359001

WELL COMPLETION REPORT

TOOLKA-1A

BASS BASIN, TASMANIA, AUSTRALIA.

ESSO AUSTRALIA LTD.

J.S. Isom
May, 1974

OR-346

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ESSO STANDARD OIL (AUSTRALIA) LTD.

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COMPLETION REPORT

I WELL DATA RECORD

Date May 15, 1974.

LOCATION

WELL NAME	STATE	PERMIT or LICENCE	GEOLOGICAL BASIN	FIELD
TOOLKA-1A	TASMANIA	T/3P	BASS	---

CO-ORDINATES				MAP PROJECTION	GEOGRAPHICAL DESCRIPTION
	Lat.	Long.	X Y		
Surface	39°24' 35.678"S	145°23' 45.108"		AMG ZONE 55	OFFSHORE TASMANIA (FOURTEEN MILES N.W. OF CORMORANT-1)
~~Bottom Hole~~	x = 361,896 m.E.				
	y = 5,636,491 m.N.				

ELEVATIONS & DEPTHS

ELEVATIONS	WATER DEPTH	TOTAL DEPTH	
~~Ground~~	258'	M.D. 8907'	Avg.Angle STRAIGHT HOLE
KB 32'		T.V.D.	
~~RT~~	PLUG BACK DEPTH	REASONS FOR P.B.	
~~Braden Head~~	365'	ABANDOMENT	
~~Top Deck Platform~~			

DATES

MOVE IN	RIG UP	SPUDDED
JANUARY 12, 1974.	JANUARY 14, 1974	JANUARY 14, 1974.
RIG DOWN COMPLETE	RIG RELEASED	PROD.UNIT - Start Rigging Up
FEBRUARY 5, 1974.	FEBRUARY 5, 1974.	
PROD.UNIT - Rig Down Complete		I.P. ESTABLISHED

MISCELLANEOUS

OPERATOR	PERMITTEE or LICENCEE	ESSO INTEREST	OTHER INTEREST
ESSO AUSTRALIA LTD.,	HEMATITE PETROLEUM PTY. LTD	100%	NIL

CONTRACTOR	RIG NAME	EQUIPMENT TYPE
GLOBAL MARINE AUSTRALASIA P/L	"GLOMAR CONCEPTION"	FLOATING DRILLING VESSEL

TOTAL RIG DAYS	DRILLING AFE NO.	COMPLETION NO.	TYPE COMPLETION
23.38	234-001		

LAHEE WELL CLASSIFICATION	Before Drilling	NEW FIELD WILDCAT
	After Drilling	UNSUCCESSFUL NEW FIELD WILDCAT

J.S. ISOM

Geologist

WELL TOOLKA-1

359004

II	INITIAL PRODUCTION TEST				
Date	WELL COMPLETION AS: Oil Well _____ Gas Well _____ Dry Hole _____				
Choke size, inch			Calculated P.I.		
Length of Test			Calculated A.O.F.		
Oil, BPD			Perforations		
Water, BPD			Shut-In BHP		
Gas, MCFD			Flowing BHP		
Gas Liquids,BPD			Shut-In Tubing Press		
Gas-Oil Ratio			Flowing-Tubing Press		
Gravity, API			Flowing Temperature		

III	PERFORATING RECORD (Prod.test, Completion, DST, FIT)					
INTERVAL	HPF	TOTAL SHOTS	SERV. CO.	DIFF. PRESS.	PERFORATION FLUID	SIZE AND TYPE GUN

_____
Engineer

WELL: TOOLKA-1a

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IV	CASING-LINER-TUBING RECORD						
Type	Size	Weight	Grade	Thread	No. Joints	Amount	Depth
KB ELEVATION ABOVE CASING HEAD						281.00	281.00
24" PILE JOINT						38.85	319.85
	20"	94#	X-52	JV-CC	1	22.35	342.20
	20"	92#	X-52	JV	9 + FLOAT SHOE	361.83	704.03
KB ELEVATION ABOVE HANGER						287.00	287.00
	13-3/8"	68#	K-55	BUTT	CSG HANGER + 61 JTS + FLOAT COLLAR	2464.74	2751.74
	13-3/8"	68#	K-55	BUTT	1 + FLOAT SHOE	38.33	2790.07

V	CEMENT RECORD		
String	20"	13-3/8"	
Type of Cement	650 sx Aust N + 350 sx Aust N + 2% $CaCl_2$	900 sx Aust N + 1% $CaCl_2$	
Number of FT^3	1180	1062	
Average Weight of Slurry	15.6 ppg	15.6 ppg	
Cement Top	Sea Floor	770' (theoretical)	
Casing Tested with	-	1500	
Number of Centralizers	0	10	
Number of Scratchers			
Stage Collar, etc.			
Remarks		Tested formation with 13.8 ppg equivalent mud.	

R. W. Ohmer
Engineer

WELL TOOLKA-1A

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VI

SUBSURFACE COMPLETION EQUIPMENT

DATE COMPLETED _____

Schematic	Equipment Description	Length	Depth

_____

Engineer

359007

WELL TOOLKA-1A

VII SAMPLES, CONVENTIONAL CORES, SW CORES

INTERVAL	TYPE	RECOVERED	INTERVAL	TYPE	RECOVERED
780'-8807'	Cuttings (Washed & Dried)	Five sets every 10'-30'			
780'-8807'	Cuttings (Unwashed)	One every 10'-30'			
780'-8807'	Cuttings (Canned Sample)	Composite every 100'			
5089'-5119'	Conventional Core #1	Cut 30', Recovered 30'			
4505'-8896'	C.S.T. Gun #1	Recovered 29; Shot 30			

VIII WIRELINE LOGS AND SURVEYS Incl. FIT)

Type & Scale	From To	Type & Scale	From To
ISF	2790'-8896'		
CNL/FDC	2790'-8892'		
GR	290'-8892'		
HDT	2790'-8889'		
BHC	2790'-8894'		
Velocity Survey	3300'-8800'		
FIT #1	7361'		
FIT #2	7224.50'		

Geologist

WELL: TOOLKA-1A

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IX	FORMATION TOPS/Zones					
NAME	Tops		Gross Interval (ft)	Net Pay (ft).		REMARKS
	M.D.	Sub-sea		Gas	Oil	
Mid Miocene Seismic Marker	1647'	-1615'	1175'			
Oligocene Seismic Marker	2822'	-2790'	800'			
Top "Upper Eocene Shale"	3622'	-3590'	740'			
Top Eastern View Group	4362'	-4330'	555'			
P.asperopolus Seismic Marker	4917'	-4885'	790'			
Upper M.diversus Seismic Marker	5707'	-5675'	640'			
Lower M.diversus Seismic Marker	6347'	-6315'	2592'+			

X GEOLOGIC ANALYSIS (Pre Drilling prognosis Vs actual results)

Pre-Drill- Toolka-1A was drilled to evaluate a separate anticline on trend and to the northwest of the Cormorant-1 well. The primary objective was the middle Eocene sands which contained oil and gas/condensate at Cormorant-1. The structure has an aeral closure of 18 square miles with 200 feet of closure. Structure growth was during the Oligocene-Miocene.

Post-Drill - Minor oil and gas shows were encountered in the Middle Eocene while drilling, but F.I.T. test results were negative. F.I.T. #1 @ 7361' recovered water, and F.I.T. #2 was tight.

The well came in essentially as predicted structurally, therefore, a valid, low relief structure on the Eastern View was tested. Several hundred feet of the Upper Eastern View sand was silted out at Toolka-1A due to the well being located in a more basinal position than Cormorant-1.

The absence of hydrocarbons in Toolka-1A is attributed to lean source rocks, and the discontinuous nature of the sands which contained hydrocarbons in Cormorant-1.

J.S. ISOM

Geologist

359009

WELL COMPLETION REPORT

TOOLKA-1A

APPENDIX I

PALYNOLOGICAL DETERMINATIONS FOR TOOLKA-1A, BASS BASIN, TASMANIA, AUSTRALIA.

by

L.E. STOVER

359010

PALYNOLOGICAL DETERMINATIONS FOR TOOLKA-1, BASS BASIN, AUSTRALIA

Lewis E. Stover

SUMMARY

Depths	Spore-Pollen Zone	Age
4540'	Middle *N. asperus*	M. Eocene
5089 - 5113'	Lower *N. asperus*	M. Eocene
5263 - 5461'	Probably Lower *N. asperus*	M-E. Eocene?
5657 - 5927'	*P. asperopolus*	E. Eocene
6105 - 6343'	Upper *M. diversus*	E. Eocene
6449 - 6828'	Middle *M. diversus*	E. Eocene
6990 - 7100'	Lower *M. diversus*	E. Eocene
7225 - 7288'	Probably Lower *M. diversus*	E. Eocene?
7362 - 8898'	Not Determinable, samples barren	

The above determinations are based on the examination of palynomorphs obtained from 17 sidewall and 1 conventional core. With the exception of SWC 29 (siltstone at 4540 feet), the palynological assemblages were recovered from sandstones which in general yield less diverse and fewer spore, pollen and dinoflagellates than interverning siltstones and shales. Because of this, the confidence ratings for an unusual number of samples from Toolka-1 is relatively low by comparison with the results from other Bass Basin wells. Of the 24 samples submitted for study, the deepest 6 samples from 7362 to 8898 are barren or nearly so.

Dinoflagellates occur in assemblages from 4540 to 5263 feet and from 5657 to 7100 feet and are abundant in some samples from the *M. diversus* zones, for example, sidewall cores 19, 15, 14 and 11. A marked change in the character and preservational quality of the palynomorph assemblages occurs between 6828 and 6900 feet and a similar but less obvious charge also occurs between 7100 and 7225 feet. These changes may reflect significant lithological differences or hiatuses within the depositional sequence, or both.

DISCUSSION

SWC 29 at 4540 feet.

Zone: Middle *N. asperus*
Age: Middle Eocene
*C.R.: 1
*K.R.: 1+, slightly altered

*C.R. = confidence rating
K.R. = kerogen rating

The residue from this sample is commonly fossiliferous, and consists mainly of spore-pollen that are generally well preserved. Species diversity is moderate. Assemblage is dominated by specimens of *Nothofagidites spp.*, and proteaceous pollen are sparse. Dinoflagellates are rare and poorly preserved, forms present are:

Nematosphaeropsis sp.
Leptodinium sp.
Areoligera sp. (fragments only)

Core 1 at 5089 - 5113 feet.

Zone: Lower *N. asperus*
Age: Middle Eocene
C.R.: 1
K.R.: 1+, slightly altered

Sample is commonly to abundantly fossiliferous with an almost exclusively spore-pollen assemblage in which specimens of *Nothofagidites spp.* are common. There is, however, an increase in the relative abundance of *Haloragacidites harrisii* and proteaceous pollen are more frequent and more diverse than in SWC 29. The only dinoflagellate identified in the assemblage is *Teneridinium sp.*, a supposedly freshwater form.

SWC 27, 26 and 24 at 5263, 5330 and 5461 feet, respectively.

Zone: Indeterminate, probably Lower *N. asperus*
Age: Certainly Eocene, probably Middle Eocene
C.R.: 2
K.R.: 1+, slightly altered

Each of these samples is poorly fossiliferous and apparently yielded very small amounts of organic residue. Rare specimens of the acritarch *Epicephalopyxis indentata* occur in SWC 27 which also has fragments of dinoflagellates. No microplankton was observed in SWC 26 and SWC 24. Specimens of *Nothofagidites spp.* are more numerous than those of *H. harrisii*, but too few specimens of both forms were recovered to make this quantitative observation statistically reliable.

SWC 22, 21 and 20 at 5657, 5854 and 5957 feet, respectively.

Zone: *P. asperopolus*
Age: Early Eocene
C.R.: 1
K.R.: 1+, slightly altered

Samples from this interval are sparsely to commonly fossiliferous and consist almost exclusively of moderately well preserved spore-pollen. Assemblages are also moderately diverse. In addition to the spore-pollen SWC 22 and SWC 21 contain considerable amounts of plant debris consisting mainly of cuticular (herbaceous) tissue and very little woody or "coaly" pieces. The following dinoflagellates were found within this interval; all are very rare.

Spiniferites cingulatus - 5657 feet
Spiniferites sp. - 5657 feet
Cordosphaeridium sp. - 5854 feet
Thalassiphora sp. - 5947 feet

Recycled Early Cretaceous forms occur at 5657 feet *(Foraminisporis dailyi; Classopollis sp.)*

SWC 19 at 6150 feet.

Zone: Upper *M. diversus*
Age: Early Eocene
C.R.: 0
K.R.: 1+, slightly altered

The assemblage contains abundant spore-pollen and dinoflagellates and most specimens of both palynomorph groups are reasonably well preserved. The microplankton component is dominated by specimens of the *Wetzeliella homomorpha - W. ovalis* complex and examples of *Diphyes colligerum* are frequent. Other microplankton identified at 6150 feet are:

Achomosphaera sp.
Chiropteridium sp.
Epicephalopyxis indentata
Homotryblium tasmaniense
Hystrichosphaeridium sp.
Muratodinium fimbriatum
Spiniferites sp.
Thalassiphora sp.

SWC 18 at 6343 feet.

Zone: Upper *M. diversus*
Age: Early Eocene
C.R.: 1
K.R.: 1+, slightly altered

The sample has a mixed spore-pollen and microplankton assemblage with *Homotryblium tasmaniense* being the most commonly occurring dinoflagellate. Assignment to the Upper *M. diversus* zone is based more on the microplankton than on the spore-pollen; the latter suggest an older assignment (Middle *M. diversus)*, but this would be on the absence of such forms as *Santalumidites cainozoicus, Proteacidites pachysolus* and *Myrtaceidites tenuis* rather than the presence of definitive Middle *M. diversus* forms. So far, *Homotryblium tasmaniense* has not been reported from below the Upper *M. diversus* zone.

SWC 17, 15 and 14 at 6449, 6817 and 6828 feet, respectively.

Zone: Middle *M. diversus*
Age: Early Eocene
C.R.: 1 for SWC 15 and 14, 2 for SWC 17
K.R.: 1+ slightly altered

Mixed spore-pollen and dinoflagellate assemblages were recovered from each of the samples. SWC 17 at 6449 is the least fossiliferous of the three and spore-pollen are sparse to rare in SWC 15 and SWC 14. Among the

microplankton, *Epicephalopyxis identata* is abundant in SWC 15, and frequent in SWC 14; *Diphyes colligerum* is frequent in both sidewall cores, and *Wetzeliella homomorpha* is frequent in SWC 14 and sparse in SWC 15. These and other results concerning the distribution and occurrence of micorplankton in the Middle *M. diversus* interval in Toolka-1 are tabulated below.

Microplankton	Depths in Feet		
	6449	6817	6828
Achomosphaera sp.		*p*	
Adnatosphaeridium retiintextum	*p*	*p*	*p*
Apteodinium rugulatum		*p*	*p*
Cordosphaeridium fibrospinosum			*p*
Cordosphaeridium inodes			*p*
Diphyes colligerum		*f*	*f*
Emslandia sp.	*p*		
Epicephalopyxis indentata	*p*	*a*	*f*
Geiselodinium sp.		*p*	
Teneridinium sp.		*p*	
Turbiosphaera sp.		*p*	
Wetzeliella homomorpha	*p*	*s*	*f*

Table 1. Microplankton distribution in Middle *M. diversus* zone, Toolka-1. *a* = abundant, *f* = frequent, *p* = present, *s* = sparse.

SWC 13 at 6900 feet and SWC 12 at 7016 feet.

Zone: Lower *M. diversus*
Age: Early Eocene
C.R.: 1
K.R.: 2-, slight to moderate alteration

A mainly spore-pollen assemblage consisting of mostly long-ranging species was recovered from SWC 13. Dinoflagellates are sparse and the majority of specimens are poorly preserved owing to scarring by minute pyrite crystals. Forms identified are *Adnatosphaeridium retiintextum, Cordosphaeridium fibrospinosum, Deflandrea? sp., Diphyes colligerum* and *Wetzeliella homomorpha.*

In SWC 12 at 7016 feet, spore-pollen and microplankton are about equally abundant and as in SWC 13, the spore-pollen are represented by relatively long-ranging species. Among the microplankton, specimens of *Epicephalopyxis indentata* and *Wetzeliella homomorpha* are common; other forms include:

Achomosphaera sp.
Adnatosphaeridium retiintextum
Apteodinium sp.
Cordosphaeridium fibrospinosum
Deflandrea? sp.
Diphyes colligerum

SWC 11 at 7100 feet.

Zone: Lower *M. diversus*
Age: Early Eocene
C.R.: 2
K.R.: 2-, slight to moderate alteration

The assemblage consists of rare, poorly preserved spore-pollen and an overwhelming dominance of a single, undescribed species of dinoflagellates, tentatively identified as *Deflandrea? sp.*

SWC 10 at 7225 feet and SWC 9 at 7288 feet.

Zone: Indeterminate, probably Lower *M. diversus*
Age: Probably Early Eocene
C.R.: 2
K.R.: 2 to 2+, moderately altered

Rare, dark, poorly preserved spore-pollen are present in both samples and SWC 9 has a few specimens of *Epicephalopyxis indentata.* The samples are no older than Upper *L. balmei*, but because no forms indicative of the *L. balmei* zones were found, a Lower *M. diversus* zone assignment is favored.

SWC 8 to SWC 1 from 7362 to 8896 feet.

Zone: Indeterminate
Age: Indeterminate
C.R.: Not rateable
K.R.: Not rateable (too little organic matter) Samples from this interval are barren.

COMMENTS

In general, the spore-pollen assemblages from Toolka-1 are less diverse in terms of species and less abundant in terms of the quantity of specimens than were obtained from the sidewall cores from other Bass Basin wells. This is probably due in part to the fact that all of the fossiliferous samples between 5263 and 7288 feet are from sandstones rather than finer grained clastics. The latter customarily yield more abundant and diverse and consequently more representative palynomorph assemblages than do sandstones and other coarser clastic sediments.

Because of the rather low spore-pollen diversity, particularly within the *M. diversus* zones, it was necessary to rely on the microplankton -perhaps disproportionately so- to subdivide the Toolka-1 section between approximately 6000 and 7100 feet. As a result, the relatively high confidence ratings (0 and 1) given to some of the assemblages from this interval reflect the reliability now placed on the dinoflagellates.

Well Name TOOLKA-1 Basin BASS Sheet No. 1 of 3

35901

SAMPLE TYPE *	S	C	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S												
DEPTHS / PALYNOMORPHS	4540	5089-113	5263	5330	5461	5657	5834	5957	6150	6343	6449	6817	6828	6900	7016	7100	7225-88													
A. qualumis																														
A. acutullus																														
A. luteoides																														
A. oculatus																														
A. sectus																														
A. triplaxis																														
A. obscurus																														
B. disconformis																														
B. arcuatus																														
B. elongatus																														
B. mutabilis																														
B. otwayensis																														
B. elegansiformis																														
B. trigonalis																														
B. verrucosus																														
B. bombaxoides																														
B. emaciatus																														
C. bulatus																														
C. heskermensis								?																						
C. horrendus																														
C. meleosus																														
C. apiculatus																														
C. leptos																														
C. striatus																														
C. vanraadshooveni																														
C. orthoteichus/major																														
C. annulatus																														
C. gigantis																														
C. splendens																														
D. australiensis																														
D. granulatus																														
D. tuberculatus																														
D. delicatus																														
D. semilunatus																														
E. notensis																														
E. crassiexinus																														
F. balteus																														
F. crater																														
F. lucunosus																														
F. palaequetrus																														
G. edwardsii																														
G. rudata																														
G. divaricatus																														
G. gestus																														
G. catathus																														
G. cranwellae																														
G. wahooensis																														
G. bassensis																														
G. nebulosus																														
H. harrisii																														
H. astrus																														
H. elliottii																														
I. anguloclavatus																														
I. antipodus																														
I. notabilis																														
I. gremius										?																				
I. irregularis																														
J. peiratus																														
K. waterbolkii																														
L. amplus																														
L. crassus									R?																					
L. ohaiensis																														
L. bainii																														
L. lanceolatus																														
L. balmei																														
L. florinii																														
M. diversus																														
M. duratus																														
M. grandis																														
M. perimagnus																														

*C= core; S= sidewall core; T= cuttings.

Well Name Toolka-1 Basin Bass Sheet No. 2 of 3

35916

SAMPLE TYPE *	S	C	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
DEPTHS / PALYNOMORPHS	4540	5089-113	5263	5330	5461	5657	5854	5957	6150	6343	6449	6817	6828	6900	7016	7100	7225-88
M. subtilis	/	/		/		/	/	/		/							
M. ornamentalis																	
M. hypolaenoides																	
M. homeopunctatus																	
M. parvus/mesonesus	/	/					/	/							/		
M. tenuis						/	/	/				/					
M. verrucosus								/									
M. australis																	
N. asperus	/								/					/			
N. asperoides																	
N. brachyspinulosus							/		/						/		
N. deminutus	/	/							/								
N. emarcidus/heterus	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
N. endurus															?		?
N. falcatus	/																
N. flemingii	/	/				/	/	/	/	/	/	/	/	/	/	/	
N. goniatus		/			/			/						/			
N. senectus																	
N. vansteenisii																	
O. sentosa																	
P. ochesis																	
P. catastus																	
P. demarcatus	/	/				/	/	/	/	/	/	/	/				
P. magnus																	
P. polyoratus						/	/		/	/		/					
P. vesicus	/	/															
P. densus																	
P. velosus		/				/											
P. morganii/jubatus																	
P. mawsonii	/	/	/			/	/		/								
P. reticulosaccatus																	
P. verrucosus																	
P. crescentis																	
P. esobalteus	/	/					/	/			/						
P. langstonii																	
P. reticulatus																	
P. simplex																	
P. varus							/	/	/								
P. adenanthoides (Prot.)	/	/					/		/			/	/		/		
P. alveolatus																	
P. amolosexinus																	
P. angulatus																	
P. annularis	/	/				/	/	/	/	/	/	/	/		/		
P. asperopolus		/															
P. biornatus									/	?							
P. clarus	/																
P. cleinei																	
P. confragosus																	
P. crassis							/										
P. delicatus		/							/								
P. formosus																	
P. grandis							/	/	/	/		/	/	/	/	/	/
P. grevillaensis																	
P. incurvatus									/		/			/		?	
P. intricatus																	
P. kopiensis	/	/				/	/					/		/	/		
P. lapis																	
P. latrobensis																	
P. leightonii		/					/	/	/	/	/	/	/	/			
P. obesolabrus																	
P. obscurus	/	/		?		/			/		/	/	/				
P. ornatus		?						/		/	/						
P. otwayensis																	
P. pachypolus	/	/				/	/	/	/								
P. palisadus																	
P. parvus	/	/				/	/	/	/	/							
P. plemmelus																	
P. prodigus																	
P. pseudomoides	/	/				/	/	/	/				/	/	/		
P. recavus																	

*C = core; S = sidewall core; T = cuttings.

Well Name Toolka-1 Basin Bass Sheet No. 3 of 3

35017

SAMPLE TYPE *	S	C	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
DEPTHS / PALYNOMORPHS	4540	5089-113	5263	5330	5461	5657	5834	5957	6150	6343	6449	6817	6828	6900	7016	7100	7225-88
P. rectomarginis		/															
P. reflexus																	
P. reticulatus		/															
P. reticuloconcavus																	
P. reticuloscabratus	/											/	/				
P. rugulatus		/															
P. scitus																	
P. stipplatus																	
P. tenuiexinus							/		/	/		/					
P. truncatus																	
P. tuberculatus																	
P. tuberculiformis							/	/	/	/		/					
P. tuberculotumulatus																	
P. xestoformis (Prot.)		/	/														
Q. brossus																	
R. boxatus																	
R. stellatus																	
R. mallatus								/									
R. trophus																	
S. cainozoicus	/	/				/	/	/									
S. rotundus																	
S. digitatoides																	
S. marlinensis							/										
S. rarus								/									
S. meridianus	/	/		/	/	/	/	/	/								
S. prominatus										/							
S. uvatus																	
S. punctatus	/	/						/	/	/					/		
S. regium																	
T. multistrixus (CP4)																	
T. textus											/						
T. verrucosus																	
T. securus																	
T. confessus (C3)																	
T. gillii															/		
T. incisus																	
T. longus																	
T. phillipsii						/	/										
T. renmarkensis																	
T. sabulosus																	
T. simatus	/																
T. thomasii																	
T. waiparaensis																	
T. adelaidensis (CP3)	/	/					/										
T. angurium																	
T. delicatus																	
T. geraniodes																	
T. leuros	/						/										
T. lilliei																	
T. marginatus																	
T. moultonii							/										
T. paenestriatus						/	/	/									
T. retequetrus																	
T. scabratus																	
T. sphaerica		/			/												
T. magnificus (P3)	?	?															
T. spinosus		/				/	/										
T. ambiguus							/				/						
T. chnosus																	
T. helosus																	
T. scabratus						/		/									
T. sectilis																	
V. attinatus																	
V. cristatus																	
V. kopukuensis	/	/	/	/		/	/	/	/	/	/				?		
P. beddoesii	/																
T. microreticulatus			/		/		/		/	/	/			/	/		
T. halis				/			/										
T. divarcatus						/											

*C = core; S = sidewall core; T = cuttings.

359018

WELL COMPLETION REPORT

TOOLKA-1A

APPENDIX II

SIDEWALL CORE DESCRIPTION

PAGE 1 OF 2

ATT 30 REC 29

DATE 3/2/74

ESSO AUSTRALIA LTD.

SIDEWALL CORE DESCRIPTIONS

SWC RUN NO 1

IES RUN NO 1

SERVICE CO SCHLUMBERGER/BAROID

GEOLOGIST S. BENEDEK

WELL TOOLKA - 1A

NO.	DEPTH	REC	ROCK TYPE	MODIFIERS	CAL	COLOR	INDUR DEG	GRAIN SIZE	SRTG	RND	DISS CLAY	STAIN	FLOURESCENCE % RK	FLOURESCENCE DISTR	FLOURESCENCE INTEN	FLOURESCENCE COLOR	CUT FLUOR. INTEN	CUT FLUOR. COLOR	CUT RESIDUE QUAN	CUT RESIDUE COLOR	SHOW	PROB PROD	REMARKS - GAS C1	C2	C3	C4	C5+
1a	1	2	3	4	5	6	7	8	9	10	11	12		14	15	16	17	18	19	20	21	22	23				
1	8878	1	SLTST			BRN	SOFT	SLT						-	-	-	-	-	-	-		-	200	300	350	-	-
2	8650	2	SLTST			BRN	SOFT	SLT														-	400	1600	850	-	-
3	8250	2	IGN	AMPHIBOLITE			SOFT							-	-	-	-	-	-	-		-	100	-	-	-	-
4	8086	1	INTR	AMPHIBOLITE		GRN	SOFT																100	-	-	-	-
5	8008	3/4	SLTST			LT.GY	INDUR	SLT														-	-	-	-	-	-
6	7922	1	SH	CARB		DK BRN		CLAY														-	-	-	-	-	-
7	7570	1	SLST	MIC, MDST		DK BRN	SOFT	F.SLT														1	200	400	1050	300	-
8	7362	1	SST			LT BRN		V.F.Sd							DULL	YELL	BRIGHT	WHITE-YELL				TIGHT	150	1900	950	2200	700
9	7288	1-3/4	SST	MIC. CLAYEY, CARB		LT BRN		V.F. Sd														-	100	-	100	-	-
10	7225	1-3/4	SLTST	CLAYEY, MIC.		LT BRN		SLT - V.F. Sd														-	150	-	250	-	-
11	7100	3/4	MDST			BRN		CLAY														1	-	50	100	-	-
12	7016	1-3/4	SST	CLAYEY, CARB				V.F. Sd														-	-	50	200	-	-
13	6900	1	MDST	SLTY, MIC		BRN		CLAY-SLT														-	-	50	-	-	-
14	6828	1	SLST	CAR SDY, CLAY, MIC		LT BRN		SLT														-	100	50	-	-	-
15	6817	1½	SST	LITH, MIC, CARB CLAYEY, GLAUC		LT BRN		V.F. Sd														1	100	-	-	-	-
16	6495	2	SST	MIC, CLEAN TO		LT BRN	FRIAB	F. Sd		A-SR										por	20-25%	WATER	50	100	100	-	-
17	6449	1½	SST	CLAYEY CLAY, MATR, MIC		LT BRN		V.F. Sd	FR	SR												-	-	50	100	-	-
18	6343	1½	SLTST	SDY, 1/1am, VF		WHITE		V.F.Sd-SLT	FR	SA										por	25%	-	50	100	-	-	-
19	6150	1½	SST	MIC, CLAY, SST MATR		LT GY		V.F. Sd	POOR	A												1	50	100	-	-	-
20	5957	1½	SST/SLT	CLAY, MATR		BRN		V.F.Sd-SLT														-	-	-	-	-	-
21	5853	1-3/4	SST/MST	CLAY, MATR, CARB		LT GY		V.F.Sd-CL														-	-	-	-	-	-
22	5657	2	SST/SLT	CLAY, MATR, MIC		LT GY		V.F.Sd-SLT														-	50	-	-	-	-
23	5638	2	SST	CLAY, MATR		LT GY		V.F.Sd		SA										por	30%	WATER	-	-	-	-	-
24	5461	1-3/4	SST	CLEAN		LT GY		F.Sd	WELL	A										por	25-30%	WATER	200	50	-	-	-
25	5414	1½	SST	CLAYEY		LT BRN	V.SOFT		WELL	A-R												-	-	-	-	-	-
26	5330	1-3/4	SST	MINOR CLAY		LT BRN	V.SOFT															-	-	-	-	-	-
27	5263	1½	SST/SLT	CLAYEY		LT GY	V.SOFT															1	100	-	-	-	-

FORM R 257 3.72

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PAGE 2 OF 2

ATT 30 REC 29

DATE 3/2/74

ESSO AUSTRALIA LTD.

SIDEWALL CORE DESCRIPTIONS

IES RUN NO 1 SWC RUN NO 1

SERVICE CO SCHLUMBER/BAROID

GEOLOGIST S. BENEDEK

WELL TOOLKA - 1A

NO. 1a	DEPTH 1	REC 2	ROCK TYPE 3	MODIFIERS 4	CAL 5	COLOR 6	INDUR DEG 7	GRAIN SIZE 8	SRTG 9	RND 10	DISS CLAY 11	STAIN 12	FLOURESCENCE % RK	FLOURESCENCE DISTR 14	FLOURESCENCE INTEN 15	FLOURESCENCE COLOR 16	CUT FLUOR. INTEN 17	CUT FLUOR. COLOR 18	CUT RESIDUE QUAN 19	CUT RESIDUE COLOR 20	SHOW 21	PROB PROD 22	REMARKS - GAS C1	C2	C3	C4	C5+
28	4890	2	SST	CLAY,MATR		LT GY	V.SOFT	V.F.Sd	WELL													-	100	-	-	-	-
29	4540	2	SLTST	SDY,CARB,PYR LITH,MIC,FSP.		BRN		SLT															500	100	-	-	-
30	4505	NR	NR																				N R				

FORM R 257 3.72

359020

359021

WELL COMPLETION REPORT

TOOLKA-1A

APPENDIX III

SAMPLE DESCRIPTIONS

SAMPLE DESCRIPTIONS

TOOLKA-1

359022

D. Maughan/D. Morton
January 18, 1974

DEPTH	%	DESCRIPTION
		20" casing to 704' No returns to 780'
780-810	70	Fossiliferous Limestone, unconsolidated, crinoids, bivalves, forams coral, etc. - trace of volcanics? (light coloured inclusions in red matrix).
	30	Cement cavings.
810-840	70	Limestone. 60% as above, 10% micritic, grey, hard.
	30	Cement.
840-870	60	Fossiliferous Limestone, as above with volcanics?
	40	Cement
870-900	70	Limestone, as above , with volcanics? and some micritic limestone
	30	Cement
900-930	60	Limestone, as above
	40	Cement.
		P.O.H. at 945' - u reamer washed out.
930-960	70	Limestone, as above
	30	Cement
960-990	80	Limestone
	20	Cement
990-1020	60	Limestone, as above, unconsolidated, fossil fragments and some micritic limestone as above
	40	Cement
1020-1050	50	Limestone, as above and trace calcite
	50	Cement? cavings.
1050-1080	40	Limestone
	60	Cement?
1080-1110	70	Limestone, 60% fossiliferous, bryozoa, coral, crinoid etc. 10% micritic, firm, grey and dark grey to black.
	30	Cement
1110-1140	100	Limestone, 80% unconsolidated, fossiliferous, calcite. 20% micritic, as above
1140-1170	80	Limestone, 75% fossiliferous, unconsolidated, mainly mollusk fragments and coral fragments, minor forams-skeletal. 5% micritic - firm hard, dark grey-black.
	20	Cement
1170-1200	90	Limestone - 85% fossiliferous as above. 5% micritic as above
	10	Cement.
1200-1230	90	Limestone, 85% mainly molluskan fragments, minor coral trace sparry calcite, minor bryozoa - skeletal. 5% micritic as above.
	10	Cement.
1230-1260	100	Limestone, 95% fossiliferous, mainly molluskan and bryozoal fragments and coral - skeletal, and cement cavings. 5% micritic as above
1260-1290	100	Limestone, as above and cement cavings and trace plant remains
1290-1390	100	Limestone, as above plus cement cavings.
1320-1350	100	Limestone, as above plus cement cavings some calcite and some fine grained calcite cemented limestone.

SAMPLE DESCRIPTIONS

TOOLKA-1

D. Maughan/D. Morton
January 18, 1974

359023

DEPTH	%	DESCRIPTION
1350-1380	100	Limestone, as above
1380-1410	100	Limestone, as above plus calcarenite with dark moderately soft non calcareous inclusions. Plus abundant cement cavings.
1410-1440	100	Limestone, 60% fossiliferous, unconsolidated skeletal fragments, 40% calcarenite with glauconnite and dark inclusions (glauconite) too small to identify.
1440-1470	100	Limestone 50% fossiliferous as above plus trace cement 10% calcarenite as above.
1470-1500	100	Limestone, 50% fossiliferous as above, 50% calcarenite as above
1500-1530	100	Limestone, 60% fossiliferous, as above plus trace cement 40% calcarenite as above plus trace micrite.
1530-1560	100	Limestone, 60% fossiliferous, as above plus abundant cement. 40% Calcarenite, as above.
1560-1590	100	Limestone, 50% as above with abundant cement, 50% calcarenite as above Trace plant remain
1590-1620	100	Limestone, 30% fossiliferous as above, trace cement. 70% calcarenite with glauconite inclusions and dark coloured inclusions which is possible glauconite.
1620-1650	100	Limestone, 40% fossiliferous, foram, coral etc, trace cement 60% calcarenite as above plus some micrite.
1650-1680	100	Limestone, 50% fossiliferous, as above with abundant spicules and cement. 50% calcarenite as above. Trace slightly calcareous medium grey, firm shale?
1680-1710		As above with abundant cement
1710-1740	100	Limestone, 55% skeletal fossiliferous, abundant forams, bryozoa, mollusk fragments, coral. 45% calcarenite, fine grained, consolidated, moderately hard, grey, trace glauconite, with abundant cement.
1740-1770	100	Limestone, 60% as above skeletal fossilferous. 40% Calcarenite as above, trace glauconite.
1770'-1800	100	Limestone, 50% fossiliferous, as above. 50% calcarenite, as above. Trace marl, light grey, soft.
1800-1830	90	Limestone, 50% skeletral unconsolidated, coral, gastropods etc. 50% very fine calcarenite as above, and some micrite.
	10	Marl, light grey, soft, calcareous.
1830-1860	60	Limestone, 40% fossiliferous, unconsolidated, stems, gastropods, coral etc. 10% calcarenite - as above with dark inclusions. 10% calcilutite, medium grained, hard.
	40	Marl, light grey, soft plus cement cavings.
1860-1890	40	Limestone, fossiliferous, as above plus traces of calcarenite as above.
	60	Marl, as above plus trace cement. Trace black fine grained grey Coal?
1890-1920	30	Limestone, fossiliferous, stems, etc, as above plus trace calcarenite as above
	70	Marl and trace cement
1920-1950	10	Limestone, fossiliferous plus trace calcarenite.
	90	Marl, light grey to medium grey, soft.
1950-1980		As above

SAMPLE DESCRIPTIONS

TOOLKA-1

359024

D. Maughan/D. Morton

January 18, 1974

DEPTH	%	DESCRIPTION
1980-2010		As above.
2010-2040	10	Limestone, 5% unconsolidated, skeletal, mollusk, echinoid remains forams, bryozoa. 5% Micrite- light grey, hard.
	90	Marl, as above
2040'-2070	15	Limestone, 5% skeletal unconsolidated as above. 5% very fine calcarenite, light grey, hard, trace glauconite, 5%micrite dark grey, hard.
	85	Marl, light grey to medium grey, very soft.
2070-2100	10	Limestone, 5% skeletal unconsolidated as above 5% Micrite as above
	90	Marl, as above
2100-2130	10	Limestone, 5% skeletal unconsolidated as above trace spar. 5% micrite as above to very fine calcarenite.
	90	Marl plus cement.
2130-2160	10	Limestone, 50% unconsolidated skeletal as above. 5% very fine calcarenite, micrite as above, sparry calcite trace glauconite.
	90	Marl, as above, plus cement
2160-2190	10	Limestone, 5% skeletal as above, trace glauconite. 5% very fine calcarenite, light grey, black hard.
	90	Marl plus cement
2190-2250	100	Marl, medium grey, soft to moderately firm, less calcarenite than previously, plus abundant fossiliferous fragments.
2250-2280	100	Marl, as above plus fossiliferous fragments (caving?)
2280-2310		As above
2310-2340	100	Marl, medium grey, soft to moderately firm and some dark grey becoming fissile, slightly calcareous, as above
2370-2400	100	Marl, as above with trace fossils, glauconite, and coal (black moderately firm).
-2430	90	Marl, light to medium grey, trace fossiliferous, glauconite.
	10	Shale, grey, only slightly calcareous, moderately fissile, moderately firm to soft
2430-2460		As above
2460-2490		As above plus trace carbonaceous material
2490-2520	80	Marl, medium to dark grey, soft, trace fossils, glauconite.
	20	Shale, green, soft to moderately firm, calcarenite, non-fissile.
2520-2550	70	Marl, as above
	30	Shale, as above
2550-2580	50	Marl, as above with trace grey, firm micrite
	50	Shale, grey and green, moderately firm, slightly calcareous
2580-2600	10	Marl, plus micrite (grey) plus fossiliferous fragments
	90	Shale, as above
2610-2640	30	Marl, plus trace calcarenite (light colour) with dark inclusions
	70	Shale, as above

Sample Descriptions
TOOLKA-1

D. Maughan
D. Morton

359025

Jan. 18, 1974

Depth	%	DESCRIPTION
2640-2670	70	Marl, grey, moderately firm, plus calcarenite, light coloured with glauconitic inclusions and fossiliferous fragments.
	30	Shale, grey to dark grey, moderately firm, trace pyrite.
2670-2700	40	Marl, as above and fossil fragments.
	50	Calcarenite, soft moderately firm, dark inclusions (glauconite).
	10	Shale, as above.
2700-2730	50	Calcarenite, as above
	50	Marl, very soft to moderately firm, light grey to grey.
2730-2760	40	Marl, as above.
	60	Calcarenite, soft to moderately firm, dark inclusions and glauconite inclusions. Trace of shale and pyrite.
2760-2790	30	Marl, light grey, fossil fragments.
	70	Very soft calcilutite with dark inclusions.
2790-2820	20	Marl, as above, with some light green shale.
	80	Calcilutite/Calcarenite, as above, some firm and pyritic in places.
		POH @ 2840' to run casing.
		A. Rigg D. Maughan S. Benedek. 22nd January, 1974
		Ran casing unable to run seal assembly, pulled and repaired choke line on stack. Reran stack.
2820-2850	100	Cement
2850-2880	100	Marl, light grey fossiliferous, glauconitic. Trace grey shale, red jasper with quartz.
2880-2910	100	Marl as above soft.
2910-2940	100	Marl, as above, soft, light grey, fossiliferous, glauconite. dark green almost black. Trace grading to calcarenite.
2940-2970	100	Marl, as above, soft, trace firm, trace pyrite.
2970-3000	100	Marl, as above, very soft, trace round clear quartz, red chert.
3000-3030	100	Marl, as above, light grey, very soft, glauconitic, fossiliferous. Trace pyrite.
3030-3060	100	Marl, light grey, very soft, slightly less glauconitic, fossiliferous, trace pyrite, clear coarse red quartz.
3060-3090	100	Marl, light grey, very soft, fossiliferous, glauconite, trace brown, sandy marl, pale green-grey, calcarenite, pyrite.
3090-3120	95	Marl, as above, increasingly sandy, common grains of medium to coarse, rounded, clear quartz grains, glauconitic, fossiliferous.
	5	Marl, sandy light to pale green-grey with very fine quartz, glauconitic, fossiliferous. Trace pyrite.

Sample Descriptions

Toolka-1

359026

A. Rigg
D. Maughan
S. Benedek
January 22, 1974

DEPTH	%	DESCRIPTION
3120-3150	90	Marl, light grey, becoming coarser grading towards calcarenite, glauconitic.
	10	Marl, brown, slightly sandy, fine grained, trace glauconite, trace pyrite, light brown sandy dolomite.
3150-3180	70	Marl, light grey as above, glauconitic, fossiliferous.
	30	Marl, brown, sandy with very fine grained quartz. Trace dolomite, light brown, hard, glauconitic, sandy, trace pyrite.
3180-3210	50	Marl, light grey, as above, soft.
	50	Marl, brown, sandy silty, soft as above
		Trace pyrite.
3210-3240	60	Marl, light grey, as above, soft glauconitic, fossiliferous.
	40	Marl, brown, sandy silty, glauconitic, trace gas bubbles.
3240-3300	60	Marl, light grey, as above, soft, glauconitic, fossiliferous.
	40	Marl, brown, sandy
		Trace dolomite, light brown, glauconitic.
		Drill speed increased 60' sample taken.
3300-3360	60	Marl, brown, sandy, silty, soft, slightly glauconitic.
	40	Marl, light grey, soft, fossiliferous, glauconitic.
3360-3390	60	Marl, brown, sandy silty, soft, slightly glauconitic.
	40	Marl, light grey, fossiliferous, decreasingly glauconitic.
		Trace pyrite.
3390-3420	60	Marl, brown sandy, silty, soft.
	40	Marl, light grey, soft, fossiliferous, glauconitic.
3420-3450	70	Marl,brown, sandy, silty, soft.
	30	Marl, light grey, soft, fossiliferous, glauconite.
3450-3480	70	Marl, brown, sandy, silty
	30	Marl, light grey, glauconitic,fossiliferous.
		Trace coal, pyrite.
3480-3510	70	Marl, brown, sandy silty, as above.
	30	Marl, light grey, glaucontic, fossiliferous.
		Trace, pyrite, coal.
3510-3540	60	Marl, brown, sandy, silty, soft, slightly fossiliferous, glauconitic.
	40	Marl, light grey, glauconitic, fossiliferous.
		Trace pyrite, trace light brown dolomite, glauconitic, foraminifera, polished clear quartz grains.
3540-3570	60	Sandy to dolomitic Sandstone, light brown, with coarse polished clear to milky quartz grains, glauconitic.
	20	Marl, brown as above.
	20	Marl, light grey, as above.
		Trace pyrite.
3570-3600	50	Dolomitic sandstone. light brown to orange, coarse to fine, well rounded to subangular clear to milky grains, glauconitic.
	25	Marl, brown, as above.
	25	Marl, light grey, as above.
		Trace coal..
3600-3630	40	Marl, light grey, glauconitic, fossiliferous
	40	Marl, brown, sandy, silty
	20	Dolomitic sandstone, light brown, orange, coarse,rounded polished quartz grains.
		Trace pyrite, trace coal.

Sample Descriptions

A.Rigg/D.Maughan/S.Benedèk
January 22,1974

Toolka-1A

359027

DEPTH	%	DESCRIPTION
3630-3660	50	Marl, brown, sandy silty, grading to calcareous siltstone, carbonaceous soft,
	45	Marl, light grey, very fossiliferous, glauconitic, glauconite coarser and increased.
	5	Sandstone, dolomitic, coarse; as above.
		Trace coal, pyrite.
3660-3690	70	Siltstone, brown, glauconitic, soft calcareous.
	30	Marl, light grey, glauconitic, fossiliferous.
		Trace pyrite, coal, dolomitic sandstone.
3690-3720	50	Siltstone, brown, soft.
	35	Marl, light grey, glauconitic, fossiliferous.
	15	Sandstone, dolomitic, light brown. Trace coal, pyrite.
3720-3750	60	Siltstone, brown, slightly carbonaceous, gas bubbles, calcareous.
	40	Marl, light grey, glauconitic, fossiliferous.
		Trace pyrite.
3750-3780	70	Siltstone, brown, carbonaceous, pyritic, soft calcareous
	30	Marl, light grey, glauconitic, fossiliferous, soft.
3780-3810	80	Siltstone, brown, carbonaceous, soft, calcareous.
	20	Marl, light grey, glauconitic, fossiliferous, soft.
		Trace pyrite,dolomitic sandstone, foraminifera.
3810-3840	80	Siltstone, brown, carbonaceous, sandy, soft, calcareous.
	20	Marl, light grey, glauconitic, fossiliferous, foraminiferal.
		Trace pyrite, polished coarse grained sand.
3840-3870	85	Siltstone, brown to light brown, carbonaceous, calcareous, soft
	15	Marl, light grey, glauconitic, fossiliferous, probable caving from above.
		Trace coal, sand grains, pyrite.
3870-3885	85	Siltstone, brown, carbonaceous, sandy, very slightly calcareous.
	15	Marl, caving.
		Trip for bit 3884'
		Changed bit, lost 3 cones. Run in bit to drill up cones.
		start milling.
3885-3900	90	Siltstone, brown, carbonaceous,calcareous.
	10	Marl, as above
		Trace pyrite, coarse, polished quartz grains.
3900-3920	100	Siltstone, brown, carbonaceous, calcareous.
		Trace pyrite, Marl as above, fine grained, dolomitic sandstone, orange.
3920-3940	100	Siltstone, brown, soft, carbonaceous, calcareous
		Trace pyrite.
3940-3960	90	Siltstone, brown, soft slightly pyritic, micaceous, fossiliferous, calcareous, carbonaceous.
	10	Marl, light grey, glauconitic, (caving). Trace pyrite.
3960-3980	100	Siltstone, brown, soft, carbonaceous, calcareous.
		Pulled bit 3998'.

Sample Descriptions
Toolka-1A

A.Rigg/D.Maughan/S.Benedek
January 23, 1974

359028

DEPTH	%	DESCRIPTION
3980-4000	100	Siltstone, brown to dark brown, carbonaceous, calcareous, to very slightly calcareous (dark brown less calcareous), fossiliferous, pyritic.
4000-4020	100	Siltstone, brown to mainly dark brown, carbonaceous calcareous, as above.
4020-4040	100	Siltstone, mainly dark brown, calcareous, only in very thin fissures, carbonaceous, pyritic.
4040-4050	100	Siltstone, dark brown, carbonaceous, fossiliferous as above. Trace marl, grey, glauconitic,cavings.
4050-4060	100	Siltstone, dark brown, carbonaceous, fossiliferous, pyritic, as above. Trace marl cavings, trace fine sand grains, subrounded, milky.
4060-4070	60	Dolomite, cryptocrystalline, massive, small sparry veinlets, very hard, very calcareous, light fawn-buff.
	40	Siltstone, brown, as above
		Trace sandstone, clean, dolomitic, tight, grains subrounded, clear.
4070-4080	70	Dolomitic sandstone, brown-buff, sparry veins (rare calcareous).
	30	Siltstone, dark brown as above.
4080-4090	100	Siltstone, dark brown, carbonaceous, very slightly calcareous, pyritic. Trace dolomitic sandstone, marl.
4090-4100	100	Siltstone, dark brown, carbonaceous, very slightly calcareous, pyritic. Trace dolomitic sandstone, marl.
4100-4110	100	Siltstone, dark brown, carbonaceous, as above. Trace dolomitic sandstone, marl.
4110-4120	100	Siltstone, dark brown, carbonaceous, slightly harder, as above.
4120-4130	85	Siltstone, dark brown, carbonaceous, as above
	15	Dolomitic sandstone, dark brown, matrix abundant, tight.
4130-4140	80	Dolomitic sandstone, dark brown, hard, as above
	20	Siltstone, dark brown, carbonaceous, as above.
4140-4160	70	Siltstone, dark brown, carbonaceous, as above.
	30	Dolomitic Sandstone, dark brown, as above
4160-4180	100	Siltstone, dark brown, carbonaceous, soft
		Trace dolomite, brown with calcite fracture filling.
4180-4200	100	Siltstone, dark brown, carbonaceous, as above.
		Trace dolomitic sandstone, as above
4200-4220	100	Siltstone, dark brown, carbonaceous, as above.
		Trace dolomitic sandstone, as above
4220-4240	90	Siltstone, dark brown, carbonaceous, as above
	10	Dolomitic sandstone, as above.
4240-4260	100	Siltstone, dark brown, carbonaceous, as above
		Trace dolomitic sandstone, as above.
4260-4280	100	Siltstone, dark brown,carbonaceous, as above

Sample Descriptions

TOOLKA-1

S. Benedek/S. Giles

January 23, 1974

359029

DEPTH	%	DESCRIPTIONS
4280-4290	60	Siltstone, dark brown, carbonaceous, as above.
	40	Sandstone, friable, grains clear to milky, fine to coarse, subangular to subrounded.
4290-4300	80	Siltstone, dark brown, carbonaceous, as above.
	20	Sandstone, friable, fine to medium as above.
4300-4310	80	Siltstone, dark brown, carbonaceous as above
	20	Sandstone, friable, fine to medium as above
4310-4320	85	Siltstone, dark brown, carbonaceous, as above
	15	Sandstone, friable, fine to medium, as above
4320-4340	90	Siltstone, dark brown, carbonaceous, as above
	10	Sandstone, friable, fine to medium, as above
4340-4350	80	Siltstone, dark brown, carbonaceous, as above.
	15	Dolomitic sandstone, dark brown, as above.
	5	Sandstone, friable, as above
4350-4360	50	Siltstone, as above, dark brown, carbonaceous
	50	Sandstone, dolomitic, brown as above
		Trace sandstone, friable
4360-4370	60	Siltstone, dark brown, carbonaceous, soft bleeding gas.
	40	Sandstone, lighter brown, calcareous, friable to hard, very fine grained, quartz, lithic, carbonaceous matrix, trace common coarse quartz.
4370-4390	50	Siltstone, brown, carbonaceous, soft
	20	Sandy to friable, sandstone, lighter brown, calcareous.
	30	Sandy, loose, very fine to medium, poorly sorted, rounded polished quartz, clear to milky, lithic with apple green grains.
4390-4410	60	Siltstone, brown, carbonaceous as above
	40	Sandstone, light brown, very fine, fairly sorted, calcareous, friable to consolidated, quartz and lithic.
		Trace coarse sand.
4410-4430	50	Siltstone, brown, carbonaceous, as above.
	30	Sand quartz, medium to coarse to fine, poorly sorted, clear to white,
	20	Sandstone, light brown, very fine, calcareous lithics.
4430-4450	50	Siltstone, brown carbonaceous, as above
	50	Sand, loose fine to coarse, poorly sorted, round to polished clear to white quartz.
		Samples are poor quality, it is hard to wash and retain the loose sand, quantities are only estimated.
4450-4470	40	Siltstone, brown, as above
	50	Sand, loose, very fine quartz.
	10	Sandstone, medium brown, very fine, calcareous lithics.
4470-4490	70	Sandstone, very fine to siltstone, medium grey, calcareous, very tight.
	20	Siltstone, brown, carbonaceous.
	10	Dolomite, chocolate brown, hard.
		Drilling break 4515'. Circulated sample 4525'.

4490-4510	70	Sand to sandstone, light to medium grey, very fine to coarse well sorted in sandstone, unsorted in loose sand. Sample is very poor.
	30	Siltstone, brown, as above
4510-4520	70	Siltstone, brown, carbonaceous
	30	Sandstone, very fine to siltstone, calcareous, lithic, very tight. Trace coarse sand.
4520-4530	70	Siltstone, brown, as above.
	20	Silty clay, light brown, very soft, glauconitic.
	10	Sandstone, very fine grained, calcareous, dolomitic. Trace silty kaolin, white, coarse sand.
4530-4540	80	Siltstone, brown, carbonaceous.
	20	Sandstone, very fine, light brown, glauconitic, calcareous, dolomitic. Trace white kaolin, pyrite.
4540-4550	100	Siltstone, brown, carbonaceous, calcareous, soft. Trace sand coarse, rounded, polished grains.
4550-4560	70	Siltstone, brown, carbonaceous, calcareous, soft.
	30	Clay, silty, light brown, glauconitic. Trace, sandstone, dolomitic, pyrite, fossiliferous.
4560-4570	90	Siltstone, btown, carbonaceous, calcareous, soft.
	10	Sandstone to siltstone, light brown, calcareous, dolomitic. Trace sand, coarse, rounded, pyrite.
4570-4580	80	Siltstone, brown, carbonaceous, calcareous, soft.
	20	Siltstone, to sandstone, very fine, light to medium gray, very soft, with clay matrix to semi-consolidated.
		Trip for bit 4530'.
4580-4600	90	Siltstone, brown, carbonaceous, as above.
	10	Siltstone, buff, soft, as above Trace dolomitic sandstone.
4600-4620	80	Siltstone, dark brown, carbonaceous, as above
	20	Siltstone, to very fine sandstone, buff, slightly calcareous, soft, as above. Trace dolomitic sandstone.
4620-4640	80	Siltstone, dark brown, carbonaceous, as above
	20	Siltstone, to very fine sandstone, buff, soft as above
4640-4660	90	Siltstone, light grey, to light green, very slightly calcareous (?dolomitic), very hard.
	10	Siltstone, dark brown, carbonaceous, as above
4660-4680	100	Siltstone, dark brown, carbonaceous, as above Trace siltstone, light grey, dolomitic. Trace siltstone, buff, soft.
4680-4700	90	Siltstone, buff to brown, fairly compact, as siltstone, buff above
	10	Siltstone, dark brown, carbonaceous, as above.
4700-4720	60	Siltstone, buff to brown, compact as above.
	35	Siltstone, dark brown, carbonaceous, as above
	5	Pyrite, trace dolomitic sandstone, grain coal.
4720-4740	90	Siltstone, brown, compact as above.
	10	Siltstone, dark brown, carbonaceous as above
4740-4760	90	Siltstone, brown, compact as above
	5	Siltstone, dark brown, carbonaceous, as above
	5	Pyrite.

Sample Descriptions

S.Benedek/S. Giles
January 24, 1974

Toolka-1

359031

DEPTH	%	DESCRIPTION
4760-4780	60	Siltstone, brown, compact, as above.
	40	Siltstone, dark brown, carbonaceous, as above.
4780-4800	60	Siltstone, brown, compact, as above
	40	Siltstone, dark brown, carbonaceous, as above
4800-4820	90	Siltstone, brown, compact as above
	10	Siltstone, dark brown, carbonaceous as above
		Trace Sandstone, very fine to fine, light green-light grey, tight, clay matrix, slightly calcareous.
4820-4840	60	Siltstone, brown, compact, as above.
	40	Siltstone, dark brown, carbonaceous, as above.
4840-4860	50	Siltstone, dark brown, carbonaceous, as above
	45	Siltstone, brown, compact, as above.
	5	Siltstone, light green-light grey, dolomitic, very hard, pyritic.
4860-4880	90	Shale, black, very carbonaceous to coal, shaley.
	5	Siltstone, brown, compact as above
	5	Siltstone, brown, platy fracture, micaceous, carbonaceous plates, parallel cleavage.
		Trace sandstone, light grey, calcareous, very fine to fine.
4880-4900	80	Carbonaceous shale to coal, as above
	10	Siltstone, brown, platy, micaceous, carbonaceous, as above
	5	Siltstone, brown,compact, as above
	5	Siltstone, dark brown, carbonaceous, as above
4900-4920	60	Siltstone, dark brown, carbonaceous, as above.
	30	Siltstone, brown, compact, as above
	5	Shale, very carbonaceous to coal
	5	Sandstone, light grey, calcareous, very fine to fine.
4920-4940	80	Sandstone, coarse to very coarse, friable, grains subangular to subrounded, clear, patches of dolomitic cement, well sorted, clear, No gas kick, no shows, no fluorescence.
	10	Carbonaceous shale to coal.
	10	Siltstone, brown, compact, as before, rare gas bubbles.
4940-4960	10	Sandstone, coarse to very coarse, friable, dolomitic patches, as above.
	85	Siltstone, dark brown, micaceous, carbonaceous, platy, slight bubbles.
	5	Shale, carbonaceous to coal. Cutting Gas 60 units.
4960-4980	90	Siltstone, dark brown, micaceous, carbonaceous, as above
	10	Sandstone, coarse to very coarse, friable, dolomitic.
		Trace shale, carbonaceous to coal
		Mud Gas 55 units, Cutting gas 275 units (50 C_2)
4980-4985	100	Shale, very carbonaceous, black to coal, black dull.
4985-5000	100	Coal, black to shale, very carbonaceous, black
		Trace siltstone, dark brown, micaceous, carbonaceous.
		Trace sandstone, very coarse to coarse, friable.
5000-5020	100	Coal, black, dull and shale, very carbonaceous, black
		Trace sandstone, dolomitic, buff, fine to medium and sandstone friable, coarse to very coarse.
		Trace siltstone, dark brown, micaceous, carbonaceous.
5020-5040	50	Coal to carbonaceous shale
	50	Siltstone, dark brown, micaceous, carbonaceous.
		Trace sandstone, very coarse and sandstone, dolomitic
5040-5060	100	Coal to carbonaceous shale, often shaley and pyritic.
		Trace sandstone, very coarse.

Sample Description
Toolka-1

359032

S. Benedek/S.Giles
January 24, 1974

DEPTH	%	DESCRIPTIONS
5060-5070	90	Coal to carbonaceous shale, as above
	10	Siltstone, dark brown, micaceous, pyritic.
5070-5080	80	Sandstone, coarse to very coarse, friable, as before.
	10	Siltstone, brown, micaceous, platy, pyritic, as above
	10	Coal, black, and shale, black carbonaceous.
5080-5089	80	Sandstone, coarse to very coarse, friable, as above
	20	Siltstone, brown, micaceous, platy, as above.
		Trace coal.
5089-5119		Core No. 1 Rec. 30' 100 silstone interlaminted, very fine sandstone with 3" - 6" bands of dolomite.
5119-5140		Mixed sample after core run.
	30	Light brown siltstone to very fine dolomitic sandstone.
	30	Light grey very fine sandstone, calcareous.
	10	Sand, milky to clear, coarse quartz grains.
	30	Siltstone, brown carbonaceous
		Trace Coal, pyritic
5140-5160	50	Siltstone, light brown to buff, sandy, soft, carbonaceous.
	25	Coal, black to very carbonaceous shale.
	25	Sand, quartz, clear to milky subangular to subrounded, coarse, loose well sorted.
5160-5180	70	Siltstone, light brown to buff, sandy, soft as above.
	10	Sandstone, to siltstone, light grey, calcareous.
	10	Coal to very carbonaceous shale.
	10	Sandy quartz, coarse, subangular to rounded, loose.
5180-5200	80	Siltstone, light brown, buff, soft, dolomitic, carbonaceous
	10	Coal
	10	Siltstone, dark brown, carbonaceous
		Trace sand, coarser as above, dolomite.
5200-5220	90	Siltstone, light brown to buff, soft, carbonaceous, micaceous, as above.
	5	Siltstone, dark brown, carbonaceous.
	5	Sand, coarse, as above
		Trace coal.
5220-5240	80	Siltstone, light brown-buff, soft, carbonaceous, micaceous, as above.
	10	Siltstone, dark brown, carbonaceous
	5	Sand, coarse as above
	5	Coal
5240-5260	40	Siltstone, light brown to buff, soft, carbonaceous, micaceous.
	30	Siltstone, dark brown, carbonaceous.
	30	Sand quartz, white, subangular to rounded, coarse, loose.
		Trace pyrite, dolomite, red jasper.
5260-5280	70	Sand quartz, milky to clear, coarse, loose fairly sorted, subangular to rounded.
	20	Siltstone, light brown to buff, soft, carbonaceous
	10	Siltstone, dark brown, carbonaceous
		Trace Coal
5280-5300	70	Sandstone, light grey to cream, very fine to silt size.
	20	Siltstone, light brown to buff, carbonaceous
	10	Sand quartz, clear to white, coarse, subangular to subrounded, loose.
5300-5320	70	Siltstone, light brown to buff, carbonaceous
	20	Sandstone to siltstone, light grey to cream, slightly carbonaceous slightly calcareous.
	10	Sand quartz, coarse as above.
		Trace Coal

Sample Description
Toolka-1

359033

S. Benedek/S. Giles
January 24,1974

DEPTH	%	DESCRIPTION
5320-5340	50	Siltstone, light brown to buff, carbonaceous
	35	Sandstone to siltstone, light grey to cream calcareous.
	15	Sand, quartz, coarse as above.
		Sandstone is fairly tight with clay matrix and calcareous cement.
5340-5360	90	Siltstone, light brown to buff, carbonaceous
	5	Siltstone, dark brown, carbonaceous.
	5	Sand, coarse, loose as above
5360-5380	60	Siltstone, light brown to buff, carbonaceous
	30	Very carbonaceous shale to coal
	10	Sandstone, light grey to cream and sand coarse as above
5380-5385	100	Coal, grading to carbonaceous shale.
		Bleeding gas weak fluorescence, very weak cut.
		Hot wire 55 C_1 8500.
5385-5400	100	Coal
5400-5420	70	Coal, as above
	20	Siltstone, light brown - buff, carbonaceous.
		Trace sand, coarse, sandstone, light grey, as above, amber
5420-5440	50	Coal
	30	Siltstone, light brown - buff, carbonaceous, as above
	20	Siltstone to very fine sandstone, light grey to cream
5440-5460	100	Siltstone, light brown, carbonaceous.
		Trace coal, sandy quartz, coarse.
5460-5480	90	Siltstone, light brown to buff, carbonaceous as above
	10	Coal
		Trace sand, coarse.
5480-5500	90	Siltstone to claystone, light brown to buff, soft.
	10	Coal
5500-5520	60	Siltstone, light brown-buff, carbonaceous grading to claystone in parts.
	40	Coal
5520-5537	90	Coal, bleeding gas slightly.
	10	Siltstone, light brown, as above
5537-5540	80	Coal, bleeding gas slightly.
	20	Siltstone, light brown as above
5540-5560	90	Siltstone, light brown, carbonaceous
	10	Coal
		5550-5560' Probable5' ahead of true lag due to enlarged hole.
		Hot wire 125 C_1 6000 ppm. 100% Coal, bleeding gas slightly.
5560-5580	100	Coal
5580-5600	90	Coal
	10	Siltstone, light brown to buff, carbonaceous.
		Drilling break appeared 5643' circulated out at 5648'
5600-5620	70	Siltstone to claystone, light brown to buff, carbonaceous.
	30	Coal
5620-5648	40	Sandstone to Siltstone, very fine grained, calcareous, carbonaceous.
	30	Siltstone, light brown to buff, carbonaceous
	30	Coal
5648-5660	60	Siltstone, light brown to buff, carbonaceous grading to clay
	40	Coal

Sample Descriptions

TOOLKA-1

359034

S. Benedek/S. Giles
January 25, 1974

DEPTH	%	DESCRIPTIONS
5660-5680		1st Sample after trip - generally as above.
5680-5700	90	Coal, black, bright.
	10	Siltstone, dark brown, carbonaceous, sandy, micaceous.
5700-5710	90	Coal
	5	Siltstone, dark brown, carbonaceous, sandy, micaceous.
	5	Sandstone, fine, buff, calcareous cement
5710-5720	80	Siltstone, light brown - buff, micaceous, carbonaceous
	20	Coal
		Trace Sandstone, coarse to very coarse
5720-5730	60	Siltstone, light brown - buff, micaceous, carbonaceous
	30	Siltstone, to claystone, olive.
	10	Coal
5730-5740	100	Coal, black, bright.
		Hot wire 100, C_1 6000
5740-5750	30	Coal
	30	Sandstone, very fine, buff, non-calcareous, clay matrix, micaceous.
	30	Siltstone, dark brown, micaceous, carbonaceous, platy.
	10	Claystone to siltstone, olive
5750-5760	40	Claystone to Siltstone, olive.
	10	Coal
	30	Siltstone, brown, micaceous, carbonaceous
	20	Sand, loose, coarse, grains angular to subrounded.
5760-5770	60	Siltstone, brown, micaceous, carbonaceous
	20	Coal
	10	Dolomite, brown, very hard
	10	Claystone to siltstone, olive
5770-5780	70	Claystone - siltstone, olive to buff
	25	Siltstone, dark brown, carbonaceous, very pyritic
	5	Coal
5780-5790		Hot Wire 100 C_1 15,000 C_2 200
	95	Coal
	5	Claystone to Siltstone, olive to buff..
5790-5800	60	Claystone to Siltstone, olive to buff.
	40	Coal
5800-5810		Hot Wire 230 C_1 23,000
	100	Coal
5810-5820	100	Coal
		Trace claystone to siltstone, olive to buff.
5820-5830	90	Coal
	10	Very carbonaceous black shale
		Trace claystone - siltstone, olive to buff
5830-5840	70	Coal
	20	Siltstone, dark brown, very carbonaceous, micaceous
	10	Shale, black, very carbonaceous
5840-5850	90	Coal, bleeding some gas
	10	Siltstone, dark brown, very carbonaceous, micaceous

Sample Description

TOOLKA-1

S.Benedek/S.Giles

January 25, 1974

359035

DEPTH	%	DESCRIPTION
5850-5860	60	Siltstone, brown to claystone
	30	Coal
	10	Sand to sandstone, loose coarse to very fine, consolidated.
5860-5870	20	Sandstone, very fine, buff, clayey matrix.
	60	Siltstone, buff to dark brown, micaceous, carbonaceous
	20	Coal
5870-5880	100	Coal and very carbonaceous shale
		Trace sandstone, buff, very fine.
		Trace Siltstone, olive
5880-5890	50	Coal (Trace very carbonaceous Shale)
	50	Siltstone, buff, micaceous, carbonaceous
5890-5900	80	Coal,with some carbonaceous shale.
	15	Sandstone, buff, very fine, clayey, interlaminated with
	5	Siltstone, buff - light brown, micaceous, carbonaceous.
5900-5910	100	Coal
		Trace Siltstone, buff to olive
5910-5920	20	Coal
	60	Sandstone, very fine, white to buff, clayey, interlaminated with
	20	Siltstone, light brown, micaceous, carbonaceous.
5920-5930	80	Sandstone, fine to very fine, white to buff,clay matrix, tight.
	10	Siltstone, dark brown, micaceous, carbonaceous.
	10	Coal.
5930-5940	100	Coal
		Trace Sandstone
5940-5940	40	Sandstone, fine to very fine, white to buff, clay matrix,
	40	Siltstone, buff to olive
	20	Coal
5950-5960	40	Sandstone, very fine to fine, white to buff, tight as above
	10	Siltstone, buff to olive
	30	Siltstone, brown, carbonaceous, micaceous
	20	Coal
5960-5970	10	Sandstone, fine to very fine, white to buff, tight.
	70	Siltstone, brown, carbonaceous, micaceous.
	20	Coal
5970-5980	60	Coal
	30	Siltstone, brown, carbonaceous, micaceous
	10	Sandstone, very fine to fine, white to buff, tight.
5980-5990	70	Claystone to siltstone, brown, carbonaceous
	20	Coal
	10	Sandstone, very fine, light grey
5990-6000	80	Siltstone to claystone, light brown, micaceous, carbonaceous
	10	Coal
	10	Sandstone, light grey, very fine.
6000-6010	80	Claystone to siltstone, light brown, micaceous, carbonaceous
	10	Siltstone, dark brown, carbonaceous
	10	Coal
		Trace sandstone, light grey, very fine

Sample Descriptions

S.Benedek/S.Giles
January 25, 1974

TOOLKA-1

359036

DEPTH	%	DESCRIPTION
6010-6020	90	Claystone to siltstone, light brown, carbonaceous
	10	Coal to sandstone
6020-6030	100	Claystone to siltstone, light to medium brown, carbonaceous, pyritic. Trace Coal, Sandstone, light grey
6030-6040	100	Siltstone to claystone, light to medium brown, carbonaceous Trace Coal
6040-6050	100	Siltstone to claystone, light to medium brown, carbonaceous Trace Coal
6050-6060	90	Siltstone, light to medium brown, carbonaceous, bleeding slightly, gas kick.
	10	Sandstone, light grey, very fine, tight to slightly porous, inter-laminated granular quartz.
6060-6070	80	Siltstone, light to medium brown, carbonaceous, pyritic.
	20	Sandstone, light grey, very fine, fairly well sorted, subrounded, gas kick, some matrix, slight porosity.
6070-6080	90	Siltstone, light to medium brown, carbonaceous, laminated.
	10	Sandstone, light grey, very fine, as above, carbonaceous very slight fluorescence and cut.
6080-6090	90	Siltstone, light brown to medium brown, carbonaceous, laminated.
	10	Coal
6090-6100	80	Siltstone, light to medium brown, very carbonaceous, gas kick 112 units.
	20	Coal
6100-6110	90	Coal, gas kick 300 units , C_1 28,000
	10	Siltstone, light to medium brown, carbonaceous. Trace sandstone, light grey, very fine
6110-6120	100	Coal, black, bright Trace siltstone, medium brown, carbonaceous
6120-6130	100	Coal, black, bright Trace siltstone, medium brown, carbonaceous
6130-6140	40	Siltstone, medium brown, carbonaceous, laminated, micaceous
	30	Sandstone, very fine, buff, tight
	30	Coal
6140-6150	100	Coal Trace Siltstone, brown, carbonaceous, micaceous
6150-6160	70	Coal
	30	Siltstone, brown, very carbonaceous
6160-6170	80	Coal
	20	Siltstone, brown, very carbonaceous
6170-6180	85	Coal
	10	Siltstone, brown, carbonaceous
	5	Sandstone, very fine, buff, clayey, tight
6180-6190	70	Coal
	30	Siltstone, brown, carbonaceous Trace sandstone, very fine, buff, tight
6190-6200	50	Coal
	50	Siltstone, brown, carbonaceous
6200-6210	60	Siltstone, brown, carbonaceous.
	30	Coal
	10	Sandstone, very fine, buff, tight

Sample Descriptions
TOOLKA-1

S. Benedek/S.Giles
January 25, 1974

359037

DEPTH	%	DESCRIPTION
6210-6220		As above, Trace dolomite, brown, argillaceous, micaceous
6220-6230	60	Siltstone, brown carbonaceous
	40	Coal
		Trace sandstone, very fine, buff, tight
6230-6240	90	Siltstone, brown, carbonaceous
	10	Coal
		Trace sandstone, very fine, buff, tight
6240-6250	90	Siltstone, brown, carbonaceous, very fine to claystone, as above
	10	Coal
		Trace sandstone, very fine, buff
6250-6255	50	Coal
	30	Siltstone, buff to sandstone, very fine, buff, sandy, micaceous, carbonaceous
	20	Siltstone, brown, carbonaceous to claystone, as above
		Trace sandstone
6250-6260		Hot wire 245. C_1 6000
	100	Coal, high resin content, good fluorescence, slight cut (from amber only).
6260-6270	100	Coal
6270-6280	50	Siltstone to claystone, brown
	30	Siltstone, buff to sandstone, buff, very fine, carbonaceous
	20	Coal
6280-6290	70	Siltstone to claystone, brown
	20	Coal
	10	Siltstone to sandstone, buff, very fine, carbonaceous
6290-6300	80	Claystone to siltstone, brown
	10	Siltstone, buff, carbonaceous
	5	Siltstone to sandstone, very fine, buff
	5	Coal
6300-6310	70	Claystone, brown
	20	Coal
	10	Siltstone, buff, carbonaceous
6310-6320	40	Claystone, brown
	40	Siltstone, buff, carbonaceous
	10	Coal
	10	Sandstone, very fine, buff, clayey, tight.
6320-6330	40	Claystone, brown
	40	Siltstone, buff, carbonaceous
	20	Coal
6330-6340	30	Claystone, brown
	40	Siltstone, buff, carbonaceous
	20	Sandstone, very fine to siltstone, buff
	10	Coal
6340-6350	75	Siltstone, buff, carbonaceous
	10	Coal
	10	Claystone, brown
	5	Sandstone, fine, white, grains, very well rounded, sorting very good, clean quartzose, porosity 15-20%.
6350-6360	70	Siltstone, buff to brown, carbonaceous
	20	Coal
	10	Claystone, brown
		Trace Sandstone, fine, white, porous.

DEPTH	%	DESCRIPTION
6360-6370	50	Siltstone, buff to brown, carbonaceous
	20	Claystone, brown
	30	Coal
		Trace sandstone, fine, white, porous
6370-6380	40	Siltstone, brown, carbonaceous, micaceous
	40	Claystone, Olive to brown
	15	Coal, black bright
	5	Sandstone, fine to very fine, tight, clayey.
6380-6390	50	Siltstone, brown, carbonaceous, micaceous.
	40	Claystone, olive to brown
	10	Coal
6390-6400	50	Siltstone, brown, carbonaceous, micaceous.
	40	Claystone, brown
	10	Coal
6400-6410	50	Siltstone, brown, carbonaceous, pyritic
	50	Claystone, brown
		Trace interlaminated sandstone, coal
6410-6420	50	Siltstone, brown, carbonaceous, bleeding gas
	30	Claystone to mudstone, brown
	20	Coal
6420-6430	90	Coal, black, dull, conchoidal fractured.
	10	Siltstone, brown, as above
6430-6440	50	Coal, as above
	25	Siltstone, brown, carbonaceous.
	25	Claystone to mudstone, brown
6440-6450	50	Siltstone, brown, carbonaceous
	40	Claystone to mudstone, brown
	10	Coal
		Trace sandstone, light grey, very fine, consolidated.
6450-6460	50	Claystone to mudstone, brown
	40	Siltstone, brown, carbonaceous
	10	Coal
6460-6470	50	Coal, dull
	50	Siltstone to mudstone, brown, carbonaceous
6470-6480	40	Siltstone to mudstone, brown, carbonaceous
	40	Siltstone, brown, carbonaceous
	20	Coal
6480-6490	50	Claystone to mudstone, brown
	30	Siltstone, brown, carbonaceous
	10	Sandstone, light grey, very fine consolidated
	10	Coal, dull
6490-6500	40	Siltstone, brown, carbonaceous
	40	Claystone to mudstone, brown
	10	Sandstone, light grey, very fine.
	10	Coal
6500-6510	50	Claystone to Mudstone, brown
	40	Siltstone, carbonaceous
	10	Coal
6510-6520	50	Mudstone to claystone, brown as above
	40	Siltstone, carbonaceous
	10	Coal
		Trace sandstone, light grey, very fine grained
6520-6530	70	Mudstone brown as above
	20	Siltstone, as above
	10	Coal

DEPTH	%	DESCRIPTION
6530-6540	60	Mudstone, brown, as above
	30	Siltstone, carbonaceous, pyritic.
	10	Coal, dull
6540-6550	70	Mudstone, brown, as above
	20	Siltstone, carbonaceous, brown
	10	Coal
		Trace sandstone, very fine, light grey
6550-6560	40	Mudstone, Brown, as above
	30	Siltstone, brown, carbonaceous
	30	Coal, dull
6560-6570	60	Coal, dull
	30	Mudstone, brown, as above
	10	Siltstone, carbonaceous, brown
		Trace sandstone, as above.
5670-6580	80	Mudstone, as above
	10	Siltstone, as above
	10	Coal
6580-6590	80	Mudstone, as above
	10	Siltstone, as above
	10	Coal
6590-6600	90	Mudstone, as above
	10	Siltstone, as above
		Trace coal
6600-6610	90	Mudstone, as above, pyritic
	10	Siltstone, as above
		Trace Sandstone, as above, coal
6610-6620	90	Mudstone, as above
	10	Siltstone, as above
		Trace Sandstone, as above
6620-6630	90	Mudstone, brown, pyritic, organic matter replaced by pyrite.
	10	Siltstone, as above
6630-6640	90	Mudstone, as above
	10	Siltstone, as above
6640-6650	90	Claystone, buff to light olive brown, pyrite (disseminated)
	10	Siltstone, brown, carbonaceous,slightly micaceous, slightly fissile
		Trace coal (cavings)
6650-6660	90	Claystone, buff to light olive brown, pyrite, sub-fissile
	10	Siltstone, brown, carbonaceous, slightly micaceous.
6660-6670	60	Claystone, buff, pyrite, sub-fissile
	40	Siltstone, brown, carbonaceous, micaceous
6670-6680	Hot wire 150 units C_1 12,000	
	60	Coal, black, bright
	30	Siltstone, brown, carbonaceous, micaceous
	10	Claystone, buff to olive, pyritic, probably dolomitised.
		Trace dolomitic shale, dark brown.
6680-6690	40	Claystone, buff to olive, pyritic
	30	Coal
	30	Siltstone, brown, micaceous, carbonaceous
6690-6700	55	Siltstone, as above
	40	Claystone, as above.
	5	Coal

Sample Descriptions

TOOLKA-1

S.Benedek/S.Giles

January 26, 1974

359040

DEPTH	%	DESCRIPTION
6700-6710	80	Siltstone, brown, micaceous, carbonaceous
	15	Claystone, buff to olive, pyritic.
	5	Coal
6710-6720	60	Siltstone, as above
	30	Coal
	10	Claystone, buff to olive, pyrite
6720-6730	80	Coal
	15	Siltstone, as above
	5	Claystone, as above Hot wire 60 C_1 9,000
6730-6740	50	Claystone, as above
	40	Siltstone, as above
	10	Coal
		Trace sandstone, fine, white to buff, tight to porous
6740-6750	60	Claystone, as above
	30	Siltstone, as above
	10	Coal
		Trace sandstone, fine to very fine, white to buff, tight
6750-6760	60	Claystone, as above
	30	Siltstone, as above
	5	Coal
	5	Sandstone, fine to very fine, white to buff, tight.
6760-6770	90	Coal
	5	Claystone, as above.
	5	Siltstone, as above. Hot wire 150 C_1 21,000
6770-6780	90	Coal
	5	Claystone, as above
	5	Siltstone, as above
6780-6790	80	Claystone, as above
	20	Siltstone, as above
		Trace coal
6790-6800	80	Claystone, as above
	15	Coal
	5	Siltstone, as above
6800-6810	70	Claystone, as above
	15	Siltstone, as above
	10	Sandstone, fine, white (porous) to Buff, clayey (tight)
	5	Coal
6810-6820	70	Coal
	25	Claystone, as above
	5	Siltstone, as above
		Trace sandstone, white to buff, fine, porous to tight
6820-6830	50	Claystone, as above
	30	Coal
	20	Siltstone, as above
		Trace sandstone, buff, clayey, tight, very fine
6830-6840	95	Claystone, as above
	5	Siltstone, as above
		Trace coal
6840-6850	100	Claystone, as above
		Trace coal
6850-6860	90	Claystone, as above
	10	Siltstone, buff, micaceous, carbonaceous
		Trace coal

Sample Descriptions

TOOLKA-1

S.Benedek/S.Giles

January 26, 1974

359041

DEPTH	%	DESCRIPTION
6860-6890	80	Claystone, as above
	20	Siltstone, as above
		Trace coal
6870-6880	100	Claystone to siltstone, olive to buff, slightly micaceous, pyritic.
		Trace coal
6880-6890	100	Claystone to siltstone, olive to buff, slightly micaceous, pyritic carbonaceous.
		Trace coal
6890-6900	100	Claystone to siltstone, brown, pyritic, carbonaceous
6900-6910	80	Siltstone, dark brown, carbonaceous
	10	Claystone to mudstone, brown as above
	10	Coal, dull
6910-6920	90	Siltstone, as above
	10	Coal, dull
6920-6930	90	Siltstone, dark brown to medium brown, carbonaceous, with trace interlaminated sandstone, very fine, light grey.
	10	Coal, dull
6930-6940	90	Siltstone, dark brown, carbonaceous,micaceous.
	10	Coal
6940-6950	90	Siltstone, as above
	10	Interlaminated sandstone, light grey, very fine.
6950-6960	80	Siltstone, as above
	10	Sandstone, light grey, very fine, interlaminated.
	10	Coal
6960-6965	70	Coal, dull, bleeding gas. 95 units
	30	Siltstone, dark brown, carbonaceous
6965-6970	80	Coal, dull bleeding gas, 175 units, C_1 2100, C_3 100
	20	Siltstone, as above
		Trace sandstone, light grey.
6970-6980	90	Coal
	10	Siltstone, dark brown, carbonaceous.
6980-6990	70	Siltstone, as above
	20	Coal, dull, bleeding gas
	10	Sandstone, light grey, very fine quartz, clay matrix, tight.
6990-7000	50	Siltstone, as above
	40	Sandy siltstone, medium brown with fine to coarse quartz grains.
	10	Coal
7000-7010	60	Coal
	30	Siltstone, as above
	10	Sandstone, light grey, fine interlaminated
7010-7020	70	Claystone to mudstone, medium brown
	20	Siltstone, as above
	10	Coal
7020-7030	80	Mudstone, medium brown
	10	Siltstone, as above
	10	Coal
7030-7040	90	Mudstone, as above
	10	Siltstone, as above
		Trace coal

Sample Descriptions
TOOLKA-1

S.Benedek/S.Giles
January 27, 1974

359042

DEPTH	%	DESCRIPTION
7040-7050	90	Mudstone, as above
	10	Siltstone, as above
		Trace coal, dolomitic clay
7050-7060	100	Mudstone, as above
		Trace siltstone, brown, sandstone, light grey, coal
7060-7070	90	Mudstone, as above
	10	Siltstone, as above
		Trace sandstone, light grey, coal
7070-7080	90	Mudstone, brown
	10	Siltstone, as above
7080-7090	90	Mudstone, brown, pyritic
	10	Siltstone, as above
		Trace Coal
7090-7100	90	Mudstone, as above
	10	Siltstone, as above
		Trace Coal
7100-7110	90	Mudstone, as above
	10	Siltstone, as above
		Trace coal
7110-	60	Coal
	30	Mudstone, as above
	10	Siltstone, as above
		On bottom 7112'
7110-7120	60	Mudstone, brown
	30	Siltstone, as above
	10	Coal, dull
		Trace sandstone, light grey, dolomite, brown
7120-7130	60	Mudstone, brown
	30	Siltstone, as above
	5	Sandstone, light grey, very fine quartz, rare angular, coarse
	5	Coal
7130-1740	60	Siltstone, dark brown, carbonaceous, bleeding gas
	30	Mudstone, brown
	10	Coal, bleeding gas
7140-7150	80	Siltstone, dark brown, carbonaceous
	10	Mudstone, brown
	10	Coal
7150-7160	90	Siltstone, dark brown, carbonaceous, very micaceous
	5	Coal
	5	Mudstone, olive to brown
7160-7170	100	Siltstone, as above
		Trace Coal, mudstone
7170-7173	85	Coal
	15	Siltstone, as above
7170-7180	60	Siltstone, as above
	40	Coal
7180-7190		Hot Wire 165 C_1 19,000 C_2 300 C_3 200
	95	Coal
	5	Siltstone, dark brown, carbonaceous, micaceous.

Sample Descriptions

TOOLKA-1

359043

January 28, 1974

DEPTH	%	DESCRIPTION
7190-7200	60	Siltstone, dark brown, carbonaceous, micaceous
	40	Coal
7200-7210	70	Coal 7205' HW 130
	20	Siltstone, very fine, light brown to buff, micaceous
	10	Siltstone, dark brown, carbonaceous, micaceous
7210-7220	70	Coal
	20	Siltstone, dark brown.
	10	Siltstone, light brown
7220-7230	60	Siltstone, dark brown, very argillaceous, carbonaceous flecks.
	10	Coal
	30	Sandstone, interbedded with siltstone, brown, very fine, subangular fairly well sorted, tight, in part coaly, very faint fluorescence fair cut. (Good C_1/C_3 gas kick at 7227') bleeding gas, oil show.
7230-7240	70	Siltstone
	10	Coal
	20	Sandstone, interlaminated with siltstone, no show
7240-7250	90	Siltstone
	5	Coal
	5	Sandstone, interlaminated, fluorescence, cut, as above
7250-7260	90	Siltstone
	10	Coal
	Tr.	Sandstone, as above, with fluorescence and cut, as above
7260-7270	80	Siltstone, brown, argillaceous, carbonaceous, coaly
	20	Sandstone, very fine, tight, hard, in part coaly, interlaminted with siltstone, no show.
		Trace Coal, bleeding gas, as above
7270-7280	80	Siltstone, brown, argillaceous, micaceous, carbonaceous
	20	Sandstone, very fine to very coarse, (basically very fine to fine matrix with rare coarse to very coarse granules), tight, no shows.
		Trace Coal
7280-7290	70	Siltstone, brown, as above.
	20	Mudstone, brown, subfissile
	10	Sandstone, fine to very fine, tight, faint fluorescence as before.
7290-7300	60	Sandstone, fine to very fine, clayey, tight, no fluorescence.
	30	Siltstone, dark bronw, micaceous, carbonaceous
	10	Coal
7300-7310	80	Siltstone, brown, carbonaceous
	15	Sandstone, very fine to fine, light grey to cream, micaceous, lithic, clay matrix 10-15% intergranular, porosity 1 grain with faint fluorescence and cut.
	5	Coal
7310-7320	95	Siltstone, brown, carbnnaceous.
	5	Sandstone, very fine to fine, light grey to cream as above
7322-7325	100	Coal, dull, bleeding gas, HW 225, no fluorescence, good cut.
7323-7325	90	Coal, dull, bleeding gas, as above
	10	Siltstone, brown, carbonaceous, sandstone, very fine, cream. No fluorescence, good cut.
7325-7332	50	Coal, as above
	50	Siltstone, as above, no fluorescence, bright blue cut.
7330-7340	90	Siltstone, brown, carbonaceous
	10	Coal
		Trace sandstone, light grey to cream, very fine to fine. Fluorescence, some faint cut on coal

Sample Descriptions

January 28, 1974

TOOLKA-1

359044

DEPTH	%	DESCRIPTION
7340-7356	90	Siltstone, brown, carbonaceous
	10	Coal
		Trace Sandstone, light grey to cream, very fine to fine, bright blue-white. Fluorescence and good cut. 10-15% porosity.
7356-7358	60	Sandstone, light grey to cream, very fine to fine, fairly well sorted, quartz, minor lithics, angular to subrounded, 10-15% porosity, white clay mica, carbonaceous, slightly calcareous. Slight golden fluorescence, good cut. HW 55, C_1 8000, C_2 700, C_3 1700, C_4 400.
	40	Siltstone, brown, carbonaceous
		Trace Coal
7358-7360	60	Sandstone, light grey to cream, as above, with golden fluorescence and bright blue cut.
	40	Siltstone, brown, carbonaceous
7360-7370	50	Sandstone, light grey to cream, very fine to fine, fairly well sorted, subangular to subrounded quartz, minor lithics, carbonaceous matter, white kaolin matrix, slight porosity, golden yellow to rare bright blue fluorescence.
	50	Siltstone, brown, micaceous, carbonaceous.
		Trace Coal
7370-7380	70	Siltstone, brown, carbonaceous, micaceous.
	30	Sandstone, cream. as above, golden yellow with rare bright blue fluorescence, bright blue cut.
7380-7390	90	Siltstone, brown, carbonaceous as above
	5	Mudstone, brown
	5	Sandstone, cream very fine to fine, golden yellow fluorescence.
7390-7400	70	Mudstone, brown
	30	Siltstone, brown, carbonaceous, micaceous
		Trace, Sandstone, as above, bright fluorescence
7400-7402	90	Mudstone brown
	10	Siltstone, brown, carbonaceous, micaceous
		Trace sandstone very fine to fine cream golden yellow, fluorenscence
7402-7410	90	Mudstone, to siltstone, brown
	10	Siltstone, brown, carbonaceous, micaceous.
		Trace sandstone, light grey to cream, very fine to fine, fluorescence slight cut.
7410-7420	90	Mudstone to siltstone, brown, pyritic
	10	Siltstone, brown, micaceous, carbonaceous
		Trace sandstone, as above
		No fluorescence, no cut.
7420-7430	95	Mudstone to siltstone, brown
	5	Coal
		Trace sandstone as above, golden yellow fluorescence
		New Siltstone, very glauconitic with apple green glauconite siltstone is fairly coarse.
7430-7440	100	Mudstone to siltstone, brown, carbonaceous, micaceous.
		Trace sandstone, cream, very fine to fine, golden fluorescence.
		Rare trace siltstone, gluaconite.
7440-7450	100	Mudstone, brown, micaceous, pyrite to siltstone, brown, micaceous carbonaceous, pyritic.
		Trace glauconitic siltstone, coal.
7450-7460	100	Mudstone grading to siltstone, brown, carbonaceous
		Trace sandstone, coal

SAMPLE DESCRIPTION

359045

TOOLKA-1

28.1.74

DEPTH	%	SAMPLE DESCRIPTION
7460-7450	100	Mudstone to Siltstone, brown, carbonaceous, micaceous, pyritic.
7470-7480	95 5	Mudstone to Siltstone, brown, carbonaceous, micaceous, pyritic Coal
7480-7490	100	Mudstone to Siltstone, brown, carbonaceous, very pyritic
7490-7500	100	Mudstone Trace Coal
7500-7510	100	Mudstone to Siltstone, brown, carbonaceous, abundant pyrite, micaceous Trace Coal
7510-7520	100	Mudstone to siltstone, brown, carbonaceous, pyritic Trace Coal
7520-7530	100	Mudstone to Siltstone, brown, carbonaceous, pyritic, micaceous Trace Coal
7530-7540	100	Mudstone to Siltstone, as above Trace Coal
7540-7550	100	Mudstone to Siltstone, as above Trace Coal
7550-7560	100	Siltstone, brown to mudstone Trace Coal, brittle, resinous, vitrite
7560-7570	100	Siltstone to Mudstone, brown, pyritic Trace Coal, Sandstone, very fine to fine, cream, yellow fluorescence and cut
7570-7580	100	Siltstone to Mudstone, brown, pyritic Trace Coal, Sandstone, very fine to fine, cream, yellow fluorescence, weak cut
7580-7590	100	Siltstone to Mudstone, brown Trace Coal, dolomite, brown Sandstone, cream, minor fluorescence and cut
7590-7600	100	Siltstone, brown Trace Coal, dolomite, sandstone
7600-7610	100	Siltstone, medium dark grey, ±5% brown, carbonaceous, micaceous. Trace Coal
7610-7620	100	Siltstone, medium dark grey, as above Trace Coal, sandstone, very fine
7620-7630	100	Siltstone, as above Trace Coal
7630-7640	100	Siltstone, medium dark grey to brown Trace Coal
7640-7650	100	Siltstone, medium dark grey to brown
7650-7660	90 10	Poor quality sample after wiper trip. Mudstone-to siltstone, brown to grey Coal
7660-7670	100	Mudstone to Siltstone, borwn, micaceous, pyritic, carbonaceous Trace Coal
7670-7680	100	Mudstone to siltstone, borwn, as above Trace Coal, buff, mudstone
7680-7688	100	Mudstone to siltstone, as above Trace Coal

SAMPLE DESCRIPTIONS

TOOLKA-1

359046 29.1.74

DEPTH	%	SAMPLE DESCRIPTION
7688-7690		As above.
7690-7700	100	Mudstone to siltstone, brown, micaceou, pyritic, carbonaceous Trace Coal
7700-7710	100	Mudstone to siltstone, brown, micaceous, pyritic, carbonaceous Trace Coal
7710-7720	100	Mudstone to Siltstone, brown to grey,micaceous, carbonaceous, disseminated pyrite.
7720-7730	100	Mudstone to Siltstone, dark brown to grey, micaceous, very carbonaceous pyrite.
7730-7740	100	Mudstone to Siltstone, as above
7740-7750	100	Mudstone to Siltstone, as above
7750-7760	100	Mudstone to Siltstone, as above
77 -7770	100	Mudstone,to Siltstone, as above Trace Mudstone, light brown, subfissile, pyritic Rare pyrite, calcareous, benthonic forams.
7770-7780	100	Mudstone, siltstone, as above Trace mudstone, light brown, subfissile, pyrite.
7780-7785 C.O.	100	Mudstone to Siltstone, as above Trace Mudstone, light brown, subfissile, pyrite
7785-7790	100	Mudstone to Siltstone, as above Trace Mudstone, buff, subfissile
7790-7800	100	Mudstone to Siltstone, as above, very dark grey
7800-7810	100	Mudstone to Siltstone, as above Trace Mudstone, buff, subfissile, pyrite
7810-7820	100	Mudstone to Siltstone, as above
7 0-7830	100	Siltstone, dark grey
7830-7840	100	Siltstone, dark grey
7840-7850	100	Siltstone, dark grey
7850-7860		As above, contaminated sample after trip at 7869'
7860-7870		As above. " " " " " . ".
7870-7880 !	100	Siltstone, dark brown to dark grey, pyrite, carbonaceous, micaceous Trace Mudstone, buff, pyritic
7880-7890	90 10	Siltstone, as above Mudstone, as above
7890-7900	80 20	Siltstone, mid to dark grey, micaceous carbonaceous Mudstone, as above
		Changed bit XDG drilled on metal probably on cores lost earlier. J22 on bottom 7909' at 8.00 hr.
7900-7910	100	Contaminated sample after trip Siltstone, as above

Toolka 14

359047

DEPTH	%	SAMPLE DESCRIPTION
7785-7790	100	Mudstone-Siltstone, as above Trace mudstone, buff slightly fissile
7790-7800	100	Mudstone-siltstone, as above, very dark grey
7800-7810	100	Mudstone-siltstone, as above Trace mudstone, buff, slightly fissile pyrite
7810-7820	100	Mudstone-siltstone, as above
7820-7830	100	Silstone, dark grey
7830-7840	100	Siltstone, dark grey
7840-7850	100	Siltstone, dark grey
7850-7860		As above contaminated sample after trip at 7869'
7860-7870		As above contaminated sample after trip at 7869'
7870-7880	100	Siltstone, dark brown to dark grey, pyrite, carbonaceous, micaceous Trace mudstone, buff, pyrite
7880-7890	90	Siltstone, as above
	10	Mudstone, as above
7890-7900	80	Silstone, medium to dark grey, micaceous, carbonaceous
	20	Mudstone, as above
7900-7910		Contaminated sample after trip
	100	Siltstone, as above
7910-7920	100	Siltstone, medium dark grey, micaceous, pyritic Trace mudstone dark, contaminated brown mudstone
7920-7930	100	Siltstone, dark grey, micaceous, pyritic, Trace mudstone dark
7930-7940	70	Siltstone - Mudstone, medium to dark grey silty rock, as below
	30	Siltstone, dark grey
7940-7950	90	Siltstone-Mudstone, medium to dark grey light to dark spotted, possible weathered fine grained igneous?
	10	Siltstone, dark grey
7950-7960	100	Silicious rock, light grey salt and pepper spotted, very fine grained, light colour being very fine grained silty matrix, the dark spots are angular to slightly rounded grains. Possible weathered plagioclase laths. Soft to medium to hard, strongly weathered.
7960-7970	100	Light grey rock as above, less spotted, Trace of grained mottled rock with dissemmated pyrite, tuf ?
7970-7980	100	Light grey veryfine grained silty rock, with trace of fine mottled rock as above, calcedony, slightly koalinised.
7980-7990	100	Light grey rock, as above
7990-8000	100	Light grey rock, as above
8000-8002	95	Light grey to greenish grey intrusive rock of quartz, feldspar, biotite, hornblende composition, pyrite altered koalinised choloritized. 35 unit HW
	5	Light grey silty rock as above
8007-8010	100	Amphybolite, white to green, brown mottled feldspar amphybole, koalinised, chloritised; pyritic thinning on plagioclase.
8010-8020	100	Amphybolite, white in places, koalinised plagiclase matrix, brown to chloritise green hornblende crystalls, pyrite

Tarlka-19

359048

DEPTH	%	SAMPLE DESCRIPTION
8020-8030	100	Amphibolite as above more chloritised
8030-8040	100	Amphibolite chloritised as above, pyrite
8040-8050	100	Amphibolite chloritised pyritic
8050-8060	100	Amphibolite chloritic quartz
8060-8070	100	Amphibolite chloritic as above, slightly coarser
8070-8080	100	Amphibolite, as above
8080-8090	100	Amphibolite, as above
8090-8100	100	Amphibolite, as above
8100-8110	100	Amphibolite, as above
8110-8120	100	Amphibolite, as above, pyritic
8120-8130	100	Amphibolite, as above, pyritic, strong trace brown mudstone, pyritic, finely disseminated
8130-8140	100	Amphibolite, as above, pyritic, strong trace of brown mudstone, pyritic
8140-8150	100	Amphibolite, as above
8150-8160	100	Amphibolite, as above
8160-8170	100	Amphibolite, as above
8170-8180	100	Amphybolite, as above
8180-8190	100	Amphybolite, as above, possible slight alteration, orange colour to some green grains, white
8190-8200		As above
8200-8210		Amphibolite, as above, trace green grains, light trace green talc (?)
8210-8220		As above
8220-8230		As above, no talc (?)
8230-8240		As above
8240-8250		As above, approximately 50% Feldspar, 40% hornblende (?), 10% light greeen mineral
8250-8260		As above
8260-8270		As above 50% hornblende 40% Feldspar 10% light green mineral
8270-8280		Amphibolite feldspar, hornfels, chloritised
8280-8290		Amphibolite, as above
8290-8292	70	Amphibolite
	20	Coal HW. 240 units
	10	Siltstone, light grey to brown grey
8292-8295	90	Amphibolite, as above
	10	Coal marbled high grade
		Trace siltstone siliceous, light grey to light brown contact metamorphic
8295-8300	90	Amphibolite
	10	Coal, high grade
		Trace Siltstone siliceous grey to brown mottled

Jarlka-1a

359049

DEPTH	%	SAMPLE DESCRIPTION
8300-8310	70	Amphibolite, as above
	30	Siltstone, light grey
		Trace coal, as above dolerite
8310-8320	80	Sandstone, light grey very fine to fine grained quartz, siliceous, tight
	20	Amphibolite
8320-8330	50	Sandstone, light grey very fine to fine grained quartz, secondary siliceous tight
	40	Amphibolite
	10	Siliceous rock, light grey mottled
8330-8340	50	Sandstone, light grey, fine to very fine, tight, overgrown, as above
	40	Siltstone, light grey, mottled, as above
	10	Amphibolite
8340-8350	50	Sandstone, light grey to slight green grey, very fine to fine fairly to poorly sorted, kaolinized matrix to secondary quartz, tight.
	30	Amphibolite
	20	Grey mottled siliceous rock
8350-8360	60	Sandstone, light grey to fine quartz kaoline matrix
	20	Mottled siliceous rock
	20	Amphibolite
8360-8370	60	Silceous rock grading to siltstone medium grey
	20	Sandstone, light grey
	20	Amphibolite
8370-8380	50	Siltstone, grey to mottled
	40	Amphibolite
	10	Sandstone
8380-8390	60	Siltstone, as above, grey to brown pyritic
	30	Amphibolite
	10	Sandstone
8390-8400	60	Siltstone, as above, grey to brown micaceous, pyritic
	35	Amphibolite
	5	Sandstone
8400-8410	70	Amphibolite, as above, chloritic
	30	Siltstone, grey to brown pyritic micaceous grading to contact rock
8410-8420	70	Amphibolite
	30	Siltstone, grey to brown, pyritic, micaceous
		Trace Sandstone, light grey
8420-8430	80	Amphibolite
	20	Siltstone, grey soft brown harder mica
		Trace Coal
8430-8440	70	Amphibolite feldspar hornblende, chloritised
	30	Siltstone, predominately grey soft some brown pyritic
		Trace sandstone, very fine, white tight
8440-8450	65	Amphibolite
	35	Siltstone, medium to dark grey, soft, pyritic, some brown, fissile
		Trace sandstone, white, tight
8450-8460	70	Siltstone, medium to dark grey, medium soft, some brown, also light grey and mottled, lamination, pyritic
	30	Amphibolite
8460-8470	50	Siltstone, medium to dark grey, moderately soft, some light grey pyrite
	50	Amphibolite
		Trace pyrite

359050 Jorlka-1a

DEPTH	%	SAMPLE DESCRIPTION
8470-8480	60	Siltstone, medium to dark grey, soft, fissile. Some brown & light grey, pyritic
	40	Amphibolite
8480-8490	60	Siltstone, medium to dark grey, soft, fissile, pyritic. Some brown
	40	Amphibolite
8490-8500	65	Siltstone, medium to dark grey, soft, pyritic, micaceous, some brown
	35	Amphibolite
8500-8510	70	Siltstone, as above
	30	Amphibolite
		Trace pyrite
8510-8520	80	Siltstone, medium to dark grey, soft, pyritic. Some brown
	20	Amphibolite
		Trace Pyrite
8520-8530	80	Siltstone, as above
	20	Amphibolite
8530-8540	80	Siltstone, dark to medium grey, very fine, micaceous, soft, fissile
	20	Amphibolite
		Trace Sandstone
8540-8550	80	Siltstone, medium to dark grey, very fine, micaceous? pyritic, moderately soft, fissile
	20	Amphibolite
8550-8560	50	Siltstone, very fine grained, as above
	50	Amphibolite
		Trace Pyrite
8560-8570	70	Siltstone, very fine, as above
	30	Amphibolite
		Trace Sandstone
8570-8580	80	Siltstone, very fine, as above, possibly metamorphosed
	20	Amphibolite
8580-8590	80	Siltstone, as above, very fine
	20	Amphibolite
		Trace Siliceous white mottled rock, trace pyrite
8590-8600	80	Siltstone, very fine, medium grey, micaceous, pyritic, moderately soft, fissile
		More brown siltstone
	20	Amphibolite
8600-8610		As above
8610-8620	65	Siltstone, as above
	35	Amphibolite
		Trace coal - bright, brittle, trace pyrite
8620-8630	40	Amphibolite
	60	Siltstone, dark grey, sericitic, in part pyritic, fissile, argillaceous, medium soft, some grades to brown
8630-8640	50	Amphibolite
	50	Siltstone
8650-8660	70	Siltstone/Shale
	30	Amphibolite
8660-8670	60	Siltstone/Shale becoming dark grey to brown
	40	Amphibolite (?)
8670-8680	70	Siltstone, very argillaceous, dark grey to brown, as above
	30	Amphibolite (?)
		Trace Coal, black, vitreous

Tarlka 1a

359051

DEPTH	%	SAMPLE DESCRIPTION
8680-8690		As above
8690-8700	50	Siltstone, very argillaceous
	50	Amphibolite (?)
8700-8710		As above
		Trace Coal
8710-8720	70	Siltstone/Shale, dark brown to grey as above
	20	Amphibolite
	10	Coal, hard brittle conchoidal fractured
		Trace Siltstone to very fine sandstone, grey feldsparthic lithic
8720-8730	70	Siltstone/Shale, dark brown, pyritic, micaceous
	30	Amphibolite
		Trace Coal
8730-8740	60	Siltstone/Shale, dark brown to grey, pyritic, micaceous
	40	Amphibolite
		Trace Coal
8740-8750	60	Siltstone/Shale, dark brown, pyritic, micaceous
	40	Amphibolite
8750-8760	50	Siltstone/Shale, dark brown
	50	Amphibolite
8760-8770	70	Siltstone/Shale, dark brown
	30	Amphibolite
8770-8780	70	Siltstone/Shale, dark brown
	30	Amphibolite
8780-8790	70	Siltstone, as above
	30	Amphibolite, as above
8790-8800	70	Siltstone to shale, dark brown, pyritic
	30	Amphibolite feldspar, hornbelnde, biotite, minor quartz, chloritized
8800-8810	60	Amphibolite
	40	Siltstone, brown pyritic
8810-8820	60	Amphibolite
	40	Siltstone, dark brown to grey, soft, pyritic, micaceous
8820-8830	60	Siltstone, as above
	40	Amphibolite
		Trace pyrite
8830-8840	60	Siltstone, as above
	40	Amphibolite
		Trace shiny black coal
8840-8850	75	Siltstone, as above
	25	Amphibolite
		Trace coal
8850-8860	70	Siltstone, medium to dary grey to brown, soft, pyritic, micaceous
	30	Amphibolite
8860-8870	70	Siltstone, medium to dark grey
	30	Amphibolite
8870-8880	70	Siltstone, as above
	30	Amphibolite
		Trace coal, pyrite

TOOLKA I
W# 3.

359052

DEPTH	%	SAMPLE DESCRIPTION
8880-8890	80	Siltstone, as above
	20	Amphibolite
8890-8900	70	Siltstone, as above
	30	Amphibolite
8900-8907	80	Siltstone
	20	Amphibolite
T.D. 8907		

359053

WELL COMPLETION REPORT

TOOLKA-1A

APPENDIX IV

CORE DESCRIPTIONS

ESSO STANDARD OIL (AUSTRALIA) LTD.

CORE DESCRIPTION

359014

Core No. ONE (1)

WELL: TOOLKA-1 BASS BASIN

Interval Cored 5089 - 5119 ft., Cut 30 ft., Recovered 30 ft., (100 %) Fm. Eastern View

Bit Type C-20, Bit Size $8\frac{15}{32}$ in., Desc. by GILES Date 24.1.74

Depth & Coring Rate (min./ft.)	Graphic (1" = 5')	Shows	Interval (ft.)	Descriptive Lithology
0 5 10			5089'0" - 5089'3"	sst, v.f. buff, micaceous, with thin interbed of sst coarse to v. coarse, quartzose.
5089			5089'3" - 5095'0"	sst v.f., buff, mic., to stst, buff, mic, pyritic. Thinly interbedded with sltst, dk brn, carb, pyr. Wavy boundaries, poss. load casts. Burrowed (mainly horiz/sub-horiz), infilled with ester. matl + pyrite.
5090		NO SHOWS - NO FLUORESCENCE	5095'0" - 5098'0"	Claystone, dk grey, rare rootlets infilled with pinkish clay +/or pyrite. Thinly laminated, no silt.
5095			5098'0" - 5110'6"	Siltstone, buff, micaceous, to sandstone v.f., buff, micaceous; thinly interbedded with sltst, dk gy., mic, carb. Wavy, discontinuous bedding.
5100			5110'6" - 5112'0"	Shale, dolomitic, red-brn, v. hard, conch. fracture, non-bedded.
5105			5112'0" - 5119'0"	Claystone, dk gy, carb, conchoidal fracture, non-bedded, with thin laminae of sltst, buff, in lowest 1'6". Bedding irregular + discontinuous.
5110				
5115				
5119	END OF CORE			

REMARKS: core point picked on drilling break, but just missed base of sand.

5 cm

VICTORIA
TASMANIA

VIC/P6 Hematite
T/3P Hematite
T/4P

Konkon-1
T.D. 5043'

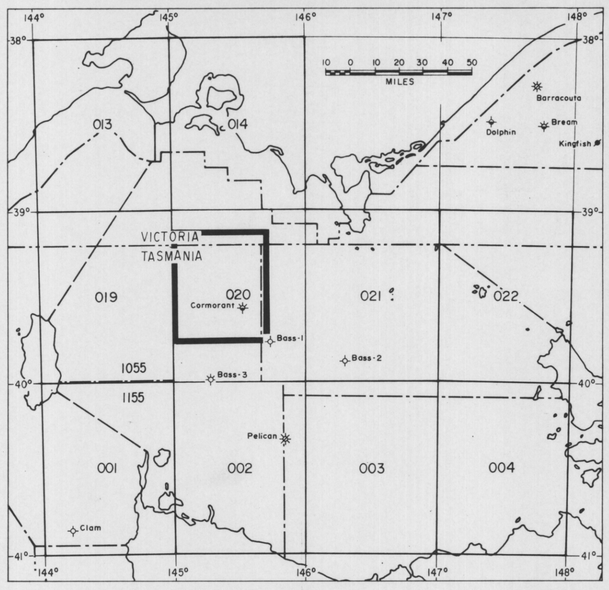
Toolka-1A
T.D 8907'

WLT-0,6
Cormgrant-1
T.D. 9845'

5 MILES TO A'

145°00'
15'
30'
39°15'
30'
39°45'
5660000mN
5640000mN
5620000mN
5600000mN
340000mE
360000mE
380000mE

MAP INDEX



LEGEND

V V V
V V V V — Volcanics (Interpreted) near top of Eastern View

ESSO EXPLORATION AND PRODUCTION AUSTRALIA INC.

THE BASS BASIN

VICTORIA - TASMANIA

TOOLKA PROSPECT

STRUCTURE MAP
TOP OF EASTERN VIEW GROUP

5 cm

359055

CONTOUR INTERVAL : 100 FEET

DATUM : SEA LEVEL

Scale 1 : 100,000

2 0 2 4 Miles
2 0 2 4 6 8 Kilometres

TRANSVERSE MERCATOR PROJECTION, A.M.G., ZONE 55

AUTHOR : R.J. COPPIN

DRAFTED BY : M. SPACEK

TO ACCOMPANY : WELL COMPLETION REPORT TOOLKA - 1A

DATE : JUNE 10, 1974

REVISED :

SHEET 1055-020/100

PLATE I

DRG 1591/OP/1

OR-0346

OR-0346 III

359056

WELL TOOLKA NO.1
COMPANY ESSO
COUNTY BASS BASIN
STATE VICTORIA

DEPTH CORRESPONDS TO DRILL PIPE MEASUREMENTS.
NB NEW BIT
NCB NEW CORE BIT
DST DRILL STEM TEST

LEGEND
TG TRIP GAS
NR NO RETURNS
E LOG ELECTRIC LOG
CO CIRCULATE OUT RETURNS
CFK CHECK FOR FLOW
SAND
SHALE

APPLIED DRILLING TECHNOLOGY

DRILLING RATE FT./HR. 450 300 150 0 "d" 2 3
DEPTH
TOTAL GAS
CONNECTION GAS (BAR GRAPH)
UNITS GAS IN AIR 75 150 225 300
SHALE DENSITY g/cc 2.2 2.3 2.4
SHALE FACTOR 2 4 6 8 10 12 14
MUD WT.
REMARKS

4000
5000
6000
7000
8000
9000

NB5, XDG
NB5, XDG
CB, I, C-20
NB7, XDG
NB8, J-22
NB9, J35
NB10, XDG
60, NB-11, J-22

TG-60
TG-165
TG-24
TG-30
TG-75
SCALE CHANGE 10 20 30 40
50
75
TG-125
165
130
220
TG-50
TG-75
240
SCALE CHANGE 24 25 26

9.9-110°
9.9-118
9.9-120
9.9-115
9.9-118
9.9-120
9.9-122
9.9-124
9.9-125
9.9-115
9.9-120
9.9-125
9.9-120
9.9-121°
9.9-118
9.9-120
9.9-121
9.9-122
9.9-125
9.9-127
9.9-130
9.9-135
9.9-140
9.9-145
9.9-150
9.9-145
9.9-150
9.8-151
9.9-151

5 cm

Appendix - Well Completion Report 359057 OR-0346 IV

ONE WAY TIME BELOW SEA LEVEL - SECONDS

TWO WAY TIME BELOW SEA LEVEL - SECONDS

ESSO EXPLORATION AND PRODUCTION AUSTRALIA INC.

TOOLKA - 1A

TIME DEPTH CURVE

DATUM : M.S.L.

AUTHOR : I. HAWKSHAW

DRAFTED BY: HOVICK

CO ORDINATES

LAT : 39° 24' 35·678"S

LONG : 145° 23' 45·108"E

LEGEND

⊙ Check shots.

⊡ Points interpolated from Sonic Log.

5 cm

Date of survey : 3 Feb. 1974
Type of survey : Gas Gun
Height of K.B. : 32' K.B.
Water depth....: -258' (- 290' K.B.)
T.D.....: 8907' K.B.
Casing depth...: 2790' K.B.
G Denotes good quality data
F -"- fair -"- -"-
P -"- poor -"- -"-

(-3268, 6738)
(-3590, 6825)
(-4058, 6949)
(-4468, 7070)
(-5084, 7273)
(-5572, 7429)
(-6118, 7544)
(-6958, 7740)
(-7618, 7927)
(-7978, 8018)
(-8768, 8272)

DEPTH vs AVERAGE VELOCITY

DEPTH vs INTERVAL VELOCITY

(·485, -3268) F
(·526, -3590) F
(·584, -4058) F
(·632, -4468) F
(·699, -5084) G
(·750, -5572) F
(·811, -6118) F
(·899, -6958) G
(·961, -7618) F
(·995, -7978) F
(1·060, -8768) F

TIME DEPTH CURVE

(·485, 6738)
(·526, 6825)
(·584, 6949)
(·632, 7070)
(·699, 7273) G
(·750, 7429)
(·811, 7544)
(·899, 7740) G
(·961, 7927)
(·995, 8018)
(1·060, 8272)

TIME vs VELOCITY

AVERAGE VELOCITY - FEET PER SECOND and DEPTH IN FEET BELOW SEA LEVEL

AVERAGE AND INTERVAL VELOCITY — FEET PER SECOND

DWG. 1613/OP/1

DISPOSAL

SCHLUMBERGER

WELL COMPLETION LOG
TOOLS= 1A

COMPANY: TEXACO
WELL: TUSCARAS
FIELD: TUSCARAS
COUNTY: TUSCARAS
STATE: OHIO
LOCATION: 1st WP 20 W/NE & 1 WP 20 W/NW
WATER DEPTH: GF
ELEVATION: D.F. GF
PERMANENT DATUM: GROUND
ELEV.: GF
LOG MEASURED FROM: D.F.
DRILLING MEASURED FROM: KELLY BUSHING
ELEV.: K.B. GF
CASING DRILLER: 9 5/8 @ 1200
BTM. LOG INTERVAL: 1200
TOP LOG INTERVAL: SURFACE
CASING SCHLUMBERGER: 9 5/8 @ 1200
TYPE FLUID IN HOLE: FRESH WATER GEL
DENSITY: 9.2
VISCOSITY: 40
PH: 10.5
FLUID LOSS: 6
SOURCE OF SAMPLE: PIT
RM @ MEAS. TEMP.: 1.0 @ 70°F
RMF @ MEAS. TEMP.: .8 @ 70°F
RMC @ MEAS. TEMP.: 1.2 @ 70°F
SOURCE OF RMF: RECIRC
SOURCE OF RMC: RECIRC
RM @ BHT: .5 @ 120°F
TIME SINCE CIRC.: 12 HRS
MAX. REC. TEMP.: 120°F
EQUIP. LOCATION: 1 MILE SOUTH OF NEWCOMERSTOWN
RECORDED BY: T. HOLLOWAY
WITNESSED BY: MR. BOWMAN

RUN NO. | BIT | CASING | TYPE FLUID | DENSITY | VISCOSITY | PH | FLUID LOSS | SOURCE | RM @ MEAS. TEMP. | RMF @ MEAS. TEMP. | RMC @ MEAS. TEMP. | SOURCE OF RMF | SOURCE OF RMC | RM @ BHT | TIME SINCE CIRC. | MAX. REC. TEMP. | EQUIP. LOCATION | RECORDED BY | WITNESSED BY

1 | 12 1/4 | 9 5/8 @ 1200 | FRESH WATER GEL | 9.2 | 40 | 10.5 | 6 | PIT | 1.0 @ 70°F | .8 @ 70°F | 1.2 @ 70°F | RECIRC | RECIRC | .5 @ 120°F | 12 HRS | 120°F | 1 MILE SOUTH OF NEWCOMERSTOWN | T. HOLLOWAY | MR. BOWMAN

2 | 8 3/4 | 7 @ 5200 | FRESH WATER GEL | 9.2 | 40 | 10.5 | 6 | PIT | 1.0 @ 70°F | .8 @ 70°F | 1.2 @ 70°F | RECIRC | RECIRC | .5 @ 120°F | 12 HRS | 120°F | 1 MILE SOUTH OF NEWCOMERSTOWN | T. HOLLOWAY | MR. BOWMAN

3 | 6 1/4 | 5 @ 5200-5600 | FRESH WATER GEL | 9.2 | 40 | 10.5 | 6 | PIT | 1.0 @ 70°F | .8 @ 70°F | 1.2 @ 70°F | RECIRC | RECIRC | .5 @ 120°F | 12 HRS | 120°F | 1 MILE SOUTH OF NEWCOMERSTOWN | T. HOLLOWAY | MR. BOWMAN

CASING SCHLUMBERGER: 9 5/8 @ 1200 | 7 @ 5200 | 5 @ 5200-5600

TYPE LOG | DEPTH-DRILLER | DEPTH-LOGGER | BTM. LOG INTERVAL | TOP LOG INTERVAL | SCALE | TIME SINCE CIRC. | MAX. REC. TEMP. | EQUIP. LOCATION | RECORDED BY | WITNESSED BY

RUN NO. | DATE | TYPE LOG | DEPTH-DRILLER | DEPTH-LOGGER | BTM. LOG INTERVAL | TOP LOG INTERVAL | SCALE | TIME SINCE CIRC. | MAX. REC. TEMP. | EQUIP. LOCATION | RECORDED BY | WITNESSED BY

1 | 10-6-61 | DIL | 1200 | 1200 | 1200 | SURFACE | 1"=100' | 12 HRS | 120°F | 1 MILE SOUTH OF NEWCOMERSTOWN | T. HOLLOWAY | MR. BOWMAN

2 | 10-6-61 | DIL | 5200 | 5200 | 5200 | 1200 | 1"=100' | 12 HRS | 120°F | 1 MILE SOUTH OF NEWCOMERSTOWN | T. HOLLOWAY | MR. BOWMAN

3 | 10-6-61 | DIL | 5600 | 5600 | 5600 | 5200 | 1"=100' | 12 HRS | 120°F | 1 MILE SOUTH OF NEWCOMERSTOWN | T. HOLLOWAY | MR. BOWMAN

DEPTH DRILLER: 5600
DEPTH LOGGER: 5600
BTM. LOG INTERVAL: 5600
TOP LOG INTERVAL: 1200
CASING SCHLUMBERGER: 9 5/8 @ 1200 | 7 @ 5200 | 5 @ 5200-5600
BIT SIZE: 12 1/4 | 8 3/4 | 6 1/4
TYPE FLUID IN HOLE: FRESH WATER GEL
DENSITY: 9.2
VISCOSITY: 40
PH: 10.5
FLUID LOSS: 6
SOURCE OF SAMPLE: PIT
RM @ MEAS. TEMP.: 1.0 @ 70°F
RMF @ MEAS. TEMP.: .8 @ 70°F
RMC @ MEAS. TEMP.: 1.2 @ 70°F
SOURCE OF RMF: RECIRC
SOURCE OF RMC: RECIRC
RM @ BHT: .5 @ 120°F
TIME SINCE CIRC.: 12 HRS
MAX. REC. TEMP.: 120°F
EQUIP. LOCATION: 1 MILE SOUTH OF NEWCOMERSTOWN
RECORDED BY: T. HOLLOWAY
WITNESSED BY: MR. BOWMAN

LITHOLOGIC SYMBOLS

SHALE
SHALY SAND
SANDY SHALE
SANDSTONE
SILTSTONE
LIMESTONE
DOLOMITE
ANHYDRITE
SALT
COAL
GYPSUM
CHERT
CONGLOMERATE
BASEMENT
IGNEOUS
METAMORPHIC

LITHOLOGY INTERPRETED BY: DATE

BORE HOLE LOGGING SERVICES

TYPE | DEPTH-DRILLER | DEPTH-LOGGER | BTM. LOG INTERVAL | TOP LOG INTERVAL | SCALE | TIME SINCE CIRC. | MAX. REC. TEMP. | EQUIP. LOCATION | RECORDED BY | WITNESSED BY

DIL | 1200 | 1200 | 1200 | SURFACE | 1"=100' | 12 HRS | 120°F | 1 MILE SOUTH OF NEWCOMERSTOWN | T. HOLLOWAY | MR. BOWMAN

DIL | 5200 | 5200 | 5200 | 1200 | 1"=100' | 12 HRS | 120°F | 1 MILE SOUTH OF NEWCOMERSTOWN | T. HOLLOWAY | MR. BOWMAN

DIL | 5600 | 5600 | 5600 | 5200 | 1"=100' | 12 HRS | 120°F | 1 MILE SOUTH OF NEWCOMERSTOWN | T. HOLLOWAY | MR. BOWMAN

RUN NO. | DATE | TYPE LOG | DEPTH-DRILLER | DEPTH-LOGGER | BTM. LOG INTERVAL | TOP LOG INTERVAL | SCALE | TIME SINCE CIRC. | MAX. REC. TEMP. | EQUIP. LOCATION | RECORDED BY | WITNESSED BY

1 | 10-6-61 | DIL | 1200 | 1200 | 1200 | SURFACE | 1"=100' | 12 HRS | 120°F | 1 MILE SOUTH OF NEWCOMERSTOWN | T. HOLLOWAY | MR. BOWMAN

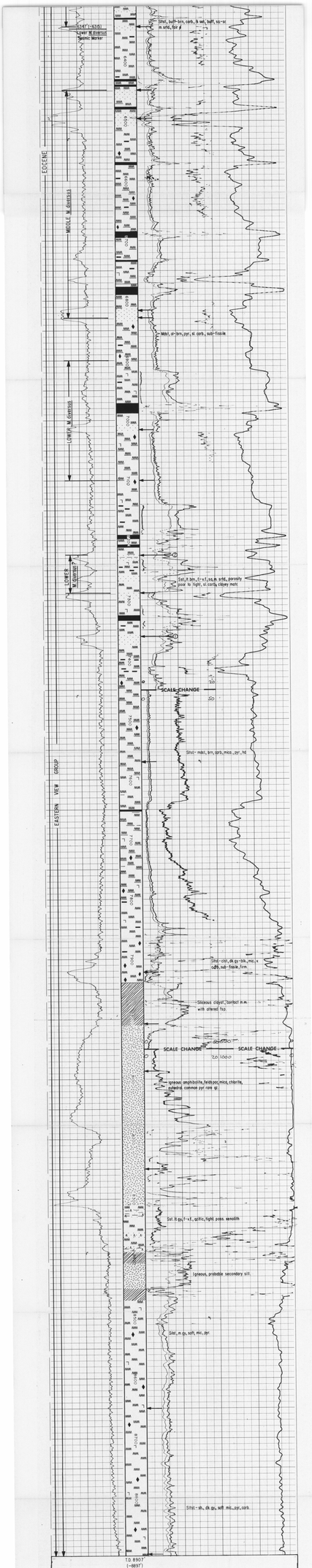
2 | 10-6-61 | DIL | 5200 | 5200 | 5200 | 1200 | 1"=100' | 12 HRS | 120°F | 1 MILE SOUTH OF NEWCOMERSTOWN | T. HOLLOWAY | MR. BOWMAN

3 | 10-6-61 | DIL | 5600 | 5600 | 5600 | 5200 | 1"=100' | 12 HRS | 120°F | 1 MILE SOUTH OF NEWCOMERSTOWN | T. HOLLOWAY | MR. BOWMAN

DEPTH DRILLER: 5600
DEPTH LOGGER: 5600
BTM. LOG INTERVAL: 5600
TOP LOG INTERVAL: 1200
CASING SCHLUMBERGER: 9 5/8 @ 1200 | 7 @ 5200 | 5 @ 5200-5600
BIT SIZE: 12 1/4 | 8 3/4 | 6 1/4
TYPE FLUID IN HOLE: FRESH WATER GEL
DENSITY: 9.2
VISCOSITY: 40
PH: 10.5
FLUID LOSS: 6
SOURCE OF SAMPLE: PIT
RM @ MEAS. TEMP.: 1.0 @ 70°F
RMF @ MEAS. TEMP.: .8 @ 70°F
RMC @ MEAS. TEMP.: 1.2 @ 70°F
SOURCE OF RMF: RECIRC
SOURCE OF RMC: RECIRC
RM @ BHT: .5 @ 120°F
TIME SINCE CIRC.: 12 HRS
MAX. REC. TEMP.: 120°F
EQUIP. LOCATION: 1 MILE SOUTH OF NEWCOMERSTOWN
RECORDED BY: T. HOLLOWAY
WITNESSED BY: MR. BOWMAN

SPONTANEOUS POTENTIAL
RESISTIVITY
CONDUCTIVITY
INDUCTION
INDUCTION
INDUCTION

Ch. Inch.



TOOLKA-1A (F.I. TESTS)

FIT #1 @ 7361'.

Main Chamber: Recovered .12 cu.ft. Gas
9500 cc Water
75 cc Mud.

Pressure: FP 500 psi
FSIP 3075 psi
HYD. P. 3760 psi

FIT #2 @ 7224.5

Main Chamber: Recovered .2 cu.ft. Gas
100 cc Mud

Pressure: FP 0'
FSIP 0
HYD.P. 3575 psi

5 cm

PREPARED BY: J.S. ISOM
DATE _____: JUNE, 1974

TOOLKA - 1A

ENCLOSURE 2

359659

BARDO
WELL INFORMATION SYSTEMS & ENGINEERING

TOOLKA NO:1
ESSO AUSTRALIA LTD.
BASS BASIN, VICTORIA

1 cm

1	R=PENETRATION RATE,	FT/HR
2	R=DEPTH,	MM
3	W=WEIGHT ON BIT,	LBS
4	D=BIT DIAMETER,	INCHES

CM. 3/4

NB 5 X30

NB 6 X30

NCR-LC-00
NB 7, X30

NB 8, J22

NB 9 J33

NB 10, X30
NB 11, J22

4000
4100
4200
4300
4400
4500
4600
4700
4800
4900
5000
5100
5200
5300
5400
5500
5600
5700
5800
5900
6000
6100
6200
6300
6400
6500
6600
6700
6800
6900
7000
7100
7200
7300
7400
7500
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8200
8300
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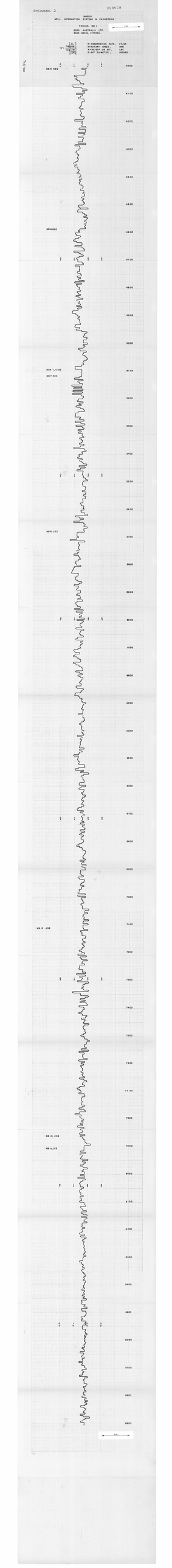
8600
8700
8800
8900

1 cm



ENCLOSURE 3

359060

OR-346

BAROID WELL LOGGING SERVICE

WELL TOOLKA NO.1
COMPANY ESSO
COUNTY BASS BASIN
STATE VICTORIA

LEGEND

DEPTH CORRESPONDS TO DRILL PIPE MEASUREMENTS.
NB NEW BIT
NCB NEW CORE BIT
DST DRILL STEM TEST
NR NO RETURNS
TG TRIP GAS
CO CIRCULATE OUT RETURNS

LITHOLOGY

SAND, GRANITE WASH, LIME STONE, CHERT, SHALE, GYP. ANHYDRITE, DOLOMITE, LIGNITE

CUTTINGS ANALYSIS

TOTAL GAS _____
METHANE - - - - -
LIQUID HYDROCARBONS (C_{6+}) —·—·— 6+ —·—·—

DRILLING RATE
FT. PER HR. MIN. PER FT.
300 200 100 VISUAL POROSITY
GST

LITHOLOGY

ppm HYDROCARBONS IN MUD M=1000

C_1	C_2	C_3	C_4	C_{5+}
0 1M 5M 10M	0 1M	0 1M	0 1M	0 1M
OIL TSG 25 50 75	25 00	25		

OIL TSG

7500
7600
7700
7800

28-1-74
SCALE CHANGE
150 100 50

C.O.

WT 9.9
VIS 46
PH 9.8
F 4.8
Cl 4800
NO_3 125
TEMP 126°F

SILTSTONE: MED-DK GRY, CARB, MICA.

CLAYST: BRN, MICA, PYR, CARB.

5 cm

TCI 9952 BR-1855 FWL-117 2-61 PRINTED IN U.S.A.

359061

BAROID WELL LOGGING SERVICE

WELL TOOLKA NO. 1
COMPANY ESSO
COUNTY BASS BASIN
STATE VICTORIA

LEGEND

DEPTH CORRESPONDS TO DRILL PIPE MEASUREMENTS.
NB NEW BIT
NCB NEW CORE BIT
DST DRILL STEM TEST
NR NO RETURNS
TG TRIP GAS
CO CIRCULATE OUT RETURNS

LITHOLOGY

SAND | GRANITE WASH | LIME STONE | CHERT
SHALE | GYP. ANHYDRITE | DOLOMITE | LIGNITE

CUTTINGS ANALYSIS

TOTAL GAS _____
METHANE _ _ _ _ _
LIQUID HYDROCARBONS (C_{6+}) —·—·— 6+ —·—·—

DRILLING RATE

☒ FT. PER HR. ☐ MIN. PER FT.
150 100 50 VISUAL POROSITY
IGST

LITHOLOGY

7900
8000
8100

ppm HYDROCARBONS IN MUD M=1000

C_1	C_2	C_3	C_4	C_{5+}
0 1M 5M 10M	0 1M	0 1M	0 1M	0 1M
OIL TSG 2 5 5 0 7 5	25 00	2 5		

OIL TSG

NB-10, X DG, 2-2 HRS
30-1-74

TG 60

NB-11, J 22, 48-8 HRS

TG 75

SILTST: TAN–DK.GRY. PYR, MICA, CARB.

METAMORPHIC: LT. GRY, F GRN, HARD, DK. SPOTS, SILICIOUS.

IGNEOUS: AMPHIB-OLITE, WH.–GRN., MOTTLED, F'SPAR, PYR.

5 cm

TCI 9252 BR-1855 FWL-117 2-61 PRINTED IN U.S.A.

359062

BAROID WELL LOGGING SERVICE

WELL TOOLKA NO. 1
COMPANY ESSO
COUNTY BASS BASIN
STATE VICTORIA

LEGEND

DEPTH CORRESPONDS TO DRILL PIPE MEASUREMENTS.
NB NEW BIT
NCB NEW CORE BIT
DST DRILL STEM TEST
NR NO RETURNS
TG TRIP GAS
CO CIRCULATE OUT RETURNS

LITHOLOGY

SAND, GRANITE WASH, LIME STONE, CHERT, SHALE, GYP. ANHYDRITE, DOLOMITE, LIGNITE

CUTTINGS ANALYSIS

TOTAL GAS _____
METHANE _ _ _ _ _
LIQUID HYDROCARBONS (C_{6+}) —·—·— 6+ —·—·—

DRILLING RATE

☒ FT. PER HR. ☐ MIN. PER FT.
150 100 50 VISUAL POROSITY
GST

LITHOLOGY

ppm HYDROCARBONS IN MUD M=1000

C_1	C_2	C_3	C_4	C_{5+}
0 1M 5M 10M	0 1M	0 1M	0 1M	0 1M
OIL TSG 25 50 50 75	2500	25		

8200
8300
8400

31-1-74

240u
16 M

WT 9.9
VIS 46
PH 9.8
F 4.8
Cl 4600
NO_3 120
TEMP 135°F

OIL TSG

AMPHIBOLITE: A/A, TR. BR. MUDSTONE,

COAL: BLACK, GRAPHITE.
SILTSTONE: LT. GRY. – BRN. GRY.

SANDSTONE: LT. GRY, F–VF GRNS, QTZ, SILICA, TIGHT.

5 cm

TCI 9952 BR-1855 FWL-117 2-61 PRINTED IN U.S.A.

359063

BAROID
WELL LOGGING SERVICE

WELL TOOLKA NO.1
COMPANY ESSO
COUNTY BASS BASIN
STATE VICTORIA

LEGEND

DEPTH CORRESPONDS TO DRILL PIPE MEASUREMENTS.
NB NEW BIT
NCB NEW CORE BIT
DST DRILL STEM TEST
NR NO RETURNS
TG TRIP GAS
CO CIRCULATE OUT RETURNS

LITHOLOGY

SAND | GRANITE WASH | LIME STONE | CHERT
SHALE | GYP. ANHYDRITE | DOLOMITE | LIGNITE

CUTTINGS ANALYSIS

TOTAL GAS ———
METHANE – – – – –
LIQUID HYDROCARBONS (C_{6+}) ——·——·——

DRILLING RATE
☒ FT. PER HR. ☐ MIN. PER FT.
150 100 50 VISUAL POROSITY
G.S.T.

LITHOLOGY

ppm HYDROCARBONS IN MUD M=1000

C_1	C_2	C_3	C_4	C_{5+}
0 1M 5M 10M	0 1M	0 1M	0 1M	0 1M
OIL TSG 25 50 75	2500	25		

8500
8600
8700

SCALE CHANGE
75 50 25

1-2-74

SILTST: DK.-MED. GRY, V.FINE GRN, MICACEOUS, SOFT.

WT 9.9
VIS 47
PH 9.5
F 4.6
Cl 4000
NO_3 137
TEMP 145°F

SILTST: DK.GREY & BROWN, ARGIL, MOD FISSILE

5 cm

TCI 9952 BR-1855 FWL-117 2-61 PRINTED IN U.S.A.

359064

BAROID
WELL LOGGING SERVICE

WELL TOOLKA NO.1
COMPANY ESSO
COUNTY BASS BASIN
STATE VICTORIA

LEGEND
DEPTH CORRESPONDS TO DRILL PIPE MEASUREMENTS.
NB NEW BIT
NCB NEW CORE BIT
DST DRILL STEM TEST
NR NO RETURNS
TG TRIP GAS
CO CIRCULATE OUT RETURNS

LITHOLOGY
SAND, GRANITE WASH, LIME STONE, CHERT, SHALE, GYP. ANHYDRITE, DOLOMITE, LIGNITE

CUTTINGS ANALYSIS
TOTAL GAS _____
METHANE _ _ _ _ _
LIQUID HYDROCARBONS (C_{6+}) —·—·— 6+ —·—·—

DRILLING RATE
☒ FT PER HR. ☐ MIN. PER FT.
75 50 25 VISUAL POROSITY
GST

LITHOLOGY

8800
8900

ppm HYDROCARBONS IN MUD M=1000

C_1	C_2	C_3	C_4	C_{5+}
0 1M 5M 10M	0 1M	0 1M	0 1M	0 1M
OIL TSG 25 50 75	25 00	25		

WT 9.9
VIS 46
PH 9.8
F 4.6
Cl 3700
NO_3 112
TEMP 151°F

OIL TSG

AMPHIBOLITE: FELSPAR, HORNBLENDE, QUARTZ.

SILTSTONE: GRY–BROWN, SOFT, PYRITIC, MICACEOUS.

C.O.

DRILLERS DEPTH 8907'

RAN E LOGS

5 cm

TCI 9952 BR-1855 FWL-117 2-61 PRINTED IN U.S.A.

BAROID *ppm* LOG

WELL: FEDERAL
COUNTY: KANE
FIELD: BASS BASIN
STATE: UTAH

SURFACE LOCATION: 1° FL. FROM ... FT. FL. FROM ... FT.
TWP. ... RGE. ... SEC. ... QUARTER ...
DRILLING FIRM: R.L.S. INC.

SURFACING CASING: 8 5/8 @ 2000' | DRILLING FLUID: WATER BASED
TYPE: 7 7/8" HOLE | MUD TYPE: GEL CHEM
CHEMICALTREATER: TY BAKER

ENGINEER: MITCHELL
OPERATOR: ...

ABBREVIATIONS

NS	NON SPONTANEOUS
SCR	SILICA CONTAMINATION
CAV	CAVING OR ENLARGED HOLE
CSG	CASING SHOE
DOL	DOLOMITE
LIM	LIMESTONE
SS	SANDSTONE
SHC	SHALE CAVINGS
SHW	SHALE WASHOUTS
SHS	SHALE SLOUGH
SHP	SHALE PACKOFF
SHT	SHALE TIGHT
SC	SECTIONAL CARVE
SHPC	SHALE PACKOFF CAVING

LITHOLOGY

SHALE
SHALE
CLAY
SILT
SALT
SILTSTONE
ANHYDRITE
GYPSUM
LIMESTONE
SILTY LIMESTONE
DOLOMITE
SILTY DOLOMITE
CHALK OR MARLY
MARLY MUDS

DRILLING RATES

MIN. PER FT.
MIN. PER FT.
MIN. PER FT.

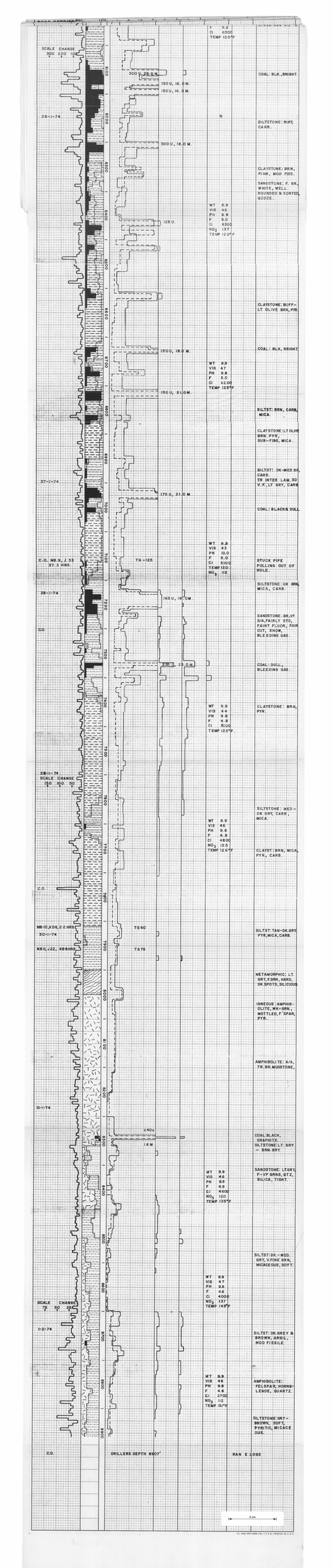
LEGEND

ppm HYDROCARBONS IN MUD 10=1000

C1 C2 C3 IC4 NC4 IC5 NC5

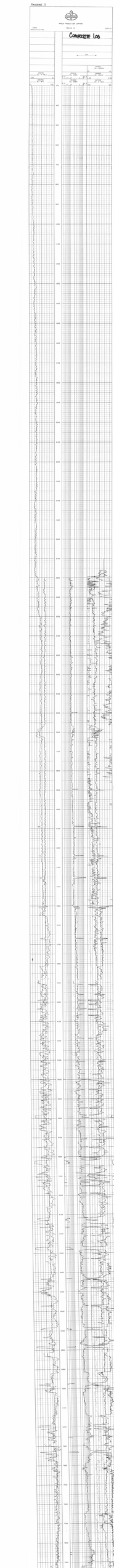
DRILLING RATE IN MINUTES PER FOOT
DRILLING RATE IN MINUTES PER FOOT
DRILLING RATE IN MINUTES PER FOOT

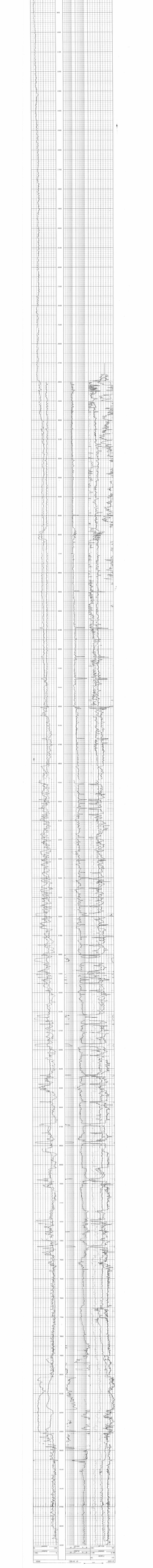
ATTAIN
MAIN
SHALE
SHALE
SHALE


SCALE CHANGE
300 200 100
300 U, 28.0 M.
150 U, 16.0 M.
150 U, 16.0 M.
26-1-74
300 U, 18.0 M.
125 U.
150 U, 18.0 M.
150 U, 21.0 M.
27-1-74
175 U, 21.0 M.
C.O. NB 9, J 33
37.3 HRS.
TG-125
28-1-74
165 U, 19.0 M.
C.O.
230 U, 23.0 M.
28-1-74
SCALE CHANGE
150 100 50
NB 10, X 06, 2.2 HRS.
30-1-74
TG 60
NB 8, J 22, 48 HRS.
TG 75
240 U
16 M
31-1-74
SCALE CHANGE
75 50 25
1-2-74
C.O.
DRILLERS DEPTH 8507'
RANGE LOGS
F 0.2
Cl 6500
TEMP 120°F
COAL: BLK, BRIGHT.
SILTSTONE: BUFF, CARB.
CLAYSTONE: BRN, FIRM, MOD FISS.
SANDSTONE: F GR, WHITE, WELL ROUNDED & SORTED, QZOZE.
WT 9.9
VIS 46
PH 9.8
F 5.0
Cl 6300
NO3 137
TEMP 120°F
CLAYSTONE: BUFF-LT OLIVE BRN, PYR.
COAL: BLK, BRIGHT.
WT 9.9
VIS 47
PH 9.8
F 5.0
Cl 6200
TEMP 125°F
SILTST: BRN, CARB, MICA.
CLAYSTONE: LT OLIVE BRN, PYR, SUB-FISS, MICA.
SILTST: DK-MED BR, CARB, TR INTER LAM SD V.F, LT GRY, CARB
COAL: BLACK & DULL
WT 9.9
VIS 43
PH 10.0
F 5.0
Cl 5100
TEMP 130
NO3 112
STUCK PIPE PULLING OUT OF HOLE.
SILTSTONE: DK BRN, MICA, CARB.
SANDSTONE: BR, VF SA, FAIRLY STD, FAINT FLUOR, FAIR CUT, SHOW, BLEEDING GAS.
COAL: DULL, BLEEDING GAS.
WT 9.9
VIS 44
PH 9.8
F 4.8
Cl 5100
TEMP 122°F
CLAYSTONE: BRN, PYR.
SILTSTONE: MED-DK GRY, CARB, MICA.
WT 9.9
VIS 46
PH 9.8
F 4.8
Cl 4800
NO3 125
TEMP 126°F
CLAYST: BRN, MICA, PYR, CARB.
SILTST: TAN-DK GRY, PYR, MICA, CARB.
METAMORPHIC: LT GRY, BRN, HARD, DK SPOTS, SILICIOUS
IGNEOUS: AMPHIBOLITE, MH-GRN, MOTTLED, F SPAR, PYR.
AMPHIBOLITE: A/A, TR BR MUDSTONE,
COAL: BLACK, GRAPHITE.
SILTSTONE: LT GRY - BRN GRY
WT 9.9
VIS 46
PH 9.8
F 4.8
Cl 4600
NO3 120
TEMP 135°F
SANDSTONE: LT GRY, F-VF GRNS, QTZ, SILICA, TIGHT.
SILTST: DK-MED GRY, V FINE BRN, MICACEOUS, SOFT.
WT 9.9
VIS 47
PH 9.5
F 4.6
Cl 4000
NO3 137
TEMP 145°F
SILTST: DK GREY & BROWN, ARGIL, MOD FISSILE
WT 9.9
VIS 46
PH 9.8
F 4.6
Cl 3700
NO3 112
TEMP 151°F
AMPHIBOLITE: FELSPAR, HORNBLENDE, QUARTZ.
SILTSTONE: GRY-BROWN, SOFT, PYRITIC, MICACEOUS.
8 cm

ATLAS WIRELINE SERVICES

ENCLOSURE 5





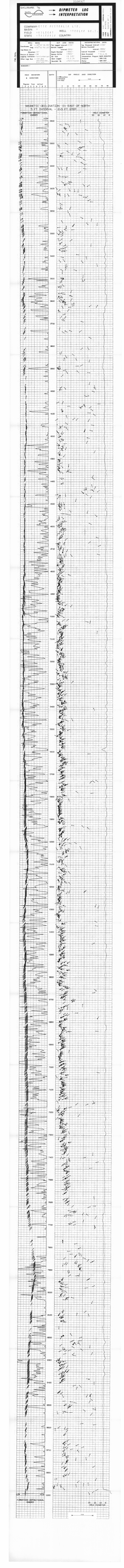
Schlumberger

FORMATION TESTER

COUNTY AUSTRALIA
Field or LOCATION WILDCAT
WELL TOOLEA 1.

COMPANY ESSO AUST. LTD.

| | | |



SCHLUMBERGER

DIPMETER LOG INTERPRETATION

COMPANY	[illegible] PETROLEUM LTD.
WELL	TEELOKE NO.1
FIELD	[illegible]
STATE	[illegible] COUNTRY

Permanent Datum:	GL	Elevation:	
Log Measured From:	KB	10.00 m Above Permanent Datum	
Drilling Measured From:	KB		
Date	18-Nov-84	Run Number	ONE
Depth-Driller	2500.00 m	Depth-Logger	2500.00 m
Bottom Log Interval	2500.00 m	Top Log Interval	1500.00 m
Casing - Driller	244.50 mm @ 0.00 m	Casing - Logger	
Bit Size	215.90 mm	Type Fluid in Hole	[illegible]
Density	[illegible]	Viscosity	[illegible]
Fluid Level	[illegible]	Max. Recorded Temp.	[illegible]
Source of Sample	[illegible]	Rm @ Measured Temp.	[illegible]
Rm @ BHT	[illegible]	Rmf @ Measured Temp.	[illegible]
Rmc @ Measured Temp.	[illegible]	Source: Rmf / Rmc	[illegible]
Rm @ BHT	[illegible]	Time Since Circulation	[illegible]
Max. Rec. Temp.	[illegible]	Equipment Number	[illegible]
Location	[illegible]	Recorded By	[illegible]
Witnessed By	[illegible]		

FIELD DECLINATION	DEPTH	DIP VARIES WITH DIRECTION	
0 DEGREES		Dip Scale	0
Magnetic Declination		Dip Scale	100
		Dip Scale	200
1 2 3 4 5 6		0 10 20 30 40 50 60 70 80 90	

MAGNETIC DECLINATION - 0° EAST OF NORTH

S.E. DIRECTION - DIP 15° EAST

FORMATION DIRECTIONAL DIP

WEST DIRECTION

NW SE SW NE

1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500

FORMATION DIRECTIONAL DIP

NORTH DIRECTION

NE SW SE NW


DIPMETER LOG
INTERPRETATION
COMPANY
BASIN
FIELD
WELL
COUNTY
STATE
MAGNETIC DECLINATION ON EXACT DIP NORTH
5 FT TRACKING, 10 FT STEP
DIP
AZIMUTH
DIP
AZIMUTH

1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
2400
2500
2600
2700
2800
2900
3000
3100
3200
3300
3400
3500
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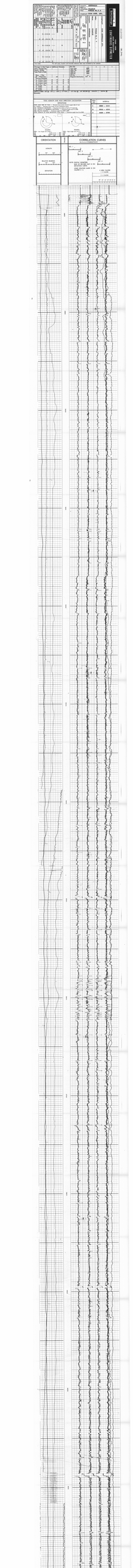
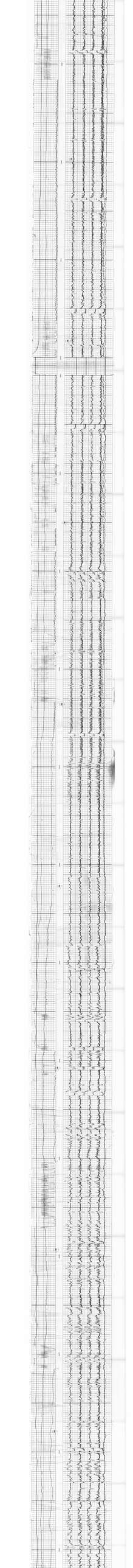
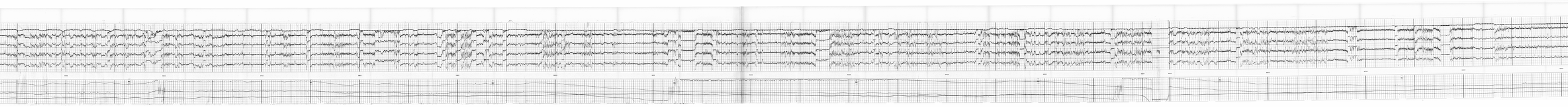
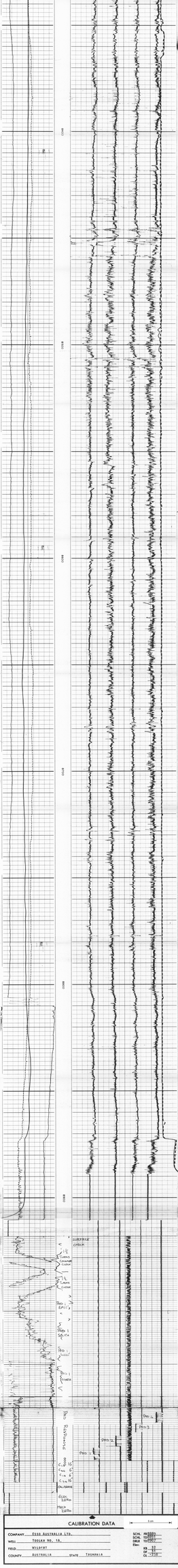
4600
4700
4800
4900
5000











CALIBRATION DATA

5 cm

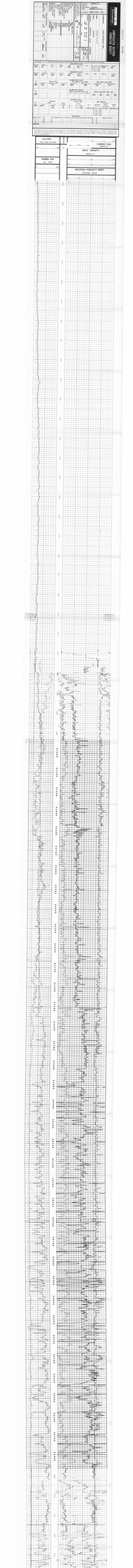
COMPANY ESSO AUSTRALIA LTD.

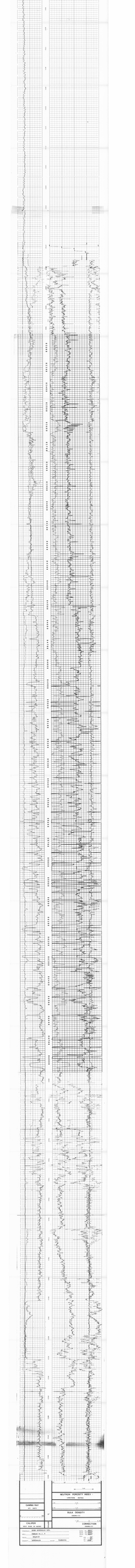
WELL TOOLKA NO. 1A.

FIELD WILDFAT

COUNTY AUSTRALIA STATE TASMANIA

SCHL FR8889
SCHL 10-2001
DRLR 10-2007
Elev.
KB 53
DF 51
GL 1.28


CALIPER
GAMMA RAY
CORRECTION
BULK DENSITY
NEUTRON POROSITY INDEX


NEUTRON - POROSITY INDEX
LIMESTONE - SANDSTONE
BULK DENSITY
GAMMA RAY
CALIPER
CORRECTION