common red brown black lithics, trace black carbonaceous detritus, friable, very poor visual porosity, no oil fluorescence.
	90	Claystone: light to medium green grey, light brown grey, trace very fine brown to black carbonaceous flecks, trace micromica, rare pyrite, soft and sticky, non to slightly subfissile.
1302-1305	Tr	Sandstone: light grey to light green grey, very fine to coarse, dominantly medium, angular to subrounded, moderately to well sorted, weak silica and calcareous cements, abundant white argillaceous matrix, abundant green grey lithics, trace to common red brown black lithics, trace black carbonaceous detritus, friable, very poor visual porosity, no oil fluorescence.
	100	Claystone: light to medium green grey, light brown grey, slightly silty in part, trace very fine brown to black carbonaceous flecks, trace micromica, rare pyrite, soft and sticky, non to slightly subfissile.
1305-1308	100	Claystone: light to medium green grey, light brown grey, slightly silty in part, trace very fine brown to black carbonaceous flecks, trace micromica, rare pyrite, soft and sticky, non to slightly subfissile.
1308-1314	10	Sandstone: light grey to light green grey, very fine to coarse, dominantly fine, angular to subrounded, moderately to well sorted, weak silica and calcareous cements, abundant white argillaceous matrix, abundant green grey lithics, trace to common red brown black lithics, trace black carbonaceous detritus, friable, very poor visual porosity, no oil fluorescence.

Interval (m)	%	Description
1257-1260	100	Sandstone: very light brown, very fine to very coarse, dominantly medium, angular to subrounded, poorly sorted, weak to moderate silica cement, trace to common white argillaceous matrix, common to abundant yellow orange lithics, trace green grey red and black lithics, trace black coal detritus, trace coarse brown and green mica flakes, friable, fair to good visual porosity, no oil fluorescence.
1260-1263	100	Sandstone: light orange grey, very fine to very coarse, dominantly fine to medium, angular to subangular, well sorted, moderate silica cement, common white argillaceous matrix, abundant yellow orange lithics, trace red green grey and black lithics, trace black coaly detritus, friable to moderately hard, poor visual porosity, no oil fluorescence.
1263-1266	100	Sandstone: light orange grey, very fine to medium, dominantly fine, angular to subangular, well sorted, moderate silica cement, trace white argillaceous matrix, common yellow orange lithics, trace red green grey and black lithics, trace black coaly detritus, friable, fair visual porosity, no oil fluorescence.
1266-1269	100	Sandstone: light orange grey, very fine to grit, dominantly medium to coarse, angular to subangular, well sorted, moderate silica cement, trace white argillaceous matrix, common yellow orange lithics, trace red green grey and black lithics, trace black coaly detritus, friable, fair visual porosity, no oil fluorescence.
1269-1272	100	Sandstone: light orange grey, very fine to grit, dominantly fine to medium, angular to subangular, well sorted, moderate silica cement, weak calcareous cement, trace white argillaceous matrix, common yellow orange lithics, trace red green grey and black lithics, trace black coaly detritus, friable, fair visual porosity, no oil fluorescence.
1272-1275	50	Sandstone: light orange grey, very fine to grit, dominantly fine to medium, angular to subangular, well sorted, moderate silica cement, weak calcareous cement, trace white argillaceous matrix, common yellow orange lithics, trace red green grey and black lithics, trace black coaly detritus, friable, fair visual porosity, no oil fluorescence.
	30	Sandstone: medium blue grey, very fine to coarse, dominantly medium, angular to subrounded, moderately to well sorted, weak silica and calcareous cement, common to abundant white argillaceous matrix, abundant green grey lithics, common red brown and black lithics, common fine black carbonaceous detritus, friable, very poor visual porosity, no oil fluorescence.
	20	Claystone: off white to light blue grey, structureless, soft and sticky.
1275-1278	70	Sandstone: medium blue grey, very fine to coarse, dominantly medium, angular to subrounded, moderately to well sorted, weak silica and calcareous cement, common to abundant white argillaceous matrix, abundant green grey lithics, common red brown and black lithics, common fine black carbonaceous detritus, friable, very poor visual porosity, no oil fluorescence.
	30	Claystone: off white to light blue grey to light green grey, structureless, soft and sticky.
1278-1281	60	Sandstone: medium blue grey, very fine to coarse, dominantly fine, angular to subrounded, moderately to well sorted, weak silica and calcareous cement, common to abundant white argillaceous matrix, abundant green grey lithics, common red brown and black lithics, common fine black carbonaceous detritus, friable, very poor visual porosity, no oil fluorescence.
	40	Claystone: off white to light blue grey to light green grey, structureless, soft and sticky.
1281-1284	50	Sandstone: medium blue grey, very fine to coarse, dominantly fine, angular to subrounded, moderately to well sorted, weak silica and calcareous cement, common to abundant white argillaceous matrix, abundant green grey lithics, common red brown and black lithics, common fine black carbonaceous detritus, friable, very poor visual porosity, no oil fluorescence.
	50	Claystone: off white to light blue grey to light green grey,occasionally medium brown, trace pyrite, structureless, soft and sticky.

Interval (m)	%	Description
1239-1242	60	Sandstone: very light brown grey, very fine to medium, dominantly fine, angular to subrounded, moderately sorted, weak silica cement, no visual matrix, common bright red green brown grey and black lithics, common black coaly detritus, trace pyrite, friable, fair inferred porosity, no oil fluorescence.
	40	Claystone: medium grey to medium brown, very silty, common very fine off white partially altered feldspars grains in part, common brown to black carbonaceous flecks and fine detritus, trace medium brown cryptocrystalline dolomite, trace glauconite, trace pyrite, trace micromica, soft, very dispersive and washing from sample, slightly subfissile.
1242-1245	20	Sandstone: very light brown grey, very fine to medium, dominantly fine, angular to subrounded, moderately sorted, weak silica cement, no visual matrix, common bright red green brown grey and black lithics, common black coaly detritus, trace pyrite, friable, fair inferred porosity, no oil fluorescence.
	80	Claystone: medium grey to medium brown, very silty, common very fine off white partially altered feldspars grains in part, common brown to black carbonaceous flecks and fine detritus, trace medium brown cryptocrystalline dolomite, trace glauconite, trace pyrite, trace micromica, soft, very dispersive and washing from sample, slightly subfissile.
1245-1248	20	Sandstone: very light brown grey, very fine to medium, dominantly fine, angular to subrounded, moderately sorted, weak silica cement, trace white argillaceous matrix, common bright red green brown grey and black lithics, common black coaly detritus, trace pyrite, friable, fair inferred porosity, no oil fluorescence.
	70	Claystone: medium grey to medium brown, very silty, common very fine off white partially altered feldspars grains in part, common brown to black carbonaceous flecks and fine detritus, trace medium brown cryptocrystalline dolomite, trace glauconite, trace pyrite, trace micromica, soft, very dispersive and washing from sample, slightly subfissile.
	10	Coal: dark brown to black, very argillaceous in part, often abundant disseminated pyrite, subvitreous lustre with platy to dominantly subconchoidal fracture where clean, platy fracture with earthy texture where argillaceous, trace medium brown translucent amber, hard and brittle.
1248-1251	60	Sandstone: very light brown, very fine to grit, dominantly medium to coarse, angular to subrounded, poorly sorted, weak to moderate silica cement, trace to common white argillaceous matrix, common red green grey and black volcanic lithics, trace black coal detritus, trace coarse brown and green mica flakes, friable, fair to good visual porosity, no oil fluorescence.
	40	Claystone: light to medium brown grey, light to medium grey, very silty, common very fine off white partially altered feldspars grains in part, common brown to black carbonaceous flecks and fine detritus, trace medium brown cryptocrystalline dolomite, trace glauconite, trace pyrite, trace micromica, soft, very dispersive and washing from sample, slightly subfissile.
1251-1254	90	Sandstone: very light brown, very fine to very coarse, dominantly fine to medium, angular to subrounded, poorly sorted, weak to moderate silica cement, trace to common white argillaceous matrix, common yellow orange red green grey and black volcanic lithics, trace black coal detritus, trace coarse brown and green mica flakes, friable, fair to good visual porosity, no oil fluorescence.
	10	Claystone: light to medium brown grey, light to medium grey, very silty, common very fine off white partially altered feldspars grains in part, common brown to black carbonaceous flecks and fine detritus, trace medium brown cryptocrystalline dolomite, trace glauconite, trace pyrite, trace micromica, soft, very dispersive and washing from sample, slightly subfissile.
1254-1257	100	Sandstone: very light brown, very fine to grit, dominantly medium, angular to subrounded, poorly sorted, weak to moderate silica cement, trace to common white argillaceous matrix, common to abundant yellow orange lithics, trace green grey red and black lithics, trace black coal detritus, trace coarse brown and green mica flakes, friable, fair to good visual porosity, no oil fluorescence.

CULTUS PETROLEUM N.L.

APPENDIX

CUTTINGS DESCRIPTION

WELL NAME:	Skull Creek-1	DATE:	24-5-96
GEOLOGIST:	Dave Horner	PAGE:	1

For geology report-5

Interval (m)	%	Description
1214-1220	100	Sandstone: light grey, very fine to grit, dominantly medium, angular to subrounded, moderate to well sorted, weak silica cement, no visual matrix, trace black coaly detritus, friable, good inferred porosity, no oil fluorescence.
1220-1225	100	Sandstone: light grey, very fine to very coarse, dominantly medium, angular to subrounded, moderate to well sorted, weak silica cement, no visual matrix, trace black coaly detritus, friable, good inferred porosity, no oil fluorescence.
	Tr	Claystone: medium grey, very silty, common very fine off white partially altered feldspars grains, common brown to black carbonaceous flecks and fine detritus, trace medium brown cryptocrystalline dolomite, trace pyrite, trace micromica, soft, very dispersive and washing from sample, slightly subfissile.
1225-1230	60	Sandstone: light grey, very fine to very coarse, dominantly medium, angular to subrounded, dominantly subangular, poorly sorted, weak silica cement, clear to opaue quartz grains, trace pyrite, trace fine black to brown carbonaceous matter, friable, good inferred porosity, no oil fluorescence.
	40	Claystone: medium grey, very silty, common very fine off white partially altered feldspars grains, common brown to black carbonaceous flecks and fine detritus, trace medium brown cryptocrystalline dolomite, trace pyrite, trace micromica, soft, very dispersive and washing from sample, slightly subfissile.
1230-1233	50	Sandstone: light grey, very fine to very coarse, dominantly fine to medium, angular to subrounded, dominantly subangular, poorly sorted, weak silica cement, clear to opaue quartz grains, trace pyrite, trace fine black to brown carbonaceous matter, friable, fair to good inferred porosity, no oil fluorescence.
	50	Claystone: medium grey to medium brown, very silty, common very fine off white partially altered feldspars grains, common brown to black carbonaceous flecks and fine detritus, trace medium brown cryptocrystalline dolomite, trace glauconite, trace pyrite, trace micromica, soft, very dispersive and washing from sample, slightly subfissile.
1233-1236	30	Sandstone: light grey, very fine to very coarse, dominantly fine to medium, angular to subrounded, dominantly subangular, poorly sorted, weak silica cement, clear to opaue quartz grains, trace pyrite, trace fine black to brown carbonaceous matter, friable, fair to good inferred porosity, no oil fluorescence.
	70	Claystone: medium grey to medium brown, very silty, common very fine off white partially altered feldspars grains, common brown to black carbonaceous flecks and fine detritus, trace medium brown cryptocrystalline dolomite, trace glauconite, trace pyrite, trace micromica, soft, very dispersive and washing from sample, slightly subfissile.
1236-1239	60	Sandstone: very light brown grey, very fine to coarse, dominantly fine to medium, angular to subrounded, moderately sorted, weak silica cement, no visual matrix, common bright red green brown grey and black lithics, common black coaly detritus, trace pyrite, friable, fair to good inferred porosity, no oil fluorescence.
	40	Claystone: medium grey to medium brown, very silty, common very fine off white partially altered feldspars grains in part, common brown to black carbonaceous flecks and fine detritus, trace medium brown cryptocrystalline dolomite, trace glauconite, trace pyrite, trace micromica, soft, very dispersive and washing from sample, slightly subfissile.

CULTUS PETROLEUM N.L. APPENDIX

CUTTINGS DESCRIPTION

WELL NAME:	Skull Creek-1	DATE:	23-5-96
GEOLOGIST:	Dave Horner	PAGE:	1

Interval (m)	%	Description
Continuation for geology report-4		
1200-1205	80	Claystone: medium to dark grey, medium to dark brown grey, very silty, common very fine partially altered feldspar grains in part, common black carbonaceous flecks, trace micromica, firm, very dispersive, slightly subfissile.
	20	Sandstone: very light grey, very fine to grit, dominantly coarse to very coarse, subangular to subrounded, poor to moderate sorting, very weak silica cement, no visual matrix, trace yellow stained quartz grains, trace black carbonaceous detritus, friable, very good inferred porosity, no oil fluorescence.
1205-1210	90	Sandstone: very light grey, very fine to grit, dominantly coarse to very coarse, subangular to subrounded, poor to moderate sorting, very weak silica cement, no visual matrix, trace yellow stained quartz grains, trace black carbonaceous detritus, friable, very good inferred porosity, no oil fluorescence.
	10	Claystone: medium to dark grey, medium to dark brown grey, very silty, common very fine partially altered feldspar grains in part, common black carbonaceous flecks, trace micromica, firm, very dispersive, slightly subfissile.——
1210-1214	100	Sandstone: very light grey, very fine to grit, dominantly coarse to very coarse, subangular to subrounded, poor to moderate sorting, very weak silica cement, no visual matrix, trace yellow stained quartz grains, trace black carbonaceous detritus, friable, very good inferred porosity, no oil fluorescence.

	10	Sandstone: off white to light brown, very fine to fine, subangular to subrounded, moderately to well sorted, moderate silica and calcareous cements, common to abundant off white to medium brown argillaceous and silt matrix, trace green lithics, trace carbonaceous flecks and detritus, trace pyrite, moderately hard, nil to very poor visual porosity, no oil fluorescence.
1160-1170	70	Claystone: medium to dark grey, medium brown grey, very silty, common very fine partially altered feldspar grains in part, trace black carbonaceous flecks, trace micromica, trace pyrite, soft, very dispersive, slightly subfissile.
	30	Sandstone: light grey, very fine to very coarse, dominantly fine to medium, subangular to subrounded, poorly sorted, weak silica cement, minor off white argillaceous matrix, trace red brown lithics, trace black carbonaceous matter, trace pyrite, friable to moderately hard, poor inferred porosity, no oil fluorescence.
1170-1175	30	Claystone: medium to dark grey, medium brown grey, very silty, common very fine partially altered feldspar grains in part, trace black carbonaceous flecks, trace micromica, trace pyrite, soft, very dispersive, slightly subfissile.
	70	Sandstone: light grey, very fine to coarse, dominantly fine, subangular to subrounded, moderately sorted, moderate silica cement, trace white argillaceous matrix, trace red brown lithics, trace carbonaceous matter, common pyrite, friable to moderately hard, very poor visual porosity, no oil fluorescence.
1175-1180	20	Claystone: medium to dark grey, medium brown grey, very silty, common very fine partially altered feldspar grains in part, trace black carbonaceous flecks, trace micromica, trace pyrite, soft, very dispersive, slightly subfissile.
	80	Sandstone: light grey, very fine to coarse, dominantly fine, subangular to subrounded, moderately sorted, moderate silica cement, trace white argillaceous matrix, trace red brown lithics, trace carbonaceous matter, common pyrite, friable to moderately hard, very poor visual porosity, no oil fluorescence.
1180-1185	50	Claystone: medium to dark brown grey, moderately to very silty, common very fine partially altered feldspar grains in part, trace black carbonaceous flecks, trace glauconite, trace micromica, trace pyrite, soft, very dispersive, slightly subfissile.
	50	Sandstone: light grey, very fine to coarse, dominantly fine, subangular to subrounded, moderately sorted, moderate silica cement, trace white argillaceous matrix, trace red brown lithics, trace carbonaceous matter, common pyrite, friable to moderately hard, very poor visual porosity, no oil fluorescence.
1185-1190	80	Claystone: medium to dark grey, medium to dark brown grey, very silty, common very fine partially altered feldspar grains in part, common black carbonaceous flecks, trace micromica, firm, very dispersive, slightly subfissile.
	20	Sandstone: light grey, very fine to coarse, dominantly very fine, subangular to subrounded, moderately sorted, moderate silica cement, trace white argillaceous matrix, trace red brown lithics, trace carbonaceous matter, common pyrite, friable to moderately hard, very poor visual porosity, no oil fluorescence.
1190-1195	100	Claystone: medium to dark grey, medium to dark brown grey, very silty, common very fine partially altered feldspar grains in part, common black carbonaceous flecks, trace micromica, firm, very dispersive, slightly subfissile.
	Tr	Sandstone: light grey, very fine to coarse, dominantly very fine, subangular to subrounded, moderately sorted, moderate silica cement, trace white argillaceous matrix, trace red brown lithics, trace carbonaceous matter, common pyrite, friable to moderately hard, very poor visual porosity, no oil fluorescence.
1195-1200	90	Claystone: medium to dark grey, medium to dark brown grey, very silty, common very fine partially altered feldspar grains in part, common black carbonaceous flecks, trace micromica, firm, very dispersive, slightly subfissile.
	10	Sandstone: light grey, very fine to coarse, dominantly very fine, subangular to subrounded, moderately sorted, moderate silica cement, trace white argillaceous matrix, trace red brown lithics, trace carbonaceous matter, common pyrite, friable to moderately hard, very poor visual porosity, no oil fluorescence.

(AJ/GFE:F53)

1090-1100	90	Sandstone: light brown grey to light grey, very fine to coarse, dominantly fine to medium, subangular to subrounded, moderately sorted, weak to moderate silica cement, trace to occasionally common white argillaceous matrix, trace green gry and red lithics, common black coal detritus, trace coarse mica flakes, trace pyrite, friable, fair visual porsoity, no oil fluorescence.
	10	Claystone: medium grey to medium brown grey, very silty, often very finely arenaceous, common black carbonaceous flecks and detritus, trace pyrite, common micromica, firm, very dispersive, slightly subfissile.
1100-1110	80	Sandstone: light brown grey to light grey, very fine to coarse, dominantly fine, subangular to subrounded, moderately sorted, weak to moderate silica cement, trace to occasionally common white argillaceous matrix, trace green gry and red lithics, common black coal detritus, trace coarse mica flakes, trace pyrite, friable, fair visual porsoity, no oil fluorescence.
	20	Claystone: medium grey to medium brown grey, very silty, often very finely arenaceous, common black carbonaceous flecks and detritus, trace pyrite, common micromica, firm, very dispersive, slightly subfissile.
1110-1120	60	Sandstone: light brown grey to light grey, very fine to coarse, dominantly fine, subangular to subrounded, moderately sorted, weak to moderate silica cement, trace to occasionally common white argillaceous matrix, trace green gry and red lithics, common black coal detritus, trace coarse mica flakes, trace pyrite, friable, fair visual porsoity, no oil fluorescence.
	40	Claystone: medium grey to medium brown grey, very silty, often very finely arenaceous, common black carbonaceous flecks and detritus, trace pyrite, common micromica, firm, very dispersive, slightly subfissile.
1120-1140	50	Sandstone: light brown grey to light grey, very fine to coarse, dominantly fine, subangular to subrounded, moderately sorted, weak to moderate silica cement, trace to occasionally common white argillaceous matrix, trace green gry and red lithics, common black coal detritus, trace coarse mica flakes, trace pyrite, friable, fair visual porsoity, no oil fluorescence.
	50	Claystone: medium brown grey to medium brown, very silty, often very finely arenaceous, common black carbonaceous flecks and detritus, trace pyrite, common micromica, firm, very dispersive, slightly subfissile.
1140-1145	80	Claystone: medium brown to medium brown grey, moderately to very silty, abundant very fine quartz and partially altered feldspar grains in part, common black carbonaceous flecks and fine detritus, trace medium brown cryptocrystalline dolomite, common micromica, common pyrite, soft, very dispersive and washing from samples, slightly subfissile.
	20	Sandstone: off white to light brown, very fine to fine, subangular to subrounded, moderately to well sorted, moderate silica and calcareous cements, common to abundant off white to medium brown argillaceous and silt matrix, trace green lithics, trace carbonaceous flecks and detritus, trace pyrite, moderately hard, nil to very poor visual porosity, no oil fluorescence.
1145-1150	70	Claystone: medium brown to medium brown grey, moderately to very silty, abundant very fine quartz and partially altered feldspar grains in part, common black carbonaceous flecks and fine detritus, trace medium brown cryptocrystalline dolomite, common micromica, common pyrite, soft, very dispersive and washing from samples, slightly subfissile.
	30	Sandstone: off white to light brown, very fine to fine, subangular to subrounded, moderately to well sorted, moderate silica and calcareous cements, common to abundant off white to medium brown argillaceous and silt matrix, trace green lithics, trace carbonaceous flecks and detritus, trace pyrite, moderately hard, nil to very poor visual porosity, no oil fluorescence.
1150-1160	90	Claystone: medium brown to medium brown grey, moderately to very silty, abundant very fine quartz and partially altered feldspar grains in part, common black carbonaceous flecks and fine detritus, trace medium brown cryptocrystalline dolomite, common micromica, common pyrite, soft, very dispersive and washing from samples, slightly subfissile.

Interval (m)	%	Description
	10	Claystone: medium to dark brown to medium grey, moderately to very silty, moderately carbonaceous, common black carbonaceous flecks and coaly detritus in part, trace disseminated and nodular pyrite, common micromica, firm, very dispersive and washing from samples, slightly subfissile.
1010-1030	100	Sandstone: light grey to light brown grey, very fine to grit, dominantly fine to medium, subangular to subrounded, moderately sorted, weak to moderate silica cement, trace white argillaceous matrix, trace green grey lithics, trace black coal detritus, trace pyrite, friable, fair to good inferred porosity, no oil fluorescence.
	Tr	Claystone: medium to dark brown to medium grey, moderately to very silty, moderately carbonaceous, common black carbonaceous flecks and coaly detritus in part, trace disseminated and nodular pyrite, common micromica, firm, very dispersive and washing from samples, slightly subfissile.
1030-1040	100	Sandstone: light grey to light brown grey, very fine to grit, dominantly fine to medium, subangular to subrounded, moderately sorted, weak to moderate silica cement, trace white argillaceous matrix, trace green grey lithics, trace black coal detritus, trace pyrite, friable, fair to good inferred porosity, no oil fluorescence.
1040-1050	100	Sandstone: light grey to light brown grey, very fine to grit, dominantly fine to medium, subangular to subrounded, moderately sorted, weak to moderate silica cement, trace to occasionally common white argillaceous matrix, trace green gry and red lithics, trace black coal detritus, trace coarse mica flakes, trace pyrite, friable, fair visual porsoity, no oil fluorescence.
1050-1060	20	Sandstone: light grey to light brown grey, very fine to grit, dominantly fine to medium, subangular to subrounded, moderately sorted, weak to moderate silica cement, trace to occasionally common white argillaceous matrix, trace green gry and red lithics, trace black coal detritus, trace coarse mica flakes, trace pyrite, friable, fair visual porsoity, no oil fluorescence.
	70	Sandstone: light grey, very fine to fine, well sorted, strong silica and tace weak calcareous cements, trace white argillaceous matrix, trace fine black carbonaceous detritus, trace green lithics, trace fine mica flakes, hard, very poor visual porosity, no oil fluorescence.
	10	Claystone: dark grey, very silty, common black carbonaceous flecks, common micromica, common disseminated pyrite, firm, very dispersive, slightly subfissile.
1060-1070	100	Sandstone: light brown grey to light grey, very fine to very coarse, dominantly fine to medium, subangular to subrounded, moderately sorted, weak to moderate silica cement, trace to occasionally common white argillaceous matrix, trace green gry and red lithics, trace black coal detritus, trace coarse mica flakes, trace pyrite, friable, fair visual porsoity, no oil fluorescence.
	Tr	Claystone: dark grey, very silty, common black carbonaceous flecks, common micromica, common disseminated pyrite, firm, very dispersive, slightly subfissile.
1070-1080	100	Sandstone: light brown grey to light grey, very fine to very coarse, dominantly fine to medium, subangular to subrounded, moderately sorted, weak to moderate silica cement, trace to occasionally common white argillaceous matrix, trace green gry and red lithics, trace black coal detritus, trace coarse mica flakes, trace pyrite, friable, fair visual porsoity, no oil fluorescence.
1080-1090	90	Sandstone: light brown grey to light grey, very fine to coarse, dominantly medium, subangular to subrounded, moderately sorted, weak to moderate silica cement, trace to occasionally common white argillaceous matrix, trace green gry and red lithics, common black coal detritus, trace coarse mica flakes, trace pyrite, friable, fair visual porsoity, no oil fluorescence.
	10	Claystone: medium grey to medium brown grey, very silty, often very finely arenaceous, common black carbonaceous flecks and detritus, trace pyrite, common micromica, firm, very dispersive, slightly subfissile.

Interval (m)	%	Description
	10	Claystone: medium to dark grey, moderately silty, trace black carbonaceous flecks and detritus, trace to common pyrite, common micromica, soft, very dispersive, slightly subfissile.
890-910	100	Sandstone: very light brown grey to light grey, very fine to grit, dominantly coarse to very coarse, occasionally dominantly fine, subangular to subrounded, moderately sorted, weak to moderate silica cement, trace medium to dark grey argillaceous matrix in part, clear to opaque quartz grains, trace grey green lithics, trace pyrite, trace coarse mica flakes, friable, fair to good inferred porosity, no oil fluorescence.
910-930	100	Sandstone: light grey, very fine to grit, dominantly medium to coarse, subangular to subrounded, moderately sorted, weak silica cement, no visual matrix, clear to translucent quartz grains, trace green grey lithics, trace black coal detritus, trace pyrite, friable, good inferred porosity, no oil fluorescence.
930-950	100	Sandstone: light grey, very fine to grit, dominantly coarse, subangular to subrounded, moderately sorted, weak silica cement, no visual matrix, clear to translucent quartz grains, trace green grey lithics, trace black coal detritus, trace pyrite, friable, very good inferred porosity, no oil fluorescence.
950-960	90	Sandstone: light grey, very fine to grit, dominantly coarse, subangular to subrounded, moderately sorted, weak silica cement, no visual matrix, clear to translucent quartz grains, trace green grey lithics, trace black coal detritus, trace pyrite, friable, very good inferred porosity, no oil fluorescence.
	10	Claystone: medium to dark brown to brown black, moderately to very silty, moderately to very carbonaceous grading to black coal, common disseminated pyrite, common micromica, firm, very dispersive and washing from samples, slightly subfissile.
960-970	100	Sandstone: light grey, very fine to grit, dominantly coarse, subangular to subrounded, moderately sorted, weak silica cement, no visual matrix, clear to translucent quartz grains, trace green grey lithics, trace black coal detritus, trace pyrite, friable, very good inferred porosity, no oil fluorescence.
	Tr	Claystone: medium to dark brown to brown black, moderately to very silty, moderately to very carbonaceous grading to black coal, common disseminated pyrite, common micromica, firm, very dispersive and washing from samples, slightly subfissile.
970-980	100	Sandstone: light grey, very fine to very coarse, dominantly fine, subangular to subrounded, moderately sorted, weak silica cement, no visual matrix, clear to translucent quartz grains, trace green grey lithics, trace black coal detritus, trace pyrite, friable, good inferred porosity, no oil fluorescence.
	Tr	Claystone: medium to dark brown to brown black, moderately to very silty, moderately to very carbonaceous grading to black coal, common disseminated pyrite, common micromica, firm, very dispersive and washing from samples, slightly subfissile.
980-990	100	Sandstone: light grey, very fine to coarse, dominantly fine, subangular to subrounded, moderately sorted, weak silica cement, no visual matrix, clear to translucent quartz grains, trace green grey lithics, trace black coal detritus, trace pyrite, friable, good inferred porosity, no oil fluorescence.
990-1000	100	Sandstone: light grey to light brown grey, very fine to grit, dominantly fine, subangular to subrounded, moderately sorted, weak to moderate silica cement, trace weak calcareous cement, trace to common white argillaceous matrix, trace green grey lithics, trace black coal detritus, trace pyrite, friable, fair inferred porosity, no oil fluorescence.
	Tr	Claystone: medium to dark brown to medium grey, moderately to very silty, moderately carbonaceous, common black carbonaceous flecks and coaly detritus in part, trace disseminated and nodular pyrite, common micromica, firm, very dispersive and washing from samples, slightly subfissile.
1000-1010	90	Sandstone: light grey to light brown grey, very fine to grit, dominantly fine, subangular to subrounded, moderately sorted, weak to moderate silica cement, trace weak calcareous cement, trace to common white argillaceous matrix, trace green grey lithics, trace black coal detritus, trace pyrite, friable, fair inferred porosity, no oil fluorescence.

Interval (m)	%	Description
710-720	70	Sandstone: medium orange brown, very fine to grit, dominantly medium, subangular to subrounded, poorly sorted, very weak silica cement, common medium to dark green argillaceous and silt matrix, weak yellow-green stain on quartz grains,trace brown iron oxide pellets, common multicoloured volcanic lithics, trace coarse green mica flakes, friable to unconsolidated, fair to good inferred porosity, no oil fluorescence.
	30	Claystone: medium to dark green to dark brown, slightly silty, common to abundant dispersed very fine to grit quartz sand grains, trace glauconite, soft, moderately dispersive, non fissile.
720-730	80	Sandstone: medium orange brown, very fine to grit, dominantly very coarse, subangular to subrounded, moderately sorted, very weak silica cement, trace medium brown argillaceous matrix, common yellow orange stained quartz grains, trace multicoloured volcanic lithics, trace pyrite, friable to unconsolidated, very good inferred porosity, no oil fluorescence.
	20	Claystone: medium to dark green to dark brown, slightly silty, common to abundant dispersed very fine to grit quartz sand grains, trace glauconite, soft, moderately dispersive, non fissile.
730-740	100	Sandstone: light orange brown, very fine to grit, dominantly very coarse, subangular to subrounded, moderately sorted, very weak silica cement, trace medium brown argillaceous matrix, common yellow orange stained quartz grains, trace multicoloured volcanic lithics, trace pyrite, friable to unconsolidated, very good inferred porosity, no oil fluorescence.
740-750	100	Sandstone: light orange brown, very fine to grit, dominantly very coarse, subangular to subrounded, moderately sorted, very weak silica cement, trace medium brown argillaceous matrix, common weakly yellow orange stained quartz grains, trace multicoloured volcanic lithics, trace pyrite, friable to unconsolidated, very good inferred porosity, no oil fluorescence.
750-760		No sample.
760-800	100	Sandstone: light orange brown, very fine to pebble, dominantly very coarse, subangular to subrounded, moderately sorted, weak silica cement, trace medium brown argillaceous matrix, common weakly yellow orange stained quartz grains, abundant red green and varicoloured volcanic lithics, trace pyrite, friable to unconsolidated, very good inferred porosity, no oil fluorescence.
800-810	100	Sandstone: light orange brown, very fine to pebble, dominantly very coarse, subangular to subrounded, moderately sorted, weak silica cement, trace medium brown argillaceous matrix, common weakly yellow orange stained quartz grains, abundant red green and varicoloured volcanic lithics, common black coal detritus, trace pyrite, friable to unconsolidated, very good inferred porosity, no oil fluorescence.
810-850	100	Sandstone: very light orange brown, very fine to pebble, dominantly very coarse, subangular to subrounded, moderately sorted, weak silica cement, trace medium brown grey argillaceous matrix, common weakly yellow-orange stained quartz grains, common multicoloured volcanic lithics, trace black coal detritus, trace pyrite, friable to unconsolidated, very good inferred porosity, no oil fluorescence.
850-860	100	Sandstone: very light brown grey, very fine to grit, dominantly coarse, subangular to subrounded, moderately sorted, weak silica cement, trace medium to dark grey argillaceous matrix in part, clear to opaque quartz grains rarely with yellow orange staining, trace grey green and rare pink lithics, common pyrite, trace coarse mica flakes, friable, very good inferred porosity, no oil fluorescence.
860-880	100	Sandstone: very light brown grey, very fine to grit, dominantly very coarse, subangular to subrounded, moderately sorted, weak silica cement, trace medium to dark grey argillaceous matrix in part, clear to opaque quartz grains, trace grey green lithics, common pyrite, trace coarse mica flakes, friable, very good inferred porosity, no oil fluorescence.
880-890	90	Sandstone: light grey, very fine to grit, dominantly fine, subangular to subrounded, moderately sorted, weak to moderate silica cement, trace weak calcareous cement, trace medium grey argillaceous matrix in part, trace partially altered feldspar grains, trace green grey lithics, trace coarse mica flakes, trace black coaly detritus, trace pyrite, friable, fair visual porosity, no oil fluorescence.

(AJ/GFE:F53)

CULTUS PETROLEUM N.L. APPENDIX

CUTTINGS DESCRIPTION

WELL NAME:	Skull Creek-1	DATE:	23-5-96
GEOLOGIST:	Dave Horner	PAGE:	1

Interval (m)	%	Description
For geology report-4		
645-650	100	Claystone: dark green grey to dark brown grey, moderately to very silty, abundant dispersed very fine to grit clear to opaque quartz sand grains, common glauconite, common pyrite, trace light brown cryptocrystalline dolomite, rare micromica, soft and sticky, moderately dispersive, non fissile.
650-655	100	Claystone: dark green grey to dark brown grey, moderately to very silty, common dispersed very fine to grit clear to opaque quartz sand grains, common glauconite, common pyrite, trace light brown cryptocrystalline dolomite, rare micromica, soft and sticky, moderately dispersive, non fissile.
655-660	100	Claystone: dark green grey to dark brown grey, moderately to very silty, common dispersed grit to dominantly very fine quartz sand grains, common glauconite, common pyrite, trace light brown cryptocrystalline dolomite, rare micromica, soft and sticky, moderately dispersive, non fissile.
660-670	100	Claystone: dark green grey to dark brown grey, moderately to very silty, common dispersed grit to dominantly very fine quartz sand grains, abundant glauconite, common pyrite, trace light brown cryptocrystalline dolomite, rare micromica, soft and sticky, moderately dispersive, non fissile.
670-680	10	Sandstone: medium green, very fine to grit, dominantly very coarse, subangular to subrounded, poorly sorted, weak silica cement, abundant medium to dark green argillaceous and silt matrix - grading to arenaceous claystone, yellow to green stained quartz grains, common glauconite, trace coarse green mica flakes, friable, no visual porosity, no oil fluorescence.
	90	Claystone: medium to dark green, medium brown, moderately to very silty, abundant dispersed very fine to grit green-brown stained quartz grains - grading to argillaceous sandstone, common glauconite, trace pyrite, soft, moderately dispersive, non fissile.
680-690	100	Sandstone: light orange green, very fine to pebble, dominantly medium to coarse, subangular to subrounded, moderately sorted, very weak silica cement, common medium to dark green argillaceous and silt matrix, weak yellow-green stain on quartz grains, common glauconite, common multicoloured volcanic lithics, trace coarse green mica flakes, friable to unconsolidated, fair to good inferred porosity, no oil fluorescence.
690-700	90	Sandstone: light orange green, very fine to pebble, dominantly medium to coarse, subangular to subrounded, poorly sorted, very weak silica cement, common medium to dark green argillaceous and silt matrix, weak yellow-green stain on quartz grains, trace glauconite, common multicoloured volcanic lithics, trace coarse green mica flakes, friable to unconsolidated, fair to good inferred porosity, no oil fluorescence.
	10	Claystone: dark green brown, slightly silty, common to abundant dispersed very fine to grit quartz sand grains, trace glauconite, soft, moderately dispersive, non fissile.
700-710	90	Sandstone: medium orange brown, very fine to grit, dominantly medium, subangular to subrounded, poorly sorted, very weak silica cement, common medium to dark green argillaceous and silt matrix, weak yellow-green stain on quartz grains,trace brown iron oxide pellets, common multicoloured volcanic lithics, trace coarse green mica flakes, friable to unconsolidated, fair to good inferred porosity, no oil fluorescence.
	10	Claystone: dark green brown, slightly silty, common to abundant dispersed very fine to grit quartz sand grains, trace glauconite, soft, moderately dispersive, non fissile.

Interval (m)	%	Description
	10	Claystone: medium brown grey, moderately to very silty, common to abundant dispersed very fine to coarse quartz sand grains, trace pyrite, rare black coaly detritus, trace micromica, very soft, very dispersive, non fissile.
600-605	90	Claystone: dark brown grey, moderately to very silty, common dispersed very fine to grit quartz sand grains, trace pyrite, trace glauconite,trace black coaly detritus often with associated pyrite, trace micromica, very soft and sticky, moderately dispersive, non fissile
	10	Sandstone: light brown grey, very fine to very coarse, dominantly fine to medium, subangular to subrounded, moderately sorted, very weak silica cement, common to abundant medium brown grey argillaceous and silt matrix, clear to opaque with trace yellow to pink quartz grains, trace red lithics, trace coarse mica flakes, trace black coaly detritus, trace pyrite, friable, good inferred pososity, no oil fluorescence.
605-610	100	Claystone: dark brown grey, moderately to very silty, common dispersed very fine to fine quartz sand grains, trace pyrite, trace to common glauconite,trace black coaly detritus often with associated pyrite, trace micromica, very soft and sticky, moderately dispersive, non fissile.
610-615	100	Claystone: medium to dark brown grey, moderately to very silty, common dispersed very fine to fine quartz sand grains, trace pyrite, common glauconite,trace black coaly detritus often with associated pyrite, trace micromica, very soft and sticky, moderately dispersive, non fissile.
615-620	100	Claystone: medium to dominantly dark brown grey, moderately to very silty, common dispersed very fine to fine quartz and off white partially altered feldspar sand grains, trace pyrite, common glauconite,trace black coaly detritus often with associated pyrite, trace micromica, very soft and sticky, moderately dispersive, non fissile.
620-630	100	Claystone: medium to dominantly dark brown grey, moderately to very silty, common dispersed very fine quartz and off white partially altered feldspar sand grains, trace pyrite, common glauconite,trace black coaly detritus often with associated pyrite, trace micromica, very soft and sticky, moderately dispersive, non fissile.
630-640	80	Claystone: medium to dominantly dark brown grey, moderately to very silty, common dispersed very fine to fine quartz and off white partially altered feldspar sand grains, trace pyrite, common glauconite,trace black coaly detritus often with associated pyrite, trace micromica, very soft and sticky, moderately dispersive, non fissile.
	20	Sandstone: light brown, very fine to fine, subangular to subrounded, moderately to well sorted, very weak silica cement, common to abundant dark brown grey argillaceous and silt matrix, trace glauconite, common caorse mica flakes, friable, poor inferred porosity, no oil fluorescence.
640-645	100	Claystone: dark brown grey, moderately to very silty, common dispersed very fine to fine quartz and partially altered feldspar sand grains, common glauconite, trace pyrite, rare light brown cryptocrystalline dolomite, trace black coaly detritus, trace micromica, very soft and sticky, non fissile.

(AJ/GFE:F53)

	30	Claystone: medium to dark brown grey, moderately to very silty, abundant dispersed very fine to coarse quartz sand grains in part, trace pyrite, trace micromica, very soft, very dispersive, non fissile.
525-540	100	Sandstone: light brown grey, very fine to very coarse, dominantly fine to medium, angular to subrounded, poorly sorted, very weak silica cement, common to abundant medium brown grey argillaceous and silt matrix, clear to opaque quartz grains, trace red lithics, trace coarse mica flakes, trace pyrite, friable, fair inferred pososity, no oil fluorescence.
	Tr	Claystone: medium to dark brown grey, moderately to very silty, abundant dispersed very fine to coarse quartz sand grains in part, trace pyrite, trace micromica, very soft, very dispersive, non fissile.
540-550	90	Sandstone: light brown grey, medium to grit, dominantly very coarse, subangular to subrounded, moderately sorted, very weak silica cement, common to abundant medium brown grey argillaceous and silt matrix, clear to opaque with trace yellow to pink quartz grains, trace red lithics, trace coarse mica flakes, trace pyrite, friable, good inferred pososity, no oil fluorescence.
	10	Claystone: medium to dark brown grey, moderately to very silty, abundant dispersed very fine to coarse quartz sand grains in part, trace pyrite, trace micromica, very soft, very dispersive, non fissile.
550-560	100	Sandstone: light brown grey, very fine to grit, dominantly medium, subangular to subrounded, moderately sorted, very weak silica cement, common to abundant medium brown grey argillaceous and silt matrix, clear to opaque with trace yellow to pink quartz grains, trace red lithics, trace coarse mica flakes, trace pyrite, friable, good inferred pososity, no oil fluorescence.
	Tr	Claystone: medium to dark brown grey, moderately to very silty, abundant dispersed very fine to coarse quartz sand grains in part, trace pyrite, trace micromica, very soft, very dispersive, non fissile.
560-570	90	Sandstone: light brown grey, very fine to grit, dominantly medium to coarse, subangular to subrounded, moderately sorted, very weak silica cement, common to abundant medium brown grey argillaceous and silt matrix, clear to opaque with trace yellow to pink quartz grains, trace red lithics, trace coarse mica flakes, trace pyrite, friable, good inferred pososity, no oil fluorescence.
	10	Claystone: medium to dark brown grey, moderately to very silty, abundant dispersed very fine to coarse quartz sand grains in part, trace pyrite, trace micromica, very soft, very dispersive, non fissile.
570-580	100	Sandstone: light brown grey, very fine to grit, dominantly coarse, subangular to subrounded, moderately sorted, very weak silica cement, common to abundant medium brown grey argillaceous and silt matrix, clear to opaque with trace yellow to pink quartz grains, trace red lithics, trace coarse mica flakes, trace pyrite, friable, good inferred pososity, no oil fluorescence.
	Tr	Claystone: medium to dark brown grey, moderately to very silty, abundant dispersed very fine to coarse quartz sand grains in part, trace pyrite, trace micromica, very soft, very dispersive, non fissile.
580-590	100	Sandstone: light brown grey, very fine to grit, dominantly medium to coarse, subangular to subrounded, moderately sorted, very weak silica cement, common to abundant medium brown grey argillaceous and silt matrix, clear to opaque with trace yellow to pink quartz grains, trace red lithics, trace coarse mica flakes, trace pyrite, friable, good inferred pososity, no oil fluorescence.
	Tr	Claystone: medium to dark brown grey, moderately to very silty, abundant dispersed very fine to coarse quartz sand grains in part, trace pyrite, trace micromica, very soft, very dispersive, non fissile.
590-600	90	Sandstone: light brown grey, very fine to very coarse, dominantly fine to medium, subangular to subrounded, moderately sorted, very weak silica cement, common to abundant medium brown grey argillaceous and silt matrix, clear to opaque with trace yellow to pink quartz grains, trace red lithics, trace coarse mica flakes, trace black coaly detritus, trace pyrite, friable, good inferred pososity, no oil fluorescence.

(AJ/GFE:F53)

405–410	100	Sandstone: light grey, very fine to coarse, dominantly medium, angular to subrounded, moderately to well sorted, very weak silica cement, minor pyrite cement, trace medium brown grey argillaceous and silt matrix, clear to opaque quartz grains, trace yellow to red quartz grains, trace brown to black lithics, trace coarse muscovite flakes, friable to unconsolidated, very good inferred porosity, no oil fluorescence.
410–420	100	Sandstone: light grey, very fine to coarse, dominantly fine to medium, angular to subrounded, moderately to well sorted, very weak silica cement, minor pyrite cement, trace medium brown grey argillaceous and silt matrix, clear to opaque quartz grains, trace yellow to red quartz grains, trace brown to black lithics, trace coarse muscovite flakes, friable to unconsolidated, very good inferred porosity, no oil fluorescence.
420–430	100	Sandstone: light grey, very fine to medium, dominantly fine, angular to subrounded, moderately to well sorted, very weak silica cement, minor pyrite cement, trace medium brown grey argillaceous and silt matrix, clear to opaque quartz grains, trace yellow to red quartz grains, trace brown to black lithics, trace coarse muscovite flakes, friable to unconsolidated, very good inferred porosity, no oil fluorescence.
430–440	100	Sandstone: very light brown grey, very fine to coarse, dominantly medium, angular to subrounded, moderately to well sorted, weak silica cement, minor pyrite cement, trace medium brown argillaceous and silt matrix, clear to opaque quartz grains, common yellow orange quartz grains, trace red and grey lithics, trace coarse muscovite flakes, friable to unconsolidated, very good inferred porosity, no oil fluorescence.
440–460	100	Sandstone: very light brown grey, very fine to coarse, dominantly medium, angular to subrounded, moderately to well sorted, weak silica cement, minor pyrite cement, trace medium brown argillaceous and silt matrix, clear to opaque quartz grains, common yellow orange quartz grains, trace red and grey lithics, trace coarse muscovite flakes, trace black coal detritus, friable to unconsolidated, very good inferred porosity, no oil fluorescence.
460–475		No sample.
475–490	100	Sandstone: very light brown grey, very fine to coarse, dominantly medium, angular to subrounded, moderately to well sorted, weak silica cement, minor pyrite cement, trace medium brown argillaceous and silt matrix, clear to opaque and occasionally orange stained quartz grains, common yellow orange quartz grains, trace red and grey lithics, trace coarse muscovite flakes, trace black coaly detritus, friable to unconsolidated, very good inferred porosity, no oil fluorescence.
490-500	100	Sandstone: very light brown grey, very fine to coarse, dominantly medium, angular to subrounded, poor to moderate sorting, weak silica cement, minor pyrite cement, trace medium brown argillaceous and silt matrix, clear to opaque and occasionally orange stained quartz grains, trace yellow orange quartz grains, trace red and grey lithics, trace coarse muscovite flakes, friable to unconsolidated, very good inferred porosity, no oil fluorescence.
500-510	90	Sandstone: very light brown grey, very fine to coarse, dominantly medium, angular to subrounded, poor to moderate sorting, weak silica cement, minor pyrite cement, trace medium brown argillaceous and silt matrix, clear to opaque and occasionally orange stained quartz grains, trace yellow orange quartz grains, trace red and grey lithics, trace coarse muscovite flakes, friable to unconsolidated, very good inferred porosity, no oil fluorescence.
	10	Claystone: medium to dark brown grey, moderately to very silty, abundant dispersed very fine to coarse quartz sand grains in part, trace pyrite, trace micromica, very soft, very dispersive, non fissile.
510-525	70	Sandstone: very light brown grey, very fine to coarse, dominantly medium, angular to subrounded, poor to moderate sorting, weak silica cement, minor pyrite cement, trace medium brown argillaceous and silt matrix, clear to opaque and occasionally orange stained quartz grains, trace yellow orange quartz grains, trace red and grey lithics, trace coarse muscovite flakes, friable to unconsolidated, very good inferred porosity, no oil fluorescence.

CULTUS PETROLEUM N.L. APPENDIX

CUTTINGS DESCRIPTION

WELL NAME:	Skull Creek-1	DATE:	22-5-96
GEOLOGIST:	Dave Horner	PAGE:	1

For geology report-3

Interval (m)	%	Description
335-340	100	Very poor sample due to clay dispersion and cement contamination. Marl: medium brown grey, common bryozoa, shell fragments and forams, trace pyrite, trace glauconite, trace very fine to fine dispersed clear quartz sand grains, very soft, very dispersive, non fissile.
340-355	100	Probable inaccurate sample collection interval. Sandstone: medium to dark greenish brown, very fine to coarse, dominantly fine to medium, angular to subrounded, dominantly subangular, moderately to well sorted, very weak iron oxide and silica cements, abundant dark brown iron oxide rich argillaceous matrix, strong brown staining on quartz grains, common brown iron oxide pellets, common white and green lithics, trace multicoloured volcanic lithics, common glauconite, trace coarse clear to brown mica flakes, unconsolidated to friable, fair inferred porosity, no oil fluorescence.
355-365	100	Sandstone: medium brown, very fine to very coarse, dominantly coarse, angular to subrounded, poor to moderately sorted, very weak iron oxide and silica cements, common medium brown argillaceous matrix, strong brown stain on quartz grains, common brown iron oxide pellets, trace glauconite, trace multicoloured volcanic lithics, trace pyrite, friable to unconsolidated, good inferred porosity, no oil fluorescence.
365-370	100	Sandstone: medium brown, very fine to coarse, dominantly fine to medium, angular to subrounded, poor to moderately sorted, very weak iron oxide and silica cements, common medium brown argillaceous matrix, strong brown stain on quartz grains, common brown iron oxide pellets, trace glauconite, trace multicoloured volcanic lithics, trace pyrite, friable to unconsolidated, good inferred porosity, no oil fluorescence.
370-390	100	Sandstone: light to medium brown, very fine to coarse, dominantly fine to medium, angular to subrounded, moderately to well sorted, very weak silica cement, common medium brown argillaceous and silt matrix, common yellow to orange to brown stain on quartz grains, trace multicoloured volcanic lithics, trace coarse muscovite flakes, trace pyrite, trace iron oxide pellets, trace glauconite, trace dark brown clay lithics, friable to unconsolidated, good inferred porosity, no oil fluorescence.
390-400	100	Sandstone: light to medium brown, fine to very coarse, dominantly medium to coarse, angular to subrounded, moderately to well sorted, very weak silica cement, common medium brown argillaceous and silt matrix, common yellow to orange to brown stain on quartz grains, trace multicoloured volcanic lithics, trace coarse muscovite flakes, trace pyrite, trace iron oxide pellets, trace glauconite, trace dark brown clay lithics, friable to unconsolidated, good inferred porosity, no oil fluorescence.
	Tr	Claystone: dark brown, moderately silty, trace pyrite, trace glauconite, trace micromica, soft, very dispersive, non fissile.
400-405	100	Sandstone: light grey to light brownish grey, very fine to coarse, dominantly medium, angular to subrounded, dominantly subangular, moderately to well sorted, very weak silica cement, trace medium grey to medium brown grey argillaceous and silt matrix, clear to opaque quartz grains occasionally with weak yellow brown staining, trace red and green lithics, trace pyrite, trace brown clay lithics, friable to unconsolidated, very good inferred porosity, no oil fluorescence.

APPENDIX 6 - PALYNOLOGICAL REPORT

PALYNOLOGY OF SKULL CREEK-1

OTWAY BASIN, VICTORIA

BY

ROGER MORGAN

CONTENTS **PAGE**

1 SUMMARY

1125-1130m (cutts), 1145-50m (cutts) : middle *senectus* Spore-pollen Zone (upper *aceras* Dinocyst Zone) with caved Middle Eocene, Early Eocene, late Paleocene and Maastrichtian (*longus/druggii* Zones) : early Campanian : nearshore marine : immature : usually upper Belfast Mudstone and correlative lower Paaratte Formation.

1155-1160m (cutts) : apparently middle *apoxyexinus* Spore-pollen Zone (lower *cretacea* Dinocyst Zone) with mixed younger caving : Santonian : very nearshore marine : immature : usually mid Belfast Mudstone and correlative basal Paaratte Formation.

1175-1180m (cutts) : apparently middle *apoxyexinus* Spore-pollen Zone (no Dinocyst Zone possible) with mixed younger caving : Santonian : marginal marine : immature : usually mid Belfast Mudstone and correlative basal Paaratte Formation.

1185-1190m (cutts) : apparently lower *mawsonii* Spore-pollen Zone (*infusorioides* Dinocyst Zone) mixed with caved middle *apoxyexinus* Spore-pollen Zone (no Dinocyst Zone) and mixed younger presumed caving : Turonian : very nearshore marine : immature : usually basal Belfast Mudstone/upper Flaxmans Formation/uppermost Waare Sandstone.

1195-1200m (cutts), 1278-1281m (cutts) : nothing older seen and samples appear to be mostly mixed younger caving : may be mixed caving in lean sandy lithologies.

1287-1290m (cutts) : *paradoxa* Zone (no Dinocyst Zone with dinoflagellates probably entirely caved) with mixed younger caving : probably Albian : probably non-marine : marginally mature : usually Eumeralla Formation.

2 INTRODUCTION

Eight cuttings samples were studied after drilling at the request of Alex Pomilio. An initial breakdown was faxed on 11/7/96, and the final results are summarised herein.

Palynomorph occurrence data are shown as Appendix I and form the basis for the assignment of the samples to six units of Campanian to Albian age. Younger caving is also detailed.

Specimen counts were made on all assemblages and expressed in the raw data as percentages.

The Cretaceous spore-pollen zonation is essentially that of Dettmann and Playford (1969), but has been significantly modified and improved by various authors since, and most recently discussed in Helby et al (1987), as shown on Figure 1. The Late Cretaceous zonation has been refined by Morgan (1992) in project work (Figure 2).

Maturity data was generated in the form of Spore Colour Index, and is plotted on Figure 3 Maturity Profile of Skull Creek-1. The oil and gas windows on Figure 3 follow the general consensus of geochemical literature. The oil window corresponds to spore colours of light-mid brown (Staplin Spore Colour Index of 2.7) to dark brown (3.6). These respond to vitrinite reflectance values of 0.6% to 1.3%. Geochemists argue variations on kerogen type, basin type and basin history. The maturity interpretation is thus open to reinterpretation using the basic colour observations as raw data. However, the range of interpretation philosophies is not great, and probably would not move the oil window by more than 200 metres.

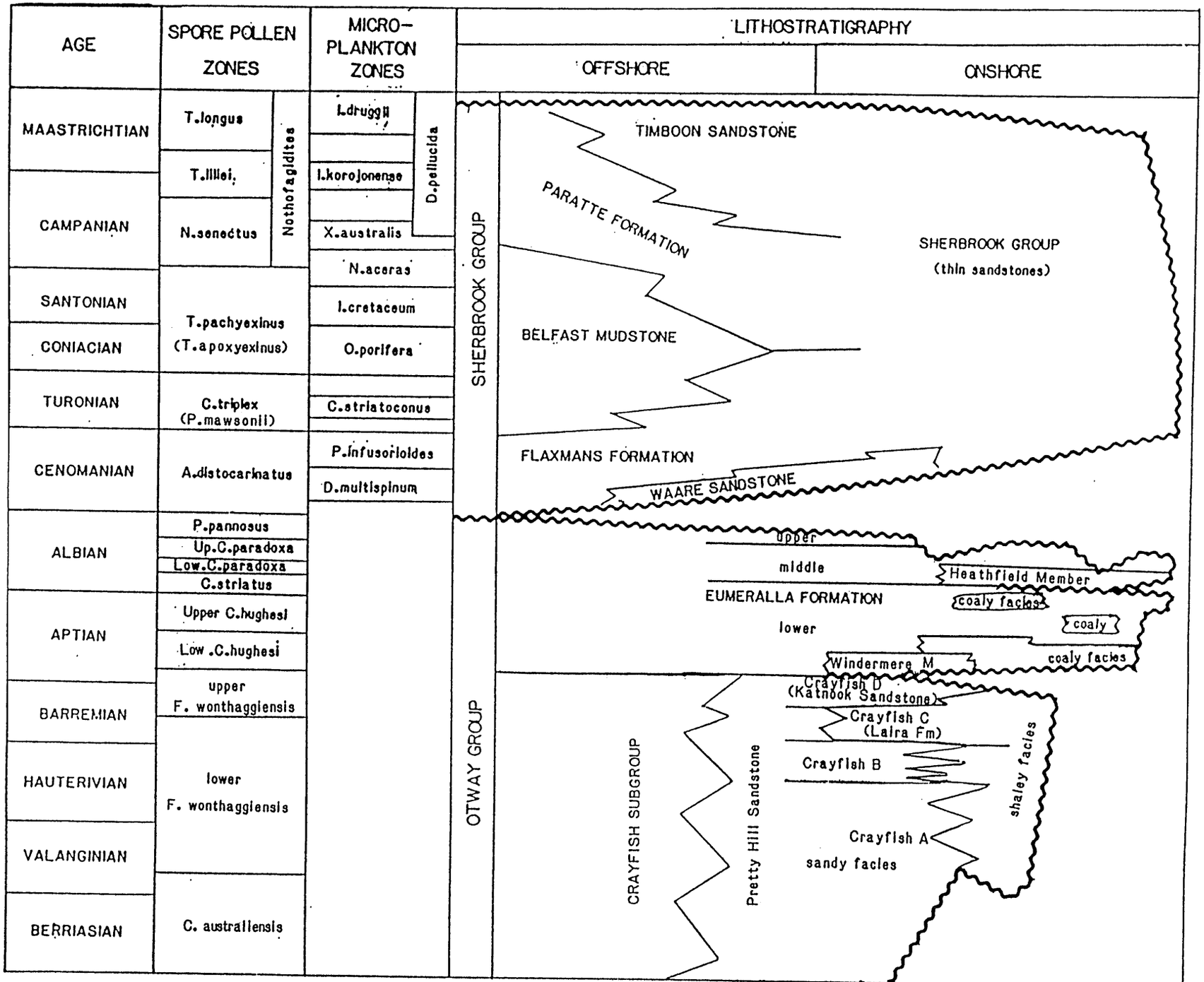


FIGURE 1. CRETACEOUS REGIONAL FRAMEWORK, OTWAY BASIN

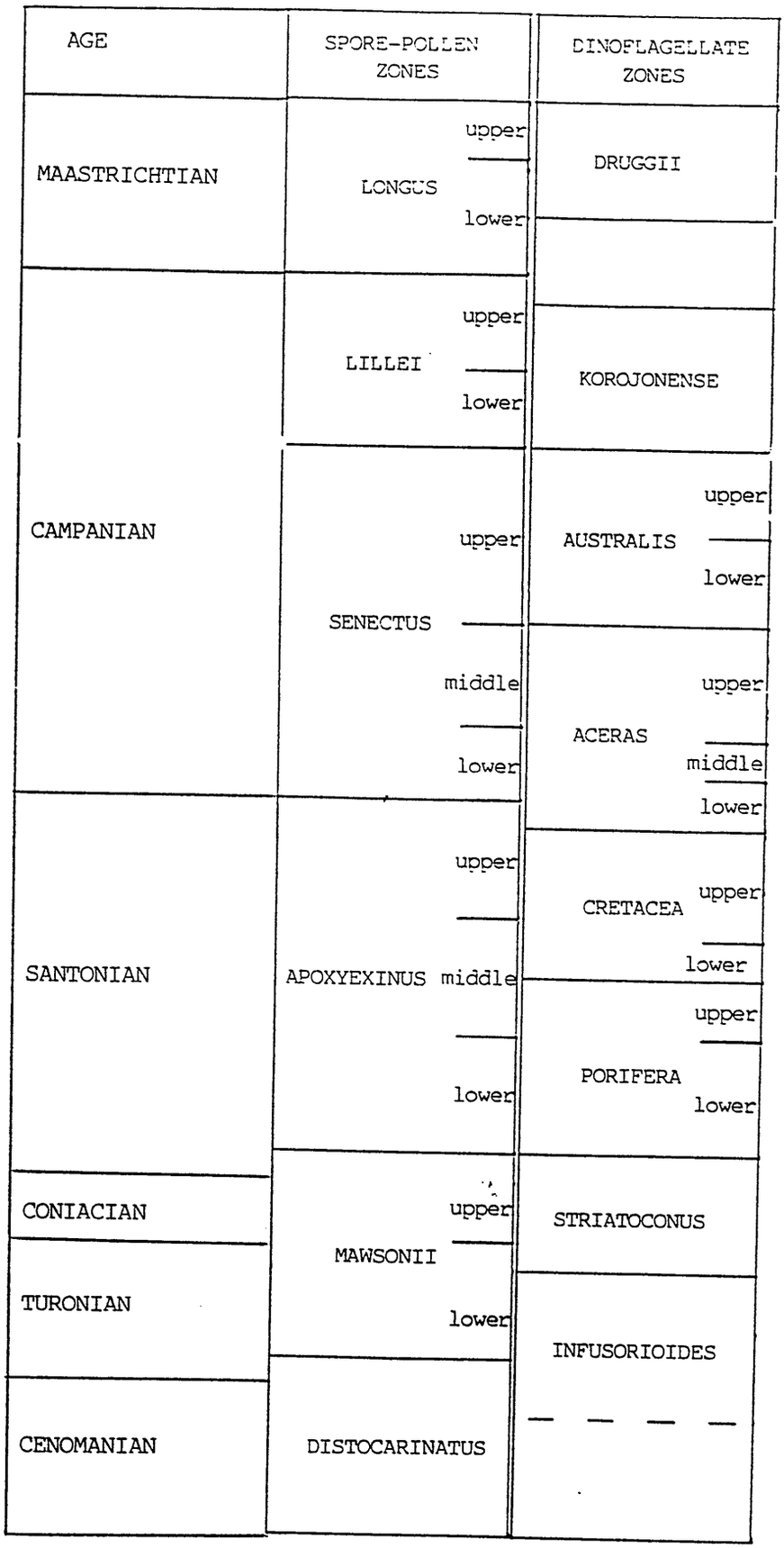


FIGURE 2 DETAILED ZONATION USED HEREIN

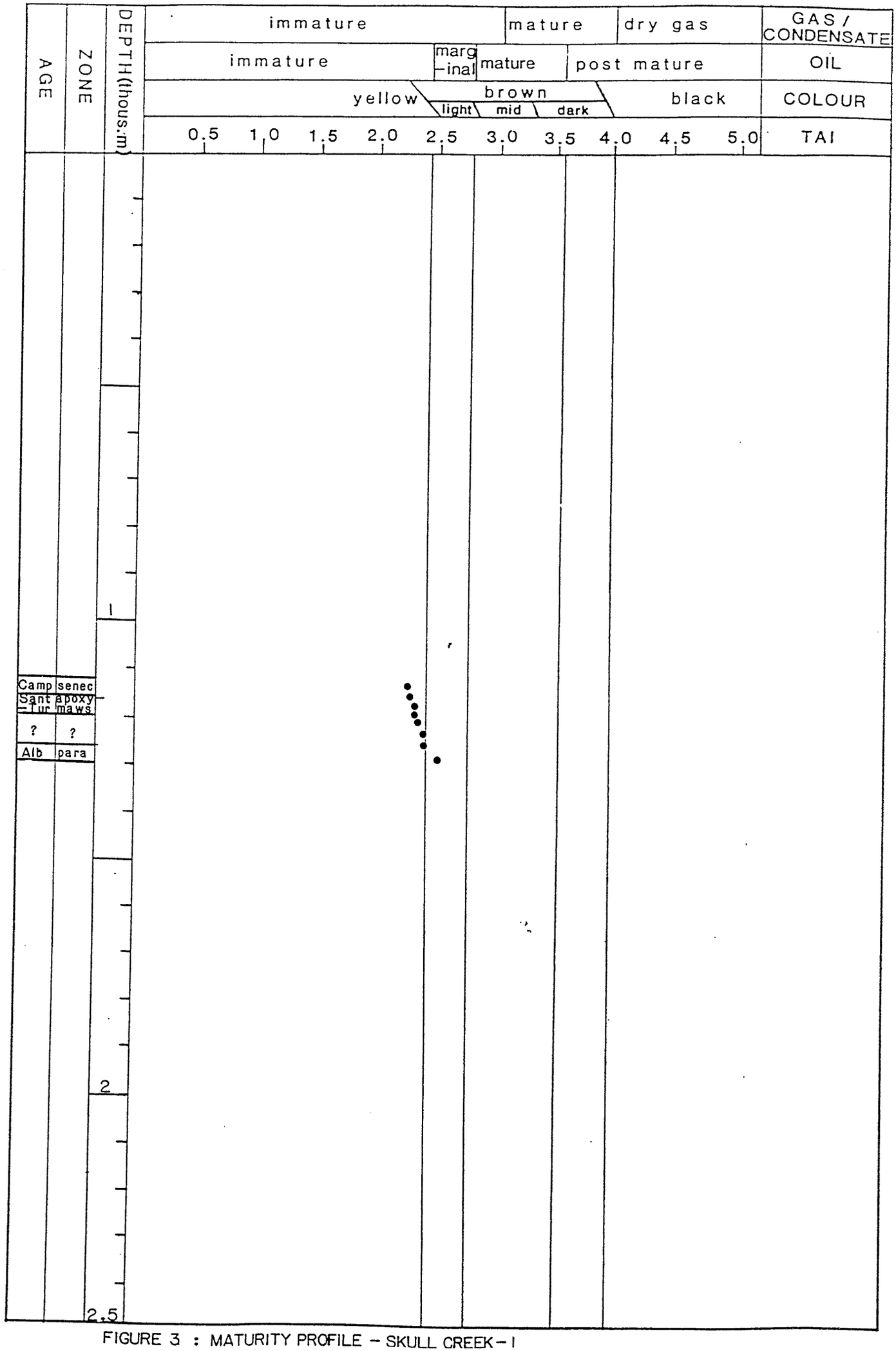


FIGURE 3 : MATURITY PROFILE – SKULL CREEK – 1

3 PALYNOSTRATIGRAPHY

3.1 1125-30m (cutts), 1145-50m (cutts) : middle *senectus* Spore-pollen Zone (upper *aceras* Dinocyst Zone)

Assignment to the middle Subzone of the *Nothofagidites senectus* Spore-pollen Zone is indicated by the dinoflagellates present. On the basis of the spores and pollen seen, these cuttings might be assigned to much younger Zones, but the markers are considered caved. Assignment to the upper *Nelsoniella aceras* Dinocyst Zone of early Campanian age is on youngest *Nelsoniella tuberculata* at 1125-30m, without older markers. Also consistent are *Nelsoniella semireticulata* and *Xenikoon australis* down to 1145-50m, although these could be caved. Amongst the scarce dinoflagellates, *Heterosphaeridium* spp and *Spiniferites* spp are the most frequent with rare *Nelsoniella* spp and *Trithyrodinium* spp. Obviously caved are the Middle Eocene *Alisocysta ornata, Corrudinium incompositum* and *Heteraulacysta sp*, the Early Eocene *Apectodinium homomorphum*, the late Paleocene *Deflandrea obliquipes, Cordosphaeridium inodes* and *Hafniasphaera septata* and the Maastrchtian *Manumiella coronata.*

Given these dinoflagellate data, spores and pollen considered in place include *N. senectus*, *Nothofagidites endurus* and *Tricolpites sabulosus*, consistent with the correlative middle *senectus* Spore-pollen Zone. Considered caved are Middle Eocene *Nothofagidites falcatus, Malvacipollis subtilis*, Paleocene *Lygistepollenites balmei, Gambierina rudata* and Maastrichtian *Stereisporites punctatus, Tricolpites confessus.* Overall, *Falcisporites similis* is common with *Cyathidites minor, Dilwynites granulatus, Gleicheniidites, Podosporites microsaccatus, Proteacidites* spp and *Vitreisporites pallidus* frequent.

Nearshore marine environments are suggested by the dominant and diverse spores and pollen, minor dinoflagellates and common freshwater algae *Botryococcus.* However, in these cuttings, much of the observed microflora may be caved.

Yellow to light brown spore colours indicate immaturity for hydrocarbons.

These features are usually seen in the upper Belfast Mudstone, correlative Paaratte Formation, and other correlatives.

3.2 1155-60m (cutts) : apparently middle *apoxyexinus* Spore-pollen Zone (lower *cretacea* Dinocyst Zone)

Assignment to the middle *Tricolporites apoxyexinus* Spore-pollen Zone is indicated by the associated dinoflagellates. On the basis of spores and pollen, a younger assignment might be suggested, but key markers are considered caved. Assignment to the lower Subzone of the *Isabelidinium cretaceum* Dinocyst Zone of Santonian age is indicated by *I. cretaceum* without younger (especially *Nelsoniella* or *Amphidiadema* spp) or older markers. Considered caved are the Middle Eocene *C. incompositum*, Early Eocene *Homotriblium tasmaniense*, and Maastrichtian *Manumiella druggii*. *Heterosphaeridium heteracanthum* is the most common dinoflagellate and rare *Isabelidinium balmei* and *Trithyrodinium suspectum* are considered in place.

Given the dinoflagellate data, caved spores and pollen include Middle Eocene-Paleocene *H. harrisii*, *Nothofagidites emarcidus* and Maastrichtian-Campanian *N. endurus*, *N. senectus* and *T. sabulosus*. Overall, *F. similis* is common, with *Australopollis obscurus*, *C. minor*, *D. granulatus*, *H. harrisii*, *P. microsaccatus* and *Proteacidites* frequent.

Very nearshore marine environments are suggested by the very low dinoflagellate content and low "*in situ*" diversity, abundant and diverse spores and pollen and common *Botryococcus*. However, these assemblages may be largely caved.

Yellow to light brown spore colours indicate immaturity for hydrocarbons.

These features are normally seen in the mid Belfast Mudstone, correlative basal Paaratte Formation and other correlatives.

3.3 1175-1180m (cutts) : apparently middle *apoxyexinus* Spore-pollen Zone (no Dinocyst Zone)

Assignment to the middle *T. apoxyexinus* Spore-pollen Zone of Santonian age is on the zonal assignment of the sample above, and the lack of older markers. *Amosopollis cruciformis* is rare in this sample. Overall, *F. similis* is very common, with *D. granulatus* and *P. microsaccatus* common, and *C. minor*, *Gleicheniidites* and *V. pallidus* frequent. Considered caved are the Eocene *H. emarcidus*, *H. harrisii*, *M. subtilis* and Maastrichtian-Campanian *G. rudata*, *T. confessus* and *T. sabulosus*.

Dinoflagellates are non-descript and lack zonal markers considered in place. Most consistent are *Heterosphaeridium* spp and *Spiniferites* spp. Considered caved are Eocene *A. ornata* and Paleocene *Deflandrea dartmooria.*

Marginal marine environments are indicated by the very scarce dinoflagellates considered in place, the common and diverse spores and pollen and common freshwater *Botryococcus*. However, these assemblages may be largely caved.

Yellow to light brown spore colours indicate immaturity for hydrocarbons.

These features are usually seen in the mid Belfast Mudstone and correlative basal Paaratte Formation and other correlatives.

3.4 1185-90m (cutts) : apparently lower *mawsonii* Spore-pollen Zone (*infusorioides* Dinocyst Zone)

Assignment is on the dinoflagellate data, namely youngest *Cribroperidinium edwardsii*, indicating the *Palaeohystrichophora infusorioides* Dinocyst Zone of Turonian age, and the correlative lower *Phyllocladidites mawsonii* Spore-pollen Zone. Of the dinocysts, only *Heterosphaeridium* spp and *C. edwardsii* are considered in place, with caved Eocene *A. homomorphum, Deflandrea phosphoritica* and *Achomosphaera crassipellis*, Maastrichtian *M. coronata*, Campanian *N. aceras* and Campanian-Santonian *Odontochitina porifera.*

Amongst the spores and pollen, *P. mawsonii* is considered in place, but the 3% *A. cruciformis* with 8% *Proteacidites* suggests caving from the mid *apoxyexinus* Zone. Definitely caved are the Eocene-Paleocene *H. subtilis, H. harrisii, L. balmei* and the Maastrichtian-Campanian *T. confessus*. Overall, *D. granulatus* and *P. microsaccatus* are common with *F. similis, Proteacidites* and *V. pallidus* frequent.

Marginal marine environments are suggested by the scarce dinoflagellates considered in place, the abundant and diverse spores and pollen, common freshwater algae *Botryococcus* and common plant cuticle.

Yellow to light brown spore colours indicate immaturity for hydrocarbons.

These features are normally seen in the basal Belfast Mudstone and correlative upper Flaxmans Formation and uppermost Waare Sandstone and their correlatives.

3.5 1195-1200m (cutts), 1278-1281m (cutts) : nothing older seen, mostly caved

These samples are leaner than those overlying, contain nothing new, and a higher content of caved material. This would be consistent with lean sandy lithologies yielding poorly, with the caving therefore a higher proportion of the assemblage. Overall, *F. similis* is common, with *C. minor, Gleicheniidites, Microcachryidites antarcticus, P. microsaccatus, Proteacidites, S. antiquasporites* and *V. pallidus* frequent. Obviously caved are Eocene-Paleocene *Anacolosidites acutullus, H. harrisii, Malvacipollis diversus, N. emarcidus, Proteacidites incurvatus, Proteacidites grandis* and *Spinozonocolpites prominatus* and Maastrichtian-Campanian *G. rudata, N. endurus, N. senectus, Oramentifera sentosa.* Possibly in place is *P. mawsonii,* although it too is likely to be caved. Rare older elements include *Crybelosporites striatus* (very rare above the Albian) and Permian taxa, presumed reworked.

Dinoflagellates include Eocene *A. ornata, Heteraulacysta* sp and *A. homomorphum*, Paleocene *D. obliquipes*, Maastrichtian *M. druggii*, Campanian *N. aceras* and *X. australis*, with *Heterosphaeridium* spp and *Spiniferites* spp the most consistent. Most, if not all, are considered caved.

Marginal marine environments are suggested by the common freshwater algae *Botryococcus*, dominant and diverse spores and pollen, and minor dinoflagellates. However, much of the assemblage is caved.

Yellow to light brown darkest spore colours suggest immaturity for hydrocarbons. The Tertiary elements are mostly colourless.

These features suggest nothing older than the overlying samples, but barren sandstones (?Waare Sandstone) would be consistent with these data.

3.6 1287-1290m (cutts) : *paradoxa* Spore-pollen Zone (no dinocyst Zone)

Assignment to the *Coptospora paradoxa* Spore-pollen Zone of Albian age is indicated by youngest *C. paradoxa*, coincident with youngest *Triporoletes reticulatus, Triporoletes bireticulatus, Appendicisporites distocarinatus* and downhole influxes of *Cicatricosisporites australiensis, Crybelosporites striatus* and other spores. Overall, *C. minor* and *F. similis* are common, with *Gleicheniidites, Laevigatosporites ovatus, M. antarcticus, O. wellmanii, P. microsaccatus* and *V. pallidus* frequent. Obviously caved are Eocene-Paleocene *Intratriporopollenites notabilis, H. harrisii* and Late Cretaceous *A.*

4 CONCLUSIONS

Palynology results are not precise due to the apparent heavy caving in these cuttings and poor yields in sandy section. Samples towards the base are particularly problematic, and the section may be fairly incomplete.

Present only as caving are the Middle Eocene (on *Deflandrea phosphoritica* and *Alisocysta ornata*), Early Eocene (*Homotriblium tasmaniense*), probable late Paleocene (*Deflandrea dartmooria* and *D. obliquipes*) and Maastrichtian (*longus/druggii* Zones) all above the sampled section. Probably in place are early Campanian (*senectus/aceras* Zones) and probably Santonian (mid *apoxyexinus* Zone, possible Turonian (lower *mawsonii* Zone) and Albian (*paradoxa* Zone).

Normally distinctive but not seen even as caving are the *lillei/korojonense* Zones, lower *senectus*-upper *apoxyexinus*/lower aceras-upper *cretacea* Zones and lower *apoxyexinus/porifera* Zones. These are probably absent. Bland and non-distinctive are the upper *senectus/australis* Zones, upper *mawsonii/striatoconus* Zones and *distocarinatus*/unzoned Zones. These may be barren sands, absent or masked by caving from the more distinctive horizons.

5 REFERENCES

Dettmann ME and Playford G (1969) Palynology of the Australian Cretaceous : a review **In** Stratigraphy and Palaeontology. Essays in honour of Dorothy Hill, **KSW Campbell ED.** ANU Press, Canberra 174-210

Helby RJ, Morgan RP and Partridge AD (1987) A palynological zonation of the Australian Mesozoic **In** Studies in Australian Mesozoic Palynology **Assoc. Australas. Palaeontols. Mem 4** 1-94

APPENDIX 7 - VELOCITY SURVEY REPORT

Velocity Data

VELOCITY SURVEY

SKULL CREEK No.1

PPL 1

OTWAY BASIN
VICTORIA

for

CULTUS PETROLEUM N.L.

recorded by

VELOCITY DATA PTY LTD

Processed by

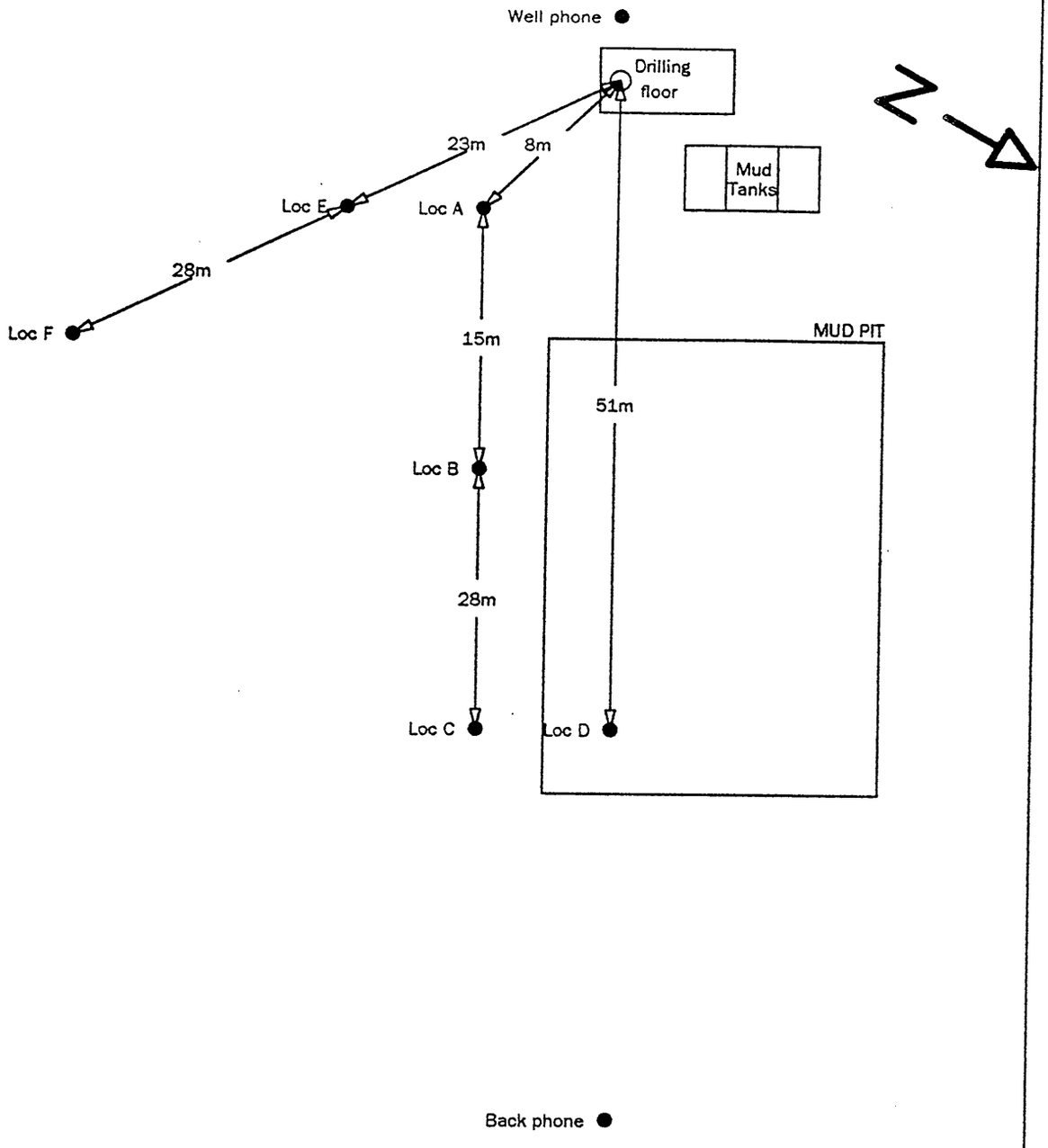
Velseis Processing Pty Ltd

Brisbane, Australia
26 September 1996

VELSEIS PTY LTD

Integrated Seismic Technologies

CONTENTS



SKULL CREEK 1

SHOT POINT LOCATION SKETCH

CULTUS PETROLEUM

Figure 1

SUMMARY

Velocity Data Pty Ltd conducted a velocity survey for Cultus Petroleum N.L. in the Skull Creek No. 1 well, PPL 1, Otway Basin, Victoria. The date of the survey was the 29 May, 1996.

The results of the survey, which are considered to be reliable, have been used to calibrate the sonic log.

Explosives were used as an energy source with shots being fired in the mud pit in the majority of instances.

GENERAL INFORMATION

Name of Well	: Skull Creek No. 1
Location	: PPL 1
Coordinates	: 5729963.0 N : 673411.5 E
Date of Survey	: 29 May, 1996
Wireline Logging	: BPB Wireline Services
Weather	: Fine
Operational Base	: Brisbane
Operator	: D. Blick
Shooter	: G. Clifford
Client Representative	: Mr. D. Horner

EQUIPMENT

Downhole Tool

Veldata Camlock 100 (90 mm)

Sensors:

6 HSI 4.5 Hz 215 ohm, high temperature (300 degrees F) detectors connected in series parallel. Frequency response 8-300 Hz within 3 dB.

Preamplifier:

48 dB fixed gain.
Frequency response 5-200 Hz within 3 dB.

Reference Geophone

Mark Products L1 4.5 Hz

Recording Instrument

(1) System VDL 16

Windows based high resolution seismic acquisition instruments

Computer :	386 Portable computer
Resolution :	A/D conversion 16 bits
Dynamic Range :	96dB
Total Gain :	136dB
Data channels :	8
Display :	A4 Bubble Jet Printer 300 D.P.I.

RECORDING

Energy Source	: Explosive, Powergel
Shot Location	: Mud pit
Charge Size	: 0.3 - 3 sticks
Average Shot Depth	: 2.0 metres
Mud Pit Shot Offset	: 51.0 metres
Recording Geometry	: Figure 1

Shots were recorded on $3^1/_2$" floppy disc. Printouts of the shots used are included with this report.

The sample rate was 0.5 millseconds across the entire survey.

The scale of the graphic display varies with signal strength and is noted on each playout. The times were picked from a sample by sample screen plot a full set of these trace displays can be seen at the rear of the report.

PROCESSING

Elevation Data

Elevation of KB	: 96.3 metres above A.S.L.
Elevation of Ground	: 92.0 metres above A.S.L.
Elevation of Seismic Datum	: 0.0 metres A.S.L.
Depth Surveyed	: 1694.5 metres below KB
Total Depth	: Unknown
Depth of Casing	: 333.0 metres below KB
Sonic Log Interval	: 300 to 1701.7 metres below KB

PROCESSING

Recorded Data

Number of Shots Processed	: 35
Number of Levels Recorded	: 22
Data Quality	: Good
Noise Level	: Low

Correction for Instrument Delay and Shot Offset

The 'corrected' times shown on the calculation sheets have been obtained by:

1. Subtraction of the instrument delay (2.0 milliseconds) from the recorded arrival times.
2. Geometric correction for non-verticality of ray paths resulting from shot offset.
3. Shot static correction to correct for the depth of shot below ground level at the well head using a correction velocity of 2000 metres/second.
4. Additional 1.0 milliseconds uphole time was added to all shots external to the mud.
5. 1.1 milliseconds bulk shift applied to all shots discharged within the mud pit to tie them to shots external to the pit.
6. Re-addition of the instrument delay (2.0 milliseconds).

Pit Fatigue Analysis

An examination of surface channel information indicated a degree of noise associated with traces on both the well and back phones. Thus these were not used for pit fatigue analysis. Instead pick times for shots in and out of the hole at the same interval were examined. Pick times were found to be similar and no pit fatigue correction required.

Correction to Datum

The datum chosen was 0.0 metres ASL that is 96.3 metres below KB. This level was shot nine (9) times during the survey and an effective datum correction time of 63.3 milliseconds was calculated.

This value includes the 2.0 milliseconds instrument delay which must be subtracted to obtain the raw time.

PROCESSING

Calibration of Sonic Log - Method

Sonic times were adjusted to checkshot times using a polynomial derived least squares fit correction of the sonic transient times. The sonic log that lay within the casing was deleted from the calibration.

Differences between the check shot and sonic times arise as the sonic tool measures the local velocity characteristics of the formation with a high frequency signal, whereas the downhole geophone records the bulk velocity character using a signal of significantly lower frequency.

Calibration of Sonic Log - Results (Enclosure 1)

Sonic values were only available between the interval 300.0 and 1701.7m below KB.

The discrepancies between shot and sonic interval velocities were small. The largest of these occurred over the interval 1176 to 1203 metres which yielded an interval sonic drift of 137.04µsec/m. This value is large due to the small interval distance over which it was calculated

In aggregate, the shot and sonic interval times differed by 13.6 milliseconds over the logged portion of the well.

PROCESSING

Trace Playouts (Figure 3)

Figure 3A is a plot of all raw data traces used.

Figure 3B is a plot to scale in depth and time of selected traces.

Figure 3C is a plot of selected surface traces. .

Troy Peters
Geophysicist

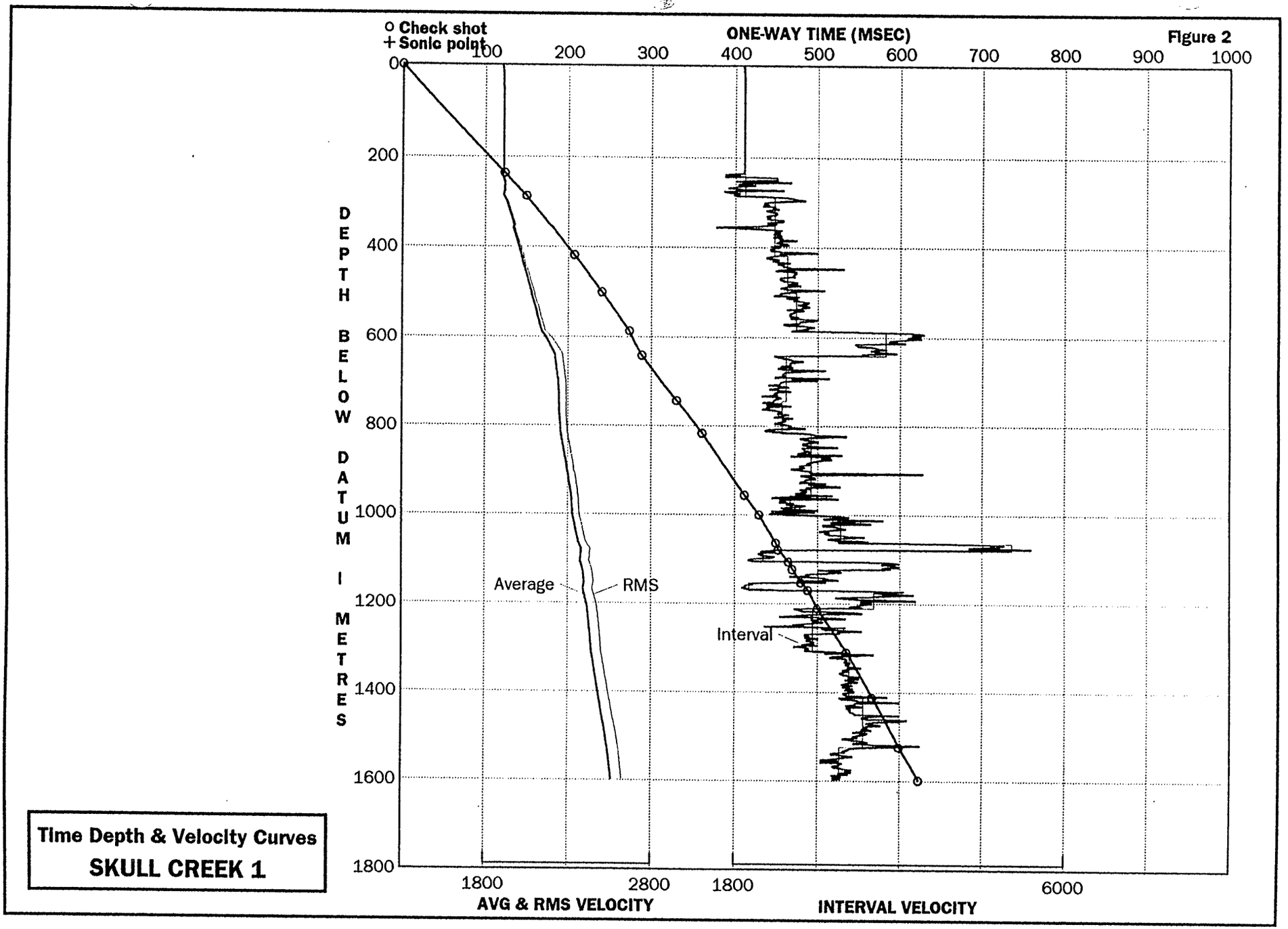
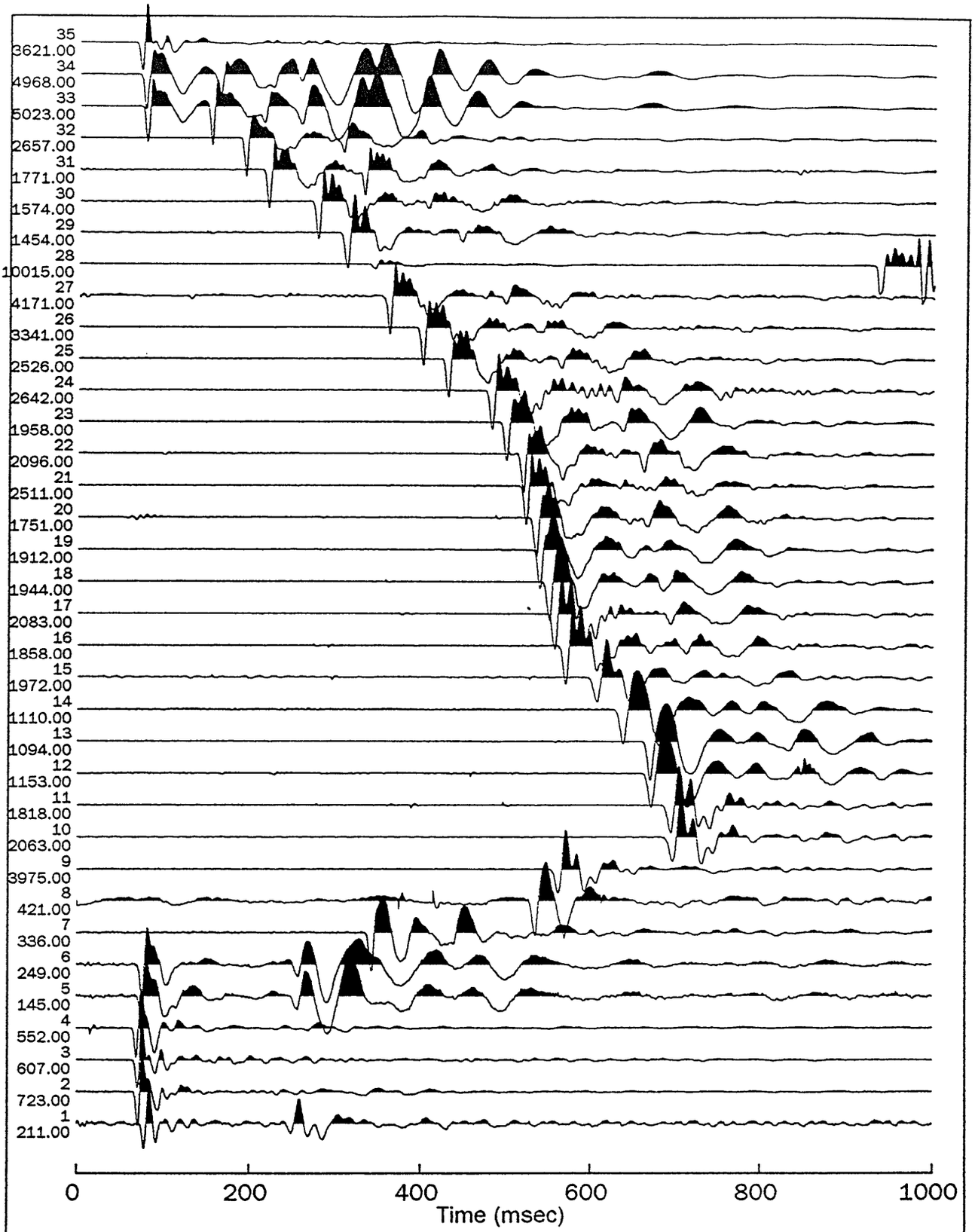


Figure 2

Time Depth & Velocity Curves

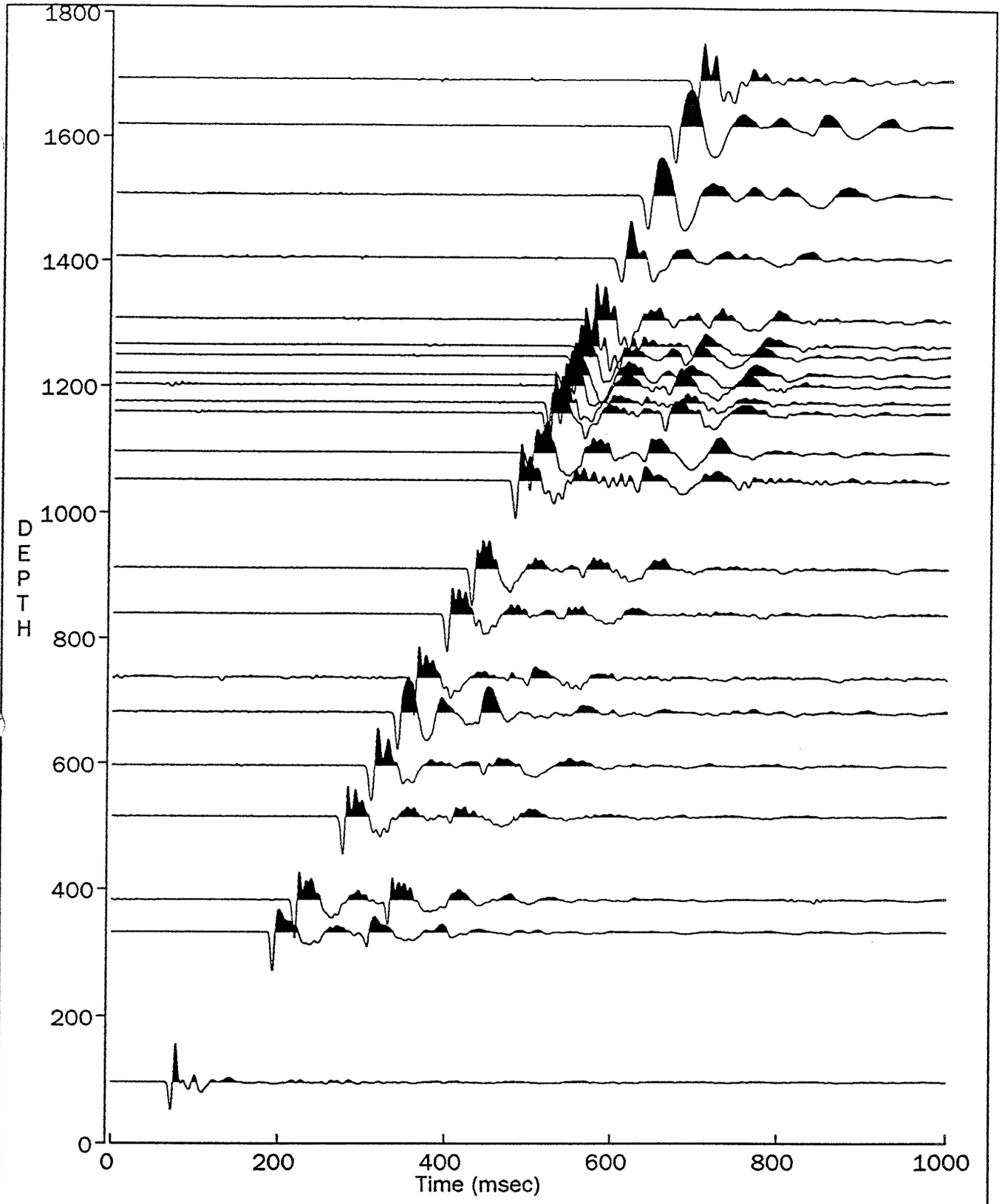
SKULL CREEK 1



SKULL CREEK 1

VELOCITY SURVEY TRACE DISPLAY

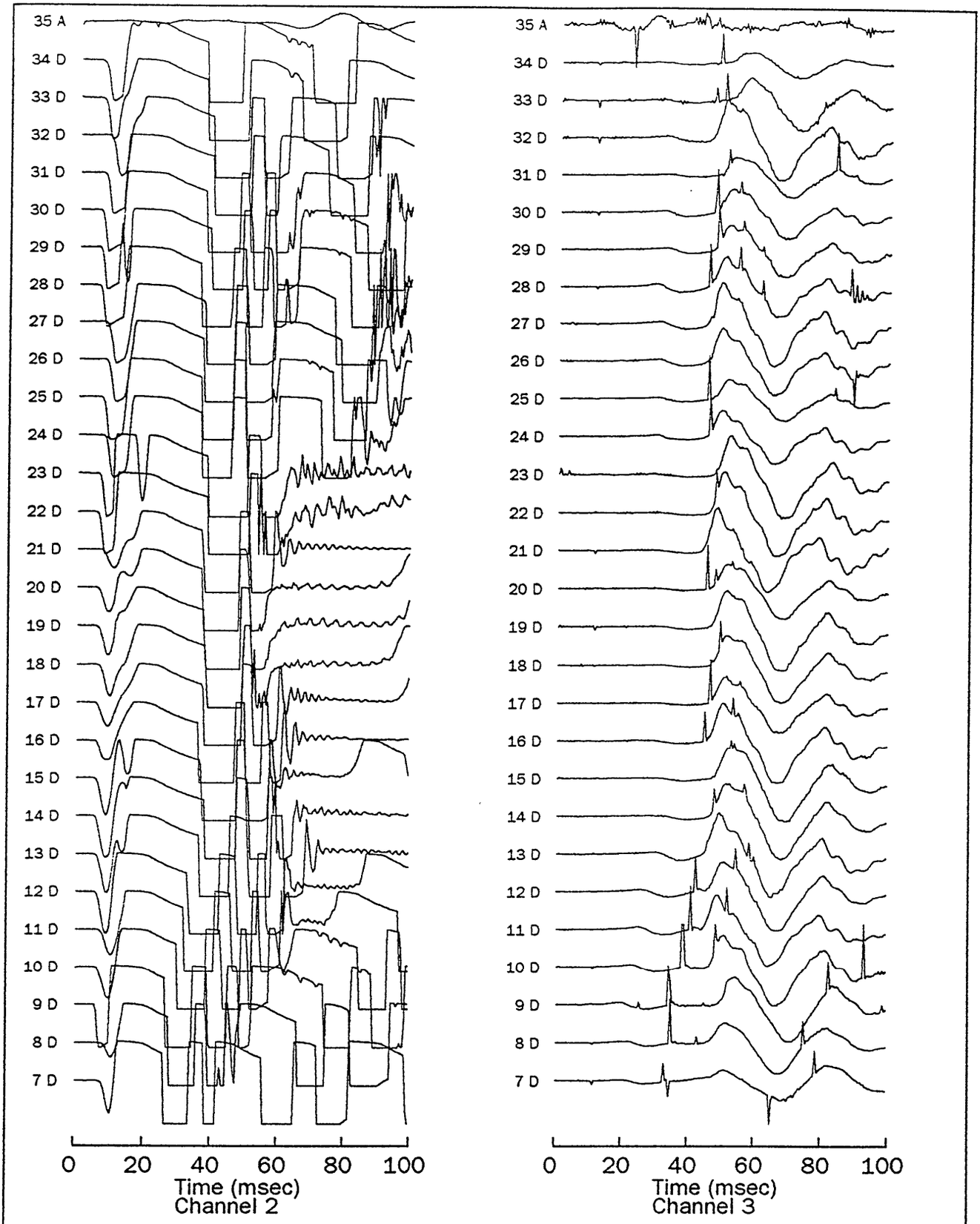
Figure 3A



SKULL CREEK 1

VELOCITY SURVEY TRACE DISPLAY

Figure 3B



SKULL CREEK 1

VELOCITY SURVEY TRACE DISPLAY
AUXILIARY CHANNELS

Figure 3C

TABLE 1 Time depth curve values

Well : SKULL CREEK 1 Client : CULTUS PETROLEUM
Survey units : METRES Datum : 0.0
Calibrated sonic velocities used from 237.5 to 1597.5

Datum depth	One-way time(ms)	VELOCITIES Average	RMS	Interval	Datum depth	One-way time(ms)	VELOCITIES Average	RMS	Interval
2.5	1.3	1905	1905	1905	102.5	53.6	1911	1911	1911
5.0	2.6	1906	1906	1907	105.0	55.0	1911	1911	1911
7.5	3.9	1907	1907	1909	107.5	56.3	1911	1911	1911
10.0	5.2	1908	1908	1910	110.0	57.6	1911	1911	1911
12.5	6.6	1908	1908	1910	112.5	58.9	1911	1911	1911
15.0	7.9	1909	1909	1911	115.0	60.2	1911	1911	1911
17.5	9.2	1909	1909	1911	117.5	61.5	1911	1911	1911
20.0	10.5	1909	1909	1911	120.0	62.8	1911	1911	1911
22.5	11.8	1909	1909	1911	122.5	64.1	1911	1911	1911
25.0	13.1	1910	1910	1911	125.0	65.4	1911	1911	1911
27.5	14.4	1910	1910	1911	127.5	66.7	1911	1911	1911
30.0	15.7	1910	1910	1911	130.0	68.0	1911	1911	1911
32.5	17.0	1910	1910	1911	132.5	69.3	1911	1911	1911
35.0	18.3	1910	1910	1911	135.0	70.6	1911	1911	1911
37.5	19.6	1910	1910	1911	137.5	72.0	1911	1911	1911
40.0	20.9	1910	1910	1911	140.0	73.3	1911	1911	1911
42.5	22.2	1910	1910	1911	142.5	74.6	1911	1911	1911
45.0	23.6	1910	1910	1911	145.0	75.9	1911	1911	1911
47.5	24.9	1910	1910	1911	147.5	77.2	1911	1911	1911
50.0	26.2	1910	1910	1911	150.0	78.5	1911	1911	1911
52.5	27.5	1910	1910	1911	152.5	79.8	1911	1911	1911
55.0	28.8	1910	1910	1911	155.0	81.1	1911	1911	1911
57.5	30.1	1910	1910	1911	157.5	82.4	1911	1911	1911
60.0	31.4	1911	1911	1911	160.0	83.7	1911	1911	1911
62.5	32.7	1911	1911	1911	162.5	85.0	1911	1911	1911
65.0	34.0	1911	1911	1911	165.0	86.3	1911	1911	1911
67.5	35.3	1911	1911	1911	167.5	87.7	1911	1911	1911
70.0	36.6	1911	1911	1911	170.0	89.0	1911	1911	1911
72.5	37.9	1911	1911	1911	172.5	90.3	1911	1911	1911
75.0	39.3	1911	1911	1911	175.0	91.6	1911	1911	1911
77.5	40.6	1911	1911	1911	177.5	92.9	1911	1911	1911
80.0	41.9	1911	1911	1911	180.0	94.2	1911	1911	1911
82.5	43.2	1911	1911	1911	182.5	95.5	1911	1911	1911
85.0	44.5	1911	1911	1911	185.0	96.8	1911	1911	1911
87.5	45.8	1911	1911	1911	187.5	98.1	1911	1911	1911
90.0	47.1	1911	1911	1911	190.0	99.4	1911	1911	1911
92.5	48.4	1911	1911	1911	192.5	100.7	1911	1911	1911
95.0	49.7	1911	1911	1911	195.0	102.0	1911	1911	1911
97.5	51.0	1911	1911	1911	197.5	103.4	1911	1911	1911
100.0	52.3	1911	1911	1911	200.0	104.7	1911	1911	1911

TABLE 1 **Time depth curve values** **Page 2**

Well : SKULL CREEK 1 Client : CULTUS PETROLEUM
Survey units : METRES Datum : 0.0
Calibrated sonic velocities used from 237.5 to 1597.5

Datum depth	One-way time(ms)	VELOCITIES Average	RMS	Interval	Datum depth	One-way time(ms)	VELOCITIES Average	RMS	Interval
202.5	106.0	1911	1911	1911	302.5	156.4	1934	1940	2167
205.0	107.3	1911	1911	1911	305.0	157.5	1936	1942	2219
207.5	108.6	1911	1911	1911	307.5	158.7	1938	1943	2152
210.0	109.9	1911	1911	1911	310.0	159.8	1940	1946	2304
212.5	111.2	1911	1911	1911	312.5	160.9	1942	1949	2273
215.0	112.5	1911	1911	1911	315.0	161.9	1945	1951	2345
217.5	113.8	1911	1911	1911	317.5	163.1	1947	1953	2193
220.0	115.1	1911	1911	1911	320.0	164.2	1949	1955	2247
222.5	116.4	1911	1911	1911	322.5	165.3	1951	1958	2318
225.0	117.7	1911	1911	1911	325.0	166.4	1954	1961	2323
227.5	119.0	1911	1911	1911	327.5	167.4	1956	1963	2303
230.0	120.4	1911	1911	1910	330.0	168.6	1958	1965	2199
232.5	121.7	1911	1911	1910	332.5	169.7	1959	1967	2239
235.0	123.0	1911	1911	1909	335.0	170.8	1961	1968	2204
237.5	124.5	1908	1908	1679	337.5	171.9	1963	1970	2246
240.0	125.8	1908	1908	1853	340.0	173.0	1966	1973	2406
242.5	127.3	1905	1905	1682	342.5	174.0	1968	1976	2390
245.0	128.4	1908	1909	2325	345.0	175.2	1970	1977	2207
247.5	129.4	1912	1913	2331	347.5	176.2	1972	1980	2314
250.0	130.5	1915	1917	2329	350.0	177.3	1974	1982	2285
252.5	131.9	1914	1916	1818	352.5	178.5	1975	1982	2097
255.0	132.9	1919	1921	2499	355.0	180.1	1971	1979	1564
257.5	134.2	1919	1921	1909	357.5	181.5	1970	1978	1861
260.0	135.6	1918	1920	1841	360.0	182.6	1971	1980	2179
262.5	136.8	1919	1921	2046	362.5	183.7	1974	1982	2385
265.0	138.2	1918	1920	1827	365.0	184.7	1976	1984	2300
267.5	139.6	1916	1918	1714	367.5	185.8	1978	1987	2364
270.0	141.0	1916	1918	1869	370.0	186.9	1980	1988	2285
272.5	142.0	1919	1922	2405	372.5	188.0	1982	1991	2367
275.0	143.5	1917	1919	1668	375.0	189.0	1984	1993	2387
277.5	144.9	1915	1918	1739	377.5	190.1	1986	1995	2284
280.0	146.3	1914	1917	1853	380.0	191.1	1988	1997	2398
282.5	147.7	1913	1916	1785	382.5	192.2	1990	2000	2364
285.0	149.1	1912	1915	1823	385.0	193.2	1993	2003	2573
287.5	150.1	1915	1918	2277	387.5	194.2	1995	2005	2356
290.0	151.1	1919	1922	2503	390.0	195.3	1997	2007	2318
292.5	152.1	1923	1927	2593	392.5	196.3	1999	2009	2446
295.0	153.0	1928	1933	2682	395.0	197.3	2002	2012	2473
297.5	154.1	1931	1936	2370	397.5	198.4	2003	2013	2254
300.0	155.3	1932	1938	2170	400.0	199.5	2005	2015	2360

TABLE 1 **Time depth curve values**

Well : SKULL CREEK 1 Client : CULTUS PETROLEUM
Survey units : METRES Datum : 0.0
Calibrated sonic velocities used from 237.5 to 1597.5

Datum depth	One-way time(ms)	VELOCITIES Average	RMS	Interval	Datum depth	One-way time(ms)	VELOCITIES Average	RMS	Interval
402.5	200.6	2006	2017	2280	502.5	241.5	2081	2097	2369
405.0	201.7	2008	2018	2246	505.0	242.5	2082	2098	2385
407.5	202.8	2009	2020	2258	507.5	243.6	2083	2099	2294
410.0	203.9	2011	2022	2374	510.0	244.6	2085	2102	2611
412.5	204.8	2015	2026	2836	512.5	245.6	2087	2103	2455
415.0	205.8	2016	2028	2366	515.0	246.6	2089	2105	2589
417.5	206.9	2018	2030	2403	517.5	247.6	2090	2107	2545
420.0	208.0	2020	2031	2251	520.0	248.5	2093	2110	2672
422.5	209.1	2021	2032	2198	522.5	249.4	2095	2112	2738
425.0	210.2	2022	2033	2235	525.0	250.3	2097	2115	2711
427.5	211.3	2023	2035	2353	527.5	251.3	2099	2117	2602
430.0	212.4	2025	2036	2278	530.0	252.2	2101	2119	2676
432.5	213.5	2026	2038	2332	532.5	253.1	2104	2122	2742
435.0	214.5	2028	2040	2489	535.0	254.1	2106	2124	2641
437.5	215.5	2030	2042	2343	537.5	255.1	2107	2125	2460
440.0	216.6	2032	2044	2413	540.0	256.0	2109	2128	2672
442.5	217.6	2034	2046	2411	542.5	257.0	2111	2129	2550
445.0	218.6	2036	2048	2500	545.0	258.0	2112	2131	2532
447.5	219.4	2040	2053	3180	547.5	259.0	2114	2133	2496
450.0	220.4	2041	2055	2372	550.0	260.0	2115	2134	2490
452.5	221.5	2043	2056	2315	552.5	261.0	2117	2136	2503
455.0	222.5	2045	2059	2575	555.0	262.0	2119	2138	2603
457.5	223.5	2047	2061	2578	557.5	263.0	2120	2139	2513
460.0	224.4	2050	2064	2551	560.0	263.8	2123	2142	2848
462.5	225.4	2052	2066	2541	562.5	264.7	2125	2144	2794
465.0	226.4	2054	2068	2552	565.0	265.7	2127	2146	2624
467.5	227.5	2055	2070	2380	567.5	266.6	2128	2148	2618
470.0	228.5	2057	2071	2367	570.0	267.7	2129	2149	2416
472.5	229.6	2058	2073	2387	572.5	268.7	2131	2151	2461
475.0	230.6	2060	2075	2427	575.0	269.6	2133	2153	2715
477.5	231.6	2062	2077	2590	577.5	270.5	2135	2155	2803
480.0	232.5	2064	2079	2551	580.0	271.4	2137	2157	2727
482.5	233.5	2066	2081	2474	582.5	272.4	2139	2159	2668
485.0	234.5	2068	2084	2629	585.0	273.3	2140	2161	2520
487.5	235.5	2070	2085	2431	587.5	274.1	2144	2165	3543
490.0	236.6	2071	2087	2381	590.0	274.7	2148	2172	4144
492.5	237.6	2073	2088	2455	592.5	275.2	2153	2178	4202
495.0	238.4	2076	2092	2939	595.0	275.9	2157	2184	4050
497.5	239.4	2078	2094	2533	597.5	276.5	2161	2190	4158
500.0	240.4	2080	2096	2485	600.0	277.1	2165	2196	4008

Well : SKULL CREEK 1
Survey units : METRES
Client : CULTUS PETROLEUM
Datum : 0.0
Calibrated sonic velocities used from 237.5 to 1597.5

Datum depth	One-way time(ms)	VELOCITIES Average	RMS	Interval	Datum depth	One-way time(ms)	VELOCITIES Average	RMS	Interval
602.5	277.7	2170	2202	4164	702.5	313.1	2243	2288	2383
605.0	278.3	2174	2208	3960	705.0	314.2	2244	2288	2363
607.5	279.0	2178	2213	3770	707.5	315.3	2244	2288	2228
610.0	279.7	2181	2218	3757	710.0	316.4	2244	2288	2362
612.5	280.3	2185	2223	3958	712.5	317.4	2245	2289	2480
615.0	281.0	2188	2227	3333	715.0	318.4	2245	2289	2349
617.5	281.8	2191	2231	3357	717.5	319.6	2245	2289	2246
620.0	282.5	2195	2234	3368	720.0	320.6	2246	2289	2358
622.5	283.2	2198	2239	3574	722.5	321.6	2246	2290	2502
625.0	283.9	2201	2243	3619	725.0	322.7	2247	2290	2319
627.5	284.6	2205	2248	3723	727.5	323.8	2247	2290	2296
630.0	285.3	2208	2252	3531	730.0	324.9	2247	2290	2332
632.5	286.0	2212	2256	3629	732.5	326.0	2247	2290	2149
635.0	286.6	2215	2261	3849	735.0	327.1	2247	2290	2356
637.5	287.4	2218	2265	3414	737.5	328.1	2248	2290	2382
640.0	288.1	2222	2269	3441	740.0	329.2	2248	2290	2315
642.5	289.2	2222	2269	2304	742.5	330.3	2248	2290	2288
645.0	290.2	2222	2269	2359	745.0	331.4	2248	2290	2283
647.5	291.3	2223	2270	2417	747.5	332.6	2248	2290	2154
650.0	292.3	2224	2270	2500	750.0	333.6	2248	2290	2383
652.5	293.3	2225	2271	2533	752.5	334.7	2248	2290	2202
655.0	294.2	2226	2273	2662	755.0	335.7	2249	2290	2504
657.5	295.2	2227	2273	2500	757.5	336.9	2249	2290	2203
660.0	296.2	2228	2274	2497	760.0	338.0	2249	2290	2231
662.5	297.2	2229	2275	2508	762.5	339.2	2248	2290	2149
665.0	298.2	2230	2275	2382	765.0	340.2	2248	2290	2302
667.5	299.2	2231	2276	2532	767.5	341.3	2249	2290	2373
670.0	300.3	2231	2277	2345	770.0	342.3	2249	2290	2397
672.5	301.3	2232	2277	2405	772.5	343.4	2250	2290	2342
675.0	302.2	2234	2279	2953	775.0	344.4	2250	2291	2475
677.5	303.1	2235	2280	2625	777.5	345.5	2251	2291	2392
680.0	304.2	2236	2281	2444	780.0	346.5	2251	2291	2299
682.5	305.2	2236	2281	2403	782.5	347.5	2252	2292	2526
685.0	306.2	2237	2282	2404	785.0	348.6	2252	2292	2402
687.5	307.3	2238	2282	2438	787.5	349.6	2253	2293	2443
690.0	308.3	2238	2282	2312	790.0	350.6	2253	2293	2421
692.5	309.2	2240	2285	3000	792.5	351.7	2253	2293	2344
695.0	310.2	2241	2286	2527	795.0	352.8	2253	2293	2308
697.5	311.0	2242	2287	2832	797.5	353.8	2254	2294	2456
700.0	312.1	2243	2288	2418	800.0	354.8	2255	2294	2514

TABLE 1 Time depth curve values

Well : SKULL CREEK 1
Survey units : METRES
Client : CULTUS PETROLEUM
Datum : 0.0
Calibrated sonic velocities used from 237.5 to 1597.5

Datum depth	One-way time(ms)	VELOCITIES Average	RMS	Interval	Datum depth	One-way time(ms)	VELOCITIES Average	RMS	Interval
802.5	355.8	2255	2295	2477	902.5	392.8	2298	2338	2771
805.0	356.7	2257	2296	2689	905.0	393.7	2299	2339	2754
807.5	357.9	2256	2296	2226	907.5	394.3	2302	2343	4188
810.0	359.0	2256	2296	2190	910.0	395.1	2303	2344	2888
812.5	360.1	2256	2296	2295	912.5	396.1	2304	2345	2644
815.0	361.1	2257	2296	2442	915.0	397.0	2305	2346	2717
817.5	362.0	2258	2297	2759	917.5	397.9	2306	2347	2812
820.0	362.9	2260	2299	2826	920.0	398.8	2307	2348	2820
822.5	363.7	2262	2301	3214	922.5	399.7	2308	2349	2700
825.0	364.5	2263	2303	2893	925.0	400.6	2309	2350	2682
827.5	365.5	2264	2304	2638	927.5	401.6	2310	2350	2632
830.0	366.4	2265	2305	2682	930.0	402.4	2311	2352	2960
832.5	367.3	2266	2306	2753	932.5	403.3	2312	2353	2746
835.0	368.2	2268	2307	2859	935.0	404.2	2313	2354	2863
837.5	369.1	2269	2309	2767	937.5	405.0	2315	2356	3142
840.0	370.1	2270	2309	2667	940.0	405.9	2316	2357	2709
842.5	371.0	2271	2310	2672	942.5	406.8	2317	2358	2750
845.0	371.9	2272	2312	2769	945.0	407.8	2317	2358	2630
847.5	372.7	2274	2314	3105	947.5	408.7	2318	2359	2710
850.0	373.6	2275	2315	2657	950.0	409.6	2319	2360	2698
852.5	374.6	2276	2316	2686	952.5	410.6	2320	2360	2573
855.0	375.5	2277	2317	2689	955.0	411.6	2320	2361	2651
857.5	376.4	2278	2318	2767	957.5	412.4	2322	2363	3041
860.0	377.4	2279	2319	2620	960.0	413.4	2322	2363	2485
862.5	378.3	2280	2319	2601	962.5	414.5	2322	2363	2275
865.0	379.1	2282	2321	3163	965.0	415.3	2324	2364	3113
867.5	380.1	2282	2322	2522	967.5	416.3	2324	2364	2371
870.0	380.9	2284	2324	3019	970.0	417.4	2324	2365	2437
872.5	381.8	2285	2325	2910	972.5	418.4	2324	2365	2372
875.0	382.6	2287	2327	3028	975.0	419.4	2325	2365	2542
877.5	383.5	2288	2328	2887	977.5	420.4	2325	2365	2459
880.0	384.4	2289	2330	2812	980.0	421.4	2326	2366	2692
882.5	385.3	2291	2331	2746	982.5	422.3	2327	2367	2638
885.0	386.2	2292	2332	2713	985.0	423.3	2327	2367	2389
887.5	387.1	2293	2333	2745	987.5	424.4	2327	2367	2425
890.0	388.1	2293	2334	2622	990.0	425.3	2328	2368	2846
892.5	389.0	2294	2334	2658	992.5	426.4	2328	2368	2271
895.0	389.9	2295	2335	2685	995.0	427.2	2329	2369	2813
897.5	390.9	2296	2336	2521	997.5	428.4	2329	2369	2251
900.0	391.9	2297	2337	2656	1000.0	429.4	2329	2369	2453

TABLE 1 Time depth curve values

Well : SKULL CREEK 1
Survey units : METRES
Client : CULTUS PETROLEUM
Datum : 0.0
Calibrated sonic velocities used from 237.5 to 1597.5

Datum depth	One-way time(ms)	VELOCITIES Average	RMS	Interval	Datum depth	One-way time(ms)	VELOCITIES Average	RMS	Interval
1002.5	430.2	2330	2370	2996	1102.5	463.9	2376	2428	1976
1005.0	431.0	2332	2372	3247	1105.0	465.2	2376	2427	2032
1007.5	431.8	2333	2374	3095	1107.5	465.8	2378	2430	3809
1010.0	432.6	2335	2375	2948	1110.0	466.5	2380	2433	3881
1012.5	433.3	2337	2377	3678	1112.5	467.1	2381	2435	3669
1015.0	434.1	2338	2379	3180	1115.0	467.8	2384	2437	3816
1017.5	434.9	2339	2380	3028	1117.5	468.4	2386	2440	3880
1020.0	435.6	2341	2383	3521	1120.0	469.1	2387	2442	3673
1022.5	436.5	2343	2384	2927	1122.5	469.8	2389	2444	3702
1025.0	437.3	2344	2385	2934	1125.0	470.7	2390	2445	2865
1027.5	438.1	2345	2387	3095	1127.5	471.5	2391	2446	3087
1030.0	438.9	2347	2388	3134	1130.0	472.3	2393	2448	3153
1032.5	439.7	2348	2390	3204	1132.5	473.1	2394	2449	2977
1035.0	440.6	2349	2391	3023	1135.0	474.0	2394	2449	2706
1037.5	441.4	2350	2392	2884	1137.5	475.0	2395	2450	2740
1040.0	442.3	2352	2394	3001	1140.0	475.9	2395	2450	2503
1042.5	443.1	2353	2395	2954	1142.5	476.8	2396	2451	2934
1045.0	443.9	2354	2396	3013	1145.0	477.6	2397	2452	2984
1047.5	444.7	2356	2398	3237	1147.5	478.4	2398	2453	3116
1050.0	445.4	2357	2400	3441	1150.0	479.4	2399	2454	2603
1052.5	446.2	2359	2402	3190	1152.5	480.2	2400	2455	2954
1055.0	447.0	2360	2403	2996	1155.0	481.5	2399	2453	1982
1057.5	447.9	2361	2404	3097	1157.5	482.7	2398	2452	2025
1060.0	448.6	2363	2406	3489	1160.0	484.0	2396	2451	1930
1062.5	449.4	2364	2408	3131	1162.5	485.3	2395	2450	1936
1065.0	449.9	2367	2412	4910	1165.0	486.6	2394	2449	1896
1067.5	450.4	2370	2417	5229	1167.5	487.9	2393	2448	1960
1070.0	450.8	2373	2421	5141	1170.0	489.0	2393	2447	2344
1072.5	451.4	2376	2426	4787	1172.5	489.6	2395	2450	3940
1075.0	451.8	2379	2431	5579	1175.0	490.3	2396	2452	3582
1077.5	452.3	2382	2435	5007	1177.5	491.0	2398	2454	3682
1080.0	453.4	2382	2435	2261	1180.0	491.6	2400	2457	4067
1082.5	454.6	2381	2434	2134	1182.5	492.3	2402	2459	3725
1085.0	455.7	2381	2434	2287	1185.0	493.0	2404	2461	3521
1087.5	456.9	2380	2433	2103	1187.5	493.8	2405	2462	3093
1090.0	458.1	2380	2432	2111	1190.0	494.6	2406	2463	3355
1092.5	459.2	2379	2431	2148	1192.5	495.2	2408	2466	4094
1095.0	460.3	2379	2431	2299	1195.0	495.9	2410	2468	3412
1097.5	461.4	2379	2431	2244	1197.5	496.6	2411	2469	3402
1100.0	462.7	2378	2430	2008	1200.0	497.3	2413	2471	3536

Well : SKULL CREEK 1 Client : CULTUS PETROLEUM
Survey units : METRES Datum : 0.0
Calibrated sonic velocities used from 237.5 to 1597.5

Datum depth	One-way time(ms)	VELOCITIES Average	RMS	Interval	Datum depth	One-way time(ms)	VELOCITIES Average	RMS	Interval
1202.5	498.1	2414	2473	3421	1302.5	533.4	2442	2499	2741
1205.0	498.8	2416	2474	3350	1305.0	534.3	2442	2499	2699
1207.5	499.6	2417	2476	3262	1307.5	535.3	2443	2500	2700
1210.0	500.3	2418	2477	3412	1310.0	536.1	2444	2501	3165
1212.5	501.3	2419	2478	2560	1312.5	536.9	2445	2502	2959
1215.0	502.2	2419	2478	2629	1315.0	537.6	2446	2503	3559
1217.5	503.2	2420	2478	2666	1317.5	538.4	2447	2505	3359
1220.0	503.9	2421	2480	3314	1320.0	539.2	2448	2506	3061
1222.5	504.7	2422	2481	3410	1322.5	540.0	2449	2507	3023
1225.0	505.5	2423	2482	2851	1325.0	540.8	2450	2508	3204
1227.5	506.5	2423	2482	2587	1327.5	541.6	2451	2509	3226
1230.0	507.6	2423	2482	2378	1330.0	542.3	2452	2510	3231
1232.5	508.4	2424	2483	2982	1332.5	543.1	2453	2511	3200
1235.0	509.2	2425	2484	3204	1335.0	543.9	2455	2512	3270
1237.5	510.1	2426	2485	2775	1337.5	544.7	2456	2514	3220
1240.0	511.0	2427	2485	2809	1340.0	545.4	2457	2515	3245
1242.5	511.8	2428	2486	2926	1342.5	546.2	2458	2516	3245
1245.0	512.7	2428	2487	2779	1345.0	546.9	2459	2517	3404
1247.5	513.7	2428	2487	2546	1347.5	547.7	2460	2519	3257
1250.0	514.6	2429	2487	2674	1350.0	548.5	2461	2520	3181
1252.5	515.8	2428	2487	2183	1352.5	549.2	2462	2521	3253
1255.0	516.6	2430	2488	3208	1355.0	550.0	2463	2522	3183
1257.5	517.4	2430	2489	2920	1357.5	550.8	2464	2523	3144
1260.0	518.3	2431	2489	2964	1360.0	551.6	2465	2524	3187
1262.5	519.0	2433	2491	3409	1362.5	552.4	2467	2525	3249
1265.0	519.8	2434	2492	3114	1365.0	553.1	2468	2526	3377
1267.5	520.6	2435	2493	3130	1367.5	553.9	2469	2528	3251
1270.0	521.5	2435	2494	2698	1370.0	554.6	2470	2529	3375
1272.5	522.5	2436	2494	2689	1372.5	555.4	2471	2530	3216
1275.0	523.4	2436	2494	2746	1375.0	556.2	2472	2531	3291
1277.5	524.3	2437	2495	2696	1377.5	556.9	2473	2532	3365
1280.0	525.2	2437	2495	2853	1380.0	557.7	2474	2534	3217
1282.5	526.1	2438	2496	2724	1382.5	558.5	2475	2535	3166
1285.0	527.0	2438	2496	2714	1385.0	559.2	2477	2536	3296
1287.5	527.9	2439	2497	2803	1387.5	560.0	2478	2537	3186
1290.0	528.8	2440	2497	2806	1390.0	560.8	2479	2538	3232
1292.5	529.7	2440	2498	2664	1392.5	561.6	2480	2539	3308
1295.0	530.6	2441	2498	2849	1395.0	562.3	2481	2540	3213
1297.5	531.6	2441	2498	2557	1397.5	563.1	2482	2541	3325
1300.0	532.5	2441	2499	2706	1400.0	563.8	2483	2543	3310

Well : SKULL CREEK 1 Client : CULTUS PETROLEUM
Survey units : METRES Datum : 0.0
Calibrated sonic velocities used from 237.5 to 1597.5

Datum depth	One-way time(ms)	VELOCITIES Average	RMS	Interval	Datum depth	One-way time(ms)	VELOCITIES Average	RMS	Interval
1402.5	564.6	2484	2544	3188	1502.5	593.8	2530	2594	3364
1405.0	565.4	2485	2545	3203	1505.0	594.6	2531	2595	3183
1407.5	566.2	2486	2546	3228	1507.5	595.4	2532	2596	3311
1410.0	566.8	2487	2547	3736	1510.0	596.1	2533	2597	3456
1412.5	567.6	2488	2548	3142	1512.5	596.8	2534	2599	3496
1415.0	568.4	2489	2549	3170	1515.0	597.6	2535	2600	3318
1417.5	569.2	2490	2550	3341	1517.5	598.3	2536	2601	3560
1420.0	569.9	2492	2552	3375	1520.0	598.9	2538	2603	4152
1422.5	570.6	2493	2554	3884	1522.5	599.5	2540	2605	3838
1425.0	571.3	2494	2555	3333	1525.0	600.3	2541	2606	3371
1427.5	572.1	2495	2556	3331	1527.5	601.0	2541	2607	3261
1430.0	572.8	2496	2557	3225	1530.0	601.8	2542	2607	3233
1432.5	573.6	2498	2558	3419	1532.5	602.6	2543	2608	3178
1435.0	574.3	2499	2559	3232	1535.0	603.4	2544	2609	3208
1437.5	575.1	2500	2560	3254	1537.5	604.2	2545	2610	3040
1440.0	575.9	2501	2561	3274	1540.0	605.0	2545	2610	3043
1442.5	576.6	2502	2562	3273	1542.5	605.8	2546	2611	3180
1445.0	577.4	2503	2564	3279	1545.0	606.6	2547	2612	3303
1447.5	578.2	2504	2565	3321	1547.5	607.3	2548	2613	3185
1450.0	578.9	2505	2566	3341	1550.0	608.2	2549	2614	3104
1452.5	579.5	2506	2568	3888	1552.5	609.0	2549	2614	2906
1455.0	580.3	2508	2569	3508	1555.0	609.8	2550	2615	3130
1457.5	581.0	2509	2570	3418	1557.5	610.7	2550	2615	2909
1460.0	581.7	2510	2572	3491	1560.0	611.5	2551	2616	3173
1462.5	582.3	2511	2574	3985	1562.5	612.3	2552	2617	3140
1465.0	583.0	2513	2575	3890	1565.0	613.1	2553	2618	3127
1467.5	583.7	2514	2577	3570	1567.5	613.9	2553	2618	3058
1470.0	584.4	2515	2578	3477	1570.0	614.7	2554	2619	3079
1472.5	585.1	2517	2580	3550	1572.5	615.5	2555	2620	3180
1475.0	585.8	2518	2581	3652	1575.0	616.2	2556	2621	3289
1477.5	586.5	2519	2582	3441	1577.5	617.0	2557	2622	3221
1480.0	587.2	2520	2584	3485	1580.0	617.8	2558	2622	3284
1482.5	588.0	2521	2585	3416	1582.5	618.6	2558	2623	3131
1485.0	588.7	2523	2586	3535	1585.0	619.3	2559	2624	3240
1487.5	589.4	2524	2587	3396	1587.5	620.2	2560	2625	3042
1490.0	590.2	2525	2588	3315	1590.0	620.9	2561	2625	3163
1492.5	590.9	2526	2590	3487	1592.5	621.8	2561	2626	3062
1495.0	591.6	2527	2591	3443	1595.0	622.6	2562	2627	3147
1497.5	592.3	2528	2592	3373	1597.5	623.4	2563	2627	3063
1500.0	593.1	2529	2593	3313					

COMPANY : CULTUS PETROLEUM
WELL : SKULL CREEK 1

Latitude : 572 9963 N Longitude : 673 411.5 E Survey date : 29-May-96
Elevations : Datum : 0 Ground : 92 Kelly : 96.3

Survey units : METRES
Times : MILLISECONDS

Shot data : Location / Elevation / Offset

Location	Elevation	Offset
A	92.0	8.0
B	90.5	23.0
C	90.0	51.0
E	92.0	23.0
F	91.5	51.0
D	89.0	51.0

Rig identification : O.D. & E.RIG 30
Energy source : POWERGEL
Logger : B.P.B.
Elevation velocity for shot statics : 2000
Instrument delay : 2.0 msec

SHOT CALCULATIONS :

Shot no.	Geophone depth Kelly	Geophone depth Datum	Shot Locn	Shot Depth	TIMES Record	TIMES Corr.	TIMES Avg.	TIMES Datum	Check shot distance	Check shot time	Velocities Average	Velocities RMS	Velocities Interval
DATUM													
1	96.3	0.0	F	0.6	72.5	64.7 n/u							
2	96.3	0.0	E	0.3	64.5	63.6							
3	96.3	0.0	A	0.3	65.5	66.3 n/u							
4	96.3	0.0	B	0.6	63.5	63.3							
5	96.3	0.0	C	0.6	70.0	63.1							
6	96.3	0.0	C	0.3	70.0	63.1							
33	96.3	0.0	D	2.0	70.5	63.7							
34	96.3	0.0	D	2.0	69.5	62.8							
35	96.3	0.0	A	0.3	64.0	64.8 n/u	63.3	0.0					
									236.0	123.5			1910.9
32	332.3	236.0	D	2.0	186.5	186.8	186.8	123.5			1910.9	1910.9	
									50.7	26.4			1920.5
31	383.0	286.7	D	2.0	212.5	213.2	213.2	149.9			1912.6	1912.6	
									132.0	57.5			2295.7
30	515.0	418.7	D	2.0	269.5	270.7	270.7	207.4			2018.8	2026.1	
									82.0	33.3			2462.5
29	597.0	500.7	D	2.0	302.5	304.0	304.0	240.7			2080.2	2091.9	

SHOT CALCULATIONS : (cont)

Shot no.	Geophone depth Kelly	Geophone depth Datum	Shot Locn	Shot Depth	TIMES Record	TIMES Corr.	TIMES Avg.	TIMES Datum	Check shot distance	Check shot time	Velocities Average	Velocities RMS	Velocities Interval
7	683.0	586.7	D	2.0	335.5	337.1							
									86.0	33.4			2574.8
28	683.0	586.7	D	2.0	336.0	337.6	337.4	274.1			2140.5	2156.5	
									55.0	14.8			3716.2
27	738.0	641.7	D	2.5	350.5	352.2	352.2	288.9			2221.2	2262.7	
									102.0	41.7			2446.0
26	840.0	743.7	D	2.5	392.0	393.9	393.9	330.6			2249.5	2286.6	
									73.0	30.5			2393.4
25	913.0	816.7	D	2.0	422.5	424.4	424.4	361.1			2261.7	2295.9	
									140.0	50.6			2766.8
24	1053.0	956.7	D	2.0	473.0	475.0	475.0	411.7			2323.8	2358.8	
									44.0	17.6			2500.0
23	1097.0	1000.7	D	2.0	490.5	492.6	492.6	429.3			2331.0	2364.8	
									63.0	20.0			3150.0
22	1160.0	1063.7	D	2.0	510.5	512.6	512.6	449.3			2367.5	2405.2	
									16.0	3.0			5333.3
21	1176.0	1079.7	D	2.0	513.5	515.6	515.6	452.3			2387.1	2436.2	
8	1203.0	1106.7	D	2.0	526.5	528.6							
									27.0	12.5			2160.0
20	1203.0	1106.7	D	2.0	525.5	527.6	528.1	464.8			2381.0	2429.2	
									17.0	4.5			3777.8
19	1220.0	1123.7	D	2.0	530.5	532.6	532.6	469.3			2394.4	2445.7	
									30.0	10.5			2857.1
18	1250.0	1153.7	D	2.0	541.0	543.1	543.1	479.8			2404.5	2455.4	
9	1267.0	1170.7	D	2.0	550.5	552.6							
									17.0	8.6			1976.7
17	1267.0	1170.7	D	2.0	548.5	550.7	551.7	488.4			2397.0	2447.8	
									41.0	11.5			3565.2
16	1308.0	1211.7	D	2.0	561.0	563.2	563.2	499.9			2423.9	2479.2	

SHOT CALCULATIONS : (cont)

Shot no.	Geophone depth Kelly	Geophone depth Datum	Shot Locn	Shot Depth	TIMES Record	TIMES Corr.	TIMES Avg.	TIMES Datum	Check shot interval distance	Check shot interval time	Velocities Average	Velocities RMS	Velocities Interval
									99.0	35.5			2788.7
15	1407.0	1310.7	D	2.0	596.5	598.7	598.7	535.4			2448.1	2500.9	
									101.0	31.0			3258.1
14	1508.0	1411.7	D	2.0	627.5	629.7	629.7	566.4			2492.4	2548.1	
12	1620.0	1523.7	D	2.0	659.5	661.8			112.0	32.6			3435.6
13	1620.0	1523.7	D	2.0	660.5	662.8	662.3	599.0			2543.7	2604.2	
10	1694.5	1598.2	D	2.0	684.5	686.8			74.5	23.8			3136.8
11	1694.5	1598.2	D	2.0	683.0	685.3	686.0	622.8			2566.4	2626.5	

COMPANY : CULTUS PETROLEUM
WELL : SKULL CREEK 1

Latitude : 572 9963 N Longitude : 673 411.5 E Survey date : 29-May-96
Elevations : Datum : 0 Ground : 92 Kelly : 96.3

Survey units : METRES
Times : MILLISECONDS

SONIC DRIFT :

Geophone depth Kelly — Datum		Check shot times Average - Below Datum		Check shot interval Distance – Time		Sonic Int. time	Interval sonic drift usec/m – msec		Cumulative drift msec
DATUM									
96.3	0.0	63.3	0.0						
332.3	236.0	186.8	123.5	236.0	123.5				
383.0	286.7	213.2	149.9	50.7	26.4	21.7	92.70	4.7	4.7
515.0	418.7	270.7	207.4	132.0	57.5	58.6	-8.33	-1.1	3.6
597.0	500.7	304.0	240.7	82.0	33.3	32.7	7.32	0.6	4.2
683.0	586.7	337.4	274.1	86.0	33.4	33.8	-4.65	-0.4	3.8
738.0	641.7	352.2	288.9	55.0	14.8	18.1	-60.00	-3.3	0.5
840.0	743.7	393.9	330.6	102.0	41.7	39.6	20.59	2.1	2.6
913.0	816.7	424.4	361.1	73.0	30.5	27.5	41.10	3.0	5.6
1053.0	956.7	475.0	411.7	140.0	50.6	53.0	-17.14	-2.4	3.2
1097.0	1000.7	492.6	429.3	44.0	17.6	14.7	65.91	2.9	6.1
1160.0	1063.7	512.6	449.3	63.0	20.0	20.6	-9.52	-0.6	5.5

SONIC DRIFT : (cont)

Geophone depth Kelly	Datum	Check shot times Average	Below Datum	Check shot interval Distance	Time	Sonic Int. time	Interval sonic drift usec/m	msec	Cumulative drift msec
1160.0	1063.7	512.6	449.3						
				16.0	3.0	4.7	-106.25	-1.7	3.8
1176.0	1079.7	515.6	452.3						
				27.0	12.5	8.8	137.04	3.7	7.5
1203.0	1106.7	528.1	464.8						
				17.0	4.5	6.1	-94.12	-1.6	5.9
1220.0	1123.7	532.6	469.3						
				30.0	10.5	10.3	6.67	0.2	6.1
1250.0	1153.7	543.1	479.8						
				17.0	8.6	6.4	129.41	2.2	8.3
1267.0	1170.7	551.7	488.4						
				41.0	11.5	13.1	-39.02	-1.6	6.7
1308.0	1211.7	563.2	499.9						
				99.0	35.5	31.2	43.43	4.3	11.0
1407.0	1310.7	598.7	535.4						
				101.0	31.0	30.7	2.97	0.3	11.3
1508.0	1411.7	629.7	566.4						
				112.0	32.6	32.4	1.79	0.2	11.5
1620.0	1523.7	662.3	599.0						
				74.5	23.8	21.6	28.86	2.1	13.6
1694.5	1598.2	686.0	622.8						

COMPANY : CULTUS PETROLEUM
WELL : SKULL CREEK 1

Latitude : 572 9963 N Longitude : 673 411.5 E Survey date : 29-May-96 Survey units : METRES
Elevations : Datum : 0 Ground : 92 Kelly : 96.3 Times : MILLISECONDS

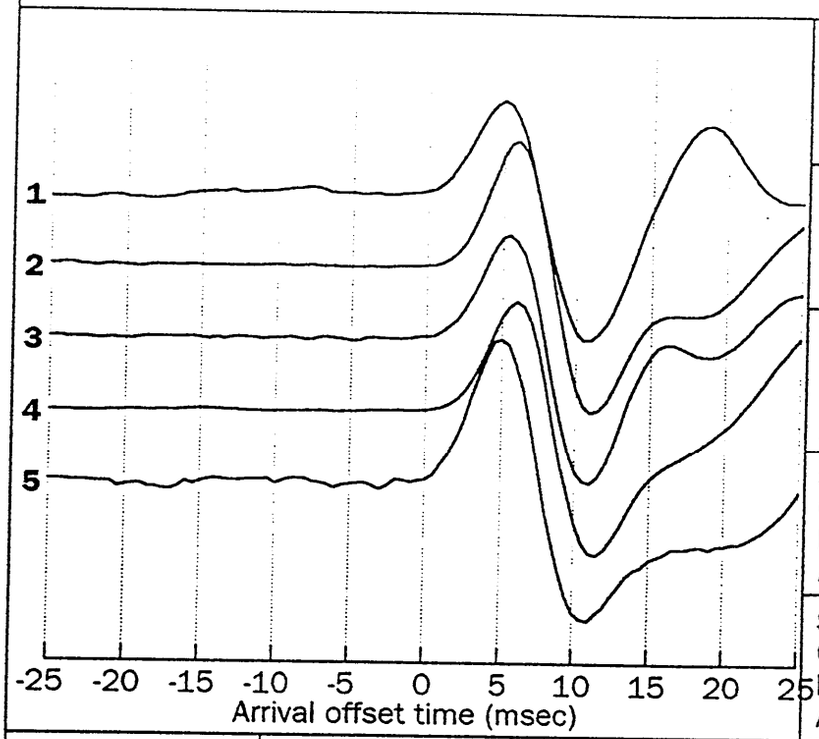
SONIC CALIBRATION :

Geophone depth Kelly — Datum		Interval Distance	Original sonic times Interval – Cumulative		Adjusted sonic times Interval – Calibrated		Velocities Average	Velocities RMS	Velocities Interval
DATUM									
96.3	0.0								
		236.0							1910.9
332.3	236.0						1910.9	1910.9	
		50.7	21.7		26.4				1920.5
383.0	286.7			21.7		149.9	1912.6	1912.6	
		132.0	58.6		57.5				2295.7
515.0	418.7			80.3		207.4	2018.8	2026.1	
		82.0	32.7		33.3				2462.5
597.0	500.7			113.0		240.7	2080.2	2091.9	
		86.0	33.8		33.4				2574.9
683.0	586.7			146.8		274.1	2140.5	2156.5	
		55.0	18.1		14.8				3716.2
738.0	641.7			164.9		288.9	2221.2	2262.7	
		102.0	39.6		41.7				2446.0
840.0	743.7			204.5		330.6	2249.5	2286.6	
		73.0	27.5		30.5				2393.4
913.0	816.7			232.0		361.1	2261.7	2295.9	
		140.0	53.0		50.6				2766.8
1053.0	956.7			285.0		411.7	2323.8	2358.8	
		44.0	14.7		17.6				2500.0
1097.0	1000.7			299.7		429.3	2331.0	2364.8	
		63.0	20.6		20.0				3150.0
1160.0	1063.7			320.3		449.3	2367.5	2405.2	

SONIC CALIBRATION : (cont)

Geophone depth Kelly	Datum	Interval Distance	Original sonic times Interval	Cumulative	Adjusted sonic times Interval	Calibrated	Velocities Average	RMS	Interval
1160.0	1063.7								
		16.0	4.7		3.0		2367.5	2405.2	
1176.0	1079.7			325.0		452.3			5333.3
		27.0	8.8		12.5		2387.1	2436.2	
1203.0	1106.7			333.8		464.8			2160.0
		17.0	6.1		4.5		2381.0	2429.2	
1220.0	1123.7			339.9		469.3			3777.8
		30.0	10.3		10.5		2394.4	2445.7	
1250.0	1153.7			350.2		479.8			2857.1
		17.0	6.4		8.6		2404.5	2455.4	
1267.0	1170.7			356.6		488.4			1976.7
		41.0	13.1		11.5		2397.0	2447.8	
1308.0	1211.7			369.7		499.9			3565.2
		99.0	31.2		35.5		2423.9	2479.2	
1407.0	1310.7			400.9		535.4			2788.7
		101.0	30.7		31.0		2448.1	2500.9	
1508.0	1411.7			431.6		566.4			3258.1
		112.0	32.4		32.6		2492.4	2548.1	
1620.0	1523.7			464.0		599.0			3435.6
		74.5	21.6		23.8		2543.7	2604.2	
1694.5	1598.2			485.6		622.8			3136.8
							2566.4	2626.5	

First arrivals plot : SKULL CREEK 1



Shot 1 Location : F
Charge depth 0.6 Size 0.3
Phone depth : 96.3
Arrival time : 72.5 msec

Shot 2 Location : E
Charge depth 0.3 Size 0.3
Phone depth : 96.3
Arrival time : 64.5 msec

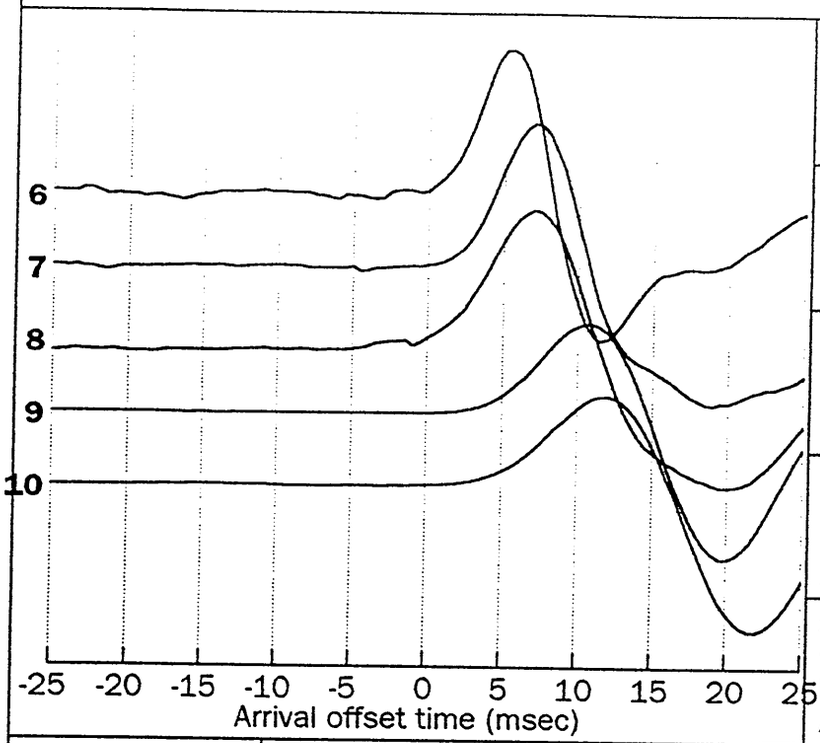
Shot 3 Location : A
Charge depth 0.3 Size 0.3
Phone depth : 96.3
Arrival time : 65.5 msec

Shot 4 Location : B
Charge depth 0.6 Size 0.3
Phone depth : 96.3
Arrival time : 63.5 msec

Shot 5 Location : C
Charge depth 0.6 Size 0.3
Phone depth : 96.3
Arrival time : 70.0 msec

SHOT 1		SHOT 2		SHOT 3		SHOT 4		SHOT 5	
Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl
62.0	-4.00	54.0	-2.00	54.0	3.00	52.0	2.00	59.0	-2.00
62.5	-4.00	54.5	-5.00	54.5	0.00	52.5	3.00	59.5	-3.00
63.0	-5.00	55.0	-7.00	55.0	-2.00	53.0	1.00	60.0	2.00
63.5	-7.00	55.5	-5.00	55.5	-4.00	53.5	1.00	60.5	-1.00
64.0	-8.00	56.0	-1.00	56.0	-7.00	54.0	0.00	61.0	-3.00
64.5	-8.00	56.5	0.00	56.5	-1.00	54.5	1.00	61.5	-3.00
65.0	-10.00	57.0	-4.00	57.0	6.00	55.0	-1.00	62.0	-3.00
65.5	-10.00	57.5	-3.00	57.5	2.00	55.5	-1.00	62.5	0.00
66.0	-8.00	58.0	0.00	58.0	-7.00	56.0	-2.00	63.0	1.00
66.5	-4.00	58.5	1.00	58.5	-7.00	56.5	0.00	63.5	3.00
67.0	-2.00	59.0	2.00	59.0	-2.00	57.0	3.00	64.0	6.00
67.5	-2.00	59.5	3.00	59.5	1.00	57.5	2.00	64.5	3.00
68.0	-3.00	60.0	3.00	60.0	7.00	58.0	1.00	65.0	2.00
68.5	-1.00	60.5	3.00	60.5	7.00	58.5	-1.00	65.5	1.00
69.0	-1.00	61.0	1.00	61.0	-5.00	59.0	-2.00	66.0	1.00
69.5	-2.00	61.5	0.00	61.5	-7.00	59.5	-3.00	66.5	4.00
70.0	-1.00	62.0	4.00	62.0	-4.00	60.0	-2.00	67.0	7.00
70.5	0.00	62.5	0.00	62.5	-3.00	60.5	-3.00	67.5	3.00
71.0	-1.00	63.0	-1.00	63.0	-1.00	61.0	-4.00	68.0	-3.00
71.5	-2.00	63.5	-1.00	63.5	-2.00	61.5	-5.00	68.5	-2.00
72.0	-3.00	64.0	-1.00	64.0	-6.00	62.0	-3.00	69.0	0.00
72.5	**-3.00**	**64.5**	**-3.00**	64.5	-11.00	62.5	-5.00	69.5	-2.00
73.0	-6.00	65.0	-6.00	65.0	-13.00	63.0	-5.00	**70.0**	**-3.00**
73.5	-9.00	65.5	-10.00	**65.5**	**-15.00**	**63.5**	**-9.00**	70.5	-8.00
74.0	-16.00	66.0	-20.00	66.0	-32.00	64.0	-15.00	71.0	-19.00
74.5	-27.00	66.5	-40.00	66.5	-59.00	64.5	-27.00	71.5	-29.00
75.0	-44.00	67.0	-72.00	67.0	-85.00	65.0	-46.00	72.0	-43.00
75.5	-60.00	67.5	-119.00	67.5	-129.00	65.5	-76.00	72.5	-61.00
76.0	-81.00	68.0	-189.00	68.0	-183.00	66.0	-119.00	73.0	-85.00
76.5	-102.00	68.5	-276.00	68.5	-252.00	66.5	-173.00	73.5	-106.00
77.0	-120.00	69.0	-376.00	69.0	-320.00	67.0	-236.00	74.0	-125.00
77.5	-132.00	69.5	-463.00	69.5	-384.00	67.5	-303.00	74.5	-139.00
78.0	-138.00	70.0	-558.00	70.0	-430.00	68.0	-365.00	75.0	-141.00
78.5	-131.00	70.5	-620.00	70.5	-439.00	68.5	-402.00	75.5	-136.00
79.0	-113.00	71.0	-634.00	71.0	-413.00	69.0	-422.00	76.0	-118.00
79.5	-84.00	71.5	-590.00	71.5	-359.00	69.5	-403.00	76.5	-92.00
80.0	-41.00	72.0	-486.00	72.0	-262.00	70.0	-342.00	77.0	-57.00
80.5	8.00	72.5	-324.00	72.5	-122.00	70.5	-240.00	77.5	-18.00
81.0	53.00	73.0	-150.00	73.0	33.00	71.0	-104.00	78.0	25.00
81.5	100.00	73.5	64.00	73.5	196.00	71.5	49.00	78.5	56.00
82.0	140.00	74.0	274.00	74.0	347.00	72.0	202.00	79.0	87.00
82.5	173.00	74.5	460.00	74.5	469.00	72.5	314.00	79.5	111.00
83.0	199.00	75.0	602.00	75.0	555.00	73.0	424.00	80.0	127.00
83.5	211.00	75.5	690.00	75.5	596.00	73.5	502.00	80.5	133.00
84.0	210.00	76.0	723.00	76.0	607.00	74.0	544.00	81.0	135.00

First arrivals plot : SKULL CREEK 1



Shot 6 Location : C
Charge depth 0.3 Size 0.3
Phone depth : 96.3
Arrival time : 70.0 msec

Shot 7 Location : D
Charge depth 2 Size 0.5
Phone depth : 683.0
Arrival time : 335.5 msec

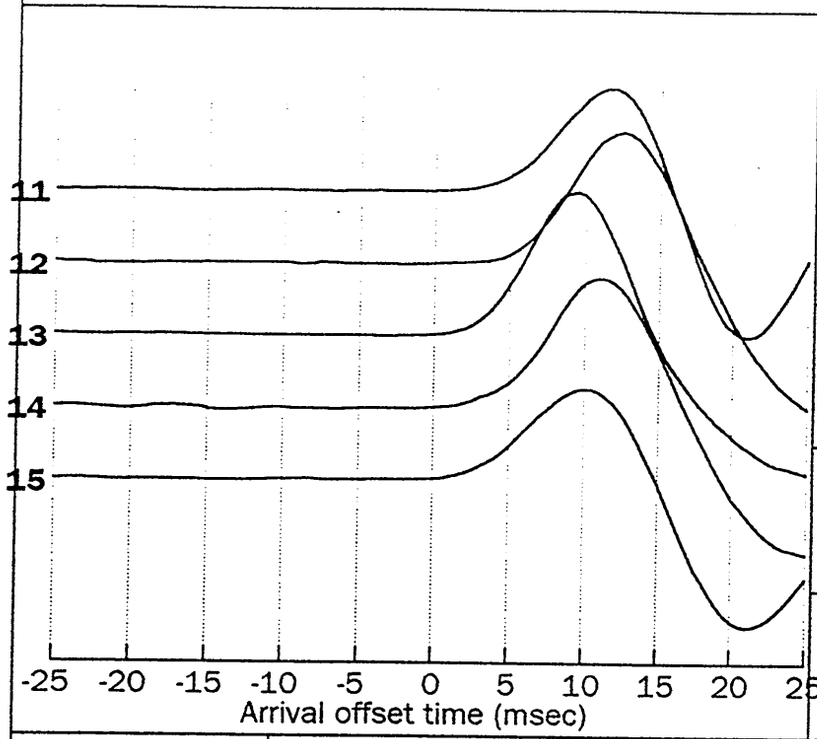
Shot 8 Location : D
Charge depth 2.0 Size 2.0
Phone depth : 1203.0
Arrival time : 526.5 msec

Shot 9 Location : D
Charge depth 2.0 Size 3.0
Phone depth : 1267.0
Arrival time : 550.5 msec

Shot 10 Location : D
Charge depth 2.0 Size 3.0
Phone depth : 1694.5
Arrival time : 684.5 msec

SHOT 6		SHOT 7		SHOT 8		SHOT 9		SHOT 10	
Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl
59.0	-7.00	324.0	-4.00	516.0	23.00	540.0	4.00	674.0	-7.00
59.5	-5.00	324.5	-6.00	516.5	26.00	540.5	5.00	674.5	-3.00
60.0	-5.00	325.0	-6.00	517.0	27.00	541.0	5.00	675.0	0.00
60.5	-5.00	325.5	-5.00	517.5	28.00	541.5	5.00	675.5	2.00
61.0	-3.00	326.0	-4.00	518.0	28.00	542.0	5.00	676.0	5.00
61.5	-4.00	326.5	-4.00	518.5	24.00	542.5	3.00	676.5	5.00
62.0	-3.00	327.0	0.00	519.0	26.00	543.0	2.00	677.0	6.00
62.5	0.00	327.5	0.00	519.5	29.00	543.5	2.00	677.5	5.00
63.0	1.00	328.0	0.00	520.0	28.00	544.0	2.00	678.0	5.00
63.5	4.00	328.5	1.00	520.5	28.00	544.5	1.00	678.5	7.00
64.0	7.00	329.0	1.00	521.0	28.00	545.0	2.00	679.0	5.00
64.5	-1.00	329.5	0.00	521.5	27.00	545.5	2.00	679.5	4.00
65.0	1.00	330.0	-3.00	522.0	24.00	546.0	-3.00	680.0	2.00
65.5	1.00	330.5	8.00	522.5	21.00	546.5	-1.00	680.5	0.00
66.0	4.00	331.0	5.00	523.0	17.00	547.0	0.00	681.0	2.00
66.5	6.00	331.5	1.00	523.5	9.00	547.5	2.00	681.5	2.00
67.0	4.00	332.0	1.00	524.0	6.00	548.0	3.00	682.0	6.00
67.5	-6.00	332.5	-2.00	524.5	3.00	548.5	4.00	682.5	3.00
68.0	-8.00	333.0	-3.00	525.0	2.00	549.0	0.00	683.0	1.00
68.5	-9.00	333.5	-3.00	525.5	0.00	549.5	-1.00	683.5	-1.00
69.0	-7.00	334.0	-5.00	526.0	15.00	550.0	0.00	684.0	-4.00
69.5	-4.00	334.5	-4.00	**526.5**	**5.00**	**550.5**	**-1.00**	**684.5**	**-7.00**
70.0	**-7.00**	335.0	-8.00	527.0	-9.00	551.0	-8.00	685.0	-10.00
70.5	-18.00	**335.5**	**-10.00**	527.5	-22.00	551.5	-12.00	685.5	-14.00
71.0	-28.00	336.0	-15.00	528.0	-36.00	552.0	-23.00	686.0	-19.00
71.5	-41.00	336.5	-23.00	528.5	-53.00	552.5	-43.00	686.5	-27.00
72.0	-58.00	337.0	-35.00	529.0	-74.00	553.0	-64.00	687.0	-36.00
72.5	-83.00	337.5	-51.00	529.5	-94.00	553.5	-96.00	687.5	-48.00
73.0	-112.00	338.0	-74.00	530.0	-131.00	554.0	-129.00	688.0	-67.00
73.5	-149.00	338.5	-105.00	530.5	-167.00	554.5	-188.00	688.5	-96.00
74.0	-185.00	339.0	-143.00	531.0	-206.00	555.0	-267.00	689.0	-127.00
74.5	-216.00	339.5	-186.00	531.5	-250.00	555.5	-368.00	689.5	-166.00
75.0	-234.00	340.0	-230.00	532.0	-290.00	556.0	-494.00	690.0	-216.00
75.5	-235.00	340.5	-265.00	532.5	-326.00	556.5	-649.00	690.5	-265.00
76.0	-227.00	341.0	-300.00	533.0	-354.00	557.0	-832.00	691.0	-335.00
76.5	-201.00	341.5	-324.00	533.5	-372.00	557.5	-1002.00	691.5	-418.00
77.0	-154.00	342.0	-336.00	534.0	-382.00	558.0	-1223.00	692.0	-511.00
77.5	-99.00	342.5	-332.00	534.5	-376.00	558.5	-1460.00	692.5	-611.00
78.0	-35.00	343.0	-313.00	535.0	-359.00	559.0	-1700.00	693.0	-718.00
78.5	32.00	343.5	-275.00	535.5	-330.00	559.5	-1934.00	693.5	-828.00
79.0	89.00	344.0	-232.00	536.0	-286.00	560.0	-2146.00	694.0	-916.00
79.5	137.00	344.5	-170.00	536.5	-232.00	560.5	-2318.00	694.5	-1020.00
80.0	174.00	345.0	-104.00	537.0	-171.00	561.0	-2415.00	695.0	-1114.00
80.5	207.00	345.5	-42.00	537.5	-105.00	561.5	-2486.00	695.5	-1196.00
81.0	225.00	346.0	28.00	538.0	-35.00	562.0	-2484.00	696.0	-1257.00

First arrivals plot : SKULL CREEK 1



Shot 11 Location : D
Charge depth 2.0 Size 3
Phone depth : 1694.5
Arrival time : 683.0 msec

Shot 12 Location : D
Charge depth 2.0 Size 3.0
Phone depth : 1620.0
Arrival time : 659.5 msec

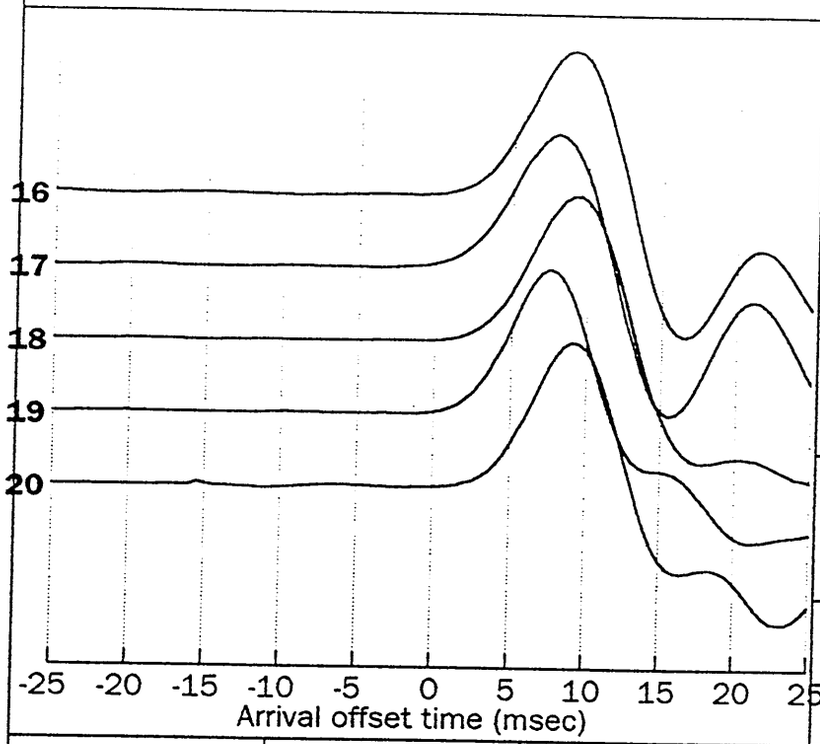
Shot 13 Location : D
Charge depth 2.0 Size 3.0
Phone depth : 1620.0
Arrival time : 660.5 msec

Shot 14 Location : D
Charge depth 2.0 Size 3.0
Phone depth : 1508.0
Arrival time : 627.5 msec

Shot 15 Location : D
Charge depth 2.0 Size 2.0
Phone depth : 1407.0
Arrival time : 596.5 msec

SHOT 11		SHOT 12		SHOT 13		SHOT 14		SHOT 15	
Time	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**
672.0	-4.00	648.0	-5.00	650.0	0.00	616.0	4.00	586.0	-3.00
672.5	-5.00	648.5	-7.00	650.5	-1.00	616.5	3.00	586.5	-6.00
673.0	-3.00	649.0	-6.00	651.0	-3.00	617.0	4.00	587.0	-9.00
673.5	-3.00	649.5	-6.00	651.5	-3.00	617.5	7.00	587.5	-11.00
674.0	-1.00	650.0	4.00	652.0	-3.00	618.0	11.00	588.0	-11.00
674.5	0.00	650.5	0.00	652.5	-1.00	618.5	12.00	588.5	-18.00
675.0	-1.00	651.0	-3.00	653.0	-2.00	619.0	12.00	589.0	-16.00
675.5	0.00	651.5	-13.00	653.5	-2.00	619.5	12.00	589.5	-3.00
676.0	1.00	652.0	-8.00	654.0	-2.00	620.0	12.00	590.0	0.00
676.5	4.00	652.5	-5.00	654.5	0.00	620.5	14.00	590.5	0.00
677.0	2.00	653.0	-1.00	655.0	-1.00	621.0	12.00	591.0	0.00
677.5	2.00	653.5	0.00	655.5	-3.00	621.5	10.00	591.5	1.00
678.0	2.00	654.0	0.00	656.0	-2.00	622.0	7.00	592.0	-1.00
678.5	1.00	654.5	2.00	656.5	-3.00	622.5	7.00	592.5	-3.00
679.0	-4.00	655.0	2.00	657.0	-1.00	623.0	8.00	593.0	-5.00
679.5	-3.00	655.5	3.00	657.5	1.00	623.5	8.00	593.5	-5.00
680.0	-1.00	656.0	2.00	658.0	1.00	624.0	7.00	594.0	-7.00
680.5	2.00	656.5	3.00	658.5	0.00	624.5	7.00	594.5	-8.00
681.0	2.00	657.0	4.00	659.0	-3.00	625.0	7.00	595.0	-7.00
681.5	2.00	657.5	2.00	659.5	-4.00	625.5	7.00	595.5	-8.00
682.0	2.00	658.0	1.00	660.0	-7.00	626.0	4.00	596.0	-12.00
682.5	-1.00	658.5	-1.00	**660.5**	**-8.00**	626.5	-2.00	**596.5**	**-11.00**
683.0	**-3.00**	659.0	-5.00	661.0	-13.00	627.0	-4.00	597.0	-19.00
683.5	-8.00	**659.5**	**-6.00**	661.5	-17.00	**627.5**	**-8.00**	597.5	-30.00
684.0	-13.00	660.0	-9.00	662.0	-26.00	628.0	-13.00	598.0	-46.00
684.5	-20.00	660.5	-11.00	662.5	-39.00	628.5	-21.00	598.5	-67.00
685.0	-27.00	661.0	-13.00	663.0	-54.00	629.0	-34.00	599.0	-97.00
685.5	-40.00	661.5	-17.00	663.5	-82.00	629.5	-50.00	599.5	-135.00
686.0	-57.00	662.0	-22.00	664.0	-120.00	630.0	-82.00	600.0	-184.00
686.5	-80.00	662.5	-27.00	664.5	-170.00	630.5	-97.00	600.5	-242.00
687.0	-107.00	663.0	-37.00	665.0	-232.00	631.0	-121.00	601.0	-300.00
687.5	-145.00	663.5	-50.00	665.5	-306.00	631.5	-154.00	601.5	-377.00
688.0	-196.00	664.0	-76.00	666.0	-395.00	632.0	-191.00	602.0	-465.00
688.5	-254.00	664.5	-107.00	666.5	-481.00	632.5	-241.00	602.5	-561.00
689.0	-316.00	665.0	-150.00	667.0	-589.00	633.0	-304.00	603.0	-667.00
689.5	-404.00	665.5	-204.00	667.5	-700.00	633.5	-377.00	603.5	-772.00
690.0	-498.00	666.0	-268.00	668.0	-810.00	634.0	-448.00	604.0	-874.00
690.5	-606.00	666.5	-342.00	668.5	-912.00	634.5	-542.00	604.5	-959.00
691.0	-720.00	667.0	-414.00	669.0	-994.00	635.0	-636.00	605.0	-1050.00
691.5	-835.00	667.5	-503.00	669.5	-1058.00	635.5	-735.00	605.5	-1129.00
692.0	-947.00	668.0	-597.00	670.0	-1084.00	636.0	-825.00	606.0	-1191.00
692.5	-1035.00	668.5	-690.00	670.5	-1094.00	636.5	-901.00	606.5	-1235.00
693.0	-1132.00	669.0	-786.00	671.0	-1070.00	637.0	-956.00	607.0	-1251.00
693.5	-1209.00	669.5	-864.00	671.5	-1014.00	637.5	-983.00	607.5	-1241.00
694.0	-1265.00	670.0	-933.00	672.0	-931.00	638.0	-995.00	608.0	-1203.00

First arrivals plot : SKULL CREEK 1



Shot 16 Location : D
Charge depth 2.0 Size 2.0
Phone depth : 1308.0
Arrival time : 561.0 msec

Shot 17 Location : D
Charge depth 2.0 Size 2.0
Phone depth : 1267.0
Arrival time : 548.5 msec

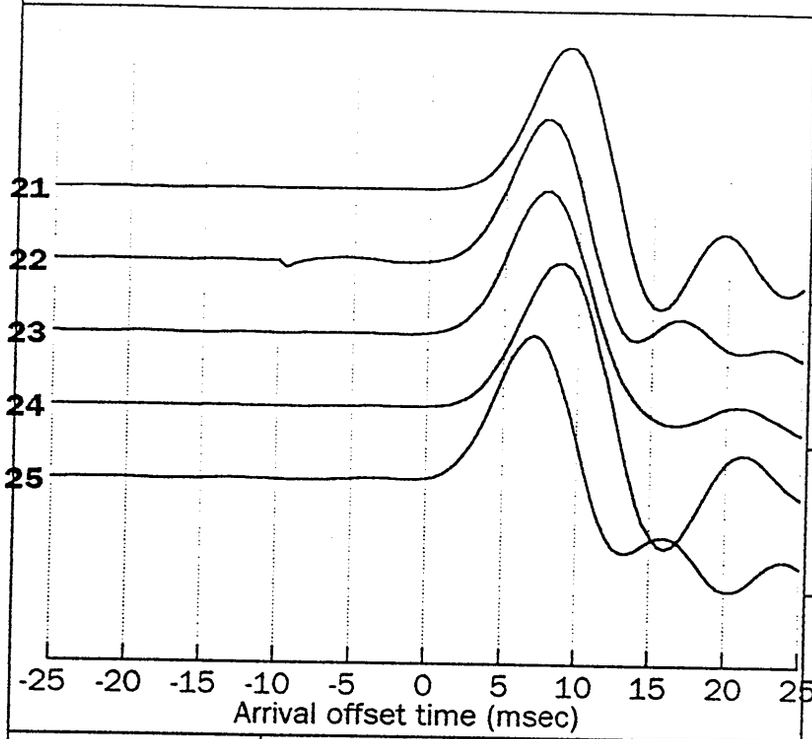
Shot 18 Location : D
Charge depth 2.0 Size 2.0
Phone depth : 1250.0
Arrival time : 541.0 msec

Shot 19 Location : D
Charge depth 2.0 Size 2.0
Phone depth : 1220.0
Arrival time : 530.5 msec

Shot 20 Location : D
Charge depth 2.0 Size 2.0
Phone depth : 1203.0
Arrival time : 525.5 msec

SHOT 16		SHOT 17		SHOT 18		SHOT 19		SHOT 20	
Time	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**
550.0	9.00	538.0	-8.00	530.0	-8.00	520.0	-5.00	514.0	31.00
550.5	12.00	538.5	-10.00	530.5	-8.00	520.5	-7.00	514.5	26.00
551.0	14.00	539.0	-10.00	531.0	-7.00	521.0	-12.00	515.0	22.00
551.5	16.00	539.5	-13.00	531.5	-6.00	521.5	-12.00	515.5	15.00
552.0	19.00	540.0	-13.00	532.0	-7.00	522.0	-9.00	516.0	10.00
552.5	18.00	540.5	-12.00	532.5	-6.00	522.5	-8.00	516.5	2.00
553.0	16.00	541.0	-11.00	533.0	-3.00	523.0	-5.00	517.0	-8.00
553.5	14.00	541.5	-8.00	533.5	-2.00	523.5	-5.00	517.5	-12.00
554.0	12.00	542.0	-9.00	534.0	-2.00	524.0	-4.00	518.0	-14.00
554.5	13.00	542.5	-5.00	534.5	-1.00	524.5	-3.00	518.5	-13.00
555.0	10.00	543.0	-4.00	535.0	-4.00	525.0	-4.00	519.0	-12.00
555.5	5.00	543.5	-4.00	535.5	-3.00	525.5	-3.00	519.5	-11.00
556.0	4.00	544.0	-3.00	536.0	-4.00	526.0	-1.00	520.0	-8.00
556.5	2.00	544.5	-2.00	536.5	-6.00	526.5	-2.00	520.5	-3.00
557.0	0.00	545.0	6.00	537.0	-7.00	527.0	-3.00	521.0	3.00
557.5	-2.00	545.5	2.00	537.5	-8.00	527.5	-8.00	521.5	8.00
558.0	-1.00	546.0	-2.00	538.0	-8.00	528.0	-5.00	522.0	10.00
558.5	0.00	546.5	-12.00	538.5	-8.00	528.5	-4.00	522.5	12.00
559.0	-1.00	547.0	-16.00	539.0	-11.00	529.0	-1.00	523.0	11.00
559.5	-2.00	547.5	-24.00	539.5	-9.00	529.5	-2.00	523.5	9.00
560.0	5.00	548.0	-33.00	540.0	-10.00	530.0	-6.00	524.0	9.00
560.5	-5.00	**548.5**	**-43.00**	540.5	-12.00	**530.5**	**-14.00**	524.5	7.00
561.0	**-9.00**	549.0	-62.00	**541.0**	**-15.00**	531.0	-28.00	525.0	2.00
561.5	-21.00	549.5	-90.00	541.5	-22.00	531.5	-51.00	**525.5**	**-4.00**
562.0	-38.00	550.0	-129.00	542.0	-34.00	532.0	-80.00	526.0	-12.00
562.5	-64.00	550.5	-183.00	542.5	-56.00	532.5	-128.00	526.5	-26.00
563.0	-101.00	551.0	-258.00	543.0	-89.00	533.0	-200.00	527.0	-52.00
563.5	-144.00	551.5	-353.00	543.5	-137.00	533.5	-291.00	527.5	-76.00
564.0	-213.00	552.0	-451.00	544.0	-201.00	534.0	-412.00	528.0	-123.00
564.5	-303.00	552.5	-589.00	544.5	-286.00	534.5	-563.00	528.5	-183.00
565.0	-421.00	553.0	-754.00	545.0	-396.00	535.0	-743.00	529.0	-274.00
565.5	-555.00	553.5	-927.00	545.5	-504.00	535.5	-913.00	529.5	-387.00
566.0	-717.00	554.0	-1124.00	546.0	-664.00	536.0	-1133.00	530.0	-528.00
566.5	-897.00	554.5	-1325.00	546.5	-840.00	536.5	-1355.00	530.5	-695.00
567.0	-1055.00	555.0	-1517.00	547.0	-1032.00	537.0	-1565.00	531.0	-848.00
567.5	-1251.00	555.5	-1656.00	547.5	-1234.00	537.5	-1740.00	531.5	-1043.00
568.0	-1439.00	556.0	-1794.00	548.0	-1435.00	538.0	-1862.00	532.0	-1239.00
568.5	-1608.00	556.5	-1886.00	548.5	-1626.00	538.5	-1912.00	532.5	-1424.00
569.0	-1743.00	557.0	-1920.00	549.0	-1752.00	539.0	-1877.00	533.0	-1582.00
569.5	-1834.00	557.5	-1881.00	549.5	-1872.00	539.5	-1767.00	533.5	-1695.00
570.0	-1858.00	558.0	-1768.00	550.0	-1940.00	540.0	-1575.00	534.0	-1751.00
570.5	-1825.00	558.5	-1575.00	550.5	-1944.00	540.5	-1312.00	534.5	-1736.00
571.0	-1722.00	559.0	-1341.00	551.0	-1878.00	541.0	-997.00	535.0	-1659.00
571.5	-1546.00	559.5	-1017.00	551.5	-1736.00	541.5	-657.00	535.5	-1510.00
572.0	-1299.00	560.0	-633.00	552.0	-1523.00	542.0	-319.00	536.0	-1294.00

First arrivals plot : SKULL CREEK 1



Shot 21 Location : D
Charge depth 2.0 Size 2.0
Phone depth : 1176.0
Arrival time : 513.5 msec

Shot 22 Location : D
Charge depth 2.0 Size 2.0
Phone depth : 1160.0
Arrival time : 510.5 msec

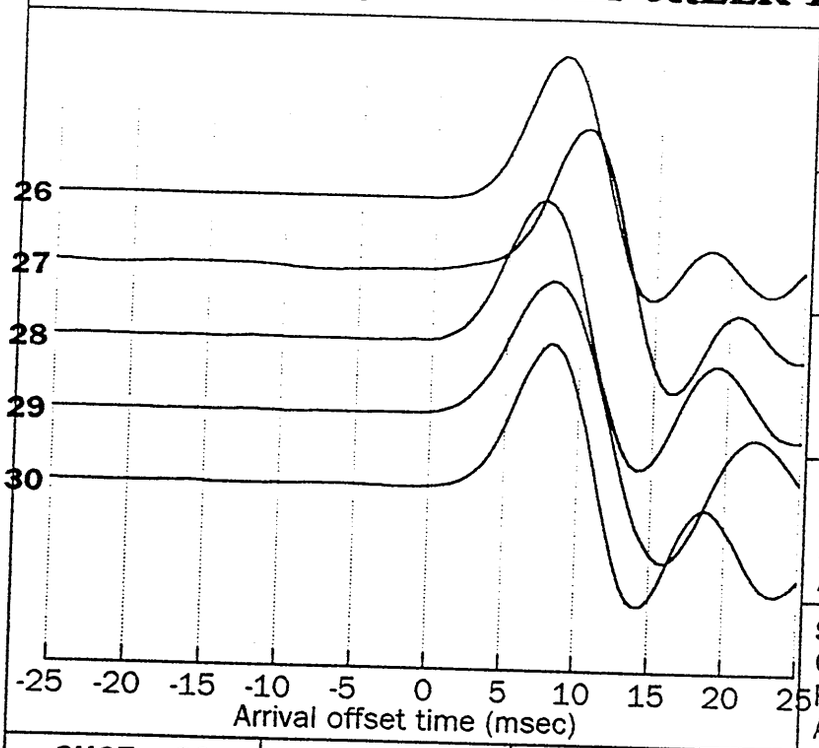
Shot 23 Location : D
Charge depth 2.0 Size 2.0
Phone depth : 1097.0
Arrival time : 490.5 msec

Shot 24 Location : D
Charge depth 2.0 Size 2.0
Phone depth : 1053.0
Arrival time : 473.5 msec

Shot 25 Location : D
Charge depth 2.0 Size 1.5
Phone depth : 913.0
Arrival time : 422.5 msec

SHOT 21		SHOT 22		SHOT 23		SHOT 24		SHOT 25	
Time	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**
502.0	-6.00	500.0	-1.00	480.0	-6.00	462.0	-2.00	412.0	-9.00
502.5	2.00	500.5	-2.00	480.5	-1.00	462.5	-1.00	412.5	-6.00
503.0	4.00	501.0	-1.00	481.0	3.00	463.0	0.00	413.0	-1.00
503.5	3.00	501.5	96.00	481.5	2.00	463.5	1.00	413.5	4.00
504.0	0.00	502.0	45.00	482.0	2.00	464.0	2.00	414.0	7.00
504.5	0.00	502.5	16.00	482.5	0.00	464.5	8.00	414.5	11.00
505.0	1.00	503.0	-8.00	483.0	-4.00	465.0	5.00	415.0	10.00
505.5	0.00	503.5	-24.00	483.5	-4.00	465.5	3.00	415.5	10.00
506.0	0.00	504.0	-36.00	484.0	-5.00	466.0	-1.00	416.0	9.00
506.5	-4.00	504.5	-43.00	484.5	-5.00	466.5	1.00	416.5	3.00
507.0	-3.00	505.0	-49.00	485.0	-5.00	467.0	-3.00	417.0	-4.00
507.5	-1.00	505.5	-54.00	485.5	-5.00	467.5	-5.00	417.5	-10.00
508.0	0.00	506.0	-49.00	486.0	-4.00	468.0	-5.00	418.0	-17.00
508.5	1.00	506.5	-40.00	486.5	-3.00	468.5	-7.00	418.5	-23.00
509.0	5.00	507.0	-31.00	487.0	-1.00	469.0	-8.00	419.0	-25.00
509.5	3.00	507.5	-18.00	487.5	-1.00	469.5	-6.00	419.5	-27.00
510.0	2.00	508.0	-5.00	488.0	1.00	470.0	-6.00	420.0	-24.00
510.5	1.00	508.5	7.00	488.5	1.00	470.5	-4.00	420.5	-21.00
511.0	1.00	509.0	14.00	489.0	1.00	471.0	-3.00	421.0	-17.00
511.5	1.00	509.5	18.00	489.5	12.00	471.5	-2.00	421.5	-12.00
512.0	1.00	510.0	17.00	490.0	6.00	472.0	-1.00	422.0	-11.00
512.5	-2.00	**510.5**	**13.00**	**490.5**	**-3.00**	472.5	-3.00	**422.5**	**-14.00**
513.0	-2.00	511.0	2.00	491.0	-11.00	473.0	-6.00	423.0	-27.00
513.5	**-7.00**	511.5	-9.00	491.5	-22.00	**473.5**	**-13.00**	423.5	-56.00
514.0	-13.00	512.0	-35.00	492.0	-43.00	474.0	-30.00	424.0	-109.00
514.5	-25.00	512.5	-67.00	492.5	-76.00	474.5	-52.00	424.5	-192.00
515.0	-45.00	513.0	-121.00	493.0	-127.00	475.0	-91.00	425.0	-314.00
515.5	-75.00	513.5	-199.00	493.5	-203.00	475.5	-154.00	425.5	-475.00
516.0	-129.00	514.0	-308.00	494.0	-311.00	476.0	-238.00	426.0	-655.00
516.5	-205.00	514.5	-453.00	494.5	-429.00	476.5	-367.00	426.5	-906.00
517.0	-316.00	515.0	-636.00	495.0	-603.00	477.0	-535.00	427.0	-1195.00
517.5	-467.00	515.5	-853.00	495.5	-809.00	477.5	-744.00	427.5	-1504.00
518.0	-662.00	516.0	-1063.00	496.0	-1042.00	478.0	-949.00	428.0	-1817.00
518.5	-854.00	516.5	-1325.00	496.5	-1286.00	478.5	-1225.00	428.5	-2102.00
519.0	-1118.00	517.0	-1582.00	497.0	-1523.00	479.0	-1522.00	429.0	-2295.00
519.5	-1409.00	517.5	-1815.00	497.5	-1732.00	479.5	-1826.00	429.5	-2463.00
520.0	-1713.00	518.0	-1994.00	498.0	-1859.00	480.0	-2113.00	430.0	-2526.00
520.5	-2005.00	518.5	-2096.00	498.5	-1949.00	480.5	-2363.00	430.5	-2470.00
521.0	-2258.00	519.0	-2092.00	499.0	-1958.00	481.0	-2552.00	431.0	-2287.00
521.5	-2445.00	519.5	-2006.00	499.5	-1875.00	481.5	-2628.00	431.5	-1986.00
522.0	-2511.00	520.0	-1806.00	500.0	-1705.00	482.0	-2642.00	432.0	-1585.00
522.5	-2497.00	520.5	-1503.00	500.5	-1458.00	482.5	-2554.00	432.5	-1177.00
523.0	-2354.00	521.0	-1119.00	501.0	-1154.00	483.0	-2331.00	433.0	-676.00
523.5	-2078.00	521.5	-688.00	501.5	-860.00	483.5	-1993.00	433.5	-176.00
524.0	-1678.00	522.0	-246.00	502.0	-515.00	484.0	-1550.00	434.0	284.00

First arrivals plot : SKULL CREEK 1



Shot 26 Location : D
Charge depth 2.5 Size 1.5
Phone depth : 840.0
Arrival time : 392.0 msec

Shot 27 Location : D
Charge depth 2.5 Size 1.5
Phone depth : 738.0
Arrival time : 351.5 msec

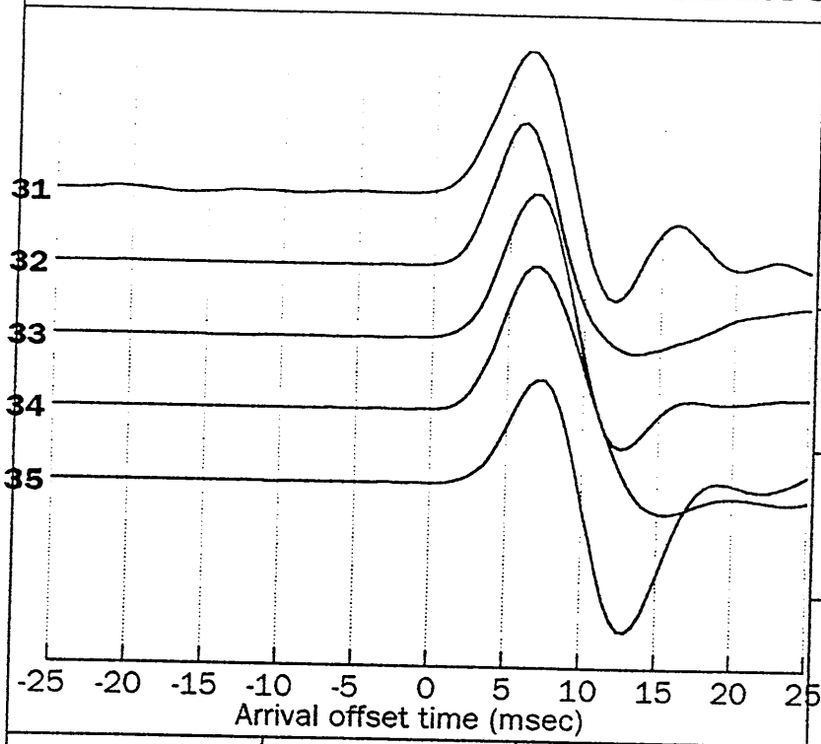
Shot 28 Location : D
Charge depth 2.0 Size 3.0
Phone depth : 683.0
Arrival time : 336.0 msec

Shot 29 Location : D
Charge depth 2.0 Size 2.0
Phone depth : 597.0
Arrival time : 302.5 msec

Shot 30 Location : D
Charge depth 2.0 Size 2.0
Phone depth : 515.0
Arrival time : 269.5 msec

SHOT 26		SHOT 27		SHOT 28		SHOT 29		SHOT 30	
Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl
381.0	-4.00	340.0	-53.00	325.0	-11.00	292.0	-3.00	258.0	5.00
381.5	-2.00	340.5	-36.00	325.5	-10.00	292.5	-1.00	258.5	2.00
382.0	-3.00	341.0	-19.00	326.0	-9.00	293.0	1.00	259.0	2.00
382.5	-2.00	341.5	2.00	326.5	-7.00	293.5	3.00	259.5	2.00
383.0	-1.00	342.0	23.00	327.0	-7.00	294.0	3.00	260.0	0.00
383.5	2.00	342.5	39.00	327.5	-7.00	294.5	2.00	260.5	-4.00
384.0	3.00	343.0	53.00	328.0	-7.00	295.0	1.00	261.0	-5.00
384.5	3.00	343.5	62.00	328.5	-6.00	295.5	-5.00	261.5	-4.00
385.0	2.00	344.0	62.00	329.0	-7.00	296.0	-3.00	262.0	-2.00
385.5	2.00	344.5	59.00	329.5	-6.00	296.5	-1.00	262.5	-3.00
386.0	1.00	345.0	54.00	330.0	-6.00	297.0	-1.00	263.0	-4.00
386.5	-2.00	345.5	48.00	330.5	-6.00	297.5	0.00	263.5	-2.00
387.0	-2.00	346.0	39.00	331.0	-2.00	298.0	0.00	264.0	-4.00
387.5	-3.00	346.5	33.00	331.5	-2.00	298.5	-3.00	264.5	-1.00
388.0	-1.00	347.0	24.00	332.0	-3.00	299.0	-6.00	265.0	0.00
388.5	-2.00	347.5	19.00	332.5	-5.00	299.5	-7.00	265.5	7.00
389.0	-1.00	348.0	14.00	333.0	-4.00	300.0	-6.00	266.0	9.00
389.5	0.00	348.5	9.00	333.5	-5.00	300.5	-9.00	266.5	10.00
390.0	0.00	349.0	11.00	334.0	-11.00	301.0	-6.00	267.0	11.00
390.5	0.00	349.5	12.00	334.5	-14.00	301.5	-6.00	267.5	13.00
391.0	0.00	350.0	12.00	335.0	-13.00	302.0	-6.00	268.0	11.00
391.5	0.00	350.5	8.00	335.5	-11.00	**302.5**	**-10.00**	268.5	7.00
392.0	**-4.00**	351.0	-4.00	**336.0**	**-16.00**	303.0	-15.00	269.0	-1.00
392.5	-11.00	**351.5**	**-26.00**	336.5	-25.00	303.5	-28.00	**269.5**	**-6.00**
393.0	-22.00	352.0	-52.00	337.0	-49.00	304.0	-45.00	270.0	-15.00
393.5	-44.00	352.5	-86.00	337.5	-82.00	304.5	-74.00	270.5	-33.00
394.0	-81.00	353.0	-125.00	338.0	-122.00	305.0	-115.00	271.0	-60.00
394.5	-144.00	353.5	-165.00	338.5	-187.00	305.5	-174.00	271.5	-104.00
395.0	-242.00	354.0	-199.00	339.0	-268.00	306.0	-250.00	272.0	-167.00
395.5	-385.00	354.5	-243.00	339.5	-374.00	306.5	-346.00	272.5	-242.00
396.0	-580.00	355.0	-302.00	340.0	-505.00	307.0	-442.00	273.0	-352.00
396.5	-798.00	355.5	-389.00	340.5	-650.00	307.5	-569.00	273.5	-496.00
397.0	-1113.00	356.0	-518.00	341.0	-802.00	308.0	-713.00	274.0	-667.00
397.5	-1483.00	356.5	-711.00	341.5	-926.00	308.5	-861.00	274.5	-862.00
398.0	-1890.00	357.0	-981.00	342.0	-1067.00	309.0	-1009.00	275.0	-1054.00
398.5	-2312.00	357.5	-1275.00	342.5	-1177.00	309.5	-1145.00	275.5	-1248.00
399.0	-2710.00	358.0	-1701.00	343.0	-1244.00	310.0	-1257.00	276.0	-1384.00
399.5	-3046.00	358.5	-2197.00	343.5	-1263.00	310.5	-1320.00	276.5	-1510.00
400.0	-3233.00	359.0	-2728.00	344.0	-1224.00	311.0	-1361.00	277.0	-1574.00
400.5	-3341.00	359.5	-3256.00	344.5	-1133.00	311.5	-1352.00	277.5	-1556.00
401.0	-3287.00	360.0	-3713.00	345.0	-984.00	312.0	-1282.00	278.0	-1448.00
401.5	-3050.00	360.5	-4047.00	345.5	-774.00	312.5	-1168.00	278.5	-1252.00
402.0	-2638.00	361.0	-4171.00	346.0	-520.00	313.0	-997.00	279.0	-976.00
402.5	-2071.00	361.5	-4145.00	346.5	-239.00	313.5	-778.00	279.5	-685.00
403.0	-1390.00	362.0	-3873.00	347.0	51.00	314.0	-556.00	280.0	-312.00

First arrivals plot : SKULL CREEK 1



Shot 31 Location : D
Charge depth 2.0 Size 1.0
Phone depth : 383.0
Arrival time : 212.5 msec

Shot 32 Location : D
Charge depth 2.0 Size 1.0
Phone depth : 332.3
Arrival time : 186.5 msec

Shot 33 Location : D
Charge depth 2.0 Size 1.0
Phone depth : 96.3
Arrival time : 70.5 msec

Shot 34 Location : D
Charge depth 2.0 Size 1.0
Phone depth : 96.3
Arrival time : 69.5 msec

Shot 35 Location : A
Charge depth 0.3 Size 0.25
Phone depth : 96.3
Arrival time : 64.0 msec

SHOT 31		SHOT 32		SHOT 33		SHOT 34		SHOT 35	
Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl
202.0	-6.00	176.0	-1.00	60.0	-4.00	58.0	-1.00	53.0	7.00
202.5	0.00	176.5	0.00	60.5	-3.00	58.5	-4.00	53.5	9.00
203.0	9.00	177.0	0.00	61.0	-2.00	59.0	-6.00	54.0	6.00
203.5	13.00	177.5	-2.00	61.5	1.00	59.5	-7.00	54.5	0.00
204.0	17.00	178.0	0.00	62.0	0.00	60.0	-5.00	55.0	-2.00
204.5	18.00	178.5	2.00	62.5	-3.00	60.5	-1.00	55.5	0.00
205.0	15.00	179.0	3.00	63.0	-9.00	61.0	0.00	56.0	8.00
205.5	11.00	179.5	0.00	63.5	-11.00	61.5	-2.00	56.5	8.00
206.0	2.00	180.0	0.00	64.0	-7.00	62.0	-11.00	57.0	5.00
206.5	-2.00	180.5	-1.00	64.5	2.00	62.5	-11.00	57.5	-2.00
207.0	1.00	181.0	-2.00	65.0	3.00	63.0	-9.00	58.0	0.00
207.5	2.00	181.5	-2.00	65.5	3.00	63.5	-4.00	58.5	0.00
208.0	-7.00	182.0	0.00	66.0	-10.00	64.0	-1.00	59.0	7.00
208.5	-4.00	182.5	0.00	66.5	-7.00	64.5	-3.00	59.5	6.00
209.0	-1.00	183.0	-1.00	67.0	-5.00	65.0	-11.00	60.0	0.00
209.5	7.00	183.5	-3.00	67.5	8.00	65.5	-13.00	60.5	-8.00
210.0	9.00	184.0	-3.00	68.0	7.00	66.0	-12.00	61.0	-10.00
210.5	7.00	184.5	-3.00	68.5	7.00	66.5	-5.00	61.5	-7.00
211.0	8.00	185.0	-2.00	69.0	-6.00	67.0	-3.00	62.0	-4.00
211.5	5.00	185.5	-1.00	69.5	-7.00	67.5	-5.00	62.5	-5.00
212.0	3.00	186.0	-1.00	70.0	-9.00	68.0	-13.00	63.0	-5.00
212.5	**-4.00**	**186.5**	**-3.00**	**70.5**	**-6.00**	68.5	-16.00	63.5	-5.00
213.0	-17.00	187.0	-13.00	71.0	-20.00	69.0	-24.00	**64.0**	**-1.00**
213.5	-45.00	187.5	-32.00	71.5	-53.00	**69.5**	**-33.00**	64.5	-8.00
214.0	-93.00	188.0	-77.00	72.0	-116.00	70.0	-72.00	65.0	-24.00
214.5	-168.00	188.5	-164.00	72.5	-209.00	70.5	-151.00	65.5	-60.00
215.0	-276.00	189.0	-315.00	73.0	-367.00	71.0	-307.00	66.0	-109.00
215.5	-424.00	189.5	-549.00	73.5	-583.00	71.5	-541.00	66.5	-188.00
216.0	-612.00	190.0	-871.00	74.0	-910.00	72.0	-908.00	67.0	-318.00
216.5	-834.00	190.5	-1268.00	74.5	-1385.00	72.5	-1400.00	67.5	-467.00
217.0	-1035.00	191.0	-1640.00	75.0	-1985.00	73.0	-1902.00	68.0	-720.00
217.5	-1277.00	191.5	-2067.00	75.5	-2654.00	73.5	-2568.00	68.5	-1043.00
218.0	-1501.00	192.0	-2420.00	76.0	-3339.00	74.0	-3237.00	69.0	-1417.00
218.5	-1676.00	192.5	-2629.00	76.5	-3954.00	74.5	-3818.00	69.5	-1810.00
219.0	-1771.00	193.0	-2657.00	77.0	-4367.00	75.0	-4246.00	70.0	-2176.00
219.5	-1762.00	193.5	-2487.00	77.5	-4616.00	75.5	-4463.00	70.5	-2465.00
220.0	-1651.00	194.0	-2126.00	78.0	-4601.00	76.0	-4461.00	71.0	-2594.00
220.5	-1456.00	194.5	-1697.00	78.5	-4275.00	76.5	-4263.00	71.5	-2583.00
221.0	-1149.00	195.0	-1142.00	79.0	-3640.00	77.0	-3895.00	72.0	-2353.00
221.5	-759.00	195.5	-578.00	79.5	-2741.00	77.5	-3376.00	72.5	-1883.00
222.0	-325.00	196.0	-60.00	80.0	-1665.00	78.0	-2750.00	73.0	-1205.00
222.5	120.00	196.5	378.00	80.5	-579.00	78.5	-2060.00	73.5	-376.00
223.0	532.00	197.0	729.00	81.0	483.00	79.0	-1333.00	74.0	533.00
223.5	876.00	197.5	996.00	81.5	1522.00	79.5	-604.00	74.5	1310.00
224.0	1087.00	198.0	1164.00	82.0	2371.00	80.0	9.00	75.0	2149.00

APPENDIX 8 - CASING & CEMENTING REPORTS

Cultus

CEMENTING REPORT

Well Name : Skull Creek #1
Rig Name : ODE Rig 30
Engineer : H.Flink/K.Kelly

Date : [illegible]
Casing Size : [illegible]
Casing MD/TVD : [illegible]

Hole Geometry

Hole Size :	[illegible]
Hole MD :	[illegible]
Hole TVD :	
Hole Angle :	0
Last Csg Size :	
Last Csg MD :	
Last Csg TVD :	

Mud Properties

Mud Wt :	[illegible]
Vis :	[illegible]
PV :	[illegible]
YP :	[illegible]
WL :	[illegible]
BHCT :	
BHST :	

Gas Reading

Max Gas :	[illegible]
Bttms Up :	[illegible]
Final BG :	[illegible]

Casing Summary

Description	Wt (lb/ft)	Grade	Conn	Length	Depth, mRT
Float Shoe		K55	8RD	0.53	1613.47
1 jt casing	26	K55	8RD	11.88	1601.59
Float collar		K55	8RD	12.19	1589.40
119 jts casing	26	K55	8RD	1422.69	166.71
1 X/O	26	K55	8RD	1.36	165.35
14 jts casing	26	K55	VAM	166.79	-1.44

Centralizers

Manufacturer	Type	Quantity	Remark / Placement
Davis Lynch	SRC	9	1601, 1490, 1467,1443,,1389,1372, 1360,1301, 1240 m
Davis Lynch	SBS	5	1215, 1191.45, 1180 1155 1132

Lead Cement Slurry Details

Weight (ppg)	Vol (bbl)	Mixwater (bbl)	# Sacks	S. Vol(ft3/sk)	Additives
12.8	156	126	482	2.05	2.5% PreHydGel

Tail Cement Slurry Details

Weight (ppg)	Vol (bbl)	Mixwater (bbl)	# Sacks	S. Vol(ft3/sk)	Additives
15.8	48	30	250	1.15	1 % Halad 322

Top Up Cement Slurry Details

Weight (ppg)	Vol (bbl)	Mixwater (bbl)	# Sacks	S. Vol(ft3/sk)	Additives
N/A	N/A	N/A	N/A	N/A	N/A

Operation Description

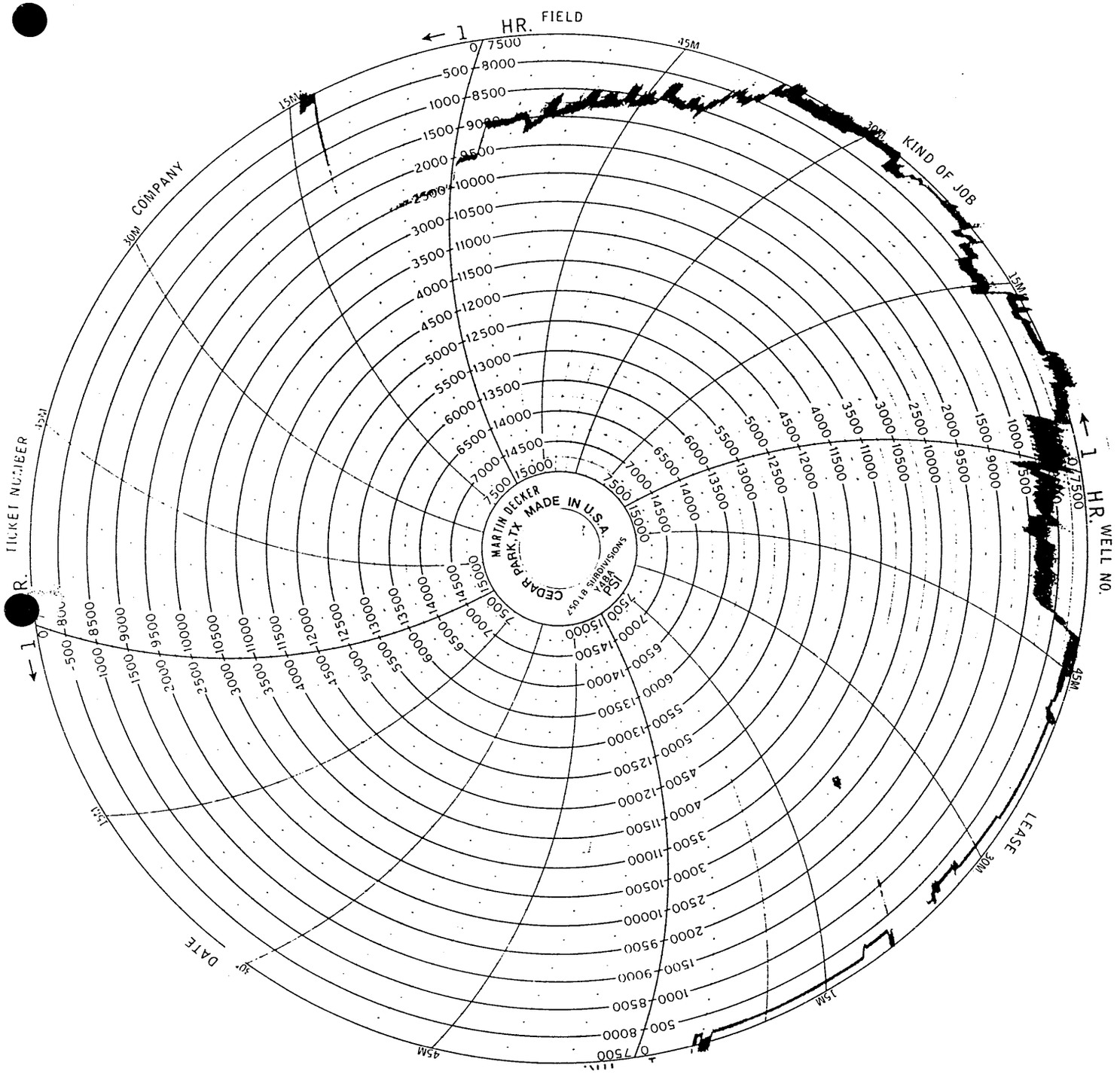
	Circulation	Pre-Flush	Lead	Tail	Displacement
Volume (bbl)	250	50	156	48	201
Time (min)	40	15	20	10	30

Job Evaluation

Reciprocate : Yes
Full Returns : Yes
Cmt to Surface : No
Bump Plug : Yes, 1600 psi, pressure up to 2100 psi
Pressure Test: 2500 psi for 10 min, 1 bbl bled back
ECP : No

Remarks

Returns:	Lead (bbl)	209
	Tail (bbl)	179
	Total (bbl)	438
Pumped	Total (bbl)	455
	Difference (bbl)	17


1 HR.
FIELD
KIND OF JOB
WELL NO.
LEASE
COMPANY
TICKET NUMBER
DATE
MARTIN DECKER
MADE IN U.S.A.
CEDAR PARK, TX
SUBDIVISIONS 81057
PSI
15M
30M
45M

CASING RUNNING LIST

WELL : SKULL CREEK #1 PERMIT: PPL 1 DATE: 31/5/96 Rig: RIG 30

Casing size (in) 7" Wt(ppf) 26.00 Grade: K55 Connection: 8 Rd Ltc-17t/jts vam on top

Supervisor: H.FLINK/K.KELLY Measured by: O D E TOOLPUSHER Page: 1 of Pages: 2

Order	Jt No:	Length	Total	Depth	Comment
				1614.00	Bottom of Shoe
1	Shoe 1	12.41	12.41	1601.59	SRC 5 m above shoe
2	F/Col 2	12.19	24.60	1589.40	
3	115	12.58	37.18	1576.82	
4	116	12.58	49.76	1564.24	
5	117	12.58	62.34	1551.66	
6	118	12.58	74.92	1539.08	
7	119	12.58	87.50	1526.50	
8	120	12.58	100.08	1513.92	
9	3	11.83	111.91	1502.09	
10	4	11.84	123.75	1490.25	SRC MIDDLE of JOINT
11	5	11.83	135.58	1478.42	
12	6	11.84	147.42	1466.58	SRC MIDDLE of JOINT
Total		147.42			

Order	Jt No:	Length	Total	Depth	Comment
			0.00	625.22	988.78 Total from last col.
53	47	12.59	637.81	976.19	
54	48	12.57	650.38	963.62	
55	49	12.57	662.95	951.05	
56	50	12.58	675.53	938.47	
57	51	11.66	687.19	926.81	
58	52	12.59	699.78	914.22	
59	53	12.57	712.35	901.65	
60	54	12.58	724.93	889.07	
61	55	12.57	737.50	876.50	
62	56	12.59	750.09	863.91	
Total		124.87			

13	7	11.83	159.25	1454.75	
14	8	11.83	171.08	1442.92	SRC MIDDLE of JOINT
15	9	11.83	182.91	1431.09	
16	10	11.84	194.75	1419.25	
17	11	11.83	206.58	1407.42	
18	12	11.83	218.41	1395.59	
19	13	11.84	230.25	1383.75	SRC MIDDLE of JOINT
20	14	11.84	242.09	1371.91	SRC MIDDLE of JOINT
21	15	11.83	253.92	1360.08	SRC MIDDLE of JOINT
22	16	11.83	265.75	1348.25	
Total		118.33			

63	57	12.57	762.66	851.34	
64	58	12.59	775.25	838.75	
65	59	12.58	787.83	826.17	
66	60	12.58	800.41	813.59	
67	61	12.08	812.49	801.51	
68	62	12.58	825.07	788.93	
69	63	12.58	837.65	776.35	
70	64	12.58	850.23	763.77	
71	65	12.58	862.81	751.19	
72	66	12.59	875.40	738.60	
Total		125.31			

23	17	11.83	277.58	1336.42	
24	18	11.83	289.41	1324.59	
25	19	11.84	301.25	1312.75	
26	20	11.84	313.09	1300.91	SRC MIDDLE of JOINT
27	21	12.57	325.66	1288.34	
28	22	12.58	338.24	1275.76	
29	23	11.83	350.07	1263.93	
30	24	11.83	361.90	1252.10	
31	25	11.83	373.73	1240.27	SRC MIDDLE of JOINT
32	26	12.57	386.30	1227.70	
Total		120.55			

73	67	11.84	887.24	726.76	
74	68	11.84	899.08	714.92	
75	69	12.58	911.66	702.34	
76	70	11.83	923.49	690.51	
77	71	11.83	935.32	678.68	
78	72	11.84	947.16	666.84	
79	73	11.84	959.00	655.00	
80	74	11.84	970.84	643.16	
81	75	11.84	982.68	631.32	
82	76	11.84	994.52	619.48	
Total		119.12			

33	27	12.58	398.88	1215.12	SBS MIDDLE of JOINT
34	28	11.84	410.72	1203.28	
35	29	11.83	422.55	1191.45	SBS MIDDLE of JOINT
36	30	11.84	434.39	1179.61	SBS MIDDLE of JOINT
37	31	11.84	446.23	1167.77	
38	32	11.84	458.07	1155.93	SBS MIDDLE of JOINT
39	33	11.83	469.90	1144.10	
40	34	11.83	481.73	1132.27	SBS MIDDLE of JOINT
41	35	11.83	493.56	1120.44	
42	36	11.84	505.40	1108.60	
Total		119.10			

83	77	11.83	1006.35	607.65	
84	78	11.84	1018.19	595.81	
85	79	11.84	1030.03	583.97	
86	80	11.84	1041.87	572.13	
87	81	11.84	1053.71	560.29	
88	82	11.84	1065.55	548.45	
89	83	11.84	1077.39	536.61	
90	84	11.83	1089.22	524.78	
91	85	11.84	1101.06	512.94	
92	86	11.84	1112.90	501.10	
Total		118.38			

43	37	11.83	517.23	1096.77	
44	38	11.84	529.07	1084.93	
45	39	11.83	540.90	1073.10	
46	40	11.83	552.73	1061.27	
47	41	11.83	564.56	1049.44	
48	42	11.83	576.39	1037.61	
49	43	11.84	588.23	1025.77	CEMENT BASKET
50	44	11.83	600.06	1013.94	
51	45	12.59	612.65	1001.35	
52	46	12.57	625.22	988.78	
Total		119.82			

93	87	11.84	1124.74	489.26	
94	88	11.83	1136.57	477.43	
95	89	11.84	1148.41	465.59	
96	90	11.84	1160.25	453.75	
97	91	11.83	1172.08	441.92	
98	92	11.83	1183.91	430.09	
99	93	11.83	1195.74	418.26	
100	94	11.83	1207.57	406.43	
101	95	11.84	1219.41	394.59	
102	96	11.83	1231.24	382.76	
Total		118.34			

Total Casing:	154	Jts	
Casing Used:	134	Jts	
Casing Left:	20	Jts	

Remarks:	see below
Left over 17 jts 8 rd ltc+ 3 jts vam csg	

CASING RUNNING LIST

WELL : SKULL CREEK #1 | PERMIT: PPL 1 | DATE: 31/5/96 | Rig: ODE RIG 30

Casing size (in) 7" | Wt(ppf) 26.00 | GRADE K55 | Connection: 8 Rd Ltc-17t/jts vam on top

Supervisor: H.FLINK/K.KELLY | Measured by: O D E TOOLPUSHER | Page 2 of Pages: 2

Order	Jt No:	Length	Total	Depth	Comment
			1231.24	382.76	Total from page 1
103	97	11.83	1243.07	370.93	
104	98	11.84	1254.91	359.09	
105	99	11.83	1266.74	347.26	
106	100	11.83	1278.57	335.43	
107	101	11.84	1290.41	323.59	
108	102	11.84	1302.25	311.75	
109	103	11.84	1314.09	299.91	
110	104	11.83	1325.92	288.08	
111	105	11.85	1337.77	276.23	
112	106	11.84	1349.61	264.39	
Total		118.37			
113	107	12.58	1362.19	251.81	
114	108	12.58	1374.77	239.23	
115	109	12.58	1387.35	226.65	
116	110	12.59	1399.94	214.06	
117	111	11.83	1411.77	202.23	
118	112	11.84	1423.61	190.39	
119	113	11.84	1435.45	178.55	
120	114	11.84	1447.29	166.71	
121	115	1.36	1448.65	165.35	8rd x vam
122		11.99	1460.64	153.36	VAM
Total		111.03			
123	117	11.97	1472.61	141.39	VAM
124	118	11.98	1484.59	129.41	VAM
125	119	11.98	1496.57	117.43	VAM
126	120	11.98	1508.55	105.45	VAM
127	121	11.97	1520.52	93.48	VAM
128	122	11.98	1532.50	81.50	VAM
129	123	11.98	1544.48	69.52	VAM
130	124	11.99	1556.47	57.53	VAM
131	125	11.98	1568.45	45.55	VAM
132	126	11.98	1580.43	33.57	VAM
Total		119.79			VAM
133		12.00	1592.43	21.57	VAM
134		11.98	1604.41	9.59	VAM
135		11.03	1615.44	-1.44	VAM -- B/SPRING
136			1615.44	-1.44	VAM
137			1615.44	-1.44	VAM
138			1615.44	-1.44	VAM
			1615.44	-1.44	
			1615.44	-1.44	
			1615.44	-1.44	
			1615.44	-1.44	
Total		35.01			
			1615.44	-1.44	
			1615.44	-1.44	
			1615.44	-1.44	
			1615.44	-1.44	
			1615.44	-1.44	
			1615.44	-1.44	
			1615.44	-1.44	
				-1.44	
				-1.44	
				-1.44	
		0.00			

Order	Jt No:	Length	Total	Depth	Comment
			0.00	-1.44	Total from last col.
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
Total		0.00			
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
Total		0.00			
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
Total		0.00			
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
Total		0.00			
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
			0.00	-1.44	
Total		0.00			

Total Casing:	154	Jts
Casing Used:	134	Jts
Casing Left:	20	Jts

Remarks: 134 joints plus x/over=135 - Shoe = .58 - f/collar .48

Left over 17 jts 8 rd ltc+ 3 jts vam csg

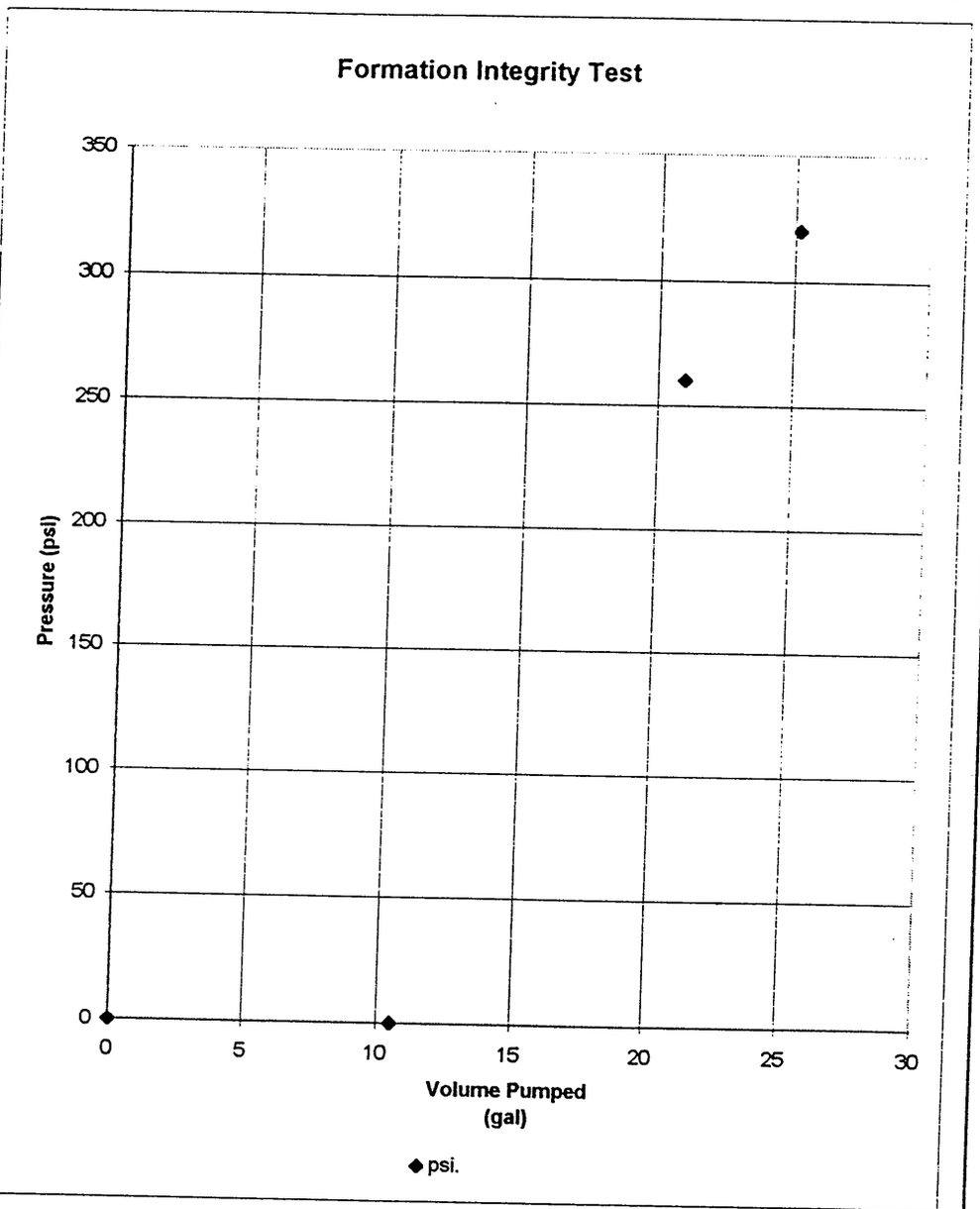
Cultus

Formation Integrity Test

Well Name:	Skull Creek	Date: 22/5/96
Hole Size:	12.25	Rig: ODE Rig 30
TVD, m:	335	Pumps: HT-400
Casing Size:	9.625	Circ. Rate:
Casing Depth:	332.5	Mud Wt: 8.4

Raw Data

Volume gal.	Pressure psi.
0	0
10.5	0
21	260
25.2	320



Comments:
Pressure stabilised at 300 psi for 5 minutes.
EMW at 300 psi = 13.7 ppg (1.64SG)

Cultus

CEMENTING REPORT

Well Name : Skua Creek #1
Rig Name : ODE Rig 30
Engineer : H Flink/B Richardson

Date : 20 May, 96
Casing Size : 9 5/8"
Casing MD/TVD : 332.01

Hole Geometry		Mud Properties		Gas Reading	
Hole Size :	12 1/4	Mud Wt :	9.2	Max Gas :	2
Hole MD :	345	Vis :	35	Bttms Up :	2
Hole TVD :		PV :	3	Final BG :	2
Hole Angle :	0	YP :	6		
Last Csg Size :		WL :	21.4		
Last Csg MD :		BHCT :			
Last Csg TVD :		BHST :			

Casing Summary

Description	Wt (lb/ft)	Grade	Conn	Length	Depth, mRT
Float Shoe		N80	BTC	0.53	332.01
1 jt. casing	36	K55	BTC	11.80	320.21
Float collar		N80	BTC	0.41	319.80
2 jts casing	36	K55	BTC	23.00	296.80
1 jt casing	40	N80	BTC	11.72	285.08
3 jts casing	36	K55	BTC	33.11	251.97
20 jts casing	43.5	N80	BTC	235.35	16.62
1 jt casing	36	K55	BTC	11.11	5.51
Braidenhead	43.5	N80	8RD x BTC	0.67	4.84
RT to flange				4.84	

Centralizers

Manufacturer	Type	Quantity	Remark / Placement
Davis Lynch	Bow spring	3	329m, 308.7m, 296.6m

Lead Cement Slurry Details

Weight (ppg)	Vol (bbl)	Mixwater (bbl)	# Sacks	S. Vol(ft3/sk)	Additives

Tail Cement Slurry Details

Weight (ppg)	Vol (bbl)	Mixwater (bbl)	# Sacks	S. Vol(ft3/sk)	Additives
15.8	93	53.4	450	1.15	Neat

Top Up Cement Slurry Details

Weight (ppg)	Vol (bbl)	Mixwater (bbl)	# Sacks	S. Vol(ft3/sk)	Additives
15.8	10	4.2	35	1.15	2% $CaCl_2$ (BWOC)

Operation Description

	Circulation	Pre-Flush	Lead	Tail	Displacement
Volume (bbl)	200	20	N/A	93	82
Time (min)	40	5	N/A	30	9

Job Evaluation

Reciprocate : No
Full Returns : No. 8bbls water
Cmt to Surface : No
Bump Plug : Yes. 600 psi, pressure test to 1100 psi, 5 mins
Pressure Test: 2500 psi for 10 minutes, 1 bbl bleed back
ECP : No

Remarks

Cultus

CASING TALLY (as run)

Casing Size .....9-5/8"

JOINT	LENGTH	CUM. L	Wt/Grade/Conn.	JOINT	LENGTH	CUM. L	Wt/Grade/Conn.
Shoe	12.33	12.33	K55 Butt, 36#	41			
2 Float	11.55	23.88	K55 Butt, 36#	42			
3	11.86	35.74	K55 Butt, 36#	43			
4	11.72	47.46	N80 Butt, 40#	44			
5	10.97	58.43	K55 Butt, 36#	45			
7	11.06	69.49	K55 Butt, 36#	46			
8	11.08	80.57	K55 Butt, 36#	47			
9	11.78	92.35	N80 Butt, 43.5#	48			
10	11.89	104.24	N80 Butt, 43.5#	49			
11	11.81	116.05	N80 Butt, 43.5#	50			
12	11.86	127.91	N80 Butt, 43.5#	51			
13	11.86	139.77	N80 Butt, 43.5#	52			
3	11.86	151.63	N80 Butt, 43.5#	53			
16	11.59	163.22	N80 Butt, 43.5#	54			
17	11.64	174.86	N80 Butt, 43.5#	55			
18	11.81	186.67	N80 Butt, 43.5#	56			
19	11.86	198.53	N80 Butt, 43.5#	57			
20	11.68	210.21	N80 Butt, 43.5#	58			
21	11.86	222.07	N80 Butt, 43.5#	59			
22	11.66	233.73	N80 Butt, 43.5#	60			
23	11.68	245.41	N80 Butt, 43.5#	61			
24	11.86	257.27	N80 Butt, 43.5#	62			
25	11.86	269.13	N80 Butt, 43.5#	63			
26	11.55	280.68	N80 Butt, 43.5#	64			
27	11.86	292.54	N80 Butt, 43.5#	65			
30	11.70	304.24	N80 Butt, 43.5#	66			
3	11.68	315.92	N80 Butt, 43.5#	67			
35	11.11	327.03	K55 Butt, 36#	68			
				69			
				70			
31				71			
32				72			
33				73			
34				74			
35				75			
36				76			
37				77			
38				78			
9				79			
40				80			
TOTAL THIS PAGE:				**CUMULATIVE TOTAL:**			

Cultus

CASING TALLY As STRAPPED

Casing Size .....9-5/8"

Page No. 1

JOINT	LENGTH	CUM. L	Wt/Grade/Conn.	JOINT	LENGTH	CUM. L	Wt/Grade/Conn.
Shoe	1.33	1.33	K55 Butt, 36#	41			
2 Float	11.58	23.38	K55 Butt, 36#	42			
3	11.86	35.74	K55 Butt, 36#	43			
4	11.72	47.46	N80 ~~K55~~ Butt, 40#	44			
5	10.97	58.43	K55 Butt, ~~40#~~ 36	45			
6	11.31	69.74	K55 Butt, 36#	46	NO DRIFT		
7	11.06	80.80	K55 Butt, 36#	47			
8	11.08	91.88	K55 Butt, 36#	48			
9	11.78	103.66	N80 Butt, 43.5#	49			
10	11.89	115.55	N80 Butt, 43.5#	50			
11	11.81	127.36	N80 Butt, 43.5#	51			
12	11.86	139.22	N80 Butt, 43.5#	52			
13	11.86	151.08	N80 Butt, 43.5#	53			
~~14~~	~~11.80~~	~~162.88~~	~~N80 Butt, 43.5#~~	54	DAMAGED BOX		
15	11.86	174.74	N80 Butt, 43.5#	55			
16	11.59	186.33	N80 Butt, 43.5#	56			
17	11.64	197.97	N80 Butt, 43.5#	57			
18	11.81	209.78	N80 Butt, 43.5#	58			
19	11.86	221.64	N80 Butt, 43.5#	59			
20	11.68	233.32	N80 Butt, 43.5#	60			
21	11.86	245.18	N80 Butt, 43.5#	61			
22	11.66	256.84	N80 Butt, 43.5#	62			
23	11.68	268.52	N80 Butt, 43.5#	63			
24	11.86	280.38	N80 Butt, 43.5#	64			
25	11.86	292.24	N80 Butt, 43.5#	65			
26	11.55	303.79	N80 Butt, 43.5#	66		OUT #6	11.31
27	11.86	315.65	N80 Butt, 43.5#	67		#14	11.80
28	11.80	327.45	N80 Butt, 43.5#	68			23.11
29	11.79	339.24	N80 Butt, 43.5#	69			
30	11.70	350.94	N80 Butt, 43.5#	70			
31	11.66	362.60	N80 Butt, 43.5#	71		IN #30	11.70
32	11.86	374.86	N80 Butt, 43.5#	72		#33	11.68
33	11.68	386.34	N80 Butt, 43.5#	73			23.38
34	10.27	396.61	N80 Butt, 43.5#	74			
35	11.11	407.72	K55 Butt, 36.5#	75			
36				76			
37				77			
38				78			
39				79			
40				80			
TOTAL THIS PAGE:				**CUMULATIVE TOTAL:**			

CASING RUNNING LIST

WELL : Skull Creek #1 PERMIT: PPL 1 DATE: 19/5/96 Rig: ODE#30

Casing size (in) 9-5/8" Wt(ppf) 36.5/43.5 Grade: K55/N80 Connection: BUTTRESS

Supervisor: H. FLINK. / B. Richardson Measured by: ODE/Cultus Page: 1 of Pages: 1

Order	Jt No:	Length	Total	Depth	Comment
				332.54	Bottom of Shoe
SHOE 1	1	12.33	12.33	320.21	K55 36#
F/COL 2	2	11.15	23.48	309.06	K55 36#
3	3	11.86	35.34	297.20	K55 36#
4	4	11.72	47.06	285.48	N80 40#
5	5	10.97	58.03	274.51	K55 36#
6	7	11.06	69.09	263.45	K55 36#
7	8	11.08	80.17	252.37	K55 36#
8	9	11.78	91.95	240.59	N80 43.5#
9	10	11.89	103.84	228.70	N80 43.5#
10	11	11.81	115.65	216.89	N80 43.5#
11	12	11.86	127.51	205.03	N80 43.5#
12	13	11.86	139.37	193.17	N80 43.5#
Total		139.37			
13	15	11.86	151.23	181.31	N80 43.5#
14	16	11.59	162.82	169.72	N80 43.5#
15	17	11.64	174.46	158.08	N80 43.5#
16	18	11.81	186.27	146.27	N80 43.5#
17	19	11.86	198.13	134.41	N80 43.5#
18	20	11.68	209.81	122.73	N80 43.5#
19	21	11.86	221.67	110.87	N80 43.5#
20	22	11.66	233.33	99.21	N80 43.5#
21	23	11.68	245.01	87.53	N80 43.5#
22	24	11.86	256.87	75.67	N80 43.5#
Total		117.50			
23	25	11.86	268.73	63.81	N80 43.5#
24	26	11.55	280.28	52.26	N80 43.5#
25	27	11.86	292.14	40.40	N80 43.5#
26	30	11.70	303.84	28.70	N80 43.5#
27	33	11.68	315.52	17.02	N80 43.5#
28	35	11.11	326.63	5.91	K55 36#
29	landing jt.	6.88	333.51	-0.97	
30	28	11.80	345.31	-12.77	N80 43.5#
31	29	11.79	357.10	-24.56	N80 43.5#
32	6	11.31	368.41	-35.87	K55 36#
Total		111.54			
33	31	11.86	380.27	-47.73	N80 43.5#
34	32	11.86	392.13	-59.59	N80 43.5#
35	14	11.80	403.93	-71.39	N80 43.5#
36	34	10.27	414.20	-81.66	N80 43.5#
				0.00	
				0.00	
				0.00	
				0.00	
				0.00	
				0.00	
				0.00	
				0.00	
				0.00	
				0.00	
				0.00	
				0.00	

Order	Jt No:	Length	Total	Depth	Comment
		0.00		0.00	Total from last col.

		Jts
		Jts
		Jts

Remarks:

PE600652

This is an enclosure indicator page.
The enclosure PE600652 is enclosed within the container PE900832 at this location in this document.

The enclosure PE600652 has the following characteristics:

ITEM_BARCODE	= PE600652
CONTAINER_BARCODE	= PE900832
NAME	= Composite Well Log
BASIN	= OTWAY
PERMIT	= PPL/1
TYPE	= WELL
SUBTYPE	= COMPOSITE_LOG
DESCRIPTION	= Composite well log (enclosure from WCR) for Skull Creek-1
REMARKS	=
DATE_CREATED	= 13/06/96
DATE_RECEIVED	=
W_NO	= W1153
WELL_NAME	= Skull Creek-1
CONTRACTOR	= Cultus Petroluem NL
CLIENT_OP_CO	= Cultus Petroluem NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE900833

This is an enclosure indicator page.
The enclosure PE900833 is enclosed within the container PE900832 at this location in this document.

The enclosure PE900833 has the following characteristics:

ITEM_BARCODE	= PE900833
CONTAINER_BARCODE	= PE900832
NAME	= Stratigraphic Correlation - Wallaby Creek - 1 to Iona 2
BASIN	= OTWAY
PERMIT	= PPL/1
TYPE	= WELL
SUBTYPE	= WELL_CORRELATION
DESCRIPTION	= Stratigraphic Correlation - Wallaby Creek - 1 to Iona 2, Waarre Formation (enclosure from WCR) for Skull Creek-1
REMARKS	=
DATE_CREATED	= 31/08/97
DATE_RECEIVED	=
W_NO	= W1125
WELL_NAME	= Skull Creek-1
CONTRACTOR	= Cultus Petroluem NL
CLIENT_OP_CO	= Cultus Petroluem NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE600653

This is an enclosure indicator page.
The enclosure PE600653 is enclosed within the container PE900832 at this location in this document.

The enclosure PE600653 has the following characteristics:

ITEM_BARCODE	= PE600653
CONTAINER_BARCODE	= PE900832
NAME	= Complex Lithology Model - Log
BASIN	= OTWAY
PERMIT	= PPL/1
TYPE	= WELL
SUBTYPE	= WELL_LOG
DESCRIPTION	= Complex Lithology Model - Log, CPI, (enclosure from WCR) for Skull Creek-1
REMARKS	=
DATE_CREATED	= 5/06/96
DATE_RECEIVED	=
W_NO	= W1153
WELL_NAME	= Skull Creek-1
CONTRACTOR	= Cultus Petroluem NL
CLIENT_OP_CO	= Cultus Petroluem NL

(Inserted by DNRE - Vic Govt Mines Dept)

PE600654

This is an enclosure indicator page.
The enclosure PE600654 is enclosed within the container PE900832 at this location in this document.

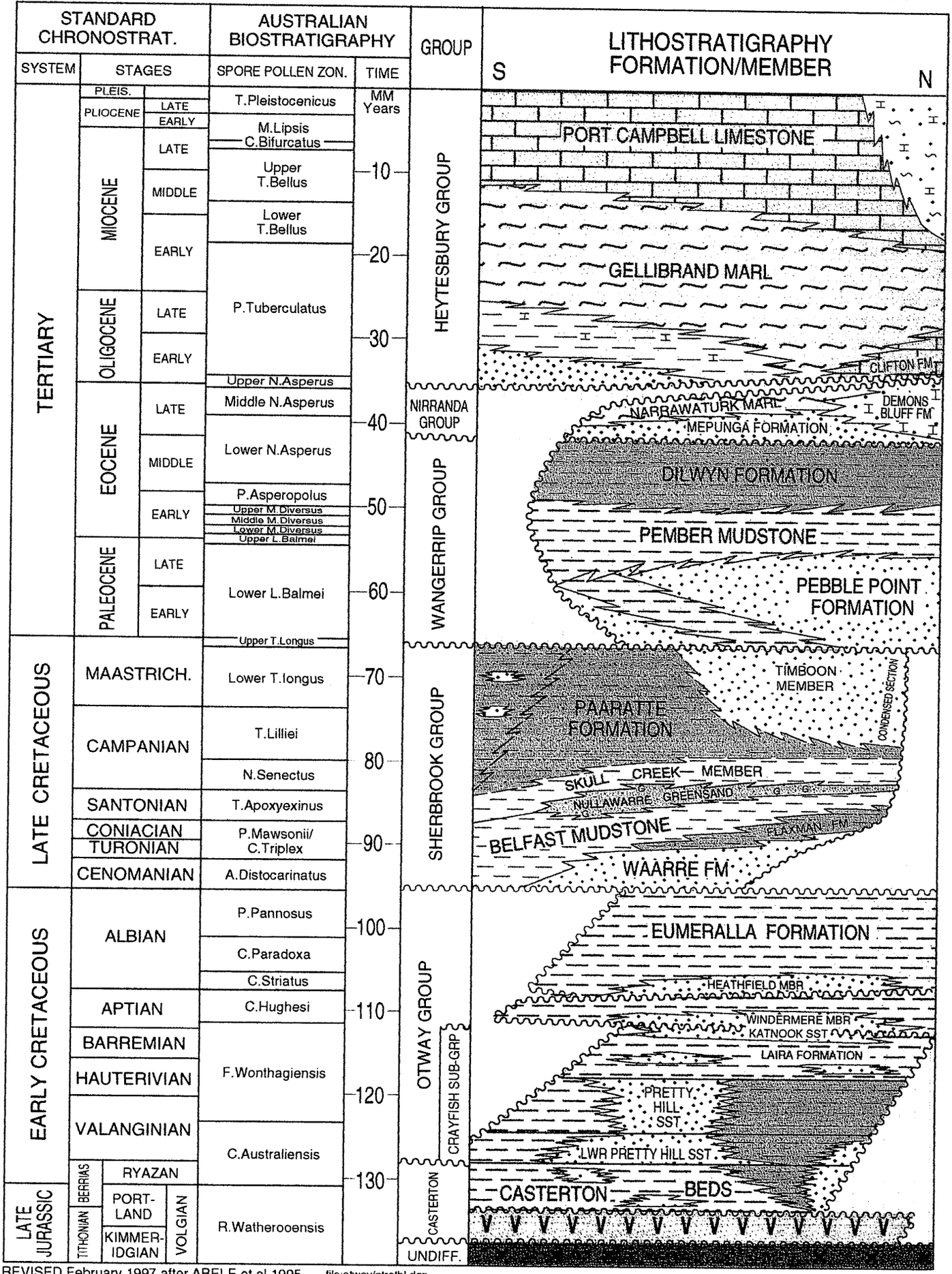
The enclosure PE600654 has the following characteristics:

ITEM_BARCODE	= PE600654
CONTAINER_BARCODE	= PE900832
NAME	= Volume Optimized Log Analysis
BASIN	= OTWAY
PERMIT	= PPL/1
TYPE	= WELL
SUBTYPE	= WELL_LOG
DESCRIPTION	= Volume Optimized Log Analysis (Multimin), enclosure from WCR, for Skull Creek-1
REMARKS	=
DATE_CREATED	= 21/04/97
DATE_RECEIVED	=
W_NO	= W1153
WELL_NAME	= Skull Creek-1
CONTRACTOR	= Cultus Petroluem NL
CLIENT_OP_CO	= Cultus Petroluem NL

(Inserted by DNRE - Vic Govt Mines Dept)

CULTUS PETROLEUM N.L. **OTWAY BASIN - VICTORIA**

SCHEMATIC STRATIGRAPHIC TABLE



REVISED February 1997 after ABELE et al 1995 file:otway/stratbl.dgn

FIGURE 2

BASIN OIL N.L.

ONSHORE OTWAY BASIN

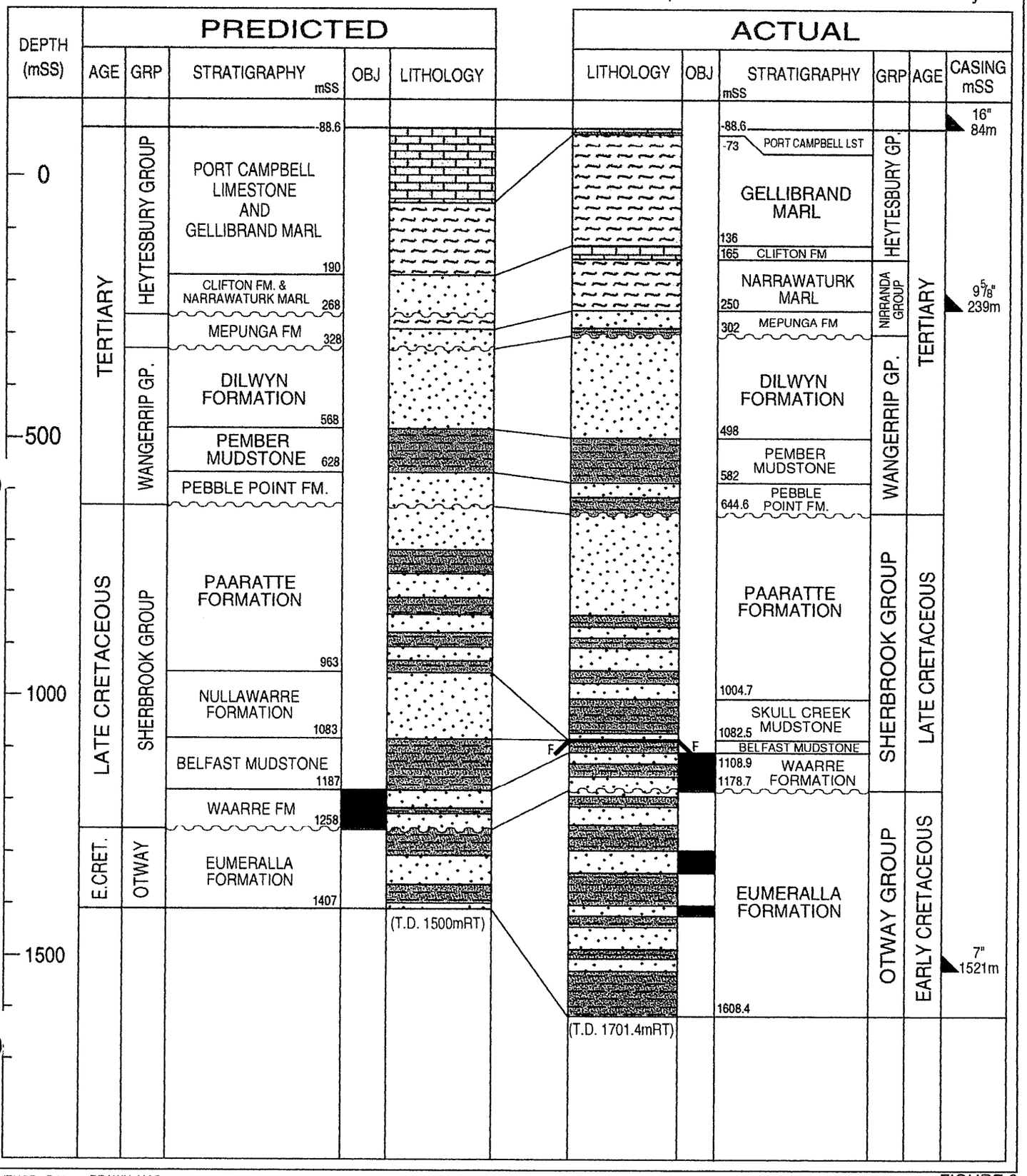
PPL 1

SKULL CREEK-1

PREDICTED v ACTUAL STRATIGRAPHIC SECTION

LAT: 38°33'42.4"S GL:88.6 m
LONG: 142°59'25.1"E RT: 9.3m
LOCATION: WAARRE 3D XLine 2805 Inline 9465

SPUD: 0200hrs 19/5/96
RIG RELEASE: 1700hrs 6/6/96
STATUS: Cased & suspended Gas & Condensate discovery



AUTHOR: RJJ DRAWN: MAC DATE: MAY 1997 FILE NAME: PPL1/SKCRKPVA.DGN

FIGURE 3

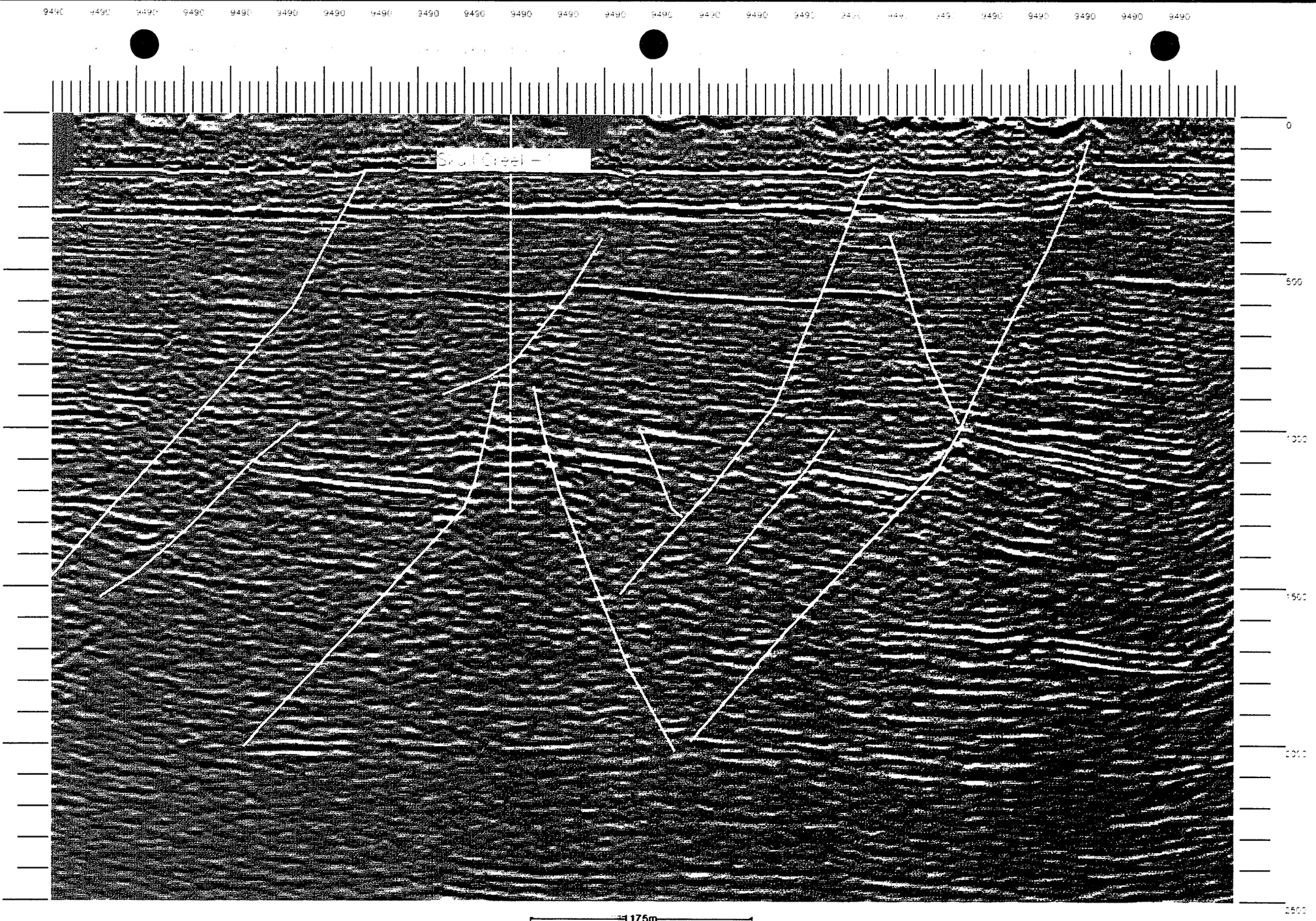
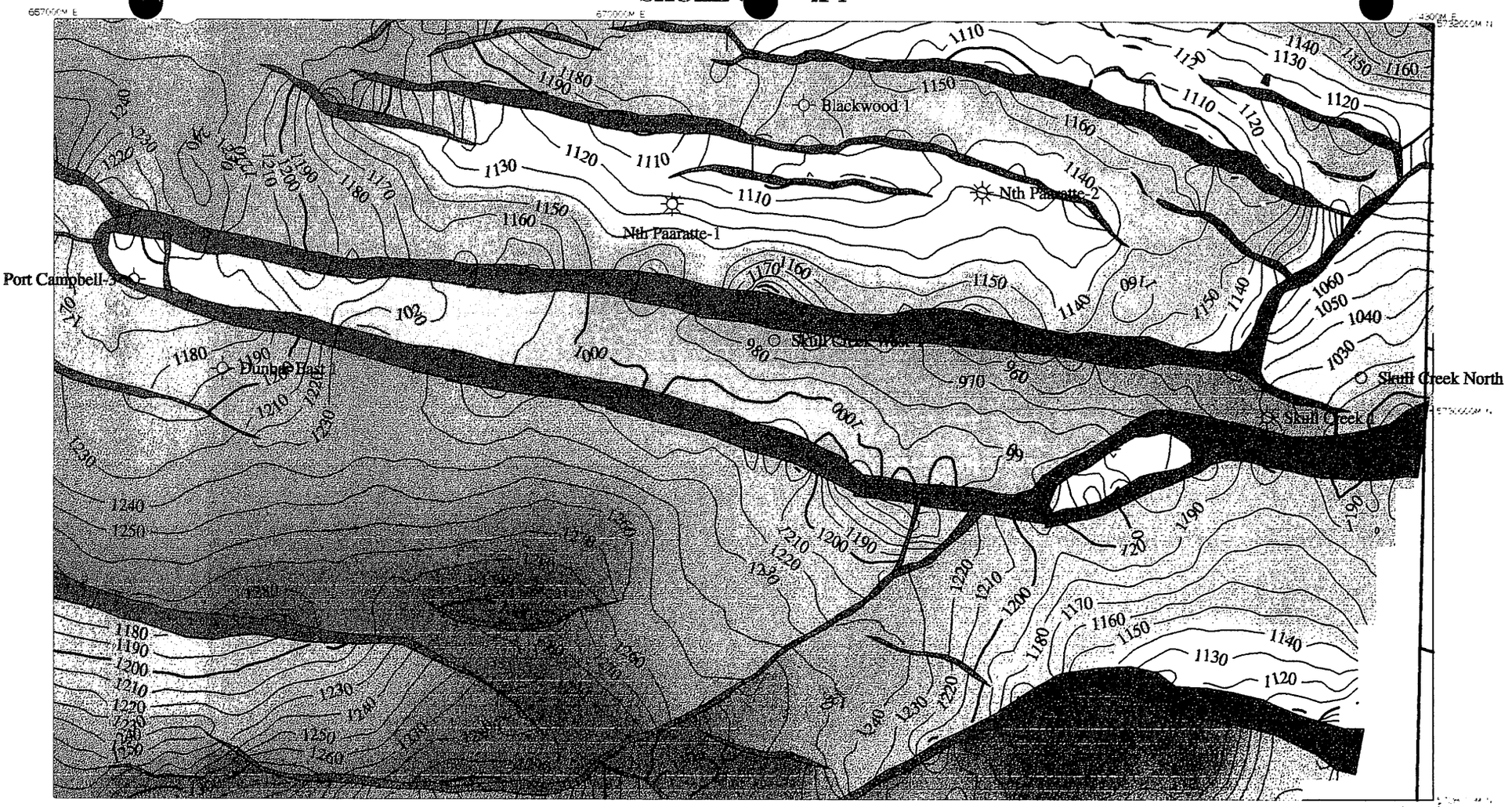


FIGURE 4

SKULL CREEK-1



939
1000
1050
1100
1150
1200
1250
1300
1350
1400
1450
1465

N

TRUE NORTH IS SHOWN FOR THE CENTRE OF THE MAP

0 1

KILOMETRES

DEPT. NAT. RES & ENV

PE907570

CULTUS PETROLEUM N.L.

PPL1
Otway Basin, Victoria

TWT Structure On Top Waarre Fm.
POST DRILL MAP
SKULL CREEK-1

Author: A J MAXWELL	Date: 28/08/1997
Scale: 1:50000	Cont. Int. 10 ms
Spheroid: AUSTRALIAN NATIONAL	GM 941 0065R
Projection: UNIVERSAL TRANSVERSE MERCATOR PROJECTION	Fig. No.

FIGURE-5

FIGURE 5

User : andlm File : px4790.hpgl Date : August 28, 1997