CONTENTS ENVELOPE 614

TENEMENT: O.E.L. 22.

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ALLIANCE OIL DEVELOPMENT AUSTRALIA N.L.

100 Collins Street,
MELBOURNE. C.1.

COMPLETION REPORT

TARTWAUP STRUCTURE DRILLING PROJECT

O.E.L. 22 SOUTH AUSTRALIA.

by

M. C. Le Blanc

July 15th, 1966

INTRODUCTION

A programme of structure drilling was carried out within County Grey, South Australia during April and May, 1966 with the objective of mapping the upper surface of the Eocene Knight Group.

The programme, as originally envisaged, was to have comprised the drilling of approximately twenty structure holes in the northern part of the Hundred of Blanche and the southwestern corner of the Hundred of Young. Data obtained from wells drilled in the search for oil and coal in this area and from water bores indicated that a structural nose, with southward plunge, might be present on the downthrown block of the Tartwaup Fault.

In the first stage of the Tartwaup Structure Drilling Project sixteen holes (including four offset holes) were drilled in an attempt to delineate the outline of the structural nose. As a result of this drilling it was found that the structural pattern of the area was more complex than originally had been thought and it became evident that closed structure, if present, would be only of limited areal extent. For these reasons, and because severe lost circulation problems encountered while drilling through the Gambier Limestone made further drilling in the area to the south of the Tartwaup Fault uneconomic, it became necessary to modify the objectives of the project.

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Accordingly the second stage of the Tartwaup Structure Drilling Project was conducted in the region extending northwards from the Tartwaup Fault to the northern boundary of the Hundred of Young. Over much of this region the Knight Group is present at relatively shallow depth. During the period May 15th to May 27th, twenty holes (including one offset hole) were drilled in an attempt to locate structural closure at the level of the upper surface of the Knight Group.

The locations of holes drilled as part of the Tartwaup Structure Drilling Project, together with other relevant well locations are shown on the accompanying "Well Location Map". Existing well data has been incorporated with data obtained from the drilling project in preparing the "Contour Map - Base of Gambier Limestone " which accompanies this report.

SURVEY METHODS

Elevations of the structure holes were established by barometric survey, using a single aneroid microbarometer. Elevation control was obtained at the railway sidings of Burrungule, Mitchell and Wandilo, the elevations of which are shown on the Penola Sheet (J-54-6 Zone 6) of the 4 Mile Series, Military Survey Maps. The positions of the structure holes were determined from the cultural features shown on the South Australian Department of Lands maps of the Hundreds of Blanche, Young and Hindmarsh.

OPERATING METHODS AND EQUIPMENT

The project was carried out by one geologist, one drilling supervisor and two drillers.

The structure holes were drilled with a Mayhew 1000 Shothole Drill equipped for drilling with either water or air and mounted on an International six-wheel, 4-wheel-drive truck. Drill pipe adequate for drilling to a depth of 520 feet was available for the operation. A Bedford 4-wheel-drive flat-top tanker was used for water transport and a water trailer provided additional water storage capacity at the drilling locations. A Toyota 4-wheel-drive vehicle and a Holden panel van were used for the transport of personnel and drilling supplies.

Samples were collected at intervals of five feet or less and were described in the field concurrently with drilling operations.

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STATISTICAL DATA

Project Commenced: April 17th, 1966

Project Completed: May 30th, 1966

Days (10-hour) worked, drilling:

28.65 days (April 23 to May 27 inclusive)

Days (8-hour) worked, surveying:

9 Days

Time Lost:

13½ hours repairing equipment. 8 hours while results of work completed to May 13th were being evaluated.

Number of Holes Drilled:

36 holes (including 5 offset holes)

Number of Holes which Penetrated Knight Group:

Hundred of Hindmarsh	2
Hundred of Young	16
Hundred of Blanche	6
Total	24

Number of holes abandoned without penetrating Knight Group:

Hundred of Hindmarsh	2
Hundred of Young	5
Hundred of Blanche	5
Total	12

Total Footage: 4,664 feet

Average hole depth:

Holes which penetrated Knight Group	-	171.7 feet
Holes abandoned above Knight Group	-	45.3 feet
All holes (including 5 offset holes)	-	129.7 feet

Mud Materials used: 39 sacks Volclay (3,978 lbs.)

Lost Circulation materials used:

Bran - 142 sacks
Cement - 25 sacks

Drilling Bits used:

5 sets Skidmore Crooks (4½-inch) inserts.
1 set Skidmore Crooks (4¾-inch) inserts.
1 rock bit (4½-inch)
1 rock bit (4¾-inch)

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Sampling Interval: 5 feet or less.

Sample Distribution:

1 set to South Australian Mines Department
1 set to Alliance Oil Development Australia N.L.

Cost per foot of hole drilled: Approximately $1.79

DISCUSSION OF RESULTS

A contour map of the base of the Gambier Limestone over a part of County Grey was prepared, using data obtained from the Tartwaup Structure Drilling Project and from wells which previously were drilled within the Hundreds of Riddoch, Grey, Nangwarry, Hindmarsh, Young, Mingbool and Blanche. In the Hundred of Young two areas of closure, separated by a shallow saddle, have been mapped at the level of the base of the Gambier Limestone. Areas of closure may also be present at this level within the Hundreds of Grey and of Nangwarry but well control in this area is insufficient to establish the outline of the structures (Refer to accompanying "Contour Map of 'Base Gambier Limestone ")

Sprigg (1961) noted that a prominent soil horizon is present at the irregular contact between Knight Group and Gambier Limestone at Knight Quarry and referred to the possibility that uplift and local erosional truncation may have followed deposition of the Knight Group. In this event, structure contours of the base of the Gambier Limestone would reflect only topographic relief on the eroded surface of the Knight Group and would provide no indication of structural configuration at depth.

Stratigraphic information obtained from structure holes drilled to the north of the Tartwaup Fault has provided some evidence that the configuration of the upper surface of the Knight Group is related to structural movements which occurred after deposition of at least a part of the Glenelg Group - viz:-

1. At all structure holes (excepting T-17B and possibly T-24) a glauconitic and/or phosphatic unit (of variable thickness) comprises the basal member of the Gambier Limestone. Lithologically similar sediments are present at the base of the Gambier Limestone between 470 and 530 feet at Mount Salt Well No.1 and between 890 and 910 feet at Goltwood Beach Well No.1.

2. In the region to the north of the Tartwaup Fault, the Gambier Limestone sequence encountered at wells drilled in structurally low areas (refer T-19 and T-31) can be divided into an 'upper unit' consisting essentially of polyzoal limestone and a 'lower unit' consisting predominantly of clays, polyzoal clays, and marls. The Gambier Limestone encountered in the majority of holes drilled in the structurally high areas consists predominantly of clays and polyzoal clays which are lithologically similar to those of the 'lower unit'. This would suggest that folding postdated deposition of Glenelg Group sediments and was followed by truncation of the structurally high areas. Erosion of the uppermost part of the Glenelg Group may have provided a source for the carbonate gravels which form a part of the 'Pleistocene to Recent' sequence in structure holes T-20, T-21, T-29, T-30 and T-31.

Stratigraphic data obtained from structure holes drilled to the south of the Tartwaup Fault, however, suggest that the region to the north of the fault was emergent during at least part of Upper Eocene or early Oligocene Time. At structure holes T-2, T-3, T-7, T-13B and T-14, a sequence of limonite-coated quartz sands with included limonite pellets, and/or sandy, ferruginous clays, and/or sandy, limonitic carbonates are interposed between the Knight Group and the Gambier Limestone. Litholigically similar sediments of either Upper Eocene or early Oligocene age are present at Geltwood Beach No.1 (910-960 feet) Mt. Salt No.1 (530-590 feet), Pretty Hill No.1 (1260 to 1280 feet) and Eumarella No.1 (1120 to 1270 feet). With the possible exception of structure hole T-6, this unit was not encountered in structure holes drilled to the north of the Tartwaup Fault where it either has not been deposited or has been removed by erosion before deposition of the Gambier Limestone commenced.

Resolution of the problem as to whether or not mapping of the upper surface of the Knight Group is a valid method of outlining structure at depth can be achieved either by conducting a reflection seismic traverse across the axis of the structure centred on Medhurst Rail Siding or through a detailed palaeontological study of the Gambier Limestone sequence sampled at the various structure holes. Considering the poor seismic reflections obtained throughout much of the area of interest it is considered that the latter approach is more likely to yield the desired results.

LIST OF ANNEXES

Annex 1 Location of Tartwaup Structure Holes

Annex 2 Summary Well Records

Annex 3 Lithologic Descriptions - Tartwaup Structure Holes

ENCLOSURES

Lithologic Logs - Tartwaup Structure Holes

Contour Map - Base of Gambier Limestone

Well Location Map

ANNEX ONE

LOCATION OF TARTWAUP STRUCTURE HOLES

No.	Hundred	Location
T-1	Young	On verge of bitumen road - ten yards south of northeast corner of Section 328.
T-2	Blanche	On verge of road junction; adjacent to northwest corner of Section 296.
T-3	Blanche	Located on track running parallel to southern edge of Forest reserve; situated near southwest corner of Section 179 and immediately north of road allowance which extends through Section 34.
T-4	Blanche	On verge of road, ten yards east of northwestern corner of Section 709.
T-4B	Blanche	On verge of road; 65 yards east of northwestern corner of Section 709.
T-5	Blanche	On verge of road allowance separating Sections 718 and 715; located 5 yards north of southwestern corner of Section 715.
T-6	Young	Located on verge of track running parallel to southern edge of Forest reserve in section 9; situated 10 yards west of southeastern corner of Section 9.
T-7	Blanche	On eastern verge of bitumen road running parallel to western boundary of section 95; located 0.1 miles south of northwestern corner of Section 95 and adjacent to gate leading to quarry within Section 95.
T-8	Young	In centre of road junction at intersection of Sections 829, 351, 350 and 823.
T-8B	Young	On western verge of road separating Sections 351 and 829; located 10 yards north of T8.
T-9	Young	On eastern verge of bitumen road and adjacent to telephone post No.143; Located approximately 0.1 miles northwest of point where track defining southeastern limit of Section 105 intersects bitumen road.
T-10	Young	On verge of road junction separating Sections 11W,3, and 4 Young and 310, 309 and 433 Hindmarsh; adjacent to southwestern corner of Section 11W.

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No.	Hundred	Location
T-11	Young	On western verge of bitumen road; located adjacent to northeastern corner of Section 58.
T-12	Hindmarsh	On southern edge of Forest reserve in Section 356; located approximately 0.2 miles east and 20 yards north of the south western corner of Section 356.
T-13	Blanche	On southern edge of Forest reserve in Section 728, located 10 yards west of southeastern corner of Section 728.
T-13B	Blanche	In topographic depression on southern edge of Forest reserve in Section 728; located approximately 100 yards west of T-13.
T-14	Blanche	Located in Forest reserve at point 5 yards south of northeastern corner of Section 226.
T-15	Blanche	On track within Forest reserve in Section 230; located 0.25 miles south and 0.05 miles east of northwestern corner of Section 230.
T-15B	Blanche	On western edge of Forest reserve in Section 230; located 0.25 miles south of northwestern corner of Section 230.
T-16	Young	Located at northeastern corner of Section 95 on edge of Forest reserve.
T-17	Young	On western verge of track separating Sections 353 and 233; located 15 yards south of northeastern corner of Section 353.
T-17B	Young	In topographic depression and on western verge of north-south Forestry track within Section 26; located 30 yards north of northeastern corner of Section 353.
T-18	Young	On eastern verge of road separating Sections 44, 45 and 840 from Sections 84 and 110; located 5 yards southeast of northwestern corner of Section 840.
T-19	Hindmarsh	On eastern verge of road and adjacent to southwestern corner of Section 2198.
T-20	Young	On northern verge of road adjacent to Dismal Swamp HS ;located at southern most point of Section 155 about 0.2 mile southeast of junction of road and Mount Gambier-Penola railway.

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No.	Hundred	Location
T-21	Young	On eastern verge of road allowance; located 0.05 miles southwest of north-western corner of Section 212.
T-22	Young	On eastern verge of road; located adjacent to southwestern corner of Section 842.
T-23	Young	On road verge, within Section 86, in southern quadrant of intersection of SW-NE trending road and new road along right-of-way of abandoned Wandilo-Malla railway.
T-24	Young	On northern verge of track parallel to southern boundary of Section 195; located adjacent to southwestern corner of Section 195.
T-25	Hindmarsh	On eastern verge of road which cuts through Forest Reserve Block E; located immediately south of southwestern corner of Section 376.
T-26	Hindmarsh	Located 0.15 miles south and 0.15 miles west of northeastern corner of Pt. 2354.
T-27	Young	On western edge of Forest reserve in Block "U"; located 10 yards north of southwestern corner of Block "U".
T-28	Young	On Forestry road at intersection of first north-south road encountered in westward direction from south-western corner of Section "V"; located approximately 0.3 miles due west of southwestern corner of Section "V".
T-29	Young	On border of Section 200 and Drain Reserve "R". Located 0.3 miles NNW of southwestern corner of "R" at point where track within Section 200 crosses drain reserve.
T-30	Young	On eastern edge of Forest reserve within Section 118W; located adjacent northeastern corner of Section 118W.
T-31	Young	On western edge of forest reserve within Section 356; located 5 yards south of northwestern corner of Section 356.

SUMMARY WELL RECORDS

COUNTY GREY - HUNDREDS OF RIDDOCH, GREY, NANGWARRY, HINDMARSH, YOUNG, MINGBOOL, BENARA and BLANCHE

Explanatory Notes

Hundred:

1. R - Riddoch
   G - Grey
   N - Nangwarry
   H - Hindmarsh
   Y - Young
   M - Mingbool
   Be - Benara
   B - Blanche

2. The number which follows the Hundred abbreviation is a reference number to assist in locating the well on the two maps which accompany this report.

Section:

(T) - indicates that the well was drilled as part of Tartwaup Structure Drilling Project. Refer to Annex One of this report for location of bore.

(F) - indicates that the well location has been checked during the Tartwaup Structure Drilling Project.

(A) - indicates that the well location has not been checked during the Tartwaup Structure Drilling Project.

(S) - indicates a well drilled as part of a seismic survey; location approximate only.

Elevation:

(S) - elevation established by optical surveying.

(B) - elevation established by barometric surveying.

(R) - elevation based on nearby topographic data; elevation probably accurate to within 10 feet or less.

(F) - elevation based on nearby topographic data; elevation may be in error by more than 10 feet.

(U) - method used to determine elevation and accuracy of elevation are unknown.

Bottomed In:

P - Recent to Pleistocene sediments.

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Bottomed In: (Continued)

G - Gambier Limestone

K - Knight Group

PAL - Palaeozoic sediments

Elevation of "Base Gambier":

1. Datum is mean sea level.

2. The letter "K" following the elevation value denotes that the base of the Gambier Limestone coincides with the top of the Knight Group.

3. The letter "G" following the elevation value denotes that post-Knight Group sediments may be present between the base of the Gambier Limestone and the top of the Knight Group.

4. The letter "E" following the elevation value denotes that the Knight Group is directly overlain by a thin veneer of Recent sediments. The elevation of "Base Gambier" is that of the eroded(?) top of Knight Group.

5. The letter "P" following the elevation value denotes that the sediments which directly overlay the Knight Group are considered to be Recent to Pleistocene in age. The elevation of "Base Gambier" is that of the eroded(?) top of Knight Group.

Penetrated Thickness of Knight Group:

Where two values are given, the first value refers to the total section penetrated below the base of the Gambier Limestone and the second value (bracketed) is the thickness of sediments older than Gambier Limestone but probably post-Knight Group.

Reference:

SAM - Department of Mines, South Australia, bore records.

OD - O'DRISCOLL, E.P.D., 1960 - "The Hydrology of the Murray Basin Province in South Australia"; Geol. Survey S. Aust. Bull.35.

TSD - Tartwaup Structure Drilling Project.

SP - SPRIGG, R.C., 1958 - "Review of Petroleum Prospects of the Gambier Sunklands in southeastern South Australia". Unpublished report to General Exploration Company of California.

MR - JOHNSON, W., 1960 - "Lignite Investigations - County Grey"; Mining Review 109, pp. 78-85.

SEIS- Namco International Inc. 1965 - "Kalangadoo-Lucindale Seismic Survey, O.E.L. 22, South Australia". Unpublished report to Alliance Oil Development Australia N.L.

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Hundred	Section	Bore No.	Elevation	T.D.	Bottomed In	Elevation of "Base Gambier"	Penetrated Thickness Knight Group	Reference
R 1	Millyard Block 4 (A)	3A - E	252 (r)	400	G	Below - 148	0'	SAM
R 2	Forest Roc. 5A (A)	A	266'(U)	425	G	Below - 159	0'	SAM
R 3	9 (A)	A	493'(U)	1045'	K	- 115K	437'	SAM
R 4	Forest Res. 5A (A)	(1)D	245 (r)	530'	G	Below - 285	0'	SAM
R 5	92 (A)	2A	245 (r)	315'	G	Below - 70	0'	SAM
R 6	137 (A)	--	174 (R)	176'	P?	Below - 2	0'	OD
R		RF4	155 (R)	110	G	Below + 45	0'	SEIS
R		RF5	186 (s)	125	G	Below + 61	0'	SEIS
R		RE8	268 (s)	155	G	Below + 113	0	SEIS
G	95 (F)	Kalangadoo Well No.1	219.2' (S)	9049	PAL	- 472K	1527'?	KAL
G 1	401 (A)	C.G. 3A	235 (R)	200'	K	+ 194	159'	SAM
G 2	508 (A)	C.G. 1A	222 (R)	200'	G	Below + 22	0'	SAM
G 3	511 (A) N.W. Corner	C.G. 2A	224 (R)	200'	K	+ 60	40'	SAM
G 4	216 (A)	--	213' (U)	91'	G	Below + 122	0'	OD
G		RA5	216 (s)	95	?	At least below + 151	--	SEIS
G		RA6	223 (s)	80	G	Below + 98	0'	SEIS
G		RA7	240 (s)	80	K	Probably Above + 200	Unknown	SEIS
G		RF6	202 (s)	80	G	Below + 122	0'	SEIS
N 1	85 (A)	--	235 (R)	58'	K	+ 181K	4'	OD
N 2	130 (A)	W.&F. No.1	227'(U)	220'	K	+177K	170'	OD
N 3	130 (A)	--	227 (R)	121'	K	+ 163K	57'	OD
N 4	130 (A)	W.&F. No.1A	225' (r)	122'	K	+ 175	72'	MR
N 5	140 (A)	--	243'(U)	115'	G	Below + 128	0'	OD
N 6	143 (A)	Nangwarry Sawmill	228'(U)	248'	K	+ 148K	148'	OD
N7	196 (A)	--	217'(U)	62'	G	Below + 155	0'	OD
N 8	113 (A)	W.&F. No.10	235 (R)	70'	K	+210	45'	MR
N		RD4	240 (S)	200'	K	Possibly Above + 200	Unknown	SEIS
N		RD5	231 (S)	140	G	Below + 91	0'	SEIS
N		RD3	223 (r)	200	G	Below + 23	0'	SEIS
H 1	195 (A)	(2 Oil) A	95 (r)	1532'	K	- 297G	1140 (28)	OD
H 2	469 (A)	--	101 (U)	124'	G	Below - 23	0'	OD

Hundred	Section	Bore No.	Elevation	T.D.	Bottomed In	Elevation of "Base Gambier"	Penetrated Thickness Knight Group	Reference
H	Pt. 22 (A)	W1 "A"	79 (R)	220'	G	Below - 141	0'	SP
H	Pt. 22 (A)	W2 "B"	79 (R)	225'	G	Below - 146	0'	SP
H	Pt. 22 (A)	W3 "C"	79 (R)	220'	G	Below - 141	0'	SP
H	Pt. 22 (A)	W4 "D"	79 (R)	220'	G	Below - 141	0'	SP
H	Pt. 22 (A)	W5 "E"	79 (R)	220'	G	Below - 141	0'	SP
H	Pt. 22 (A)	W6 "F"	79 (R)	237'	G	Below - 158	0'	SP
H	(T)	T-12 80.80	265.1 (B)	37' 11.28	P	Below + 228	0'	TSD
H	(T)	T-19 71.63	235' (R)	165' 50.29	K	+ 93K	23'	TSD
H	(T)	T-25 108.78	356.9' (B)	145' 44.20	P	Below + 212	0'	TSD
H	(T) Pt. 2354	T-26 74.28	243.7' (B)	135' 41.15	K	+ 176K	67½'	TSD
H		RA 10	160 (S)	80'	K	Estimated + 140'	-	SEIS
H		RB 6	77 (S)	125'	G	Below - 3	0'	SEIS
H		R 9	270 (r)	110'	G	Below + 160	0'	SEIS
H		RE 10	≏ 100 (r)	140'	G	Below + 40	0'	SEIS
H		RE 11	75 (r)	140'	G	Below - 65	0'	SEIS
Y 1	164 (A)	3	251 (r)	157'2"	K	+ 142K	48'	SAM
Y 2	217 (A)	2	243 (r)	142	K	+ 192K	91'	OD
Y 3	593 (A)	A Mt. Gambier Aerodrome	210 (R)	285'	K	- 56G	19' (3')	SAM
Y 4	81 (A)	C.G.9"B" S.E. Corner	236 (R)	163'	K	+ 172K	79'	SAM
Y 5	112 (F)	1.A	240' (R)	228'	K	+ 209'K	197'	SAM
Y 6	181 (A)	61 A	230 (r)	42'	K?	+ 194	6'	SAM
Y 7	185 (A)	C.G.4"B"	241' (R)	200'	K	+ 135'K	94'	SAM
Y 8	211 (A) Block E	Dismal Swamp	245 (r)	133.5'	K	+ 162'K	50½'	SAM
Y9	Bdry. of 2 and 355 (F)	C.G.8"A"	205'(r)	160'	K	+ 203'E	158'	SAM
Y 10	34 (A) West side	C.G.5"A"	241' (R)	200'	K	+ 112'K	88'	SAM
Y 11	2 (F) Bdry. Sec. 14 Hindmarsh	C.G.6 "B"	198' (B)	200'	K	+ 134'K	136'	SAM
Y 12	Bdry. of 2 and 7 (F)	C.G. 7"C"	192' (R)	200'	K	+ 166'P	174'	SAM
Y 13	54 (A)	-	237' (R)	147'	K	+ 100 K	10'	SAM
		(Knight Group encountered at 90' on nearby bore in Section 54)						
Y	(T)	T-1	246.5'(B)	120'	K	+ 182 K	55'	TSD

Hundred	Section	Bore No.	Elevation	T.D.	Bottomed In	Elevation of "Base Gambier"	Penetrated Thickness Knight Group	Reference
Y	9 (T)	T-6 69.80	229.0' (B)	150' 45.72	K	+ 208P	129 (10½)	TSD
Y	(T)	T-8 65.47	214.8 (B)	15' 4.57	G?	Below + 200'	0'	TSD
Y	(T)	T-8B 64.92	213.0' (B)	180' 54.86	K	+ 170K	136½'	TSD
Y	(T)	T-9 74.16	243.3' (B)	135' 41.15	K	+ 194K	86'	TSD
Y	(T)	T-10 71.41	234.3' (B)	195' 59.44	K	+ 147K	108'	TSD
Y	(T)	T-11 76.26	250.2' (B)	105' 32.00	K	+ 215K	70'	TSD
Y	95 (T)	T-16 66.26	217.4' (B)	195' 59.44	K	+ 60K	38'	TSD
Y	(T)	T-17 78.21	256.6 (B)	20' 6.10	P	Below + 236'	0'	TSD
Y	26 (T)	T-17B 64.22	210.7 (B)	120' 36.58	K	+ 178K	87'	TSD
Y	(T)	T-18 73.79	242.1' (B)	150' 45.72	K	+ 197K	105'	TSD
Y	(T)	T-20 73.15	240' (R)	270' 82.30	K	+ 58G	88' (8')	TSD
Y	(T)	T-21 73.76	242.0' (B)	150' 45.72	K	+ 145K	53'	TSD
Y	(T)	T-22 72.85	239.0' (B)	120' 36.58	K	+217P	98'	TSD
Y	(T)	T-23 72.24	237' (R)	25' 7.62	G?	Below + 212'	0'	TSD
Y	(T)	T-24 84.70	277.9' (B)	300' 91.44	K	+ 28G	50' (10')	TSD
Y	Block U (T)	T-27 89.21	292.7' (B)	96' 29.26	G?	Below + 197'	0'	TSD
Y	358 (T)	T-28 80.50	264.1' (B)	75' 22.86	G	Below + 189'	0'	TSD
Y	200 (T)	T-29 71.26	233.8' (B)	150' 45.72	K	+120'K	36'	TSD
Y	118W (T)	T-30 70.68	231.9' (B)	105' 32.00	K	+184'K	57'	TSD
Y	356 (T)	T-31 70.93	232.7' (B)	180' 54.86	K	+ 57'K	4½	TSD
		RA 8	239 (S)	80'	K	Probably Above + 159	Unknown	SEIS
Y		RA 9	208 (S)	50'	K	Probably Above +188	Unknown	SEIS
Y		RD 9	197 (S)	200'	K	Approx. + 97	Unknown	SEIS
M 1	293 (A)	--	236 (r)	50	P	Below + 186	0'	OD
M 2	397 (A)	--	246' (U)	98	G	Below + 148'	0'	OD
M		RF 10	230 (S)	170'	G	Below + 60	0'	SEIS
M		RF 11	235 (r)	155'	G	Below + 80	0'	SEIS
M		RF 12	242 (R)	105'	G	Below + 137	0'	SEIS
Be		RA 11	108 (S)	65'	K?	Possibly Above - 43	Unknown	SEIS
Be		RA 12	68 (S)	80'	G	Below - 12		SEIS
Be		RB 5	75 (S)	140'	G	Below - 65	0'	SEIS

Hundred	Section	Bore No.	Elevation	T.D.	Bottomed In	Elevation of "Base Gambier"	Penetrated Thickness Knight Group	Reference
B 1	1 (?) (A) Town Block		121' (U)	134'	G	Below - 13'	0'	OD
B	150 (F)	Producers Oil Coy.	172.2' (B)	1220'	K	- 38'K	1,010'	OD
		Located 0.2 miles E and 0.05 miles S of NW corner Sec. 150						
B	170 (A) "Knight Dome"	2 B	170 (U)	2013	K	+ 103 K	1,946'	OD
B 2	197 (A)		139 (R)	200'	G	Below - 61	0'	OD
B 3	225 (F)	1A	210.4' (B)	308'	K	+ 156P	254'	SAM
B 4	225 (F)	3C	193.6' (B)	70'	K	+ 152K	28'	SAM
B 5	Pt. 160 (F)	1	174.3' (B)	71'	K?	+ 124G	21' (21')	SAM
B 6	227 (F)	1A	202.0' (B)	100'	K	+ 156 G	54' (11')	SAM
B 7	232 (F)	1A	228.6' (B)	160'	K	+158K	89'	SAM
B	301 (F)	A Assoc. Oil Coy.	249.4' (B)	2110'	K	+ 107G	1,968' (8')	SAM
B 8	Pt. 20 (F)	2A	180.4' (B)	77'	K	+ 103K	17'	SAM
B9	134 (A)	Fletchers Quarry	135' (Elevation may be much higher)	184'	K?	- 49?	½?	MR
B 10	263 (A)	6	155 (r)	222'	G	Below - 67	0'	SP
B 11	831 (A)	1	160'	200'	G	Below - 40?	0'	SP
B	(T)	T-2 54.83	179.9' (B)	175' 53.34	K	+ 68G	63 (8')	TSD
B	(T)	T-3 51.57	169.2' (B)	240' 73.15	K	+ 31G	102' (6½)	TSD
B	(T)	T-4 59.53	195.3' (B)	23' 7.01	G	Below + 172	0'	TSD
B	(T)	T-4B 59.13	194.0' (B)	30' 9.14	G	Below + 164	0'	TSD
B	(T)	T-5 52.49	172.2' (B)	30' 9.14	G	Below + 142	0'	TSD
B	(T)	T-7 46.06	151.1' (B)	210' 64.01	K	+ 82G	141' (2⅛)	TSD
B	728 (T)	T-13 62.21	204.1' (B)	7¾' 2.36	G	Below + 196	0'	TSD
B	728 (T)	T-13B 50.01	164.2' (B)	195' 59.44	K	+ 88K	119'	TSD
B	226 (T)	T-14 60.26	197.7' (B)	195' 59.44	K	+ 31G	28' (5')	TSD
B	228 (T)	T-15 49.07	161 (r)	40' 12.19	G	Below + 121	0'	TSD
B	228 (T)	T-15 B 49.07	161' (r)	180' 54.86	K	+ 132G	151 (18')	TSD
B		RD 11 ~~55~~	110' (r)	140'	G	Below - 30	0'	SEIS

ANNEX 3

T-8 0-5 LS: wh.-med. lt.yllsh. br., bioclastic (f. to med grained frags. (predominantly fossil frags; some bryozoa), soft, friable.
Some LS: white, with black specks.
30% CLAY: med. rdsh. brown.

5-10 LS: cream w/ greenish tinge., in pt. w/ abnt. blk. carb. grains, generally dol'c., in part sdy. (f. rd. grns), mod. tough.
30% DOL: lt.gy., v.f. xln., mod. calc.

10-15 No samples

Abandoned at 15'

T-8B (located 40 yards north of T8 & approx 2-3 feet lower)
0-5 LS: pale yllsh. br., bioclastic & frag'l (fossiliferous w/ fly. comm. bryozoal frags); s/ orange stnd. grns.; frags. are pred. f-med. grnd.; dol'c.

5-10 LS: cream to buff, f-med. frag'l., some fossil frags. including bryozoa, in part dol'c, in large part soft.

10-15 LS: similar to above; in part w/ common blk. specks; scattered green & red clay grns.; occ. bryozoal frags. and trace of shell frags.; dol'c.

15-27 30% LS: as above
70% DOL: lt.gy., micro-v.f. xln, common blk. specks and filigree, sl.-mod. calc., v. silty.

17-18 Cavity

Descriptions below are strictly visual and should be redone. They are only rough notes made as drilling progressed.

18-20 Not described.

20-25 Not described.

25-27 Not described.

27-30 Clay: blue to buff

30-35 Clay: light bluish grey (probably v.f. sdy.)

35-40 Clay: bluish grey (probably v.f. sdy.)

40-41 Clay: bluish grey

41-42½ Clay: buff w/ common bryozoal fragments

Base Gambier 42½-45 SS: very dark grey with some granules & pebbles

T 8B cont.

45 - 49 SAND: med. gy. v. crs. to granule sized.

49 - 50 SAND: as above with inbd. med. dk. bn. clay.

50 - 54 CLAY: med. dk. bn. with some inbd. med. to f. grad. sand.

54 - 55 SAND: very coarse to granule sized.

55 - 60 SAND: med. bcmg: v. coarse grained bcmg interbedded with dk. bn. sandy clay.
Af. 60 occurs some CLAY: ochre.

60 - 65 SAND: fine to very coarse & granule sized; with some interbedded ochre CLAY.

65 - 70 SAND: lt. olive grey, v.f. - f. grad.; probably very argillaceous; minor amount of ochre clay.

70 - 75 SAND: as above (probably equivalent to drillers "Quicksand"; very viscous)
10% CLAY: ochre & dk. brown (cvgs?)

75 - 80 SAND: as above (could possibly be argill. silt)

80 - 85 SAND: as above

85 - 88 SAND: as above

88 - 90 CLAY: dk. bn.

90 - 95 CLAY: olive bn., appears very silty, sl. - mod. "lignitic"

95 - 101 SAND: v.f. grad., olive, argillaceous, uncons., v. sl. "lignitic"; some bn. CLAY.

101 - 105 CLAY: dk. olive bn.; some cooly laminae.

105 - 110
~~105 - 110~~ SILT or v.f. SS: olive bn., argill. (some f. grad sand)
110 - 115 w/ 50% CLAY: med. bn., very sandy (v.f. - f. grad.) & silty.
Minor amounts of "lignite"

SAND: olive grey, v.f. - f. grad to silt, argill.
w/ some brown clay, sl. lignitic

115 - 120 CLAY: brown, plastic, sl. olive.

120 - 125 CLAY: med. lt. brown.

125 - 130 CLAY: lt. bn., v. silty to vf. sdy; interbedded. argillaceous silt or v.f. - f. grad. ss.

130 - 135 SAND: white to light grey., med. grad. to granule sized.

135 - 140 SAND: f - med. grad., with inbd. CLAY: med. bn., sdy (?).

140 - 145 SAND: as above w/ inbd. bn. clay.

145 - 150 CLAY: med. dk. bn., w/ some very coarse to granular white sand & some small pebbles.

00020

T-8B cont.

150-155 CLAY: dark brown, plastic

155-160 CLAY: as ab.

160-165 CLAY: as ab.

165-170 CLAY: as ab., sl. sandy.; some "lignitic" streaks.

170-175 CLAY: med-dk. ba., plastic, mod. "lignitic", likely v.f.-f. sdy.

175-180 CLAY: as ab.

T-10 Descriptions were predominantly ~~strout~~ taken in ~~course of~~ while drilling ~~operations~~ progressed.; descriptions ~~should~~ are preliminary only.

Note: reference clay or marl, most probably dol'c clay w/dol'd polyzoal frags.

0-5 SAND: f.; in pt. med. grad., ang.-sub ang., pred. qtz, generally cln. but some Fe stng.

5-10 CLAY: ochre to olive, sdy. (v.f.-f. grad.), non-calc.

10-15 CLAY: ochre to yllsh ba., ~~in part sandy~~. mod-v. sdy., (v.f.-med. grad. qtz.), non-calc.

15-20 CLAY: as ab. mod. sdy & slty.

20-25 CLAY: as ab w/ some grsh. grey & green clay.; ochre clay is mod. to. very mic. & is sdy (v.f.-f. grad.).

24 = Gambier

25-30 CLAY: predom. green & greenish grey; some ochre. Sea green variety grades to shale, is waxy to plastic, in pt. mottled rdsh ba, non-sandy, micaceous and includes some bryozoal frags.

30-33. SH to CLAY: sea green; as ab. /w/ interbeds of white bryozoal LS & more marl.

33-37½ MARL: white, bryozoal; foss. frags are commonly dolomitized.

37½-40 MARL: white to lt. gy.; in part dol'c or grades to calc. clay w/ inbds of dol'c LS or calc sil'c SLST; common bryozoal frags. Rough drilling indicates tough inbds.

40-45. MARL: lt. gy., fly. common bryozoal frags.; stngrs of very tough lt. gy., foss., v.f. xln., calc. DOL or argill, sil'd SLST.

45-50 CLAY or MARL: wh. to lt. gy., (bryozoal or marl contains interbeds of bryozoal LS)

50-55 CLAY or MARL: lt. gy, generally soft but in part hard; abnt. bryozoal and other foss. frags.

55-60 CLAY OR MARL: lt. gy., fairly coam. bryozoal frags.

60-65 CLAY OR MARL: as ab.

65-70 CLAY OR MARL: as ab. but lesser bryozoal frags

00021

70-72 CLAY OR MARL: as above

72-75 SS: med. lt. gy., f. grad., qtz., non-calc.

75-80 CLAY or MARL: lt. gy., v. abnt. (30%) bryozoal and foss. frags.

80-85 LS: wh., bryozoal, v. ply. consolidated, occ. qtz. gros.

85-87 ~~CLAY: dk. bn., plastic~~ LS: as ab. w/ fairly common sea-green gros.

87-90 CLAY: dk. bn., plastic

90-95 CLAY: as ab.; abnt bryozoa (cugs)

95-100 CLAY: med dk. to dk. bn., as ab., mic.

100-105 CLAY: as ab. mic.

105-110 CLAY: as ab. mic

110-115 CLAY: as ab but with increasing prop. of olive grey blebs & lams.

115-120 CLAY: pred. dk bn., as ab. but abnt. olive gy. mottling.

120-122 CLAY: as ab.

122-125 SAND: med- to granule sized, (predom. v. crs. to granule), well rd. qtz., abundant pebbles.

125-131 SAND: lt. gy., as ab. but grain size smaller; common granules but only rare pebbles; minor lenses of bn. clay.

131-135 CLAY: bn. as ab. w/ minor strgrs. of sand & olive gy. sdy. clay.

135-140 CLAY: bn., as ab & inbd. SAND: olive gy., v.f.-f. grad., qtz, argill. ("quicksand")

140-145 SAND: med. lt. olive gy., v.f. grad. to silt, argill. ("quicksand"); possibly minor bn. clay interbeds

145-150 SAND: med. lt. olive gy., v.f.-f. grad., silty & argill., mic "quicksand"

150-155 SAND: as ab., v.f. grad., silty.

155-160 SAND: as ab., v.f.-f. grad silty; minor inbd. bn. clay; scatt. coser. gros.

160-165 SAND: silt to v.f. grad., as ab.; mic.; some cooly flakes.

165-170 SAND: lt. ol. gy., v.f-f. grad. to silt, "quicksand"; fairly common cooly flakes; 30% CLAY: bn., as ab., in pt. mod "lignitic"

171-175 CLAY: med. gysh bn., v. sl. lignitic

175-180 CLAY: med. dk. bn., silty to sdy patches; tr. ochre clay.

180-185 CLAY: as ab., silty to v.f. sdy.; common sea-green sdy. clay.; strgrs of "quicksand"; trace lignite.

185-190 CLAY: pred. med. dk. bn., mic., silty., with sandy patches and s/ CLAY: sea-green, v. sdy & silty (up to med. grad).

190-195 T.D. CLAY: as above.

T-9

Descriptions below are predominantly preliminary descriptions made "on-site" as drilling in progress

0-2 SAND: wh., f-med. grad., qtz.; w/ lignitic matter.

2-5 SAND: lt. brown, f-med. grad., qtz., in pt. Fe-stnd.; occ. lignitic fragments; in part consolidated SS.

5-7 SAND: orange bn. to ochre, in pt. rdsh.bn., f-med. grad., argill.

7-10 CLAY: ochre, in pt. mottled yash.gy., in pt. sdy.

10-12 CLAY: bright blue-green, very plastic.

12-15 LS: wh.-buff, f. bioclastic (pred. bryozoal), very friable.

15-20 LS: wh., sl. greenish tinge, f. ~~fra~~ bioclastic-frag'l (bryozoal). w/ some ochre clay (cvgs) and probably some marl. (LS: is sl. sdy & silty & has trace of green grains)

20-25 LS: wh.-lt. gy., polyzoal w/ lt. gy. marl ~~& clay~~, dol'c (LS is broken up; possibly this is polyzoal clay.) (LS: prob. dol'c)

25-30 LS: lt. gy., sl. gash., polyzoal. dol'c

30-35 ~~CLAY or~~ MARL: lt. gy., sl.-mod. calc. w/ 30% polyzoal frags. (prob. dolomitized)

35-40 ~~SAND~~: lt. gy. to cream, ~~v.f. f. grad., ang qtz.; abat.~~
LS: ~~lt. gy clay or marl; abut polyzoal frags~~
~~MARL~~: lt. gy to cream, dol'c, w/ abat. dolomitic rhombs & v. abat dol'c polyzoal frags.

40-45 LS: lt. gy-cream, polyzoal; w/ 10% ~~CLAY~~ or MARL lt. gy. probably dol'c

45-49 LS: polyzoal; as ab.; w/ 20% CLAY: sea-green, plastic.

49-50 CLAY: med. dk. bn., plastic

50-53 CLAY: med. dk. bn., mic., plastic

53-58 Very rough & slow drilling.

DOL: dk. bn. to gysh bn., tough., v.f. xln., v. argill., silty, sl. sdy.; w/ abat aragonite (?) veining

58-60 CLAY: dark. bn., as at 49-53.

00023

T-9 (cont.)

60-65 CLAY: med. dk. bn., plastic

65-68 CLAY: as ab., in pt. sdy.

68-70 SAND: v. coarse to pebbly, predominantly granule sized (although smaller grain sizes present), very poorly sorted, subang to subround, some round grns., qtz., with some greenish grains, abnt pyrite cement remnants on grains

70-72 SAND: very coarse to granule sized., in pt. subang & subround, predom. well rd., pred. wh. opaque qtz., pyt. cement remnants adhere to grains

72-75 CLAY: bn. as at 60-65

75-80 SAND: fine to coarse, subang. to rd. qtz., some v. crs to granule sized grains, pyt'c; some v.f. - f. grad. silty "quicksand".

80-89 SAND: ol. gy., v.f.-f. grad w/ some coser grains, probably washed out of sample because heavy viscosity of bentonitic mud prevents settling out...; probably up to 20% inbd.
CLAY: med. dk. bn., mic., carb.

89-90 CLAY: med. - mod. dk. bn., mic., v. carb. & to coaly flakes & spec

90-95 SAND: olive gy., v.f-f. grad., qtz., silty & argill(?); drillers "quicksand"

95-100 SAND: olive gy., as ab.; w/ some coarser grains.

100-105 SAND: olive gy., silt. to f. grad., as ab.

105-110 SAND: olive gy., as ab; w/ 50% CLAY: med. bn., mic., sdy. & silty, mod. to very carb.

110-115 CLAY: med. dk. bn., mod. - v. carb., plastic

115-120 CLAY: as ab.

120-125 CLAY: dk. bn., sl. carb., mic.; possibly sl. sdy.

125-130 CLAY: as ab w/ intercolations and loms of CLAY: olive gy - med. lt. gy., mic., v.f. sdy & silty.; in some samples brown clay present as pellets in grey & clay.

130-135 CLAY: gnsh. gy., silty to v.f & f. sdy & bn., mic. as ab.

T-7 Descriptions preliminary only; made "on-site" as drilling progressed.

0-1 Black soil w/ dol'c LS (very tough & indurated) cobbles & boulders.

1-1½ SAND: rdsh. bn, f. grad., qtz., in pt. Fe-stnd.

1½-2½ LS: ~~buff~~, lt. yellow, very tough, dol'c; probably present as cobbles

2½-5 SAND: buff - lt. yellsh bn., med. grad., dolomite rhombs

00024

The dolomite rhomb zone can be observed in the adjacent quarry where it is present at a depth of about 8' below and underlies tough potholed & fissured dol'c LS. In the quarry it is present as a very friable poorly consolidated deposit.

5-7 SAND (DOLOMITE) as ab.
7-10 LS: med. lt. yllsh. bn., mod. hard.; common loose dolomite rhombs (cvgs?)
10-12 DOLOMITE: loose f-med. buff dol. rhombs as at 5-7.
12-15 LS: buff, x/n. or frag'l. dol'c
15-16 LS: orange & buff, x/n. or frag'l (?) dol'c
16-17 LS: wh. & cream, some orange frags.; tr. rdsh bn. grns.
17-21 LS: wh.-cream., x/n. or frag'l.
21-23 Cave.
23-25 No sample returns.
25-30 DOL: buff-med. lt. yllsh. bn., v.f.-f. x/n., mod. calc, sl. argill.
~~36~~
30-35 DOL: as ab. w/ 30% buff, dol'c/calc clay.; possibly some frag'l, rex'd LS; dolomite has some bk. specks.
35-37 DOL: buff, f. x/n., calc.

37-40 LS: wh., x/n.. in pt bryozoal

40-43 DOL: buff-yllsh. bn. as at 35-37

43-45 MARL → DOL: buff, calc. (dolomite rhombs & frags in calc. argill. matrix; (could be marl w/ inbd. dolomite.)

45-48 DOL: as at 35-37

48-50 MARL → DOL: as at 43-45

50-55 MARL → DOL: as ab.

55-57½ MARL → DOL: as ab.

57½-58½ LS: buff-yllsh. bn., hard, f-med. frag'l with some bryozoal frags., probably very dolomitic; some orange clay grns. & some bk spot

58½-60 MARL → DOL. as ab.

60-65 MARL → DOL: as ab. w/ possibly some inbds of LS: as ab.

65-67 LS: wh., bryozoal / frag'l, very soft

67-69 LS: yllsh. or.-cream, med.-crs. frag'l, v. dol'c (ie. fossil frags are all dolomitized

69-70 CLAY: predom. ochre; some rdsh. bn.; occasional pebbles & granules

70-71½ CLAY: ochre.

71½-75 CLAY: bk. to v. dk. bn., sdy. (scattered f-med., rd.-subrd., qtz), plastic.

75-80 CLAY: med.-v. dk. bn., sl. sdy.; few granules & pbls. plastic

80-85 CLAY: dk. bn., mic., sl. carb., silty to v.f. sdy.; few granules & pbls.

85-90 CLAY: as ab.

T-7 (continued)

90-95 CLAY: as ab. w/ traces bluish gy. STST-v.f.ss; traces coaly flecks.

95-100 CLAY: v. dk. bn., mic.

100-105 CLAY: v. dk. bn., v. mic., carb.; occ. granules & pbls.; probably sdy.; traces of STST-v.f. SS.

105-110 CLAY: med. dk. bn., in pt. mod. sdy., (f-crs), mic., in pt. sl. carb.

110-115 CLAY: dk. bn., mic.

115-120 CLAY: med. dk. bn., w/ 10% interclated & leading gnsh. gy. to ol. gy. slty. & sdy. clay; rare med. to v. crs. qtz grns. & granules.

120-125 CLAY: med.-med. dk. bn. w/ intercalated (common) ol. gy & lt. bn., slty. & v.f. sdy. clay; mic.

125-130 CLAY: as above but less sandy.

130-132 1/2 CLAY: as ab.

132 1/2 - 133 SILTSTONE (?): dk. gy.-bk., very tough, sandy, mod.-v. calc., v. argill.

133-135 CLAY: med. bn., mod. sdy.

135-140 CLAY: as ab.

140-145 CLAY: med. bn. w/ some olive bn & occ. dark bn.; generally mod. sandy & slty. (v.f-f. grad.)

145-150 CLAY: predom. med. lt. gnsh. & olive gy, generally slty & sdy. w/ common bn. clay as ab intermixed; fairly abundant well rd. quartz granules & small pebbles.

150-155 CLAY: as ab. POOR SAMPLE returns & viscous mud; interval may contain silt or v.f. med. grad. sand which is not settling out.

155-160 CLAY: med. lt. bn. mottled with greenish grey; sdy., slty., mic.; with scattered quartz granules; POOR SAMPLE RETURN as ab.

160-165 CLAY: med.-med. dk. bn. mic., w/ streaks of gnsh.-ol. gy, sdy. & slty. clay.

165-170 PBL. CGL: well rounded white opaque & lesser clear quartz granules and pebbles with poorly sorted rd. qtz. sand.
20% CLAY: as ab.

170-175 PBL CGL: as ab., probably some lithic grns; several round pbls consisting of round crs grains cemented w/ pyt.

175-180 SAND: coarse to granule sized. (pred. v. crs) with some pebbles; pred. clear but some opaque well rd. qtz. grns. & possibly some lithics.; some black grains.

00026

T-7 (cont)

180-185	PEBBLY SAND : as ab. w/ traces of coal & possibly s/ CLAY inbds.
185-190	SAND: samples show med. grnd to granule sized & some clay; As sample returns are poor it is probable that predominant grain size is much finer and that grains are not settling out. Thinned mud out.
190-195	SAND: crs-granule sized. (pred. v. crs.) poorly sorted well rd. qtz.
195-200	SAND: as ab. with some pebbles; 30°/° inbd. CLAY: med. bn. & grsh. gy., sdy., plastic.
200-205	SAND: med.-crs. grnd., well rd. qtz.; (possibly finer grains which are not settling out.); s/ inbds of clay.
205-210	SAND: as above.

T-5 Preliminary descriptions only.

0-½	SOIL: very sandy
½-1½	SAND: reddish brown, argill.
1½-2½	CLAY: reddish brown.
2½-5	LS: cream, f-med. frag'l, v. dol'c
5-6	LS: wh., xln., sl. dol'c
6-10	DOL: yllsh. bn., mod. calc; v.f-f. xln.; rec'd frag'l. LS.
10-11	DOL: as ab.
11-12½	DOL: f. grnd., uncons. dolomite fragments., buff.
12½-14	Cavity or fissure.
14-15	No sample returns.

(description of T-5 will be continued later if circulation regained)
DI: continue this descrip. from page 10

T-4 Preliminary descriptions only.

0-2	SOIL & SAND: white, v. carbon.-lignitic.
2-4	CLAY: dk. reddish bn.
4-5	LS (?): wh., bioclastic-frag'l, dol'c.
5-10	LS (?): cream bcmg wh., sl.-mod. dol'c, f-med. frag'l.
10-13½	LS (?): buff, med. xln (or frag'l), dol'c w/ DOL: yllsh. bn., mod. calc.
13½-14	LS: rdsh. bn., f-med. frag'l, v. porous & friw.

T-4 (continued)

14-15 DOL: cream w/ gnsh tinge & pinkish, v.f-f. xln., sl.-mod. calc.

15-16 DOL: as ab.

16-17 DOL: buff-lt. yllsh bn., uncons. f-med. grns.

17-20 DOL: cream-yllsh bn. & common pinkish bn., f-med. grad., v.sl. calc.

20-21 DOL: as ab.

21-22 Cavity or Fissure.

22-23 No. samples

T-4.B Preliminary descriptions only; made as drilling progressed.

0-15 Not sampled.

15-20 DOL: yellow, med. to. very coarse unconsol. fragments., mod.-v. calc.

20-21 DOL: buff-cream & pinkish, med.-crsly. frag'l.; hard drilling, v.sl. calc.

21-25 DOL: cream & pinkish bn., f.-med. xln., argill., v.sl. calc.; pinkish colour due to ochre-brown clay grains and matrix.

25-27 Cavity.

27-30' No samples.

T-5 (continued)

15-20 DOL: lt. yllsh. gy., f.-med. grad., loose granules, mod. calc.

20-22 DOL: as ab.

22-23½ DOL: lt. yllsh. bn., f. xln., mod.-v. calc. w/ 20% LS: wh., frag'l to bioclastic, hard.

23½-24½ ~~Ab~~ Cavity.

24½-25 No samples

25-29 Predominantly cavity.

29-30 No samples

T-13 Preliminary descriptions only.

0-1 SAND: med. bn., f-med. grad., carb., with some LS fragments.

1-2½ SAND?: buff-pale orange., med. grad, quartz & dolomite grains (?), mod. calc.

2½-5 DOL: pale orange-pink, f-med. grad., or xln., v.sl. calc., well consol. w/ some bn. v.f. grnd. SS pebbles

00028

T-13 (continued)

5-7½ DOL: med. rdsh. bn., as ab.

7½-7¾ Fissure.

Moved rig 10' to east and respudded T-13. At this location lithology consisted of:

0-1 SAND. med. bn. as at first location.

2-6 SAND: buff to pale or. as at 1-2½' at first location.

At 6' fissure.

T-13B

0-5 DOL: buff-pale orange, fine, in pt. med. dolomite rhombs and abnt. ang. qtz grns., non-calc., unconsolidated.

5-10 DOL: lt. orange-bn., f. grnd. dolomite rhombs, unconsolidated, tr. calc., argill. (orange clay) & very sandy (v.f-f. grnd. sb ang.-subrd. qtz. grns.)

10-15. DOL: sdy. as ab.

15-20. DOL: buff-pale or. and pink, med., in pt. fine grained, uncons., v. sl. calc., sl. sdy.

20-24 DOL: as ab.

24-25 DOL: wh.-cream, as ab.; occ. pink grns. (cvgs?)

25-30 DOL: cream-buff, med. grnd., uncons. dolomite rhombs & frags., sl. calc.; occ. pink grns.

30-35 DOL: buff-wh., fine, in pt. med. grnd., unconsol., s.l.-mod. calc. & sdy., v. sl. argill.

35-40 DOL: as ab.

40-45 DOL: pale bn., f. grnd., sl. calc., sl. sdy. & argill., uncons., possibly w/ clay matrix.

45-50 DOL: buff, w/ abundant (up to 50%) wh. polyzoal frags., v. calc.,— grades to dol'c LS. w/ 3%? grey marl.

50-55 DOL: buff, as ab. but mod. silty & sdy. (predom. v.f-f. grnd. qtz. but some coarser grains)., v. calc., grades to LS., possibly some marly matrix.; some lt. gy., f. grnd, qtz. SS.

55-60 DOL: as ab., w/ 15% lt. brn.sh.gy., qtz. SS. (v.f-f. grnd.)

60-65 LS: buff-pale rdsh. bn., f-med. xln., uncons., v. dol'c w/abnt. dolomite frags., polyzoal, mod.-v. sdy., grades to DOL.

T-13B (continued)

65-70 LS: as ab.

70-74½ LS: as ab. becmg marly.

74½-75 DOL: pink with dark grains, calc., sdy. (poorly sorted quartz and some dk. rdsh. bn. rounded pellets and angular fragments); w/ 20% ochre clay.

75-76 DOL: as ab. w/clay as above.

76-80 SAND: dk. bn., "lignitic", v. poorly sorted, fine grad. to granule sized., predominantly coarse to v. crs. well rd. qtz. which is stained yllsh. bn., with some dk. bn., ang. lithic (ferrug.?) grains.

80-82 SAND: as ab. qtz. w/ some ferrug. (?) grns.

82-85 SAND: med. lt. bnsh. gy., crs.- v. crs. grad., (predominantly crs. grad.), well rd. - rd., qtz., generally with yellow-bn. stain, w/ some dark bn. grns. as ab.; probably argill.

85-90 SAND: med.-dk. bnsh-gy. or olive gy., poorly sorted, predominantly crs.- v. crs., rd.-subrd. qtz., w/ increasing proportion of interbedded. brown clay.

90-95 SAND: as ab., poorly srtd., probably predom. med. grad., argill.

95-100 SAND: med. bnsh. gy. - ol. gy., v. ply. srtd., v.f- v. crs. grad. (predom. med.-crs. grad.), qtz. w/ some "lignitic" grns. & pyrite.; some clay present; very fluid. (i.e. drillers "quicksand") so probably includes silt & v. f-f. grns which have not settled out of mud.

100-105 SAND: as ab. w/ common pyrite and w/ up to 30% inbed. CLAY: med. lt. bn., slty & sdy.

105-110. SAND: as ab., probably finer grained w/ 40-60% CLAY as ab.

110-115 CLAY: med. chocolate brown., mod.-v. slty & v. finely sdy., sl. carbon. w/ 30-40% f-v. crs. well rd. qtz grns. (cvgs?)

115-120 CLAY: med. dk. choc. bn., mic., slty. to v. finely sdy., w/ patches of ol. gy. v. sdy & slty clay; w/ 10-20% crs. grained to granule sized. qtz. and abundant v. crs. wh. dolic LS frags. (cvgs?)

120-125 CLAY: chocolate bn., very soft, probably sdy. & slty., w/ abundant poorly sorted qtz. grains

125-130 CLAY: med. bn., slty., mic, sticky, ; occ. qtz. grns. & granules.

130-135 CLAY: med.-med. dk. bn., slty - v. f. sdy., mic.; w/ intercalated lt. gnsh gy., v. slty & sdy. clay; one large qtz faceted kl. observed.

135-140 CLAY: as ab.

140-145 CLAY: as ab.; w/ increasing proportion of gnsh. gy. CLAY. w/ 30% SAND. gnsh. gy., med. grad. to granule sized. subang. to well rd. qtz, w/ abnt. pyt., in part adhering to qtz. grns.

T-13 B. (continued)

145-148 CLAY & SAND: as ab.

148-148½ STST: v. dk. bn., sdy., abnt dol'c/calc. cement; probably drillers "quartzite"; very slow drilling; toughness due to carbonate cement; argill., veined with golden brown 'aragonite(?).

148½-150 CLAY: bn., as ab.

150-155 CLAY: med. bn., (in pt. grsh gy.), mic., slty-v.f.sdy., plastic; some crs. qtz. grains & granules (cvgs?).

155-160 CLAY: med.-med. dk. bn., sl. mic., slty.-v.f.sdy., sl.-mod. carb.; some qtz. grns. & granules.

* 160-165 CLAY: as ab. w/ numerous orange, well preserved gastropods. At 163' occurs a 6" zone of SAND: crs. to v. crs., qtz, including numerous blue green well rd. grns.

165-170 CLAY: bn. plastic w/ abnt. poorly sorted qtz. grns probably from stngrs. at 166' and 165'; fairly common gastropod fragments.

170-175 CLAY: bn., plastic, in part. lt. grsh. gy., v.f. sdy.-slty., mic.; w/ stringers of poorly sorted sand up to granule size, generally rd. qtz., but some any. lithic grns.; traces of brachiopod & gastropod fragments.

175-180 CLAY: med. lt. bn., sticky; some gastropod frags.

180-185 Very poor returns: cuttings consist of clay & poorly sorted sand. May consist pred. of argillaceous silt & v.f.-f. grnd sand which has not settled out of mud.

185-190 As above; fly common brach & gastropod frags. in cuttings

190-195 As above.

As shell remains suggest a near-shore environment it is considered that section from 180-195' is most probably arenaceous rather than soft argillaceous clay.

T-6

0-4 SAND: lt. gy., f-med. grnd.

4-5 SAND-SS: yllsh. & bsh. gy., f. grnd., clrty, ferrug.; w/ dk. rdsh. bn. sandstone & some clay.; traces of wh. bryozoal LS.

5-6½ SAND: dk. rdsh bn., yllsh. gy., & ochre, v.f.-f. grnd., ferrug., argill., carb.; in pt. consolidated.

6½-8 CLAY: wh.-lt. gy., plastic, mod.-v. sdy., w/ common inbds. or frags. of dk. rdsh. bn. & blk., vf. grnd., ferrug. & carb. SS.

8-10 CLAY: as ab w/ major CLAY: ochre, mod.-v. sdy (v.f.-med. grnd. qtz); w/ lesser proportion of SS frags. & pebbles than at 6½-8'.

00031

T-6 (continued)

10-15 CLAY: predominantly ~~ochre~~ buff (pale yllsh. ~~org.~~) with intermixed & interbedded bluish grey, sticky clay; both silty to v.f. sdy.

15-20 CLAY: as ab. with traces of carbonaceous material & occasional pebbles of lignite.

20-21 CLAY: as above.

21-25 PEBBLE CGL: med. bn., sl. yllsh., well rd. qtz. pebbles & granules with some finer grains; stained yellowish.

25-30 SAND: lt. gy, v. poorly sorted; consists of fine grained to pebbly, rd. qtz grains; w/ up to 50% interbedded (?) light grey clay, in part buff clay. Clay may be either cavings or may have built up in annulus near surface. Some similar clay was present in 21-25' sample but drilling rate indicated clay was not present in subsurface.

30-31½ SILT to v.f. grnd SS w/ interbedded (30%) CLAY: mauve, v. silty to v.f. sandy.

31½-35 PEBBLE CGL: well rd. quartz pebbles and granules; poorly sorted with some finer grains; some lithic fragments but predominantly clear & vuggy quartz. Minor amounts of mauve, silty & sdy Clay.

35-40 SAND: lt. ol. gy., v.f. grnd, qtz, argill., v. silty. Possibly some interbeds of mauve clay. ~~Abundant~~ pebbles & granules are probably cavings.

40-45 SAND: lt.-med. ol.gy., v.f. grnd., qtz., v. silty., mic., mod. carb.; "drillers "quicksand".

45-50 SAND: as ab.; some lignitic grns., carbonaceous.

50-55 SAND: as ab., v. mic., sl. carb.

55-60 SAND: as ab. w/ some coaly flecks. Near base includes inbds of lt. bn-mauve sdy. clay & some dk. chocolate bn. clay.

60-65 SAND: as ab w/ abnt. lignite flecks; occ. med. bn., mic. clay.

65-70 SAND: as ab w/ some clay: as ab.; common coaly flecks.

70-75 SAND: as ab. w/ increasing amount of clay; abnt. coaly flecks.

75-80 CLAY: med.-mod. dk. bn., mic., sl. carb.

80-85 CLAY: med. bn.,-choc. brn, mic., sl. carb.

85-90 CLAY: med. br., w/ some ol.gy. intercalations; ~~in pt.~~ sdy. (v.f.-med. qtz grains); some loose crs. green qtz grains. CLAY is pyritic; pyrite observed as blebs and aggregates.

90-95 CLAY: med. bn., in pt gy., mod.-v. sdy. & silty., mod.-v. pyr'c (disseminated and granules); scattered course & larger quartz grains.

T 6 (continued)

95-100 CLAY: as ab., sdy.; w/ common pyt.

100-104 CLAY: med. bn., mod.-v. sdy., w/ intercalations of non-sdy. dk. chocolate brown clay & sdy. ol. gy. clay.

104-105 SAND: lt. brsh. gy to ol. gy., crs. grad. to pebbly. rd. qtz.

105-110 SAND: as ab, predominantly f- med. grad. but v. ply sorted. & includes crs, v. crs grains, granules & pbls.

110-115 SAND: as ab., v. ply sorted, pred. f-~~med~~ crs. grad.; ~~sf~~

115-120 SAND: med. lt. gy., v. f. grad to granule sized, v. ply. sorted, predominantly coarse, rd. to subrd. qtz.

120-125 SAND: as ab.

125-130 SAND: as ab.; predominantly med.-crs. grad.

130-135 SAND: as ab. w/ Thin beds of lignite. & some clay

135-150 SAND: as ab w/ thin beds of lignite & some clay.

T-14 * Note DOL-LS is possibly LS which has been selectively dolomitised. Desciptions below made in field and tentative only.

0-½' SAND: grey

½-4 SAND: rdsh. bn., f-med. grad., v. argill., w/ inbds of orange clay.

4-10 LS: wh.-cream, polyzoal, consolidated; abundant shell fragments.

10-15 LS: as ab. but generally recovered as fragments.; sl.-mod. dol'c

15-19 DOL: cream, red'd polyzoal LS., mod. calc.; s/yllsh & red. fragments

19-20 No samples

20-30 No samples.

30-33 DOL: pink to light rdsh. bn., v.f-f. xln., mod.-v. calc.

33-35 DOL: as ab & ~~DOL-w~~ LS: wh. polyzoal, v. ~~dol'c~~ calc

35-~~40~~ DOL-LS: pink & white: as ab.

40-42 LS: wh., v. dol'c, altered polyzoal & DOL: pink., v.f-f. xln., mod. calc.

42-45 LS-DOL: buff-cream, polyzoal. w/ some pink dolomite, as above.

45-45 LS-DOL: as ab & DOL: pink: as ab.

47-50 LS-DOL: cream, polyzoal, unconsolidated in samples, abn't shell frags.

50-55 LS-DOL: buff as ~~ab~~ at 47-50; at 54-55 some orange clay(?) grns.

00033

T-14 (continued)

55-57½ LS-DOL: ~~buf~~ cream, v.f.-f. grnd., loose bioclastic (polyzoal) grns.

57½-60 DOL: buff-lt. orange bn., mod.-v. calc. w/ 25% + ochre clay.

60-62½ DOL: buff-pale orange, bioclastic, calc.

62½-65 DOL-LS: wh., polyzoal, dolomitized.

65-68 MARL: pink to rdsh. bn. dol'c w/ v. abn't DOL: pink. to rdsh. bn. v.f.-f. xln. May be DOL inbd. w/ marl. or marly DOL.

68-70 DOL: as ab., sl. calc. w/ inbd.s. of MARL: as ab ?

70-75 LS-DOL: pink & wh., bioclastic; very marly or argill; w some interbeds of marl.

75-78 DOL: pink-rdsh.bn., mod.-v. calc., w/ polyzoal frags. (dolomitized)

78-80 DOL: wh., polyzoal-frag'l w/ some pink specks, v. ~~dol'c~~ calc.

80-85 DOL: pink-buff, fine, in pt. med. xln., v. poorly consol., v. calc., v. sdy., (v.f.-f., ang.-subang. qtz.) w/ inbds. of LS: wh., micxln., bryozoal.

85-90 DOL: cream to pinkish, v.f-F. xln., (wh. & pink grns. in a soft, white, micxln., v. calc. & argill. matrix); fly. common wh. dol'zd polyzoal frags, v. sdy.; some inbds. of clay.

90-95 DOL: as ab., v. sdy.; w/ increasing percentage of clay.

95-100 MARL: pink & cream, dol'c w/ v. abnt. dol'zd. polyzoal frags. & dolomite rhombs; w/ inbds. of DOL: pink & cream, frag'l & polyzoal, mod.-v. calc., v. sdy.

100-105 MARL: wh.-cream, abnt. dol'zd. polyzoal frags. & dolumite rhombs, v. sdy. (up to 20%) v.f.-f., ang.-subang. qtz.

105-108 MARL: as ab., dol'c.

108-110 DOL: cream., v.f-f. xln., sl.-mod. argill. & sdy., v. porous & ply. consol.

110-115 DOL: cream, ~~v.f~~ f. xln., sl-mod. argill., uncons., sl.-mod. calc., mod.-v. sdy.; some clay interbeds.

115-121½ DOL: cream, f.-med. grnd., uncons.

121½-125 DOL: buff-pink, med.xln., v. ply. consol., sl. calc., sl. slty. & sdy.

125-128 DOL: pale orange., as at 121½-125.

128-130 DOL: as ab w/ inbds of DOL: wh.-cream.

130-132 DOL: wh., f.xln., v. calc., s/ polyzoal frags.

132-133 DOL: lt. orange bn., as at 125-128

133-135 DOL: wh., f. xln. as at 130-132.

T-14 (continued)

135-137 DOL: wh., v.f. xln., v. calc., dense appearance.

137-139 DOL: pale orange, f-med. xln., as ab.

139-140 DOL: cream, as ab.

140-142 DOL: cream, as ab.

142-145 DOL: pale orange bn., as ab.

145-150 SS: lt. bn., v.f-f. grnd., qtz., sl. calc. - v. dol'c; s/clay below 148'.

150-155 CLAY: cream, scattered qtz grns, dol'c./sl. calc.

155-160 CLAY: as ab.

160-165 DOL: wh.-cream, sl. calc., polyzoal in pt. w/ ribbs of CLAY: as ab.

165-167 CLAY: cream, as. ab. ↑ Gambier

167-170 CLAY: ochre, v. sdy. (ply. srtd. v.f.-med., rd.-subrd. yellow stnd. qtz. grns.); generally well indurated, in pt. dol'c/calc.

170-172 CLAY: as ab.

172-175 SAND: med. yllsh. bn. — ochre, v. ply. srtd., v.f.-crs., rd.-subrd., yellow stnd. qtz., uncons.

175-180 SAND: med. yllsh. bn., bcmg. dk. bn., ply. srtd., predominantly med.-crs., rd.-subrd., qtz., stnd. yellow & v. dk. bn.; w/some v. dk. bn.-blk. lignitic clay.

180-185 SAND: dk. bn., as ab; w/some clay.

185-190 SAND: as ab, predominantly crs. grnd.; w/ increasing (20%) proportion of clay interbeds.

190-195 SAND & CLAY: as ab.

00035

T-~~3~~ 3

Descriptions were made in field as drilling progressed and are preliminary only.

0-2 SAND: dk. rdsh. bn., ferrug., carb., f.-med. grad., qtz; w/ some interbedded clay.

2-4 DOL: med. lt. rdsh. bn., med. grad., vacous.; being consolidated in pt.

4-5 DOL: med. yllsh. bn. & dk. rdsh. bn., f-med. xln., consolidated, v. porous.

5-8 DOL: med. rdsh. bn., mottled buff, med. xln., in pt. f. xln., sl. calc., consolidated.

8-10 DOL: fine-med. loose dolomite grains and chombs (sand).

10-11½ DOL: lt. yllsh. bn., fine-med. unconsolidated sand, trace calc.

11½-13 DOL: yllsh. bn., tough., micro xln.-v.f. xln., mod. calc.

13-15 DOL: pink., f. xln., v. calc., soft, sdy. (?).

15-20 DOL: pink, in pt. cream, v.f.-f. xln., sl. calc, in part altered bryozoal limestone.

20-26 DOL: pink, lesser cream, some pale yllsh. bn., v.f.-f. xln, sl. calc.

26-27 DOL: buff, poorly consolidated; either argillaceous or has clay interbeds.

27-30 DOL: med. yllsh. bn.-ochre, f-med. xln., trace calcareous.

30-33 DOL: pink-rdsh. bn., f-med. xln., sl. calc.

33-34½ DOL: & vff-yllwsh., soft, v. poorly consol.; either abnt. argill. matrix or has clay interbeds.

34½-35 DOL: lt. brnsh. yellow., micxln.-v.f. xln., v. tough.

35-37 DOL: yellow, in sl. pt. ochre, v. sl. calc.

37-38 CLAY: ochre.

38-40 CLAY-MARL: yllsh. bn., cream, ochre, mod.-v. calc., w/ interbeds of DOLOMITE.

40-45 CLAY: cream., sl.-mod. calc., v. dol'c w/ v. abnt. grns. & chombs of dolomite

45-50 CLAY: cream-yellow as at 40-45

50-55 CLAY: as ab.

55-60 CLAY: cream, mod.-v. calc w/ 40-60 % dol'zd polyzoal frags.

60-65 DOL: cream, f-med. xln., polyzoal, sl. calc.; w/ 30 % inbd. CLAY: as ab.

65-70 CLAY: lt. gy., sl. calc., abnt. included dol'zd bryozoal frags.; grades to DOL: as at 60-65

T-3 (continued) 00036

70-75 CLAY: lt. gy. vs ab.; w/ abnt. interbedded DOL: lt. gy., micxln., to crpxln., with dol'zd. polyzoal and shell frags., tough, v. argill.

75-80 CLAY: similar to above but only mod. polyzoal, mod. calc.; w/ 35% DOL: as ab.

80-82 CLAY & DOL: as ab.

82-85 CLAY: lt. gy., sl.-mod. calc., polyzoal.

85-90 CLAY: similar to above but no polyzoal frags., mod. calc., v. slty to v.f. sdy (dolomite grains?).

90-95 CLAY: as ab.; some polyzoal frags.

95-98 DOL: wh., polyzoal, argill., mod. calc.; w/ some inbds. of CLAY: as ab.

98-100 DOL: wh., earthy to chalky texture, polyzoal, mod. calc., argill. (?)

100-105 DOL: as ab.

105-110 CLAY: cream, sl. calc. to v. dolic, abnt. included polyzoal & frags. & dolomite grains; w/ inbds. of DOL: as ab. near top of interval.

110-115 CLAY: as ab.

115-120 CLAY: med. lt. bluish gy. very silty - v.f. sdy (up to 40% of volume), sl. calc.; traces of SS & SLST.

120-125 CLAY: pale brown, sl. calc., very sdy (v.f. grad.) & slty (up to 40% of volume.); interbeds of wh., polyzoal DOL near base of interval.

125-128 CLAY: buff-cream, dol'c, polyzoal; at 127 some DOL: med. lt. orange, polyzoal, mod. calc.

128-130 Very poor sample. Probably as below.

130-131½ SAND: v.f.-med. carbonate grns. & polyzoal frags., argill., uncons.

131½-135 CLAY: buff to med. orange bn., sl.-mod. calc., very soft; abundant included carbonate "sand".

135-138 CLAY: as ab: w/ abnt carbonate "sand"

138 BUCCLEUCH?

138-139 DOL: lt. gy., micxln., v. sdy. (poorly srtd. bn., siderific appearance, qtz. grns.), argill?

139-140 CLAY: dk. rdsh. bn., v. sdy., ferrug(?), w/ abnt. poorly sorted, bn. stnd. (siderific?) qtz. grains

140-144½ SAND: brownish gy., v. poorly srtd., v.f. grad. to granule sized, rd.-subrd. qtz., in pt. stnd. brown.; in part set in a matrix of DOL: cream, tr. glauconitic, w/ common polyzoal frags.

00037

T-3 (continued)

144½ – KNIGHT GROUP

144½-145 CLAY: in part ochre; predominantly, v. dk. bn., sdy. & slty, carb., v. mic.

145-150 CLAY: dk. choc. bn., slty., in. pt. glauc'c, sl. mic.

150-155 CLAY: as ab., sdy.; w/ 40°/° SAND: f/-granule sized (gran.), predom. v. crs. grad., rd.-subrd., qtz.

155-157½ CLAY: chocolate bn., v. mic., mod. sdy., in pt. pyt'c (disseminated)

157½-160 SAND: bash. gy., v. ply. srtd., f. grad. to pebbly, predom. crs.-v. crs. grad., subrd.-subang., qtz.; some inbds. of sdy. clay.

160-165 CLAY: dk. bn., v. sdy. (v. ply. srtd.—up to pebble sized), mic.; —in pt. pyt'c w/ about 30°/° inbd SAND: ply. srtd. as ab.

165-170 CLAY: med. dk. bn., sl. mic., sl. slty.-v.f. sdy.; sl.-mod. pyt'c. (dissem. & as nodules.)

170-175 CLAY: med. bn., mic., mod.-v. slty. & v.f. sdy. w/ scatt'd coarser grns.; some pyt.

175-180 CLAY: med. lt.-med. bn., sl. mic., in pt. tr. pyt'c, generally slty-v.f. sdy.

180-185 CLAY: med. bn., w/ minor lenses of olive gy. v. sdy & slty clay.; scatt'd pyt'c granules; occ. med.-v. crs. qtz. grns.

185-190 CLAY: as ab.

190-195 CLAY: med. bn., in sl. pt. gash gy., sl. mic., generally slty.-v.f. sdy.; rare med.-v. crs. sand.; trace pyt. granules.

195-200 CLAY: med. dk. bn. & chocolate bn., mod. mic., sl. carb.; s/ lenses of olive gy. sdy clay.

200-205 CLAY: as ab., tr. glauc'c; occ. pyt. concretion or pyt'ed sandstone.

205-210 CLAY: med.-med. dk. bn., mic.; w/ v.f. sdy-slty zones; rare pyt'c & sdy. lenses; zone of coarse sand at 205.

210-215 CLAY: med. bn.; w/ common poorly sorted (up to ~~c~~ v. crs. grad) sand; occ. pyt. granules; one coral (?) frag. or sharks tooth.

215-220 CLAY: med. bn., slty-v.f. sdy., mic.; common pyt.; rare shell debris; one coral frag. or "sharks tooth".

220-225 CLAY: as ab.; tr. organic matter & shell debris.

225-230 CLAY: as ab; common pyt.; traces shell debris; one well preserved gastropod & one pelecypod valve; some sand grains.

T-3 (continued)

230-235 CLAY: bn., w/ grish. gy. sdy & slty. incelations; mod. sdy. (v. ply. srtd — up to granule sized); abundant pyrite; traces shell debris.

235-240 CLAY: med. dk. bn., sticky.; hard bond at 235-236; recovered one bk. fish tooth.

T-2

Descriptions made in field as drilling progressed.

0-4 SOIL: sdy. w/ DOLOMITE & FLINT cobbles.

4-5 DOL: sand, orange-bn., med.-f. grnd.; w/ red ferrug. (?) clay.

5-10 LS: lt. yllsh. bn., med. frag'l, v. dol'c, v. porous, consolidated. —w/ abnt. flint.

10-15 LS: as ab., predominantly f. frag'l, v. dol'c w/ abnt. flint.

15-17 LS & Flint: as ab.

17-20 DOL: buff-cream, f. frag'l w/ v. f.-micrln. matrix, v. calc.

20-25 DOL: cream, frag'l / polyzoal, v. argill./marly., v. calc.

* Note: majority of carbonates described as "dolomite", below are moderately to very calcareous and consist predominantly of polyzoal/fragmental carbonates in which bioclastic fragments have been selectively dolomitized.

25-30 DOL: cream, frag'l/polyzoal, v. Friable, v. calc., marly/argill.

30-35 DOL: cream, frag'l, chalky texture, v. soft, marly, v. calc.; w/ inbds. of dol'c marl.

35-40 DOL: wh., chalky, polyzoal, mod. calc.; w/ flint.

40-45 DOL: wh., polyzoal, chalky texture, mod.-v. calc.; w/ flint.

45-50 DOL: buff, polyzoal/frag'l.; mod. calc; in pt. v. marly.

50-55 DOL: buff-yllsh.bn., some bk. grns., polyzoal., mod. calc.; marly near top of interval; some flint.

55-60 DOL: cream-buff, polyzoal, sl.-mod. calc.; fairly common flint.

60-65 DOL: as ab. w/ occ. pink grns.; in pt. v. argill.; tr. flint.

65-70 DOL: cream, polyzoal, v. friable, v. calc.; generally as loose grns.

70-75 DOL: as ab.

75-80 DOL: as ab.

80-85 DOL: as ab, hcmg. consol.; some coarse orange grns.; occ. flint.

T-32 (continued)

85-87 DOL: wh., polyzoal, uncons.

87-90 DOL: cream, in pt. pale orange & buff, polyzoal, abundant bk. gras., v. calc.; abnt. some buff-orange clay.

90-95 DOL: lt. bn., f. xln. - v. f. xln., v. sl. calc., w/ fly common bk. gras. w/ 5-10% inbd. med. ol. gy. clay.

95-96 DOL: as ab.

---- BUCCLEUCH ----

96-100 CLAY: v. lt. gy., mod. calc., v. f. sdy (?)

100-103 CLAY: lt. gy., sl. sdy., sl. calc.; common flint.

103-105 DOL: med. bn., v. f. xln., tough, tr. calc.

105-107½ DOL: as ab.

--- BUCCLEUCH ---

107½-110 CLAY: lt. bluish gy., sdy. (v. f. grad. - slty.) dol'c.

110-112 CLAY: as ab., abnt. glauconite (?) or clay is chloritic.

112-113½ CLAY: as ab & yllsh., v. sdy. (dk. bn. rd. sub. rd. ply. sr'td. qtz. often with brown (sideritic?) coating; ~~possibly~~ including some bn. clay siderite pellets.)

113½-115 CLAY: mottled, with abundant green "chlorite?", and abundant poorly sorted sand grns as described above; v. common bryozoal fragment. Hard bands encountered during drilling - grades downwards to clayey sandst; some dolomite which contains brown poorly sorted sand & is argill.

115-117½ SAND: as ab. w/ abnt. ochre, cream & mustard - tharki colored. clay matrix w/ some chlorite. Possibly v. sdy clay w/ clay washing out.

117½-120 SAND: dk. bn., v. ply. srtd., up to v. crs. grad. to granule sized, sand is in pt. covered w/ coating of bn. siderite (?) and is rd. - subrd.; sand is very arg. flaccous w/ matrix of chloritic, yllsh. gy, tharki, and olive gy. clay.; inbds. of similar sandy clay.

120-125 CLAY: med. to v. dk. bn., v. sdy (ply. sorted qtz as ab. but grns., though stnd. are not coated); grades to v. argill. sand.

125-130 SAND: dk. bn., as ab., v. ply. sr'td., abnt. crs. grains to granule sized (finer grns. probably are not settling out of mud.) rd. - subrd. qtz.; abnt. olive gy. to dk. bn. clay matrix (largely washes out of sample; one fish tooth.

130-135 SAND: as ab., but less clay interbeds; common fish teeth; clay is sl. calc. & generally v. dk. bn. (may be what drillers call "lignitic").

135-140 SAND: as ab., with increase of sandy clay which is tr. calc.; very abnt. clay matrix.

T-2 (continued)

140-145 CLAY: v. dk. bn-bk., v. sdy. (ply. srtd. as ab. — up to granule sized; pred. crs.-v.crs. w/occ. pebble); occ. ~~coral fragment~~ shark tooth.; clay is very soft and may be "drillers "sandy lignitic mud". Clay is transitional from clayey sand which overlies it. ;- with 50% SAND as at 135-140.; occ. shell fragments.

145-150 CLAY: as ab. w/ slight decrease in average size of sand grns.; occ. shell fragments. w/ some SAND: as ab.

150-153 CLAY & SAND: as ab.; occ. pebbles; occ. shell fragments.

153 KNIGHT GROUP (?)

153-155 CLAY: cohesive, v. dk. bn.-chocolate, glauc, mic., tr. pyt'c.; in pt. mod. sdy. (ply. srtd. — up to granule sized but pred. silt-v.f. grad.). ; some zones of yllsh. stained. v. crs. grns. to pebbles.

155-160 CLAY: med. dk.-v. dk. bn., tr. glauc. & pyt'c., v. sdy. (f.-crs. grad., subang.-subrd. qtz & abnt. silt; with zones of yll. stnd. subrd. granules and pebbles.

160-165 CLAY: dk. bn., sl.-mod glauc'c (?) in pt., sl.-mod. pyt'c in pt., mod.-v. mic., generally mod. sdy. & slty. (v.f.-med. grad.); occ. granules (in pt. sea-gn.); some zones of yllsh. stnd. granules & v. crs. grns.

165-170 Poor sample returns. CLAY: med. dk.-v. dk. bn., in pt. glauc'c, generally sdy. (ply. srtd., predom. f-med. grnd.); occ. pebbles, granules and v. crs. grns.; occ. pyt. frags., clay is mic. & contains some coral frags. & finely comminuted shell frags.; fairly common pyt'c SS concretions and some granules & pbls.

170-175 CLAY: as ab. Kongorong Sd. at least from 117½-175

T-15

Samples described in field as drilling progressed.

0-2 SAND: med. ol. bnsh.gy., v.f.-crs. qtz.

2-4 SAND: med. bn., v.f.-med. grnd., occ. crs. grns., qtz., sl. calc., v. argill.

4-5 CLAY: med. rdsh. bn., v. sdy (ply. srtd. — up to crs. grnd.) — grades to SAND.

5-7 CLAY: med. rdsh. bn., v. sdy., as ab.

7-10 DOL: wh., crpx.l.-mic xl. appearance, v. calc.

10-15 MARL: buff, dol'c, polyzoal; w/ inbds. of DOL: as ab.

15-17 MARL: as ab. w/ pbls and cubbles of carbonate.

17-19 GRAVEL: ang. carbonate frags. (incl. silicified & dolomitized frags.) in matrix of buff, polyzoal marl.

19-20 No sample.

00041

T-15 (continued)

20-21 LS?: yellow, sand consisting of f-med. frags., polyzoal; most of polyzoal frags. are dolomitized; matrix may be calc. marl.

21-24 MARL: cream - sl. yllsh., w/ abnt. carbonate gravel.

24-25 CARBONATE GRAVEL: yllsh. bn., predominantly dol'd. polyzoal carbonate frags. in marly matrix.

25-30 CARBONATE GRAVEL: gravel as ab; matrix cream to med. lt. yellsh bn. clay; some dk. bn. sdy. clay near base of interval.

30-32 CLAY: ochre, v. soft. sdy.; w/ some carbonate gravel.

32-35 CARBONATE GRAVEL & COBBLES: matrix of ochre clay?; drilled w/ air.

35-36 CARBONATE GRAVEL: as ab.; drilled w/ air.

36-40 CLAY: buff and DOL: unconsol. dol'd. bryozoal sand.

T-15 B

0-2 Sandy soil

2-10 Not sampled (driller reports similar to 10-15')

10-15 DOL: (sand) buff, dolomitised polyzoal fragments in a very argillaceous to marly, calcareous matrix - fairly common flint and s.l'd & dol'd ang. large fragments of polyzoal carbonate; possibly a gravelly dolomitic sand.

15-28½ Not sampled. Easily drilled.; may be clay.

28½-28½ Poor sample because of bran in drilling fluid.
CLAY: wh., sl.-mod. calc. w/ inbds of polyzoal dolomite or more probably with carbonate gravel.

28½-29 CLAYSTONE: ochre - med. brnsh. yll., v. sdy. (some qtz. but predom. f. grnd. med. bn., well rd. clay pellets & abnt. well rd. green grns., w/ some pink grns.

9.30

29-30 LATERITE (?): v. dk. bn., v. tough, v. slty, v. sdy (ply. sorted but predom. v.f. qtz grns. w/ med.-crs. qtz & clay grns.), mod. calc., silicified.
w/ less abundant LATERITE (?) pink, consisting of rd.-subrd., dk. bn. clay grns., clear qtz. & some lithics, (~~i~~ v.f.-med. grns) in a very dolomitic, v. argill. indurated matrix.
w/ some CLAYSTONE: as at 28½-29.

30-30½ LATERITE (?): pink, as ab. w/ CLAYSTONE-CLAY: ochre, yellow, sdy. as at 28½-29.

30½-35 SAND: med. dk. bn. when observed wet but med. yllsh. bn. when dry, v. ply. sltd., predom. med.-v. crs., subrd.-rd., qtz., w/ fly. common granules and occ. pbls.; probably w/ yllow clay matrix

T-15 B (cont.)

35-40 SAND: med. yllsh. bn., as ab., predom. crs. grnd. to granule sized; rd.-subrd, in pt. subang.; occ. pebbles; probably w/ yllsh. clay matrix; possibly w/ horizons of ochre sdy. clay.

40-45 SAND: as ab., subang-subrd., clear qtz. w/ traces of yllsh. clay matrix.

45-47 SAND: as ab.

47-50 SAND: v.dk. bn. (appears bk. when wet), crs.-v.crs. grnd., subrd. qtz.; w/ abnt. muddy dk. bn. (bk. appear. when wet) matrix; occ. lenses of v.sdy. dk.bn. clay. (when wet, clay has appearance of lignite; this may be drillers "lignite").

50-54 SAND: as ab.

54-56 No samples.

56-57 ~~Hard band~~: SAND: v.dk.bn.-bk., v.f.-crs. grnd., rd.-subrd., qtz, v. abnt. "lignitic" clay matrix

57-60 CLAY: bk. to v.dk.bn., v. sdy (50%+ of volume) (v.f. to crs., ply. srtd., rd.-subrd. qtz); "lignitic" appearance, soft; in pt. sl. pyt'c.

60-65. CLAY: as ab. grading to about 60% SAND w/abnt. argill. matrix; abnt. ang., wh., pbl.-sized fragments of DOL — possibly cavings; traces pyritised SS; tr. SAND w/ abundant green chloritic matrix.

65-67 SAND: as ab., clear & opaque qtz. often stnd. yellow; occ. orange grns.; some inbds of sdy clay.

67-70 CLAY: v.dk.bn.-bk., v. sdy. (50% of volume) (predominantly f-med. grnd. qtz) sl. pyt'c.

70-71 SAND: lt. brnsh.gy., f-v.crs. grnd., v.ply. srtd, uncons., rd.-subrd., clear qtz.

71-72 SAND: as ab. w/ inbd. CLAY: sdy. as ab.

72-75 CLAY: bk.-v.dk.bn. (v. sdy — vy to 60% sand grns), predom. med.grnd.-crs. grnd., soft, "lignitic" appearance.

75-80 SAND: as ab, uncons.; occ. orange grns.; occ. carbon. fragment, argill. matrix w/ 50% (?) CLAY: "lignitic", v.sdy., as ab.

80-85 CLAY: v.dk.bn.-bk., v. sdy. (30%) predom. med.-crs.grns. w/ some v.crs. grns & granules); more cohesive than overlying v. soft clays; possibly some sand stringers.

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85-90 CLAY: very cohesive, dk.-med. chocolate bn., sl.-mod. glauc'c, mod. mic., v.sl. pyt'c, silty., mok. sdy. (v.f-f. grnd w/ common med. grns. & occ. crs, v. crs. grns. & granules).

90-95 CLAY: dk. choc. bn., v. glauc'c, sl. pyt'c, mod. sdy. (predom. v.f-f. grns., but some med. & crs. grns.); w/ 30% inbd. CLAY: med. dk. choc. bn., v. glauc'c, v. sdy; w/ 20% SAND: uncons., v. ply. srtd.; w/ occ. CLAY: lt. bn., v. sdy.

T-15B (continued)

95-100 SAND: bn. (from clay matrix) v. ply. srtd., up to granule size, rd.-subrd., qtz, (predom. med.-v.crs. grad. ⅔), occ. pebbles), argill. matrix.; common shell frags (including pelecypods) & sharks teeth.
w/ 20-30% CLAY: med.-v.dk. choc. bn., v. glauc'c, mod.-v. sdy. (ply. srtd).
w/ occ. CLAY: lt. bn., v. glauc'c & sdy.

100-105 SAND: as ab. w/ abnt. argill matrix but uncons.; abnt. granules; occ. pebbles.
w/ 40%+ CLAY: as ab., v. glauc'c, mod. pyt'c, mod.-v. sdy.

105-110 CLAY: med. dk.-med. choc. bn., generally soft but in part quite indurated, sl.-mod. glauc'c, mic., in pt. pyt'c.; generally only sl. sdy (v.f. grad) & slty.
w/ inbd. SAND: ply. srtd., as ab. but glauc'c; w/ common shell fragments; occ. pyt'c SS. fragment.

110-115 CLAY: med.-med. dk. choc. bn., sl. glauc'c, generally sl.-mod. mic., sl. slty.; in pt. pyt'c.
w/ 30% SAND: v. argill grdg to soft v. sdy. clay.; occ. shell debris & sharks teeth; common pyt'c SS frags.

* Note: wet surface of all clays above appears black.; that of those from 115 to TD is either brown or olive gy.

115-120 CLAY: med. to med. dk. bn., cohesive, sl.-mod. mic., sl. sdy (v.f. grad.), slty; generally sl.-mod. glauc'c; often pyt'c.

120-122½ CLAY: as ab.

122½-125 CLAY: med. lt. bn. w/ lt. bnsh. gy intercalations; both are mic. & v. slty-v.f. sdy.; common shell debris and shark teeth; occ. lenses of granules & ply. srtd sand.

Note.
~~125-130~~ * Clays between 125 and 161 are light olive gy. when wet and are generally very plastic

125-130 CLAY: lt. gysh bn.-bnsh. gy.; w/ intercalations of gy. clay.; mic., v. slty.-v.f. sdy., plastic, soft. Pebble-granule zone at 125'.

130-135 CLAY: as ab.

135-140 CLAY: lt. bn. w/ gy. intercalations, mic., v. slty-v.f. sdy, plastic; occ. stngrs. with ply. srtd. sand to granule size; occ. orange clay.

140-145 CLAY: lt. bn., mottled gy., as ab.

145-150 CLAY: med. bn., mod. mic., sl. carb. w/ some gy., v. slty-v.f. sdy clay.

150-155 CLAY: as ab.; tr. pyt'zd foss.; occ. lt. gnsh. gy. v. sdy clay.

155-161 CLAY: med. bn., mic., mod.-v. slty & v.f. sdy.

161-161'9" HARD BAND: SS: ply. srtd. qtz with w ~~med.~~ bn., v. hard, argill. matrix and in part w/ pyt'c cement.

161'9"-165 CLAY: med.-dk. bn., mic., in. pt. v. sdy.; w/ several zones of ply. srtd. sand ranging up to pebble size.

T-15B (continued)

165-166 CLAY: as ab.

166-166'9" HARD BAND: SS: with dense bk. tough pyt'c cement.

166'9"-170 SAND: v.ply.srtd., uncons. predom. v.crs. to granule sized, rd.-subrd. qtz w/ some pebbles.
w/ up to 30% CLAY: med. bn. v.sdy.

170-175 SAND: up to granule size (fine-med. grns not settling out of mud.)
w/ up to 40% (but probably much less) CLAY: as ab.

175-180 SAND: as ab. & CLAY: as ab.

T-16

Sample descriptions made as drilling progressed - tentative only.

0-1½ SAND: med. rdsh. bn., ply. srtd. qtz., carbonaceous.

1½-3 CLAY: orange bn., v.sdy. (v.f.-crs.grad., rd.-subrd., clear & opaque qtz.)
w/ some sand stringers.

3-5 CLAY: ochre (i.e. yllsh. bn.); some haematite(?) grns. & granules, some carb. grns; s/ ochre pellets; several stgrs. of sand; clay is sl. calc.

5-5½ CLAY: as ab.

5½-10 LS: wh., frag'l/polyzoal, v. dol'c w/ included angular carbonate gravel; occ. dk. bn. argill. granules & pbls.

10-15 DOL: med. yllsh. bn., med. lt. brnsh. yellow & cream; cream DOC is sl. limonitic - remainder is mod-v. limonitic; DOL is polyzoal, v. calc., v. friable (largely uncons.); occ. ferruginous pebble; some angular carbonate gravel.

15-20 DOL: wh., polyzoal/frag'l, v. calc matrix - dol'd. polyzoal frags., v. friable; occ. limonitic zones.

20-22 DOL: wh. polyzoal as ab., v. argill. (marly) matrix; v. friable (largely uncons. dol'd. polyzoal frags.

22-25 DOL: wh., polyzoal, v. calc., consolidated; occ. limonitic stained zone; matrix only is calc.

25-26 DOL (?): polyzoal, v. calc., uncons., v. argill. (marly) matrix, limonite stnd.

26-30 CARBONATE GRAVEL (?): predominantly fragments of cream dol'd polyzoal carbonate & some fragments of dk. bn. dolomite, in a very soft polyzoal matrix, (argill.?).

30-32 CARBONATE GRAVEL (?): as ab.

32-35 DOL (?) wh.-lt. gy., sl. greenish, glauc'c, frag'l/polyzoal dol'd fragments in a very calc. argill. matrix.

T-16 (continued)

35-37 DOL: as ab.

37-39 DOL: as ab w/ predominant CLAY: lt. gy.-buff, calc., v. sdy. (ic. v.f. dolomite rhombs) grading to very argill. DOL.

39-40 DOL: (sand) as ab.

40-45 DOL: lt. grsh. gy., v.f.-f. grnd. dolomite rhombs in a v. soft, sl. calc., argill. matrix, v. soft., sl.-mod. glauc'ic.

45-46 DOL: as ab.

46-50 LS: lt. gy., polyzoal, sl. glauc'ic; w/ v. abnt. dolomite rhombs; abnt. argill. matrix, v. calc.

50-55 DOL: lt. gy., v. abnt. calc. argill. matrix, sl. glauc'ic.

55-60 DOL: ~~lt~~ white, v. abnt. elongate dol'zd. bryozoal frags in a very abnt (60%) matrix of cohesive lt. blue gy. calc. clay; occ. concretionary (?) phosphate.

60-65 DOL: as ab w/ flint (sil'd LS) bands at 65'6"-67'0" and 68'0"-68"-23").

65-70 CLAY: lt. bluish gy., abnt polyzoal frags, abnt. dolomite rhombs; grades in pt. to v. argill., sl. calc., polyzoal dolomite.

70-75 CLAY: as ab. grading to v. argill. polyzoal dolomite w/ common horizons of flint.

75-80 CLAY: lt. gy. as ab.; w/ thin zone of flint; w/ inbds of DOL: lt. gy., polyzoal/frag'l, mod. glauc'ic, w/ calc. matrix.

80-85 DOL: lt. gy., v. calc, v. argill. polyzoal, as as. w/ inbds of lt. gy., mod.-v. calc, polyzoal clay grading to marl.

85-90 CLAY: lt. gy., sl.-mod. calc., sl. polyzoal, v. sdy. (vf.-f. grns., possibly dolomite rhombs); common blk., v.f. grns.; w/ inbds. of DOL: as ab., sl. glauc'ic.

90-95 CLAY: v. sdy., as ab; near base some SS: med. lt. gy., v.f. grnd., slty., ~~argill.~~, sl. calc. w/ some polyzoal frags.

95-100 CLAY: lt. gy., sl. calc., slty & v.f. sdy (carbonate ? grns.); several flint bands below 98'.

100-105 SS: med. lt. gy., v.f.-f. grnd., qtz., well. srtd., tr. calc.; fly. common sdy. flint & occ. sdy. clay.

105-110 CLAY: lt. gy., sl. calc., sl. polyzoal, v. f. sdy. & slty., soft.

110-115 CLAY: lt. gy., sl.-mod. calc., common pinkish-buff polyzoal frags., sl. sdy. & slty.; occ LS stgrs.; occ. band of flint.

115-120 CLAY: as ab.

T-16 (continued)

120-125 CLAY: as ab.

125-130 DOL: buff, (sand), polyzoal; w/ strgrs. of med. bluish gy., indurated, polyzoal clay.

130-135 DOL.(?): buff-lt.gy., frag'l/polyzoal, v. friable (generally uncons.), v. calc., in pt. v. argill.; w/ sandy clay interbeds.

135-140 CLAY-STST: med. lt. gy., sl. calc., v. argill. & slty., sdy. (v.f. grad.) w/ lesser CLAY: v.lt.gy., sl. gnsh., v.sl. glauc'c., mod. calc., slty & v.f. sdy.

140-145 CLAY: lt. gy., sl. calc., polyzoal, sl. mod. slty & v.f. sdy.

145-150 SS:(?) lt. gnsh. gy., v. ply. srtd., v. friа., v. glauc'c w/ abnt. polyzoal frags; in sl. pt. orange & in pt. bn.; abnt. clay to marl matrix.

150-155 SS:(?) lt. gnsh. gy., v. glauc'c & pyt'c., v. ply. srtd. (up to v. crs. grd.); abnt. bryozoal frags.; v. soft. w/ v. abnt. clay or marl matrix, possibly v. sdy marl.; sl. mic.
w/ some v. dk. gy., v. pyt'c. sdy. clay.

155-157 (?) As above.

157-160 CLAY: med. bn., sticky, sl. pyt'c., v. slty-v.f. sdy. w/ some grn., v.f-f. sdy., pyt'c laminae & intercalations.

160-165 CLAY: bn., v. soft, slty-v.f. sdy; w/ glauc'c sdy. strgrs. as ab.
w/ possibly common strgrs of ply. srtd. bryozoal, & qtz sand (?)

165-170 CLAY: med. bn., v. soft, v. sdy (v. slty.-v.f.-f. sdy w/ common med-crs grns), mod.-v. pyt'c; in part grades to STST.

170-175 Poor sample. CLAY: med. bn., v. slty. to v.f. sdy.; common loose med.-v. crs. grns.; common pyt. frags.

175-180 CLAY: med.-dk. choc. bn.; generally v. sdy. (v.f.-med. qtz.); common coarser grns; mic. & glauc'c.
w/ 30-40% SAND: uncons. grns up to pbl. size; larger grains are of well rd. opaque qtz.

180-185 SAND: lt. gy., predom. med.-v. crs. qtz., subang-subrd., common v. crs grns. & occ pbls.; uncons.

185-190 SAND: as ab.

190-195 SAND: as ab., ang.-subang.

T-17. Samples described as drilling progressed; tentative only.

0-5 SAND: lt. bn., f-med. grad. qtz.

5-9 SAND: lt. brsh-or., v.f-f. grad., argill.; below 7½' includes fragments of med. bn., v. argill. ss.

T-17 (continued)

9-15 No sample

15-20 Poor sample: SAND: med. bnsh. or., f. grnd. qtz., w/ abnt. or. clay matrix.

T-17B

Samples described as drilling progressed.; descriptions tentative only.

0-3 SAND: lt. gy., sl. mauve, f-med. grnd. qtz.; w/ bn. stained grns. & frags. of v.f.-f. grnd. bn., argill. & ferrug. SS near base.

3-5 SAND: med. bn. (in. pt. rdsh. bn.), v.f.-crs. grnd., (predom. f.-med. grnd.), rd.-subrd., qtz., v. argill. matrix which washes out, ferrug.

5-7 SAND: buff, v.f.-crs. grnd., (predom. f.-med. grnd.), v. argill.

7-9 SAND: as above w/ v. argill. matrix (soft); grades to v. sdy. clay.

9-10 CLAY: ochre, red. & yllow bn., v. sdy.

10-15 CLAY: orange red, in sl. pt. mottled gysh. yellow, sdy. (stains light orange); occ. pebbles of bn. & v. dk. bn., ferrug. & argill. SS.

15-18 CLAY: lt. gnsh. gy., in pt. mottled bnsh. & ochre.

18-20 Variable sample. Possibly CLAY: as ab, v. soft & v. sdy. w/ inbds of ply. srtd. SAND & some DOL(?): cream, v. argill., sl. calc.

20-25 CLAY: med. lt. gy., bluish tint, mod. calc., w/ some included polyzoal debris; possibly w/ inbds of DOL: light grey, v. argill, sl. calc.

25-26 Moderately hard drilling. SS: lt. gy., v.f.-f. grnd., argill.

26-30 DOL: wh., v. friable, uncons.; dolomitized polyzoal fragments in an abnt. lt. gy., v. argill., v. slty. to v.f. sdy matrix. May be a dolomitic, polyzoal silt.

30-31 STST: medium gnsh. gy., well indurated.

31-33 STST: lt. gn. & bnsh. gn., sl.-mod. calc., well indurated, sl. argill.

33-35 CLAY: med. bn., soft, slty., mic.

35-40 CLAY: med. bn., mod. mic., v. slty., sl. carb., sticky.

40-45 CLAY: medium brown, some olive gy., v.f. sdy. intercalations, sticky, mic., slty., in pt. pyr'c; common rd. qtz. granules & pebbles.

45-50 SAND: lt. gy., f.-v. crs. grnd. w/ some granules, (predom. med.-crs. grnd.), subang.-subrd., clean qtz. w/ occ. opaque grns. & rare bk. grns.

50-55 SAND: as ab., subrd.

55-60 SAND: as ab., pred. med.-crs. subrd. qtz. grns.; common f. grns. & fairly abnt. v. crs. grns.; occ. well ~~rd.~~ rounded bk. grns.

2.74 -
4.57

T-17B (continued)

60-65 SAND: lt.gy., predom. crs-v.crs. grnd. qtz.; abnt. granules & occ pbls.; coarser grns. are rd.-subrd; finer grns. are subrd.-subang.; tr. pyt.; rare bk. sdy. clay.

65-70 SAND: lt.gy., ply. sltd., predom. crs.-v.crs. grns. w/ common granules; occ. mica; tr. pyt.; fly. common rounded bk. grns.

70-75 SAND: as ab.

75-80 SAND: f. grnd.-granule size., predom. v.crs. grnd., subrd.-subang., sl.-mod. mic., sl. pyt'c., fly. common bk. grns.

80-85 SAND: predom. med. grnd., but up to v.crs. grnd., mod. mic., common pyt.; scattered lignite frags.

85-90 SAND: lt. bnsh. gy. – olive gy., v.f.-med. grnd., predom. f. grnd., qtz., mic., sl. pyt'c.; w/ common sdy. lignite.; "quicksand"

95 SAND: lt. bnsh. gy. - olive gy., v.f.-f. grnd. qtz., mod.-v. mic., abnt lignite frags.

95-100 SAND: as ab.; but less lignite; argill.

100-105 SAND: as ab.

105-110 SAND: as ab; s/ lignite.

110-115 SAND: as ab.; mic., argill.; traces v. sdy. clay.

115-120 SAND: as ab.

T-18

Samples described as drilling progressed; tentative only.

0-2½ SAND: med. gysh. bn., f-med. grnd.

2½-5 CLAY: yllsh. bn. - ochre, v. sdy. (f-med. grnd. qtz.); occ. Frags. lignite; some red haematitic pellets.

5-10 CLAY: lt. gnsh. gy., mottled ochre, in pt. sdy.; in pt. w/ red haematitic pellets; occ. ferruq. concretions & some fragments of med.-dk. bn. ferruq. SS.

10-10½ CLAY: as ab.

10½-11½ MARL: buff w/ some ferruq. Frags.

11½-14½ MARL (?): buff, only mod. calc.; w/ v. abnt dol'zd polyzoal frags.

14½-15 DOL: buff-lt.gy., tough., v.calc., bioclastic / polyzoal.

15-20 MARL: buff, v. abnt. dol'zd polyzoal frags.; probably grades to marly DOL; w/ inbds. of argill. polyzoal DOL.

T-18 (continued)

20-25 CLAY: buff-yllsh.gy., sl.calc., sticky; occ. rdsh.bn.-ochre ferrug. ptgs.; occ. gy. concretion.

25-27 CLAY: as ab, bryozoal

27-30 CLAY: lt.gy., slight bluish tinge, mod.-v.calc., mod. polyzoal.

30-35 CLAY: lt.-med. lt.gy., sl.-mod.calc., mod.-v. polyzoal.

35-40 CLAY: as ab.

40-43½ CLAY: as ab., sl.-mod. glauc'c.

43½-44¾ CLAY: lt.gy. & grnsh.gy., sl.-mod.calc., mod. glauc'c, in pt. v.glauc'c, in pt. sl.-mod.pyt'c; w/occ. green extremely glauc'c clay; traces pale bn. polyzoal dolomite.

44¾-45 CLAY: med. bn., slty.-v.F.sdy., sl.pyt'c,; w/ scattered med. grnd. to granule size qtz. grns.

45-50 CLAY: med.dk.bn., cohesive, mic., in sl. pt. soft; w/ grnsh gy., sdy. inter-calations; occ. rd. qtz. pbls.

50-55 CLAY: med.dk.bn., cohesive, w/ scattered. sdy patches; rare qtz. grns.

55-60 CLAY: med.bn., w/ol.gy. sdy. lams.; generally mod. slty.-v.f.sdy.; v. abnt. loose crs.grnd. to pebbly grns.

60-65 SAND: lt.gy., predom. v.crs. grnd. to granular, clear qtz. w/abnt. wh. opaque qtz.

65-70 SAND: lt.gy., predom. crs.grnd.

70-75 SAND: lt.gy., predom. v.crs.grnd.-granule sized; v. abnt. granules & some pebbles.

75-80 SAND: lt.gy., predom. crs.grnd., abnt. med. & v.crs. grns., occ. granules & rare pebbles; subround qtz.

80-85 SAND: lt.gy., med. grnd. to granule size, predom. v. crs. grnd., abnt. granules, subang.-rd., (predom. subrd.), qtz.; common wh. opaque qtz. grns. & fly. common blk. grns.

85-90 SAND: as ab.; s/mica flakes

90-95 SAND: v.f.-v.crs.grnd., predom. med.-crs.grnd., sl.mic.; minor inbd. sdy. bn. clay.

95-100 CLAY: v.dk.bn., cohesive, sl.mic., tr. pyt'c; w/ scatt'd included med.-crs. qtz. grns.; abnt. loose pebbles & granules.

100-105 CLAY: med.dk.-v.dk. bn., sl. sticky, sl.-mod. mic.; w/ scattered qtz. grns. & granules & occ. pbls.; fly. common bands of ochre clay.

105-107 CLAY: as ab.

107-110 SAND: med. ol.gy.-brnsh.gy., v.f-f. grnd. qtz., slty.; probably argill.; drillers "quicksand".

T-18 (continued)

110-115 SAND: as ab., mod. mic.; w/ minor inbds. of bn. clay.

115-120 SAND: as ab w/ 30-90% SAND: ol. gy., med.-crs. grnd.

120-125 SAND: lt. gy., f-med. grnd.; s/ crs. & v. crs. grns.; subrd. qtz., sl.-mod. mic.

125-130 SAND: as ab., predom. med. grnd., but up to granule size.

130-133 SAND: as ab., med.-crs. grnd.

133-135 SAND: lt. gy., v. ply. srtd., med. grnd. to granule sized, w/ abnt. pbls.; w/ some dk bn. sdy. clay & lesser ochre-bluish gy. clay.

135-140 SAND: med. brnsh. gy. (sl. olive), predom. med. grnd., subang.-subrd., qtz., mic.; w/ 30% CLAY: med. bn., carb., sdy.; common loose crs.-v. crs. qtz. grns. & granules.

140-145 SAND: lt. brnsh. gy., v. ply. srtd., f.-v. crs. grnd., (predom. med.-crs. grnd.), subang.-subrd., qtz.; occ. inbds. of bn. clay.

145-150 SAND: lt. brnsh. gy., med.-crs. grnd., as ab.

T-11

Samples described as drilling progressed; descriptions tentative only.

0-5 SAND: lt. bn., f-med. grnd. qtz.; below 3½ Feet SAND: med. bn., sl. reddish, fine grnd., in pt. med. grnd., subang. qtz.; occ. carb. fragment; occ. ferrug. SS concretion.

5-6 CLAY: yllsh. bn., v. sdy., grading to v. argill. SS; w/ 30% SS: dk. rdsh. bn., f. grnd., (occ. med. grns.), ferrug., argill.

6-10 CLAY: ochre, in pt. mottled lt. grnsh. gy., mod.-v. sdy., in pt. w/ red limonitic? mottling; abnt. concretions and pellets of dk. bn., f. grnd., ferrug. SS; stringers of v.f.-med. grnd. uncons. SAND.

10-15 CLAY: ochre, mod. sdy., mottled red (limonitic?) & cream to light. gy.; w/ SS: concretions, ferrug., as ab.. Towards base becomes a dry clay (which is probably fractured) which was recovered as angular fragments with a black coating on the sides of the fragments. The ~~clay is~~ claystone is creamy yellow, v. slty & sdy. & has some red & bk. mottling.

15-20 CLAYSTONE as near base of 10-15'.

20-25 CLAY: wh., mod.-v. calc., v. soft (marly appearance) w/ abnt. dol'zd polyzoal frags.; in pt. grades to v. argill. polyzoal DOL?.

25-30 CLAY: as ab., mod. calc.; v. abnt. polyzoal frags.

30-31 CLAY: buff, polyzoal, calc., sl. glauc'c.

31-34½ SS: gnsh. gy., v. ply. sorted ranging up to granule size, generally f.-med. grns., usually uncons. but in pt. w/ a dk. gy. pyr'c & v. glauc'c cement; in pt. w/ a cream dol'c/calc. carbonate matrix; abnt. buff. dol'zd polyzoal frags.

T-11 (continued).

34½ - 35 CLAY: lt. gy., slty., sl. glauc'c.

35 - 40 CLAY: med. - med. dk. bn., fly. soft, sl. mic., mod. - v. slty.; v.f. sdy.; occ. qtz. granules & pebbles.

40 - 43 CLAY: as ab., mod. - v. sdy. (v.f. grd.) & slty., soft.

43 - 45 SAND: ply. srtd., w/ abnt. granules & pbls., subang. - rd.

45 - 50 SAND: lt. brsh. gy., (sl. olive), predom. f-med. grad. w/ occ. crs. - v. crs. grns., mic.

50 - 55 SAND: lt. gy. to brsh. gy., v. ply. srtd., v.f. - crs. grad., predom. med. grad., sl. mic.; occ. dk. bn. carb. clay & bn. sdy. clay.

55 - 60 SAND: as ab., lt. gy., predom. med. grad, mod. mic.

60 - 65 SAND: med. lt. gy. coarser than above; v. abnt. v. crs. grns. & granules, subang. - subrd.; abnt lt. yllsh. stained grns. (20%).

65 - 70 SAND: as ab., sl. mic.

70 - 75 SAND: med. lt. gysh. bn., med. - crs. grad.; s/ brown stained grns.; common bk.; red & bn. grains.

75 - 80 SAND: med. - med. lt. bn., v. ply. srtd., f. grad. - granule sized, predom. crs. - v. crs. grad., grains commonly w/ bn. residue (from clay matrix?).

80 - 86 SAND: med. ol. gy., v.f. - F. grad., qtz., sl. carb., mod. - v. mic., argill.; "quicksand".

86 - 90 CLAY: (med. ol. gy. on wet surface), med. dk. bn., mic., slty., w/ intercalations of olive gy., v. slty - v.f. sdy., v. mic. clay; gysh. gy. & gn., v.f. sdy. v. pyt'c, glauc'c lenses.; common qtz. granules & pbls.

90 - 94 CLAY: as ab.

94 - 95 SAND: med. ol. gy., "quicksand"; as at 80 - 86.

95 - 100 CLAY: med. choc. bn., v. slty. - v.f. sdy., mic.; w/ v. sdy. gysh. & ol. gy. intercalations; v. abnt. pyrite fragments.

100 - 105 CLAY: as ab.

T-12

Samples described as drilling progressed; descriptions tentative only.

0 - 1 SAND: med. lt. gy., ply. srtd., ranges up to v. crs. grad.

1 - 4½ SAND: buff - med. yllsh. bn., v. ply. srtd. qtz.; granules & pbls near base.

4½ - 5 CLAY: ochre, v. sdy.

5 - 10 CLAY: creamy yellow, mottled ochre, v. sdy.; probably w/ lenses of v.f. - med. grad. sand.; some ferrug. laminae.

00052

T-12 (continued)

15-20 SS: med. bash. orange, v.f.-f. grnd. matrix w/ med.-v. crs. suft, argill (?) bk. grns., ferrug (?); possibly derived from weathered volcanics.

20-25 SS: med. dk. ~~kah~~ orange bn., f.-med. grnd.; probably of volcanic origin.

25-29 SS: med. dk. bn., predom. f.-med. grnd., as ab.

29-30 BASALT: dk. bn., ang. frags. w/ dense appearance ~~on~~ on visual inspection but xln. under microscope.; brittle.

30-35 BASALT (?): as ab.

35-37 BASALT (?): as ab.

T-1

Samples to 35' described by contractor; remainder described as drilling progressed; tentative only.

0- 8½ Brown clay

8½-15½ Brown to pink LS

15½-18½ Brown to grey clay.

18½-25 No samples

25-35 Soft clay w/ LS (+ polyzoal)

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35-40 LS: lt. gy-wh. polyzoal/frag'l, v. argill., v. dol'c; as usual argill matrix is very calc. and polyzoal frag's are dol'd. (may more properly be called a dolomite.
w/ inbds of wh.-lt. gy. calc. clay.

40-45 DOL: wh.-lt. gy., in pt. polyzoal, in pt. frag'l., argill., mod.-v. calc.; w/ inbds. of lt. gy., v. polyzoal, mod. calc. clay (especially 42-43'); w/ common lt. gy. flint (silicified polyzoal carbonate.)

45-50 CLAY: lt. gy., sl. mauve, mod. polyzoal, v. calc.; occ. inbs. of DOL: as ab. At 49-49½' occurs bed of lt. gn. & gy. flint or silicified carbonate.

50-55 CLAY: as ab., v. polyzoal; w/ abnt. LS: lt. gy., sl. mauve, v. argill., earthy texture, dol'c; w/ occ. flint & some v. polyzoal DOL.

55-60 CLAY: as ab. w/ 40% DOL: as ab, v. calc, sl. slty.-v.f. sdy.; occ. flint.

60-63½ CLAY: as ab w/ 50-60% DOL: as ab.

63½-65 Variable but basically SS: gnsh. gy., cream, orange, ply. sltd. up to v. crs. grnd., qtz in a predominantly carbonate matrix which is mod. calc. The SS is ferrug. & mod. glauc'c; abnt. large buff & bk. sil'c (?) polyzoal frags; some orange bn. sdy. clay.

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65-70 CLAY: med.-med. dk. bn., mod.-v. mic., mod.-v. slty; occ. ol. gy. sdy. leases. Abundant loose rd. qtz. grns. & granules.

T-1 (continued)

70-75 CLAY: dk. bn., slty-v.f. sdy w/ scattered. crs-v.crs. grns., mod. mic., sl. glauc'c in general w/ some gn. v. glauc'c sdy. lenses.; abnt. loose pyt. frags & loose granules & pbls.

75-80 CLAY: med. dk. bn., v. soft, mic., mod.-v. sdy. (v.f. grnd.) & slty., w/ occ. ol. gy; v. sdy & slty lenses; v. abnt. loose granules & pbls.

80-85 CLAY: med.-med. dk. bn., mic., in pt. slty., sl. carb., soft, sticky; some gy. slty.-lams; occ. pyt. frags; common loose granules to v. crs. gras.

85-90 CLAY: med. bn., v. mic., v. slty.-v.f. sdy., in pt. sl. carb.; w/ lt. gy.-sdy. & slty. lams.; occ. qtz. granules.

90-95 CLAY: as ab.

95-100 CLAY: med. bn., v. mic., v. slty.-v.f. sdy.

100-105 CLAY: med. bn., v. mic., mod. slty-v.f. sdy.

105-110. Poor sample: CLAY: med. bn., v.f. sdy-slty, some f. gras., mic.; sca t'd pyt frags. & fly. comm. crs-v. crs. qtz. gras & occ gn. qtz granules; (possibly some interbedded sand lenses).

110-115 CLAY: med. bn., mic, generally slty & v. sdy (v.f-f. grnd.); occ. med-crs grns.; rare v. crs. gras & granules.

115-120 CLAY: as ab.

T-19

Samples described as drilling progressed; descriptions tentative only.

0-3½ SAND: dk. rdsh. bn., v. argill., sdy. (v.f.-med. gras. w/ occ. crs-v. crs. grns.), ferruy.

3½-5 SAND: as ab w/ v. abnt. CLAY: dk rdsh. bn., (crust), ferruy., mod.-v. sdy.

5-8 CLAY: as ab.

8-10 DOL: cream, stained reddish, v. calc., very tough, polyzoal (possibly present as a gravel.)

10-13 DOL: cream, stained lt. yllsh. bn. & med. dk. rdsh. bn., polyzoal, consolidated, v. porous, v. calc.

13-15 DOL: wh., polyzoal, v. calc., in pt. sl. stained as ab.,

15-20 DOL: cream, polyzoal/frag'l, v. friw. to uncons. (matrix is very calc. but polyzoal frags are dol'zd.)

20-25 DOL: cream, sl. yllsh., polyzoal/frag'l, mod. friw., mod.-v. calc.

25-30 DOL: as ab.

30-50 Samples described by driller.

50-55 DOL: buff, polyzoal, mod.-v. calc., v. friw. but generally consolidated

T-19 (continued)

55-58 DOL: as ab. but predominantly unconsolidated.

58-60 CLAY: buff, mod.-v. calc.

60-65 DOL: lt. yllsh. gy., v.f.-f. frag'l, friv., sl. calc.; minor inbd. CLAY: as ab.; some cherty horizons.

65-70 DOL: cream, unconsolidated dolomitized polyzoal fragments in a marly calc. matrix.

70-75 DOL: as ab.

75-80 DOL: buff., f. frag'l w/ lesser polyzoal frags, mod. calc., v. friv. but consolidated.

80-83 DOL: cream, powly consol. polyzoal frags w/ v. abnt. wh., soft., calc. clay matrix or inbds.

83-85 DOL: lt. bn., well consol., polyzoal/frag'l, sl.-mod. calc., some bk. grns.

85-90 CLAY: lt. gy.-buff, sl. calc., polyzoal w/ inbds of polyzoal sand & at 89' a band of chert.

90-95 CLAY: cream-buff, mod. polyzoal, mod. calc.; chert at 91' and 94'.

95-100 CLAY: as ab. w/ thin chert bands

100-105 CLAY: med. lt. gy. (sl. bluish), mod. calc., w/ common buff polyzoal frags.

105-110 CLAY: as ab.

110-115 CLAY: battleship gy. (as. ab.), polyzoal; abnt. gy. chert bands.

115-120 CLAY: lt. gy.-grsh. gy., v. soft (marly?), sl. calc., mod. polyzoal, sl.-mod. glauc.

120-125 CLAY: med. gy. bcmg lt. gy. downwards, sl. calc., sl. polyzoal; numerous chert beds.

125-130 CLAY: lt. gy., calc., sl.-mod. polyzoal, v. sdy. (v.f.-f. grad); common inbds. of lt. gy., v. argill. SS.

130-135 CLAY: as ab., v. polyzoal, in pt. sdy w/ occ. argill. carbonate bands; clay is mod. calc.

135-140 CLAY: as ab., tr. glauc, v. sdy. (v.f.-f. grad.) — grades in pt. to v. argill. SS.

140-141 CLAY: as ab.

141-145 CLAY: lt. gy. sdy — grading downwards rapidly to PBL. CGL: v. ply. srtd., ang. rd. qtz, in pt glauc, in pt. w/ pyt'c cement, in pt. w/ wh. clay. matrix or inbds; traces of med. bn. clay.

145-~~150~~ CLAY:
Hard band at 141-142' consists of ply. srtd. sand in an abnt. buff carbonate matrix. Knight Group possibly starts at 142 with pebbly SS.

T-19 (continued)

00055

145-150 CLAY: med.bn., v. soft, slty., in pt. sdy., mic.; w/ v. abnt. ply srtd. sand ranging up to pebble size.

150-155 Poor sample: CLAY: as ab., sdy & slty., mic; possibly includes v. abnt. v.f-f. grad. sand which is not settling out of mud.

155-160 SAND: v.f. grad., in pt. f. grad., v. slty., qtz. w/ occ. bn. clay. Sample contains common bryozoal grns., green (glauc'c) grns. & traces of red. grns.; these probably have originated in Gambier LS and have been carried in suspension in drilling fluid. Knight sand was sampled only by greatly reducing pump pressure.

160-165 SAND: as ab w/ increasing proportion of interbedded CLAY: med. bn., v. sdy (v.f. grad.); slty, soft, mic.

T-20

Samples described as drilling progressed; descriptions tentative only.

0-3½ SAND: med. lt. gy., rdsh. tint, f. grad. w/ comm. med. grns & some rd. crs. grns.

3-4½ CLAY: khaki to ochre, v. sdy.

4½-10 CARBONATE GRAVEL: yllsh oc. (stained) fragments of cream polyzoal dolomite in a matrix of v. friable f-med. grad. polyzoal sand.

10-15 CARBONATE GRAVEL: as ab.

15-20 LS (?): cream-lt.gy. sl. glauc'c, consists predominantly of loose dol'zd. polyzoal grains, v. porous, v. friab., v. dol'c.; becmg. consol. at 18½'.

20-25 LS: (?): as ab. but v. glauc'c; possibly DOL: consisting of dol'zd polyzoal frags. in a v. calc. matrix.

25-30 DOL: med. lt.gy, greenish tint, v. glauc'c, mod-v. calc, polyzoal/frag'l.

30-35 DOL: as ab, v. ply. consol.

35-40 DOL: as ab, lt. grsh.-gy; v. glauc'c; more consol. than above.

40-45 DOL: grsh.-gy., v. glauc'c, polyzoal w/ v. crs. bryozoal frags. & some extremely glauc'c lenses!.

45-50 DOL: lt. grsh.gy., v. bryozoal, sl-mod. calc., v. glauc'c, v. friab. but usually consol.

50-55 DOL: wh.-lt.gy. (grsh tint), v. calc., v. friab., generally vacuous., mod. glauc'c.

55-60 DOL: as at 45-50'.

60-65 DOL: wh.-lt.gy., sand, polyzoal/frag'l, sl. glauc'c, tr. calc.

65-70 DOL: lt.gy., sl. grsh., polyzoal, sl.-mod. calc., sl. glauc'c; generally well consol.; occ. stngrs DOL: sand, as at 60-65'.

T-20 (continued)

~~70-75~~ ~~55-60~~ DOL: wh.-cream, sl. gash., polyzoal, sl. glauc'c ; w/ uncons. polyzoal sand stngrs., as ab ; tr. green chert.

75-80 SAND: v. lt. gy., v.f. grad., qtz., uncons. ; w/ occ. DOL: polyzoal, as ~~at~~ ab. bcmg at 76½' SS: med. gash. gy., f. grad., v. sl. calc.

80-85 SS: as described above. v.f- f. grad.

85-86 SS: as ab.

86-90 DOL: med. lt. bluish gy., polyzoal, mod. calc., v. friw.

90-95 DOL: sand: cream, uncons. polyzoal frags. ; abnt. uncons. v.f.-f. grad. qtz sand ; w/ predominant DOL: cream - sl. gash., polyzoal, sl.-mod. calc., v. sdy.

95-100 Variable: DOL: lt. gy. - gash. gy. - cream, polyzoal, v. sdy ; grades to polyzoal, argill. SS ; some clay inbds.

100-102 As ab.

102-105 CLAY: med. lt. gy., v. sdy - silty., polyzoal, cohesive.

105-110 CLAY: as ab., v. polyzoal.

110-115 CLAY: lt. gy., v. polyzoal ; w/ inbds polyzoal, argill. DOL (?) ; grades downwards to MARL: w/ abnt dol'd polyzoal frags.

115-120 MARL: cream - v. lt. gy., v. abnt. dol'd polyzoal frags.

120-125 MARL: as ab.

125-130 MARL: as ab w/ major CLAY: lt. gy., polyzoal ; w/ common inbds of v. argill. polyzoal DOL (?).

130-135 DOL: sand: lt. gy., argill., dol'd polyzoal frags ; occ flint horizon.

135-140 CLAY: lt. gy., v. polyzoal, sl. calc., (soft, muddy) ; tr. chert.

140-145 CLAY: as ab.

145-150 CLAY: as ab. w/ cherty bands.

150-155 CLAY: med. gy., sl.-mod. polyzoal, sl. calc. ; some argill. LS (?) inbds

155-160 CLAY: med. gy., sl. polyzoal, sl-mod. calc., Fairly well indurated ; probably w/ inbds. or lenses of polyzoal DOL.

160-165 CLAY: med. lt. gy., sl.-mod. polyzoal, mod. calc., cohesive.

165-170 DOL: (sand): med. lt. gy., loose dol'd polyzoal Frags. (predom. buff-cream, but in pt. blk.), silty. ; v. calc., marly matrix?

170-175 DOL: as ab., v. sl. glauc'c ; more numerous blk. polyzoal frags., sl.-mod. calc., v. ply. consolidated but recovered predominantly as loose fragments

T-20 (continued)

175-180 DOL: lt.gy., as ab. but finer polyzoal frags., v.sl. glauc'c, more abnt. argill. (marly?) matrix, unconsolidated frags., sl. calc. (i.e. marly polyzoal dolomite.)

180-182 As above _ _ _ _ _ _ _ _ _ _

182-185 SAND: lt.gy. v. ply. srtd., v.f-v.crs.grnd., occ. granules & pbls.; common green stnd. qtz., glauc'c & pyt'c; w/ inbds. of bryozoal dolomite as above (may be cavings).

185-190 SAND: lt.gy., predom. f-med. grnd. polyzoal frags. w/ v. calc. marly matrix; abnt. pyt. & glauc.; slty.; w/ some v. ply. srtz. qtz. grns. up to crs. grnd. but generally finer; traces soft bn. clay.

190-195 SAND: lt.gy., sl. brnsh., v.f grnd., in pt. f. grnd., v. slty.; w/ common glauc. & pyt. grns.; v. abnt. v.f. grnd. polyzoal frags. (which may have originated from higher in the section and settled out when mud was thinned to recover sand.); traces med. bn., sdy., & slty., soft clay.

195-200 SAND: as ab. with about 15% CLAY: med. bn., v. slty & v.f. sdy., very soft.

200-205 SAND: lt.gy., sl. brnsh., v.f. grnd., v. slty., sl.-mod. calc., abnt pyt. frags.; w/ 20% CLAY: med. dk. bn., v. soft, v. slty & v.f. sdy., in pt. pyt'c., in pt. sl. carbonaceous.

205-210 SAND: med. lt. gysh. bn., v.f. grnd., v. slty., abnt. pyt. frags.; w/ 10% CLAY: as ab.

210-215 SAND: as ab. w/ 60% SAND: med. lt. bn., v. ply. srtd, ranging up to granule size, but predom. med. grnd.; w/ 40% CLAY: med. bn., v. sdy., mic., in pt. carbonaceous, soft.

215-220 SAND: lt. gysh. bn., predom. f-med. grnd., but abnt. silt & v.f. grns. & also crs. & v. crs. grns.; generally subang. but coarser grns. are subrd.

220-225 SAND: lt. gysh bn., predom f-med. grnd., ang.-subang., sl. argill.

225-230 SAND: lt. bn., predom. med.-crs., subang.-subrd. grns., but abnt. fine & v. crs. grns.

230-235 SAND: lt. brnsh. gy., v.f.-f. grnd.; w/ 25% CLAY: med. dk. bn., mod.-v. mic., carb., v. sdy. (v.f. grnd.), v. slty., cohesive; occ. wh. rd. qtz. grns. & pbls.

235-240 SAND: lt. brnsh. gy.-ol. gy., v.f.-F. grnd., argill., w/ 30% CLAY: med. dk-dk. bn., v. sdy., mod.-v. mic., carb.; occ. wh. & gn. qtz. granules & pbls.

240-245 SAND: as ab, but probably abnt v.f. grns. (not settling out of mud) w/ 30% CLAY: as ab.

245-250 Poor sample: probably silt-v.f. grnd SAND. Recovery consists of SAND: lt. bn., v.f. grnd. w/ 30% CLAY: dk. choc. bn., indurated, mic., but not silty or sdy.

250-255 30% SILT-SAND: as ab w/ CLAY: as ab; w/ trace slickensides.

T-20 (continued)

255-256 CLAY: as ab.

256-259 Poor sample - Probably SILT-SAND: ol. gy. - lt. brnsh. gy.

259-263 SAND: med. lt.-med. brn., v.f-med. grnd., predom. f. grnd., sl. calc, sl. argill; stngrs of brn. sdy clay.

263-265 SAND: med. brn., ply. srtd., v.f. - v. crs. grnd., predom. med. grnd., subang.

265-270 SAND: lt. gy., v. ply. srtd., ranges up to granule size, ang.-subang., sl. calc.

T-21

Samples described as drilling progressed; descriptions tentative only.

0-4 SAND: med-dk. brn., sl. rdsh., f-med. grnd., rd.-subrd. qtz, sl. ferrug.

4-5 CLAY: yllsh. orange, mottled gy. & ochre w/ red (heamatitic?) patches, v. sdy

5-9 CLAY: lt. yllsh. gy., mottled orange & ochre, v. sdy (ply. srtd. — up to v. crs. grnd.)

9-10 CARBONATE GRAVEL: v. crs. angular fragments of tough, yllw & orange stnd. frag'l/polyzoal, dol'zd. carbonate.

10-12 CARBONATE GRAVEL: as ab.

12-15 CARBONATE GRAVEL: less numerous and smaller carbonate frags. in an abnt matrix of DOL: wh.-lt. brn., polyzoal, v. calc.

15-20 LS: wh. - polyzoal, v. dol'c → calc. DOL. consolidated. w/ 30% LS: lt. orange brn., frag'l/polyzoal, consol., v. dol'c, sl. ferrug. Very poor sample.

20-23 Variable. Consists of lt. gy & gnsh. gy., v. sdy. (v.f. grnd) & slty. polyzoal, v. dol'c, argill. LS w/ inbds v. calc., polyzoal SS & some clay.

23-25 CLAY: lt. gy., sl.-mod. calc., slty., sl. polyzoal.

25-30 CLAY: med. lt. gy., sl. polyzoal, mod-v. calc. w/ gradational v. argill., polyzoal LS; occ. flint zones.

30-35 DOL: lt. gy., sl. gnsh., polyzoal, sl. glauc'c, v. sdy. (v.f. grnd) & slty., v. calc.; w/ inbds of SS: lt. gy., mod. calc., v.f. grnd., slty., argill., polyzoal.

35-40 DOL: cream, sl. gnsh., Friable, v. calc. (marly?) matrix, polyzoal, generally uncons.

40-45 DOL: v. lt. gy. as ab. sl. slty.

45-50 DOL: as ab., uncons. polyzoal Frags., v. calc.

50-55 DOL: as ab, marly.

55-60 DOL: as ab.

T-21 (continued)

60-65 DOL: lt.brsh.gy., predominantly loose polyzoal frags., sl. calc., v. argill. (marly); w/ 50% CLAY: lt.gysh.bn., sl.-mod. calc., v. polyzoal.

65-70 Variable: STST-SS: lt. gysh.gy., calc., argill., polyzoal w/ inbd. lt.gy. & buff marls & clays.

70-75 CLAY: med. lt.gy., sl.-mod. calc., mod. polyzoal, slty; traces chert.

75-80 CLAY: med. lt.gy., sl. polyzoal, sl.-mod. calc.; occ. chert.

80-85 CLAY: as ab.

85-90 CLAY: pale gysh. gy., sl.-mod. calc., polyzoal; s/ polyzoal marl; occ. LS inbds.

90-95 CLAY: as ab., lt. gy., sl. glauc.; grades to marl.

95-97 CLAY: lt. gysh. gy., v. glauc'c w/ common sea-green, v.f.-f. grnd., glauc'c sand.

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97-100 CLAY: med. bn., soft, mic. slty.

100-105 CLAY: as ab.

105-110 Poor sample: SILT-v.f. grnd SS? Recovered only a minor amount of CLAY: med. bn., mic., sl.-mod. carb. in pt., v. slty-v.f. sdy., soft.

110-115 CLAY: med. bn., mic., sl.-mod. carb. in pt., moderately firm, less silty than above; v. common inbds. of ply. sctd. SAND including abnt. rd. granules and pebbles

115-120 CLAY: med.-med.dk.bn., generally v. slty.-v.f. sdy., sticky, mic., sl. pyt'c w/ lenses of lt. gy. fine grnd. sand; abnt. qtz. pebbles and granules.

120-125 Poor sample. Probably SILT-v.f. grnd SAND: ol. gy.-lt.brsh.gy., (not settling out of mud.) w/ approx. 15% inbd. CLAY: bn., sdy. w/ some coaly lams.

125-130 SILT-v.f. grnd. SAND: as ab. (not settling out of mud.); traces of clay.

130-135 SILT-v.f. grnd. SAND: as ab., pyt'c., mic. (not settling out of mud)

135-140 As above.

140-145 SAND: med. lt. bn.-ol. gy., predom. v.f. grnd., occ. f. grns.

145-150 SAND: as ab., ang. qtz.; s/ lignitic lams.; occ. med. bn., v. sdy. clay.

T-24

Samples described as drilling progressed; descriptions tentative only

0-4 SAND: lt. gy., f. grnd., in pt. v.f. grnd., qtz., carb.

4-5 SAND: med. brsh. orange, mod. argill. (clay), predom. f. grnd. qtz.

T-24 (continued)

5-7½ SAND: mauve, f. grnd., qtz., common v.f. grns., ang.-subang., argill.

7½-10 CLAY: med. lt. gy., mottled ochre, v. sdy., occ. rdsh. bn., round, concretion.

10-15 CLAY: med. lt. gy., sl. bluish, mottled ochre, sdy., becoming mottled red (haematitic?)

15-20 CLAY: cream - lt. blue-gy., mottled black, red, orange & in pt. ochre, v. haematitic (?), v. sdy. (predom. f-med. grns. but up to v. crs. grnd.)

20-25 CLAY: creamy yellow, v. sdy. grading to v. argill. SS (grns are ply. sorted and range up to crs. grnd.)

25-30 SS: med. lt. yllsh. bn., v. ply srtd., f-v. crs. grnd. qtz. & some lithics in a muddy argill. matrix; grades in pt. to v. sdy. clay.

30-35 SAND: med. lt. brnsh. orange., ply. srtd., predom. f-med. grnd., subrd. qtz. w/ some lithics, v. argill.

●-39 SAND: med. lt. brnsh. orange, ply. srtd., v.f.-med. grnd., predom. f. grnd. qtz. w/ abnt. lithics including bk. volcanic grns.; mod. argill.

39-45 SS: med. ol. bn. - yllsh. bn., f-med. grnd., ang.-subang. qtz. and common bk. grns. in a v.f.-f. sdy & silty matrix which is in pt. v. argill.

46-50 TUFF (TE) (?): angular fragment, in pt. coated bk.; med.-med. dk. bn.

50-55 As above.

55-59 ~~CLAY~~ ~~TUFF~~ (?): med. lt. olive gy., mod. soft.

59-60 CLAY: ochre-yllsh or., v. soft, v. sdy. (40% f-med. qtz. grns. & occ. lithics)

60-64¾ CLAY: gy., ochre, yllsh. or., v. sdy. (v. ply. srtd. f. grnd.-v. crs. grnd.); w/ common. rdsh. bn. granules and pbls. of ferrug. SS.

●64¾-66 DOL: cream, frag'l, v. sdy. (v. ply. srtd., qtz. & lithics), sl.-mod. calc.; one pelecypod fragment observed.

66-70 TUFF (TE): khaki-ol. bn., bcmg. v. dk. gysh. gn., brittle, sl. calc.

70-72 TUFF (TE): v. dk. gysh. gn., sdy. tough.

72-74 TUFF (TE): predom. buff-med. bn., brittle.

74-75 DOL: wh.-buff, polyzoal, sl.-mod. calc.; w/ inbds of polyzoal clay.

75-80 DOL: as ab., v. friw.; w/ abnt. marly matrix.

80-85 DOL: (sand): buff, polyzoal, f.-med. loose grns., v. calc.

85-90 DOL: as ab., sl. calc., bcmg. consolidated polyzoal DOL.

90-95 DOL: cream-buff, f. frag'l, mod. calc., sl.-mod. slty., sl. polyzoal; w/ about 40% inbd. MARL.

95-100 DOL: cream, v.f-v. crs. & frag'l & polyzoal, sl. calc.; predom. unconsolidated.

T-24 (continued)

100-105 DOL: (sand): cream, predom. f-med. frag'l/polyzoal, marly matrix; w/occ. inbds. of consol. DOL.

105-107 DOL: (sand): as ab. grading to polyzoal marl; w/stngrs of ochre clay.

107-110 CLAY: cream, sl.-mod. calc w/ 50% DOL: cream, polyzoal, earthy texture, argill.

110-115 DOL: cream, polyzoal, earthy texture; argill., sl. calc., tr. glauc'c, mod. well. consol., w/ traces of ochre to bn. clay.

115-120 DOL: cream, polyzoal, sl. calc., in. pt. sdy.; w/ minor stngrs of mauve, v.f.-f. grnd sand.

120-125 DOL: cream, v. friw. - predom. uncons., sl. calc., polyzoal, slty., v.f. sdy., abnt. bn. & or. grns.; occ. lenses of bn. ferrug. clay.

125-130 DOL: as ab. but predom. consol.; w/ calc. argill. matrix; traces of clay & sand.

130-135 DOL: as ab.; w/ stngrs. of med. bn.-ochre clay & some lt. gy. clay.

135-140 SAND: mauve, v.f.-f. grnd., ang. qtz.; w/ up to 40% polyzoal carbonate sand.

140-145 DOL: cream, f-med. grnd. polyzoal sand; in pt. consol., v. sl. sdy.; stngrs of ochre clay.

145-150 DOL: cream., frag'l/polyzoal, consol., v. friw., v. calc., grades to dol'c LS. w/ 10% CLAY: ochre, gy.

~~150~~

150-155 DOL: as ab., slty.; w/ inbds SAND: mauve, v.f.-f. grnd., slty. & traces of clay, as ab.

155-160 DOL: as ab. w/ 20% STST: lt. bn., dol'c, argill.

160-165 Variable: CLAY: cream, v. calc. to marly; CLAY: bn-ochre; minor STST: as ab; abnt., chalky, argill. LS; comm. sand grns.

165-168 SAND: lt. bn., v.f.-med. grnd., predom. f. grnd., ang.-subang. qtz., sl. calc.

168-169 CLAY: cream, v. soft, sl. calc.

169-169½ CHERT: pale-lt. bn.

169½-170 CLAY: as at 168-169

170-175 CLAY: cream, mod. sdy. (f.-med. grnd. qtz.), sl.-mod. calc.; fly. comm. chert, occ LS.

175-180 DOL: cream, frag'l, sl. polyzoal, sl. calc., sdy; Fairly abnt. cream clay: as ab & some lt. gy. clay.

180-185 DOL: cream, polyzoal, sl. calc.; inbds of clay; occ. chert.

185-190 As above.; occ. chert

190-195 As above; occ. chert; w/ 30% CLAY: cream..

T-24 (continued)

195-200 As above. w/ 30-40% CLAY: buff, sl.-mod. calc.

200-205 CLAY: as above w/ 40% plus DOL: as ab., sl. calc.

205-210 DOL: cream-buff, v. sdy., grades to SS: buff, v.f-f. grnd., dol'c; w/ 20% CLAY: as ab.

210-215 CLAY: buff, mod.-v. sdy. w/ inbds of gy., v.f.-f. grnd. SS.

215-220 CLAY: lt. gy., sl. bluish, mod.-v. sdy.; w/ inbds of. SS: lt. gy., v.f.-f. grnd.; w/ common chert; occ. buff clay.

220-225 CLAY: as ab w/ inbds of SS: as ab.

225-230 CLAY: med. lt. gy., v. soft, mod. calc., v. slty - v.f. sdy.; some buff clay; occ. inbds. of mauve v.f.- f. grnd. SS.

230-232 As above

232-235 SAND: v.f.-med. grnd., qtz & v. abnt. lt. gy polyzoal fragments, uncons.; w/ 20% (?) stringers of SS: gy. & med. brnsh. red, f. grnd. qtz.

235-240 DOL: (sand): lt. gy., predom. med. grnd. dolomitized polyzoal fragments, sl. sdy. (v.f. grnd. qtz.), sl. slty.; traces of SS: med. brnsh. red., as ab.

240-245 DOL: (sand): v. lt. gy., sl. greenish, predom. f-med. grnd. but abnt. crs. grns., uncons. dol'zd. polyzoal frags., sl. calc.; sl. glauc'c; traces mauve v.f-f. grnd. SS.

245-250 DOL: (sand): as ab., mod. slty. & vf. sdy (ie. qtz.), v. sl. glauc'c; bryozoal frags. are commonly buff; possibly consolidated but recovered predominantly as sand.

250-255 Variable: Abnt SS-SAND: mauve-lt. rdsh. brn., v.f-f. grnd., qtz.; Abnt. DOL: (sand), as ab; v. abnt. CLAY: lt. gnsh. gy., slty., sl. calc., v. soft. Common med.-crs. glauconite grns.

255-260 Variable: Predom. SAND: uncons., v.f-f. grnd., qtz; abnt. pyt. grns.; comm. glauc. grns.; some pale clays and silts; rare qtz pbls. Traces of CLAY: brn., slty., v.f. sdy.

260-265 SAND: lt. gy., sl. brnsh., predom. v.f.-f. grnd., comm. med & few. crs. grns., qtz.; w/ 20% CLAY: med. brn., soft, slty.; abnt. pyt. frags.

265-270 SAND: lt. gy., sl. brnsh., F. grnd., sub ang., qtz., abnt. med. & occ. crs. well rounded grns.; common polyzoal frags (cavings?); abnt. pyt.; minor amounts of brn. clay.

270-275 SAND: lt. gy., mauve, predom. v.f.-f. grnd, occ. med. grns. & rare crs. grns., qtz.; fairly common dol'zd polyzoal frags (cavings?) w/ 5-10% CLAY: as ab.

275-280 SAND: as ab w/ 15% (?) CLAY: med. brn., v. soft, v.f. sdy., slty., carb; occ. lignitic fragment

T-24 (continued)

280-285 As ab.

285-290 SAND: lt. brnsh. gy.-ol. gy., v.F.-F. grad., qtz., slty. w/minor inbds. of CLAY: bn., soft, slty.-sdy.; traces lignite.

290-295 SAND: lt. brnsh. gy., F. grad., qtz.; occ. med. grns. & common v.f. grns.

295-300 SAND: as ab. with some clay laminae.

T-25

Samples described as drilling progressed.; the greater part of the sequence consists of volcanics or sediments derived from volcanics. Predominantly argillaceous sediments interpreted as of volcanic origin have been described as ash; more arenaceous sediments, if interpreted as of volcanic origin have been identified as tuff.

0-2 SAND: lt. gy., bcmg. sl. brnsh., F. grad., w/ common v.F. grns., ~~sl. ferrug.~~; some v. carbonaceous lenses.

2-5 SS: med. lt.-med. rdsh. bn., F. grad., in pt. v.F. grad., sl. ferrug.; some carbonaceous patches.

5-10 SAND: pale bn.-mauve, F-med. grad., well sorted, subround, qtz., v. sl. mica

10-15 SAND: as ab., bcmg. med. lt. bn.

15-20 SAND: med. yllsh. bn., F.-med. grad., subrd. qtz.

20-21 SAND: as ab.

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21-25 ASH: med. lt. gysh. gn., sdy. (predom. F-med. grad.) sticky; tr. pebbles.

25-30 ASH: as ab., bcmg. med. green; w/ 25% SAND: med.-crs. grad.

30-35 ASH: med. green (vivid hue as at 25-30 also), v. sdy. (F-crs. grad., subang. to subrd. qtz); contains up to 60% sand grns; possibly an argill. SS with matrix derived from volcanics.

35-40 As ab.

40-45 ASH: as ab but bcmg med. dk. ol. gy; with abnt. black volcanic fragments near base.

45-50 TUFF w/ sdy ASH: as ab.; occ. bk. volcanic fragments.

50-55 ASH: med. dk. green, as ab w/ abnt. SAND grns (vacuus).

55-60 TUFF & ASH; occ. basalt fragment.

60-63 SAND: dk. green, abnt. volcanic grns.

63-65 TUFF: dk. ol. gy.

65-70 TUFF: dk. brnsh. gy., tough, angular fragments.

T-25 (continued).

70-75 TUFF: as ab & BASALT(?): dk. ol. gy.

75-80 TUFF: ie volcanic ss: v. dk. gy.

80-85 TUFF: as ab.

85-90 TUFF: as ab.

90-94 CLAYSTONE: golden brown, brittle, dense, sl. calc; grading downwards to CLAYSTONE: buff, brittle & CLAY: buff, soft.

94-95 SS: dk. rdsh. bn., ferrug. w/ abnt. volcanic grns.

95-100 SAND to pebbly SAND to GRAVEL: dk. rdsh. bn., v. ply. srtd., consists predominantly of volcanic fragments but includes common qtz grns (coarser grains are well rounded.; occ. fossil fragments.

100-105 As ab.

105-110 As ab.

110-115 As ab.

115-120 As ab.

120-125 PEA GRAVEL: as ab.

125-128 PEA GRAVEL: as ab.

128-130 TUFF (ie. volcanic ss.) med. yllsh. bn., f-med. grnd.

130-135 SH: med. yllsh. bn., slty - tuffaceous, brittle, sl. calc. w/ ~~SS ie~~ TUFF(?) as ab.

135-140 TUFF(?) or tuffaceous SS: med. dk. bn.; w/ minor SH: dk. gn., tuffaceous.

140-145 TUFF(?) as ab.

T-22

Samples described as drilling progressed; descriptions tentative only.

0-3½ SAND: (soil): lt. bn., f. grnd.

3½-5 CLAY: buff-med. gy., mottled ochre, v. sdy.; w/ granules & pbls. of dk. rdsh. bn. ferrug. SS.

5-6 CLAY: as ab.

6-10 Poor sample: CLAY: lt. bluish gy., sl. calc., slty. to v.f. grnd. sdy. (possibly dolomite rhombs); with approx. 20% LS: polyzoal/frag'l.

10-15 CLAY: cream, ochre, gy., generally sdy.; abnt. loose polyzoal grains.

15-20 CLAY: ochre & lesser lt. gy., v. sdy. (ply. srtd.); possibly with inbds. of silt to v.f. grained sand.

T-22 (continued)

20-22 CLAY: lt.gy., in sl.pt. mottled ochre.

22-25 CLAY: med.bn., fairly soft, micaceous, generally silty - v.f.sdy.; common lenses of hard, med.dk.gn. glauc. or glauc'c shale.

25-26 SILT: ol.gy, grading to v.f.grad. SAND.

26-30 SAND: med.dk.bn., ply.srtd., predom. crs.grad., qtz: but ranges from med. grad. to granule size, subang.-subrd.; grains are usually stained yllsh.

30-35 SAND: lt.bn., crs.grad., well rounded qtz. & v.crs.grad. subround-subang. qtz. which is in pt. stained yellow.

35-36 SAND: finer grained than above.

36-40 CLAY: med.dk.bn., mod.-v. ~~sdy~~ slty & v.f.grad. sdy., v.sl.mic, sl.carb.; occ. med. grains; fly. common well rd., white, opaque qtz. pbls.; occ. yllsh. LS fragments.

40-45 CLAY: dk.bn., mod.mic., sl.carb., in pt. slty. & v.f.grad.sdy., cohesive; occ. qtz. pbls., as ab.; occ. LS fragment.

45-50 CLAY: med.bn., mic.; occ. golden bn. v.f-f.grad. sand lenses.

50-55 CLAY: v.dk.bn., sl.mic, well indurated w/ minor CLAY: med.dk.bn., soft, sticky; w/ intercalations of gy., v.f.-f.grad. sand.

55-60 CLAY: med.dk.bn., well indurated, sl.mic; occ. intercalated oliv.gy., v.f.-f. grad. sand.

60-65 CLAY: med.dk., choc. bn., sticky, sl.mic., well indurated.

65-70 CLAY; as ab.

70-71 CLAY: med.bn., soft, sdy.

71-75 SAND: med.bn., v.f.grad., slty., occ.f.grns., mod.mic., sl.carb.

75-80 SAND: as ab., v.mic., non-carb.; w/ moderate amount of f.-med.grad.sand.

80-85 SAND: med.bn., ply.srtd., v.f.-v.crs.grad., but predom. bimodal, v.f.grns & v.crs. grains, ang.-subrd.

85-86 SAND: as ab.

86-90 SAND: med.bn., v.f.grad., in pt. f.grad., qtz., mod.-v.mic.

90-95 SAND: med.bn., v.f.-f.grad., qtz., mic.; occ. bands of v.crs.-granule sized qtz.

95-100 SAND: med.bn., v.f.grad., ~~v.sl~~

100-105 SAND: med.bn.-ol.gy.; predom. f.grad.; occ. zones of ply.srtd., f-v.crs.grad. sand; occ. lignitic zones.

105-110 SAND: med.bn., predom. f.grad.; common med.grns. & occ. crs.grns; lignitic stgrs.

T-22 (continued)

110-115 SAND: med.bn., predom. f.grad., sl. mic.; occ. lignite flecks.

115-120 SAND: med. bn., v.f-f.grad., sl. mic.; occ. carbonaceous flecks.

T-23

Samples described as drilling progressed; descriptions tentative only.

0-3 SAND: lt.gy., predom. f.grad.; occ. med. f crs. grns.; w/ carb. frags. Becomes rdsh. bn. near base.

3-5 SS: lt.gy. & mottled ochre, f.grad. qtz.; v.abnt. clay matrix; grades to v.sdy clay; abnt. pebbles & granules of dk. rdsh. bn., ferrug., f.grad. SS.

5-10 CLAY: intermixed CLAY: lt.gy, v.sdy. (f-med.grnd.), grading to SS and CLAY: ochre, mod. sdy. Becomes mottled red (haematite?) near base.

10-15 CLAY: in pt. asub.; but predom. lt.bluish gy., v.sdy. (v.f-f.grad.)

15-18 MARL: lt.bnsh.yellow, v.soft, v.calc.; with abnt. polyzoal frags.

18-25 No samples. (lost circulation)

T-26

Samples described as drilling progressed; descriptions tentative only.

0-1 Soil

1-5 CLAY: v.soft, v.sdy (f.grad), rdsh.bn.

5-10 CLAY: med.bnsh.orange, v.sdy (f-med.grad.), cohesive.

10-11 CLAY: med. orange bn., sdy. (including black grns.), v.sl. calc.

11-13 LS: f-med. grad. frag'l, stained bn & orange.

13-15 MARL: buff, v.soft, v.calc.; with some "bullet-shaped" burrow-in fillings (?) of SS.

15-15½ CLAYSTONE: buff.

15½-20 DOL: cream, polyzoal, mod. calc., stained buff & lt. bn.

20-26 DOL: cream-buff, (dolomitized polyzoal LS), tough, tr. calc.

26-30 DOL: buff, frag'l, sl. polyzoal, friable, v.calc.; w/ common inbds of MARL: buff, abnt. polyzoal frags.

30-35 DOL: as ab w/ major MARL: wh.

35-~~39~~ DOL: as ab w/ about 30% MARL: as ab.

39-40 DOL(?): lt.grnsh.gy.; mod.calc.

T-26 (continued)

40-42 DOL: (?): lt. brsh. gy., v. f. sdy (blk. grains & some black filigree), sl.-mod. calc.; + occ. ol. gy. clay.

42-45 CLAY: lt. brsh. gy., w/ abnt. dolomite rhombs; inbds. of DOL: as ab.

45-50 CLAY: lt. gy., dol'c (?), soft.; w/ occ. inbds of DOL.

50-55 CLAY: lt. gy., sl.-mod. calc., abnt. polyzoal frags; occ. flint; some inbds of v. calc. polyzoal DOL.

55-60 CLAY: wh., v. polyzoal, sl. calc./v. dol'c, v. soft; occ. cht. frags.; probably fairly abnt LS frags (gravel?).

60-65 LS: cream, polyzoal/Frag'l, dol'c, black specks & grns., argill.; w/ 30-40% CLAY: cream, v. calc., black specks.

65-66 MARL: lt. gn., v. calc., incoherent, v. sdy. (ply. srtd. qtz.), abnt. glauc., abnt. pyt., abnt. dol'zd polyzoal grns.

66-67½ LS: med. gy., xln., dol'c, v. sdy. (ply srtd. qtz, up to v. crs. grnd.), glauc'c, pyt'c.; grades to SS w/ abnt. carbonate matrix.

67½-70 CLAY: med. bn., sl. gysh., mod. mic., slty., soft.

70-75 CLAY: as ab.

75-80 CLAY: med.-med. dk. bn., cohesive, v. mic., mod.-v. slty, in pt. v.f. sdy.; scattered blcd. grns.; traces of glauc'c, f. grnd. SAND.

80-85 CLAY: med. dk. choc. bn., sl. slty., rare f.-crs. qtz. grns., traces of fossils.

85-90 CLAY: med. dk bn., sl carb., mod.-v. mic., v.f. sdy., slty.

90-95 CLAY: as ab.

95-100 CLAY: med. dk. bn., slty., soft; s/ shell debris; v. abnt. sharks teeth; trace fish teeth; w/ about 40% v. ply sorted. subang to subrd. quartz, with abundant granules and pebble, many of which are green.

100-105 Poor sample: CLAY: med. bn., mic, slty., v. sdy. (v.f-f. grnd.); some ply. srtd. sand, as ab.; occ. fossil frags. & abnt sharks teeth; possibly up to 60% SAND: v.f-f. grnd, which is not settling out of mud.

105-110 CLAY: med. bn., v. sdy. (v.f-f. grnd.); occ sharks tooth; possibly some inbds of v.f-f. grnd. sand.

110-115 CLAY: as ab. w/ ol. gy. intercalations.

115-120 CLAY: med. bn., v. sdy. (v.f. grnd.), v. slty (and grades in pt. to argill. SLST); w/ abnt. intercalated. lt. gy., v.f-f. grnd., argill. & pyt'c. SAND.

120-125 CLAY: med. bn., sdy. (v.f. grnd.), mic; possibly w/ some inbds of v.f. grnd., slty. SAND.

125-130 CLAY: med. bn., sdy.; w/ gy. & ol. gy., mic., v.f-f. grnd. sandy intercalations.

130-135 CLAY: as ab.

T-27

Samples described as drilling progressed; descriptions tentative only.

0-2 SAND: lt. gy., f. grad., carb.

2-5 CLAY: ochre, med. lt. brsh. orange, v. sdy. (in pt. up to 60% qtz. grns.), f.-grad., occ. med. grad. qtz., very soft.; (sandy ASH?).

5-10 SS: lt. gy., in pt. mottled ochre & and in pt. red (haematite?), very argill. (approx 40%), f. grad. qtz.; gradus to clay.

10-15 CLAY: lt.-med. lt. gy., mottled ochre & in pt. red, mod.-v. sdy. (f. grad.).

15-17 CLAY: as ab, and cream-yellow, v. sticky, v. sdy.

17-20 ~~SAND~~ SS: rdsh. bn., v.f.-v. crs., qtz & predominant lithic (mostly volcanic grns. and frags.) in soft muddy v. abnt clay or ash matrix.

20-25 ~~SAND~~ SS: lithic (volcanic) as ab.

25-30 ~~SAND~~ SS: lithic (volcanic) as ab.

30-35 ~~SAND~~ SS: as ab.

35-40 SS: med. yllsh bn., as ab., v. argill.

40-45 SS: as ab., v. ~~fine~~ granule sized., abnt. green grains.

45-50 SS: as ab, but only rare qtz; v. abnt., argill. (ash?) matrix.

50-52 SS: as ab.

52-55 CLAY or ASH: yllsh. gy.-kharki, v. sdy., w/ black streaks, v. soft to incoherent; w/ TUFF(?) yllsh. bn, v.f. xln. (?).

55-60 TUFF(?) med. yllsh. bn., v.f. xln. (?), probably fractured but may be present as gravel; black coating on ~~soo~~ many of the fracture (?) faces.

60-65 TUFF(?): gravel (?), as ab.

65-68 As above.

68-75. Sample is poor as it was circulated up with thick brun. Sample includes. abnt. large angular fragments of tuff as above (probably as gravel); with predominant CLAY: orange, lt. yllsh, olive gy., kharki, in pt. sdy., soft, sticky; w/ traces of LS.

75-80 LS: white, polyzoal, chalky matrix, v. dol'c; w/ 30-40% CLAY: wh., mod. calc.

80-85 CLAY: wh.-pale grn., v. polyzoal, mod. calc.; grades in pt. to argill. LS or v. calc. DOL.

85-86 As ab.

86-96 Cave: No samples.

T-28

Samples described as drilling progressed; descriptions tentative only.

0 - 5 SAND: wh.-lt.gy., sl. mauve, f. grad. qtz.

5 - 7 SAND: lt.gy.-mauve, f. grad., in pt. lignitic.

7 - 10 CLAY: ochre, mod. sdy.; with CLAY: buff, v. sdy., grading to argill. SS.

10-15 CLAY: intermixed ochre & lt.gy., with some red (haematitic?) lenses, mod. sdy. (ranges up to med. grad. qtz.).

15-20 SS: med. orange bn., v.f. grad. to granule sized., lithic (volcanic) grns. with some qtz. in a soft, argill. (ashy?) matrix.

20-25 SS: as ab.

25-30 SS: as ab., fairly common granules & pebbles; occ. inbds. of sdy. clay.

30-35 SS: as ab., med. lt. orange bn., v. argill. (ashy?), grading in pt. to v. sdy. clay.

35-40 SS: as ab. but coarser w/ v. abnt. v. crs. lithic grns. & pblz.

40-45 SS: as ab., med. bnsh. orange., abnt. green & bk. volcanic grns., fairly common qtz; less argill. than above.

45-46½ SS: as ab.

46½-49 CLAY: lt. yllsh. bn., mod. sdy. or tuffaceous, in pt. with black coating on fragments of clay.

49-50 TUFF (?): ol. gy.-rdsh. bn., v. tough angular frags; in part with coating of black, fractured or may be present as a gravel.

50-55 CLAY: yllsh. gy., in pt. mottled ochre, w/ inbd. (?) gravel of angular tuff fragments and CLAYSTONE: lt. yllsh. bn., (in part w/ black coating); w/ some qtz.

55-70½ CAVITY: No samples.

70½-75 No samples.

T-29

Samples described as drilling progressed; descriptions tentative only.

0-4 CLAY: bk., v. carb., mod-v. sdy (f. grad) — soil

4-5 CLAY: med.-med. lt. gy., mod.-v. sdy., (v.f-f. grad., qtz); w/ occ. LS. frags.

5-6 CLAY: lt. gy., as ab.; w/ scattered qtz grns, up to granule size.

6-7½ CLAY: med. bluish gn., v. sdy. (v.f-med. grad. qtz.); occ. LS. frags.

7½-10 Variable: CARBONATE GRAVEL, CLAY: as ab, LS: pale, gnsh. gy., polyzoal, argill. & COQUINA

T-29 (continued)

10-15 CLAY: lt. gy - pale grish. gn., v. polyzoal, soft, glauc'c, slty or abnt. dol. rhombs, v. calc. - marly; abnt. shell fragments; in part. grades to v. argill. LS.

15-20 CLAY & MARL: lt. grish. gy., sl. glauc. & in pt. lt. gy.; both are mod.- v. calc., v. polyzoal & have abnt. dol. rhombs.; occ. inbds. of dol'c, v. polyzoal LS.

20-25 CLAY: lt. gy., soft, sticky; w/ beds of carbonate gravel; fly. common shell fragments.

25-30 CLAY: med. lt. gy., v. sl. grish., v. calc. - marly, sl. polyzoal, soft; w/ zones of flint concretions; occ. inbds or concretions of v. argill., polyzoal LS.

30-35 LS: pale. gy., sl. grish., polyzoal/frag'l, v. dol'c, v. friable, sl. glauc'c; many polyzoal frags. are buff; traces of flint.

35-40 LS: as ab., v. lt. gy., in pt. cream.

40-45 LS: as ab.

45-49 LS: as ab, v. ply. consol.; w/ v. common golden bn. chert & occ med. dk. gy. chert.

49-50 CLAY: lt. gy., mod. calc.

50-54 CLAY: as ab.; w/ inbds. LS: polyzoal, as ab.; w/ v. abnt. gy. flint & golden bn. chert.

54-55 LS: lt. gy., sl. grish., frag'l/polyzoal, sl. dol'c., sl.-mod. glauc'c.

55-60 LS: pale grish. gy., abnt. buff polyzoal frags., v. friable to predom. uncons., mod. glauc'c.

60-65 LS: pale grish. gy., polyzoal/frag'l; some very coarse polyzoal frags., sl.-mod. glauc'c, dol'c.

65-70 LS: as ab.; bcmg. buff, f-med. frag'l., v. sl. glauc'c.

70-75 LS: buff, v.f-f. frag'l, in pt. med. frag'l; generally recovered as loose grns.; some grish gy. clay near base.

75-80 LS: v. lt. gy., polyzoal/frag'l, f. grnd., uncons.; abnt. gy., mod. calc.; v. polyzoal CLAY & occ. polyzoal LS: consolidated.

80-85 LS: buff, polyzoal, in pt. argill., sl. glauc'c; minor inbds. of lt. grish. gy. CLAY.

85-87 LS: as. ab.

87-90 CLAY: med. lt. gy., sl. calc., v. slty - v.f. sdy., sl. polyzoal.

90-95 CLAY: med. lt. gy., sl. brish., dry., v. polyzoal (buff frags.), v. slty - v.f. sdy., sl. - mod. calc.

95-100 CLAY: as ab.; occ. inbds polyzoal LS.

100-103 CLAY: as ab., v. polyzoal, sl. glauc'c.

103-105 DOL: med. lt. gy., speckled dk. gn., polyzoal, mod.-v. calc, v. glauc'c.

T-29 (continued)

105-110 DOL: as ab., generally v. Friable & marly.

110-113. LS: lt. gn., polyzoal, v. marly, abnt. glauc & pyt. ; w/ some gn., v. glauc'c clay.

112-114 Hard band: probably sandy, glauc'c & pyt'c carbonate such as is generally encountered at base of Gambier.

— — — — —

114-115 SAND: lt. gy., uncons., v. ply. srtd., f-v. crs. grad., abnt. granules & occ. pbls., subang-subrd. qtz. (LS: frags. in this and following samples are present because mud has been thinned & they are settling out.)

115-120 SAND: ply. srtd., as ab., predom. med.-crs. grad., no granules or pbls.; traces of CLAY: med. bn., v. soft, v. sdy., carb. — lignitic.

120-125 SAND: med. bn., predom. f. grad., in pt. med. grad.

125-130 SAND: med. lt. bn., f-v.f. grad., ang., qtz.; at 127 thin band of CLAY: bn., v. sdy., v. lignitic.

130-135 SAND: as ab., f-med. grad., common streaks of lignite & lignitic clay.

135-140 SAND: as ab., predom. f. grad., pyt'c; fairly common lignitic streaks

140-145 SAND: as ab; occ. carbonised wood fragment; some lignitic zones.

145-150 SAND: as ab. subang-ang., mod. mic, sl. carb.

T-30

Samples described as drilling progressed; descriptions tentative only.

0-½ SAND (soil): med. lt. gy., v.f-f. grad, qtz., v. argill., carb.

½-2 SAND: med. lt. bnsh. gy., f. grad., subang. qtz.

2-2½ CLAY: med. lt. rdsh. bn., mottled ochre, v. sdy (up to 60% of rock volume) (v.f.-f. grad. qtz.), in pt. carb.

2½-5 CLAY: lt. yllsh. gy., mod. sdy., sticky.

5-7 CLAY: intermixed grey & ochre, mod. sdy.

7-10 CARBONATE GRAVEL: w/ v. abnt. pelecypod valves.

10-11 LS: buff, f. frag'l; abnt. pelecypod valves & frags.

11-15 CLAY: buff, soft, mod. calc.; fossil frags.; interbedded with or including CARBONATE GRAVEL: polyzoal, hard. fragments.

15-20 CLAY: med. lt. yllsh. gy., v. polyzoal, v. calc., v. soft and grades to marl; occ. inbds. of polyzoal LS.

20-25 CLAY: as ab.; possibly w/ included fragments of carbonate gravel.

T-30 (continued)

25-30 CLAY: as ab., mod. polyzoal; common inbds of LS: med. lt.gy., argill., polyzoal/Frag'l.

30-35 Variable: CLAY: as ab. & med. gy; common inbds of LS: v. argill., tough (silicified?); near base LS: polyzoal, glauc'c.

35-40 CLAY: lt. gy., sl. grsh., mod. polyzoal (buff frags.), v. sl. glauc'c; occ. bands of mod. -v. glauc'c, polyzoal LS.

40-45 CLAY: med. lt. -med. gy., v. calc., soft, sl. -mod. polyzoal, v. sl. glauc'c.

45-47 CLAY: as ab.

47-48 CLAY: gn. & grsh. gy., v. glauc'c., v. sdy. (ply. srtd.); occ. qtz. pbls.; grades in pt. to argill. SS.

— — — — — — — — —

48-50 CLAY: dk. bn., soft.

50-55 CLAY: med. -med. dk. bn., sl. mic., cohesive; rare v.f-f. grad. sdy. patches.

55-59. CLAY: med. -dk. bn., mic.; occ. ol. gy., v.f-f. grad. sand lenses; fairly common loose f- med. qtz. grns.

59-62 SAND: v. lt. brsh. gy., med. -v. crs., subrd. - rd., qtz., v. sl. pyr'c,; occ. qtz. granules

62-65 CLAY: med. dk. chocolate bn., sl. mic., rarely pyr'c.

65-70 CLAY: as ab., somewhat softer; possibly with some inbds. of v.f. grad. sand.

70-75 SAND: med. lt. brsh. gy.; predom. v.f. grad., in pt. f. grad., slty; samples include polyzoal fragments but these are contaminants which have been carried in the drilling mud.)

~~75~~

[redacted]-77 SAND: as ab., bcmg. f. grad.

77-80 SAND: med. brsh. gy., ply. srtd., f-grad. to v. crs. grad. (predom. crs. grad.), ang. -subang. qtz.

80-85 SAND: lt. bn., v. ply. srtd., v.f. - v. crs. grad., (predom. med. -crs. grad.) subang. - subrd. qtz.

85-90 SAND: lt. gy., sl. brsh., ply. srtd. as ab.; occ. granules; v. sl. mic.

90-95 SAND: lt. gy. as ab, predom. med. grad., but abnt. v. crs. grns. & granules.

95-100 SAND: as ab., ang. -subrd.

100-105 SAND: as ab.

T-31

Samples described as drilling progressed & without hand-lens; descriptions tentative only.

0-4½ SAND: med. lt. orange bn., F-med. grad. qtz.

T-31 (continued)

4½-5 CLAY: mod. brsh. orange, mod. sdy. (f-mod. grnd.) sticky.

5-9¾ CLAY: as ab.

9¾-10 CARBONATE GRAVEL.

10-15 CARBONATE GRAVEL: hard, ang.-subang. dol'c/sil'c LS & some chert in a matrix of (or inbd. with) LS: lt.gy.-buff, frag'l/polyzoal.

15-19 CLAY: buff-lt.gy., v. soft, v.slty to v.f. sdy., v. calc.; w/ inbd. (35%?) LS: polyzoal, ply. consol.

19-20 LS: lt.gy., polyzoal/frag'l, sl. glauc'c., mod. well. consol.

20-25 LS: lt.gy., polyzoal/frag'l., v. sl. glauc'c., mod. consol. — uncons.; w/ inbds. of kharki, muddy clay near base; occ. pelecypod frags.; possibly some carbonate gravel (cavings?).

●-30 LS: med. lt.gy., f-med. grnd. frag'l., common bryozoal frags. (in pt. buff), mod.-v. glauc'c.

30-35 LS: med. grsh-gy, as at 25-30 but v. glauc'c.

35-40 LS: pale gn., polyzoal/frag'l, v. dol'c., v. glauc'c.; w/ large buff polyzoal frags. & some gn. v. glauc'c clay.

40-41½ DOL: wh., tough, altered polyzoal LS, v. sl. glauc'c, v. calc.

41½-45 LS: buff, polyzoal, NOT glauc'c, sl. dol'c, v. friable.

45-50 LS: as ab. bcmg. LS: lt.grsh.gy., v. dol'c, polyzoal/frag'l, mod. glauc'c.

50-55 LS: as ab.

●-60 LS: wh., speckled lt.bn.; chalky matrix w/ v.abnt. v.f-f.grnd., bn. dolomite rhombs; common LS as at 50-55.

60-65 LS: cream, polyzoal/frag'l, v. friable; abnt. dolomite rhombs.

65-70 LS: wh. as at 55-60.

70-75. LS: wh. & lt.gy., sl.grsh., v. sdy. (v.f-f.grnd. dolomite rhombs).

75-80 LS: lt.gy., sl. grsh., polyzoal/frag'l., sl. glauc'c, v. abnt. f.grnd. dolomite rhombs

80-85 LS: as ab.

85-90 LS: cream & pale gn., polyzoal, abnt. dolomite rhombs; traces of CLAY: lt.gn, calc, w/ abnt. dolomite rhombs.

90-95 As above.

95-100 As above with 60% CLAY: med. ol. gn., sl. calc., v. slty. to v.f. sdy. (dolomite rhombs?)

100-105 Minor amount of CLAY: as ab. w/ major LS: lt.gy., sl. grsh., polyzoal, sl. glauc'c.

T-31 (continued.)

105-110 LS: lt. gy., polyzoal, sl. glauc'c.

110-115 LS: as ab. w/ 30% CLAY: med. lt. gy., sl. calc.

115-120 CLAY: lt. grnsh. gy.; sl. calc., v. slty. - v.f. sdy. (dolomite rhombs?), mod. bcmg. v. glauc'c; w/ occ. strgrs. grn. glauc'c clay & occ. inbds. of LS: as ab.

120-125 CLAY: pale grn., v. calc., soft w/ some ~~LS~~ CLAY: lt. gy., sl. polyzoal.

125-130 CLAY: pale grn., as ab. w/ 30% ~~LS~~ CLAY: lt. gy., mod. polyzoal; w/ occ. inbds of LS: polyzoal.

130-135 CLAY: med. lt. gy., mod. calc., sl.-mod. polyzoal; v. common bands of gy. chert.

135-140 CLAY: as ab., mod. polyzoal; w/ several flint bands.

140-145 CLAY: med. lt. gy., mod. polyzoal (buff frags.), sl.-mod. calc.

145-150 CLAY: as ab; abnt. flint; some argill. LS.

150-155 CLAY: as ab.; some flint and argill. LS.

155-157 As above.

157-160 CLAY: med. lt. gy., sl.-mod. calc., polyzoal.

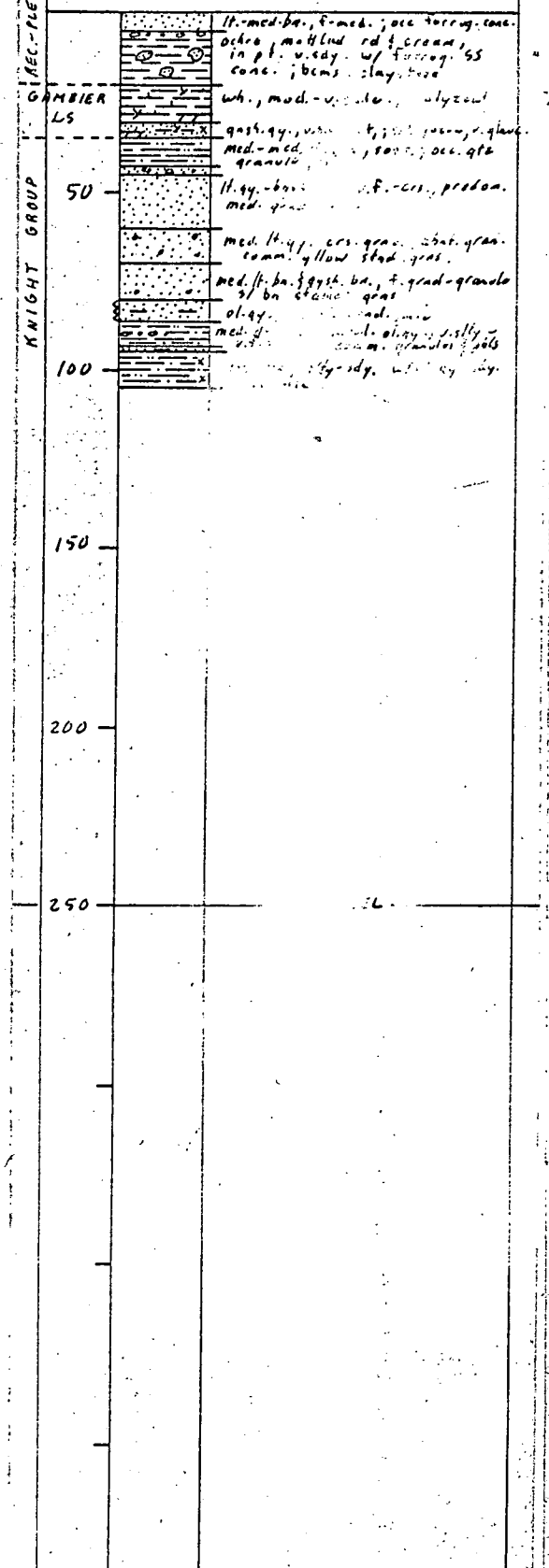
160-165 CLAY: lt. gy. & grnsh. gy. (buff & occ. bk. bryozoal frags.) polyzoal, mod. calc., sl. glauc'c.

165-170 CLAY: lt. grnsh. gy., polyzoal (as above), v. calc. & CLAY: med. dk. gy., mod. calc.

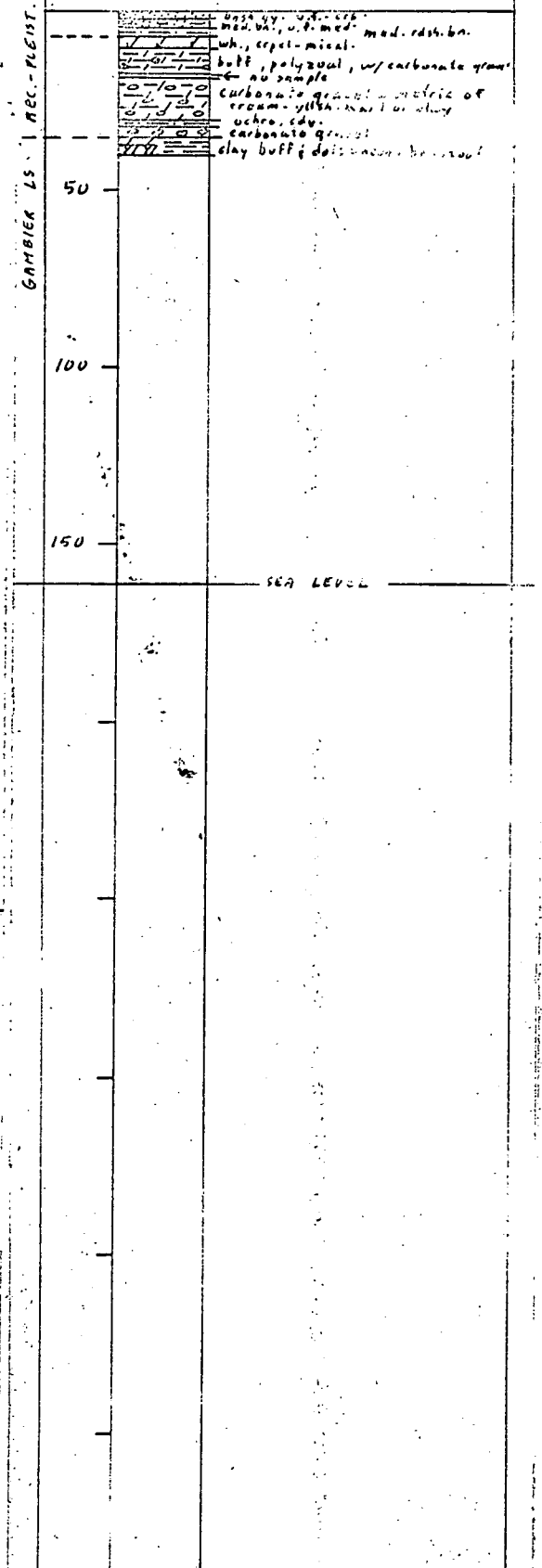
170-175½ As above; bcmg. grnsh gy., mod.-v. glauc'c.

175½-180 CLAY: med.-med. dk. bn.; occ. qtz. granules and pbls.

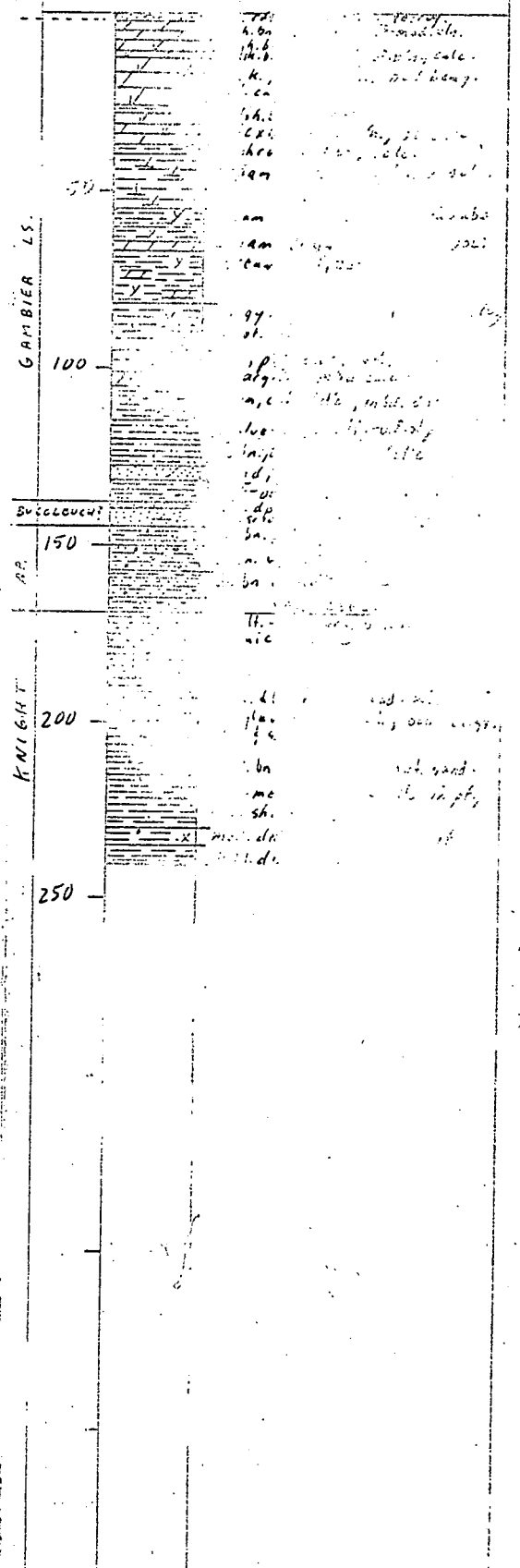
WELL: TARTWAUP S.H. T-11
ELEVATION: 250.2'
TOTAL DEPTH: 105'



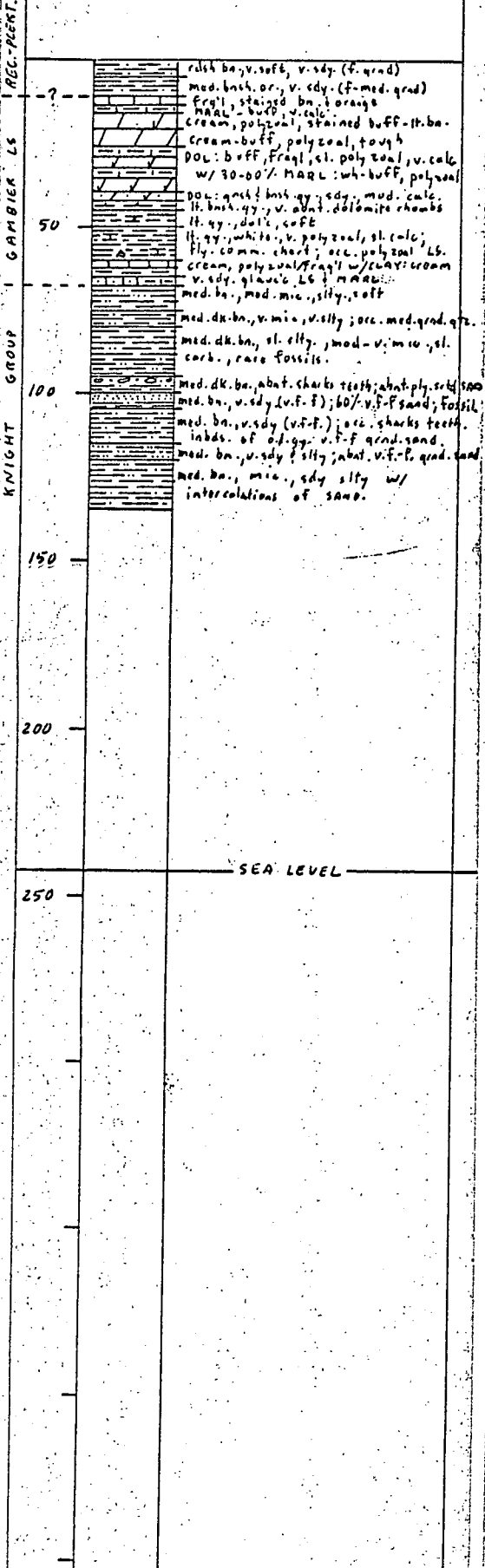
WELL: TARTWAUP S.H. T-15
ELEVATION: ≏ 161
TOTAL DEPTH: 40'



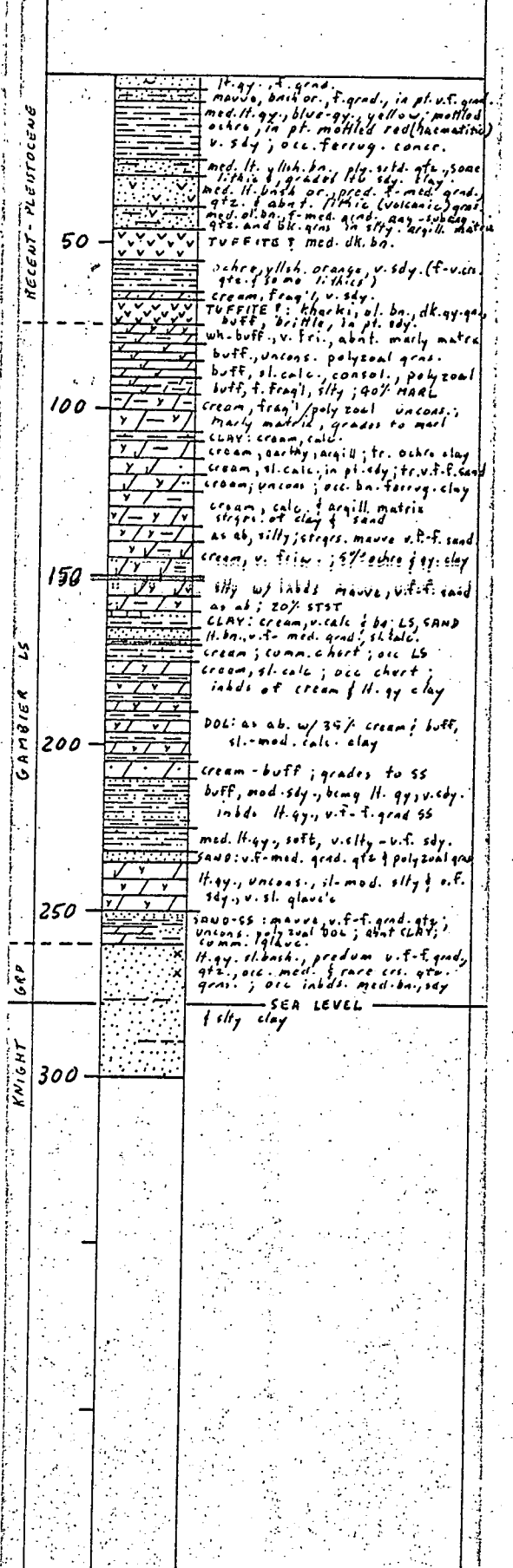
WELL: TARTWAUP S.H - 3
ELEVATION: 169.2'
TOTAL DEPTH: 240'



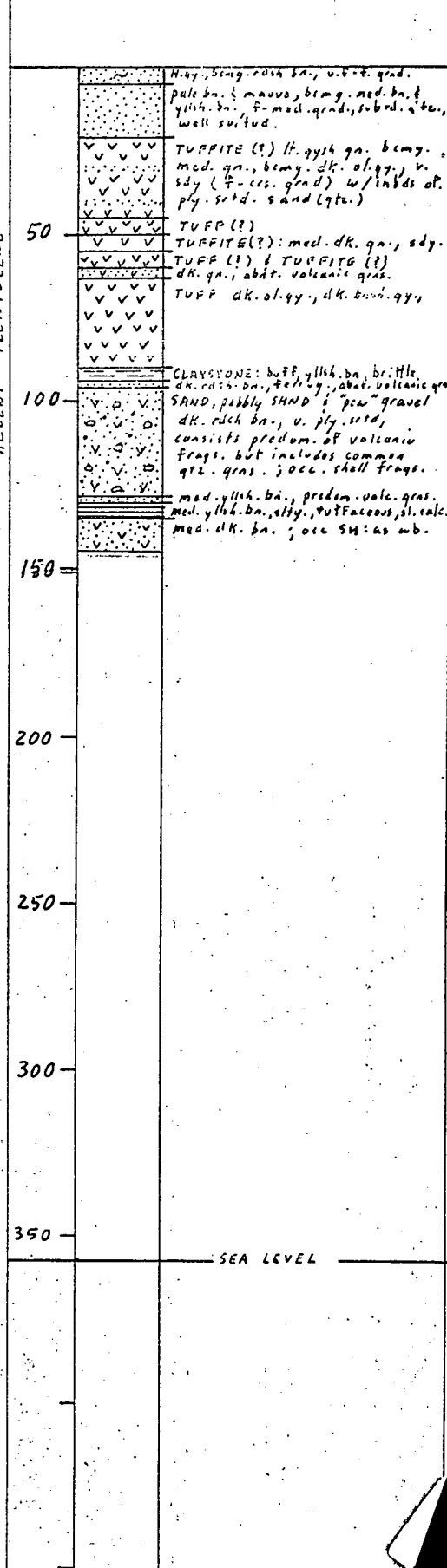
WELL: TARTWAUP S.H. No. 26
ELEVATION: 243.7'
TOTAL DEPTH: 135'



WELL: TARTWAUP S.H. No. 24
ELEVATION: 277.9'
TOTAL DEPTH: 300'

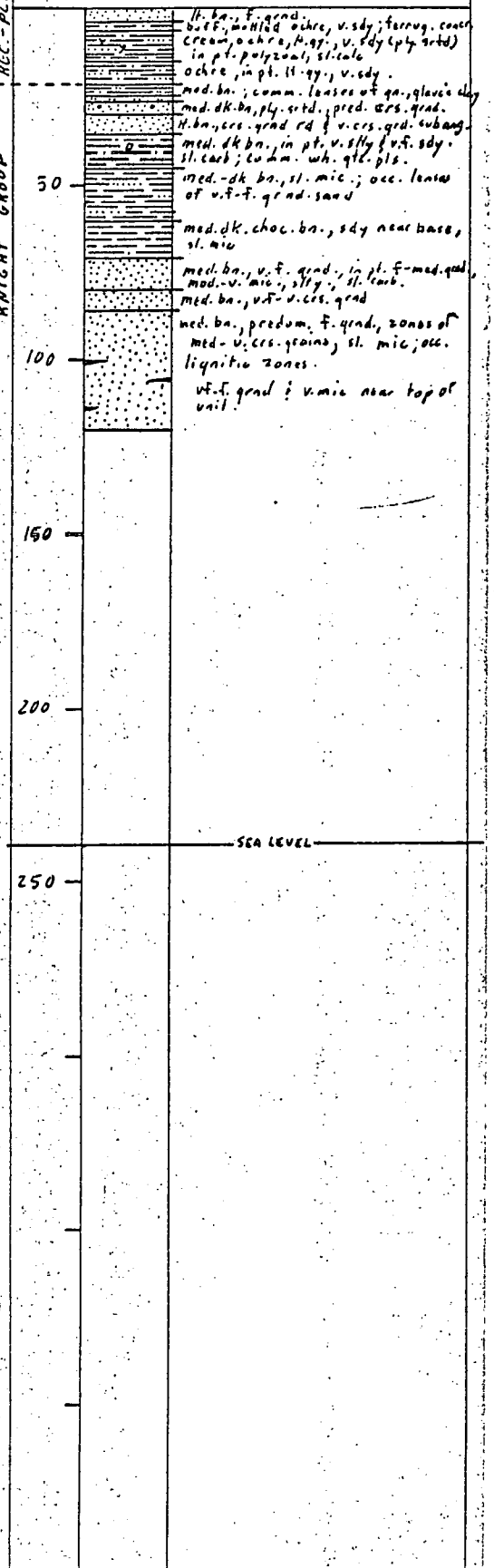


WELL: TARTWAUP S.H. No. 25
ELEVATION: 356.9'
TOTAL DEPTH: 145'



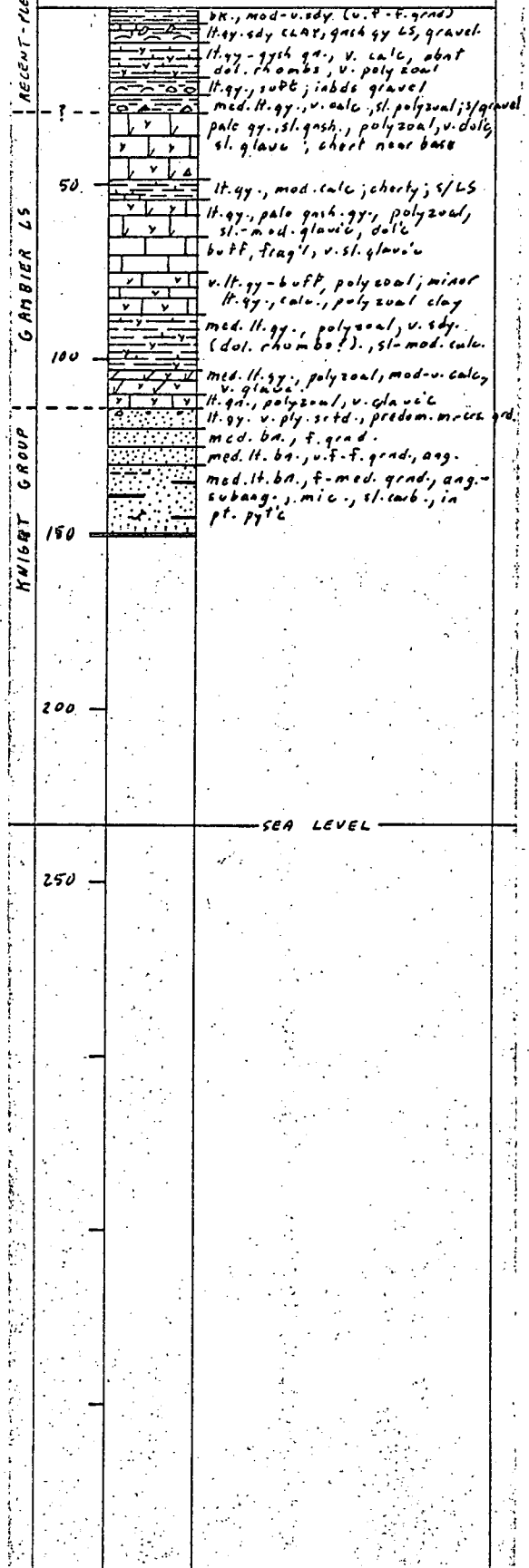
00077

WELL: TARTWAUP S.H. No. 22
ELEVATION: 239.0'
TOTAL DEPTH: 120'

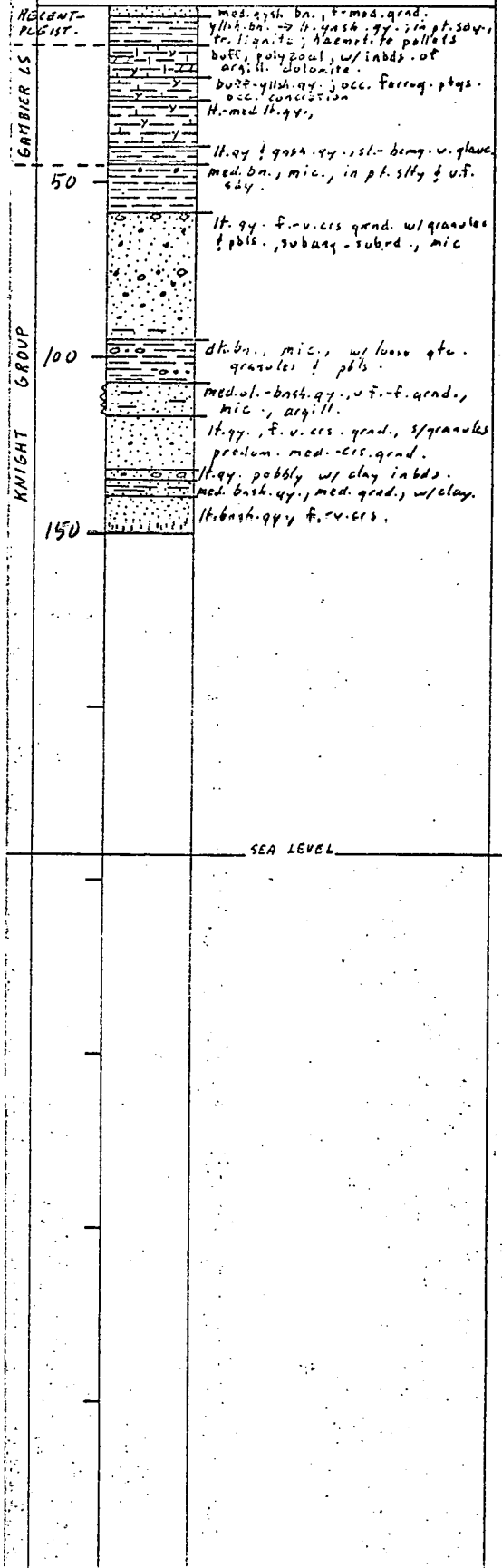


WELL: TARTWAUP S.H. No. 29
ELEVATION: 233.8'
TOTAL DEPTH: 150'

~~~ coquina




WELL: TARTWAUP S.H. 18
ELEVATION: 242.1'
TOTAL DEPTH: 150'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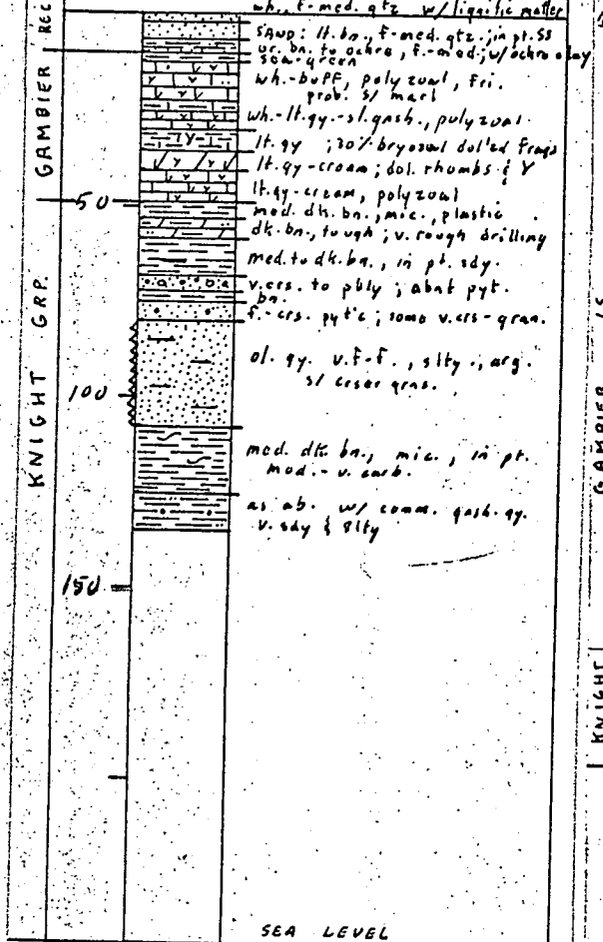
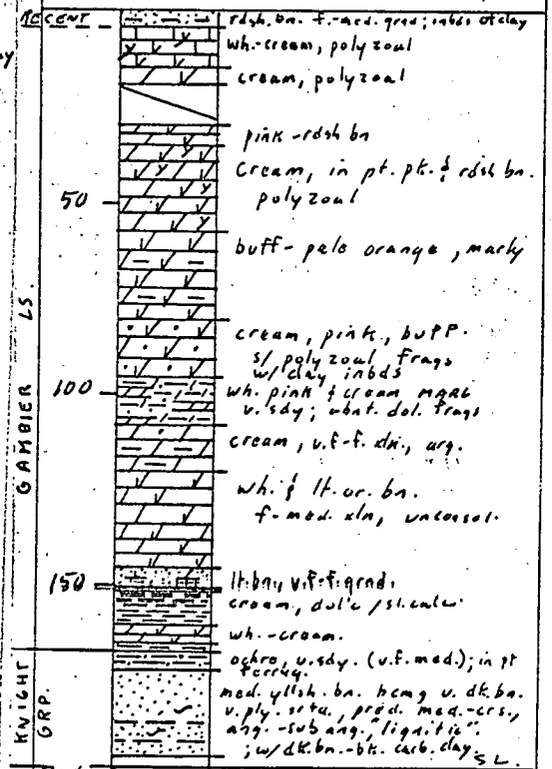
WELL: TARTWAUP S.H. 9
ELEVATION: 243.3'
TOTAL DEPTH: 135'

"quicksand"
y = bryozoal

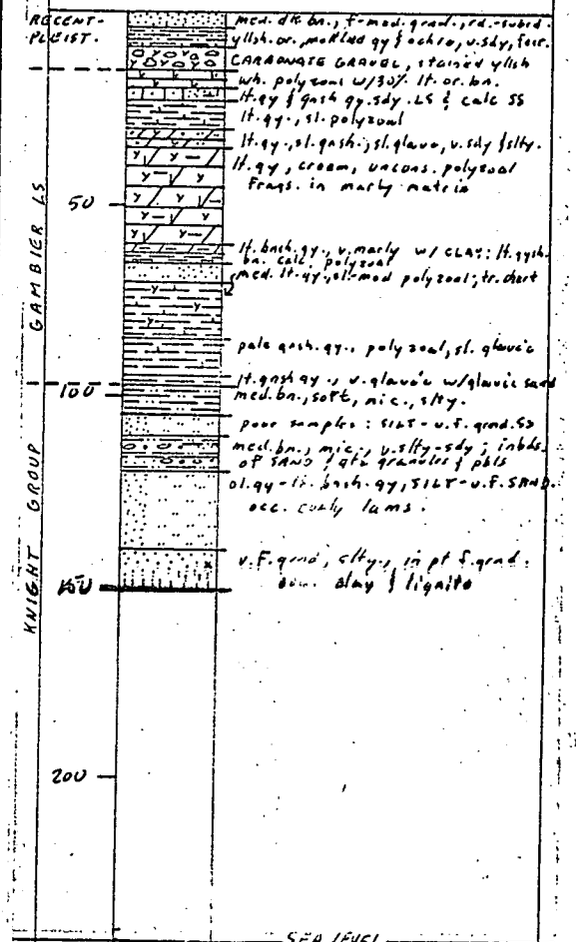


WELL: T-14
ELEVATION: 197.7'
TOTAL DEPTH: 195'

Top Knight +31



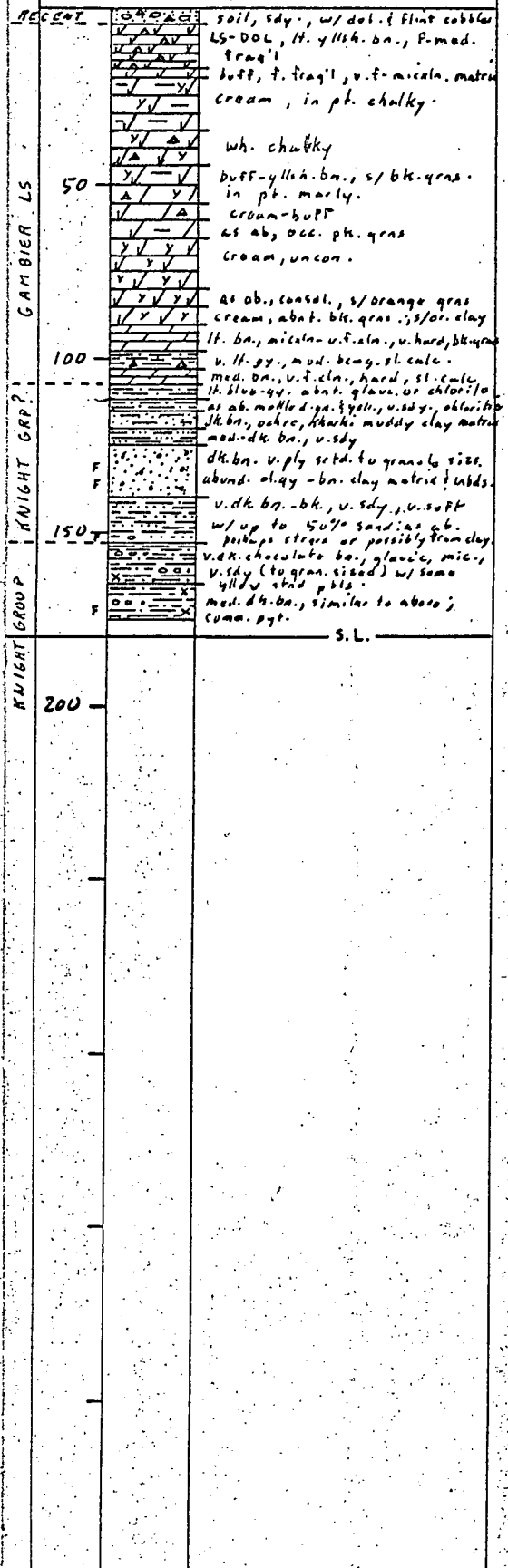
WELL: TARTWAUP S.H. 21
ELEVATION: 242.0
TOTAL DEPTH: 150'



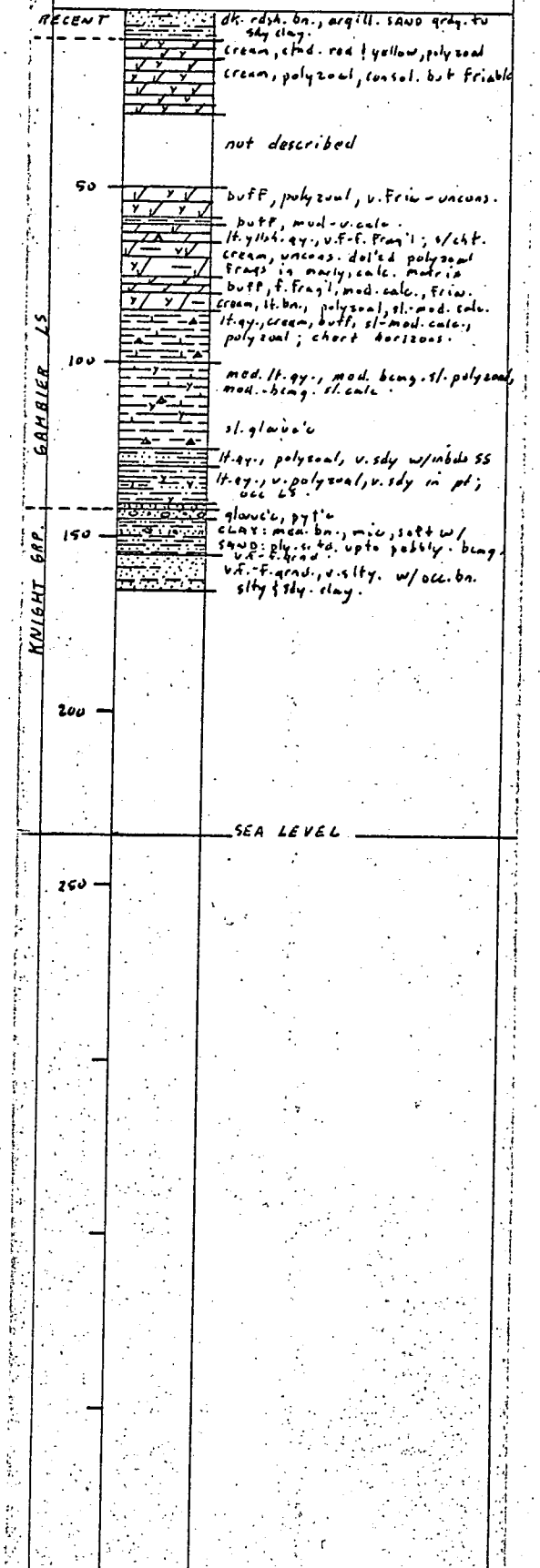
WELL: TARTWAUP SH.-2
ELEVATION: 179.9'
TOTAL DEPTH: 175'

Top Knight -+27?

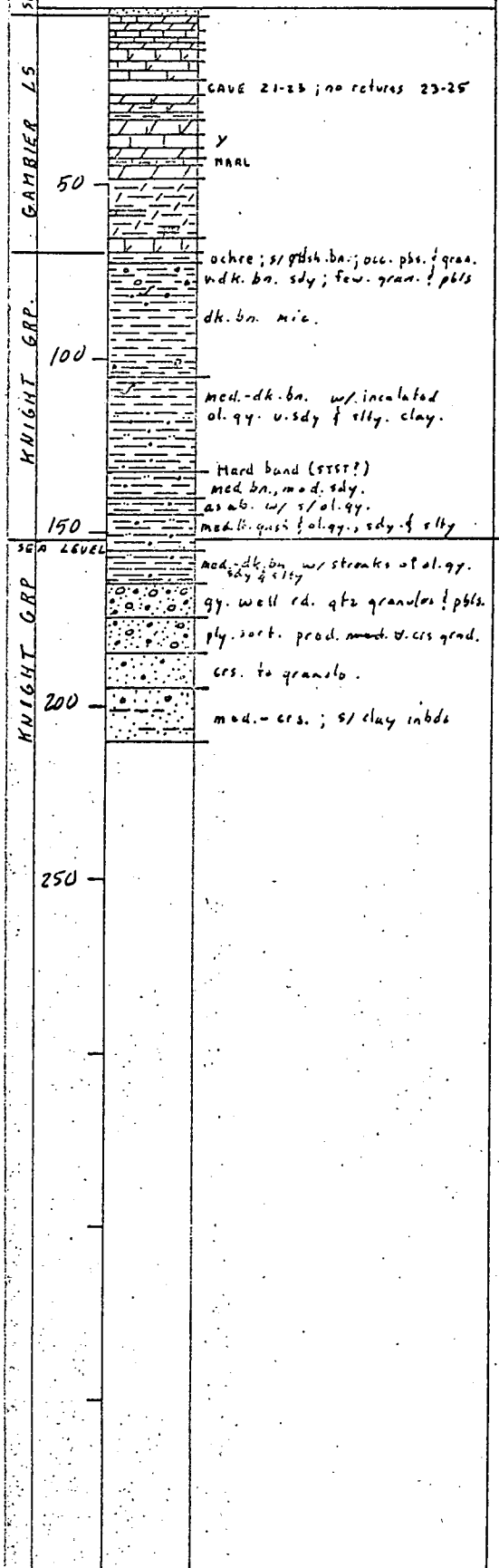
△ Flint
y polyzoal



WELL: TARTWAUP S.H. 19
ELEVATION: ≏ 235'
TOTAL DEPTH: 165'

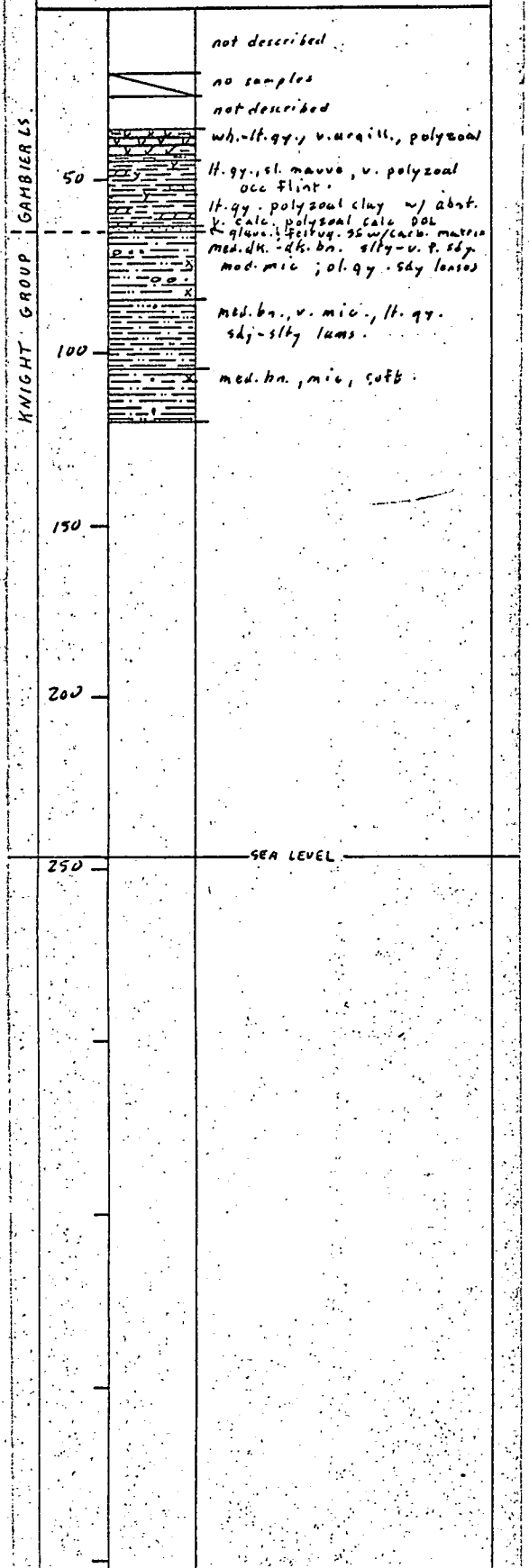


WELL: TARTWAUP SH. 00079
ELEVATION: ~~210~~' 151.7'
TOTAL DEPTH: 210'

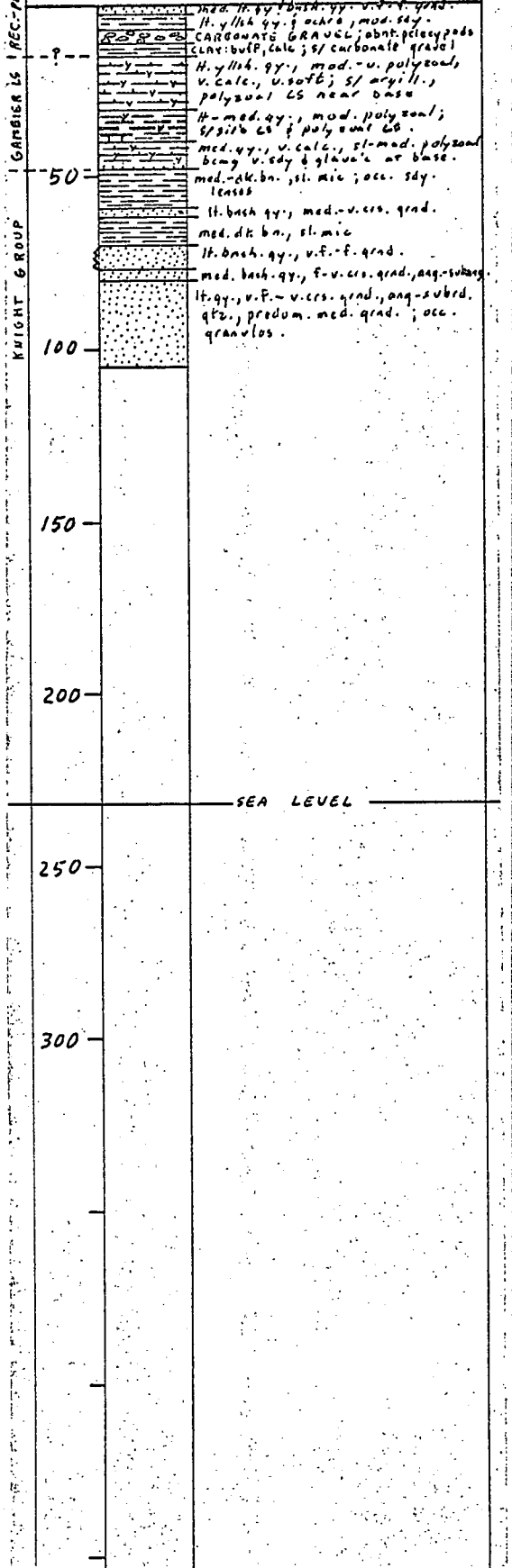


00080

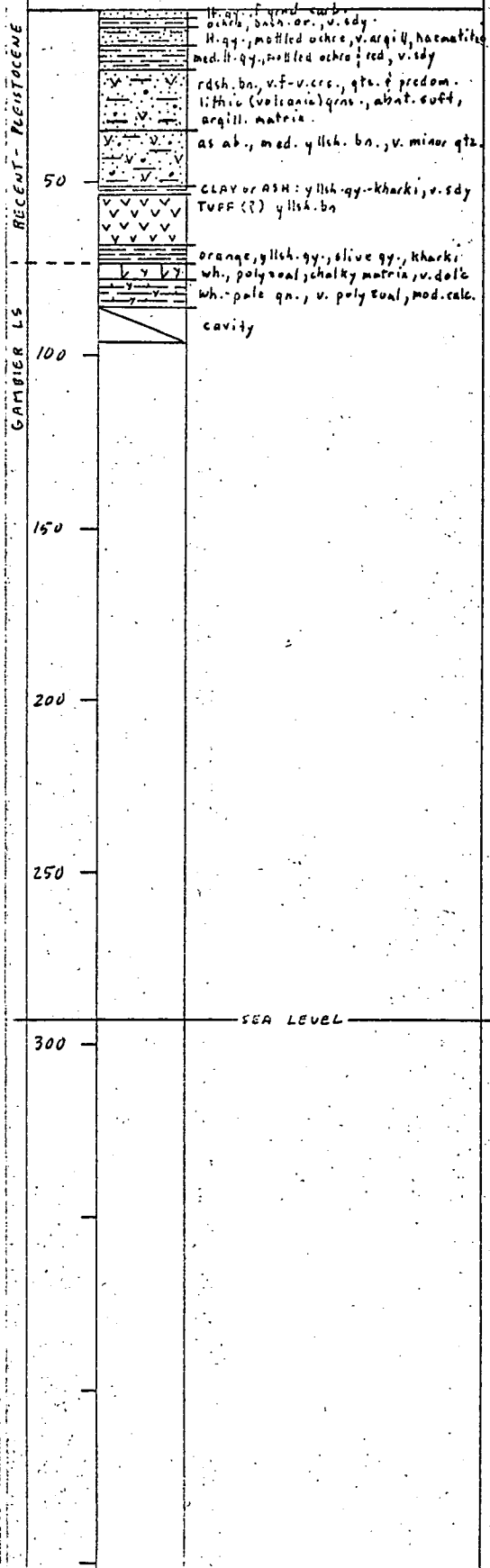
WELL: TARTWAUP SH-1
ELEVATION: 246.5'
TOTAL DEPTH: 120



WELL: TARTWAUP S.H. No.30
ELEVATION: 231.9'
TOTAL DEPTH: 105'

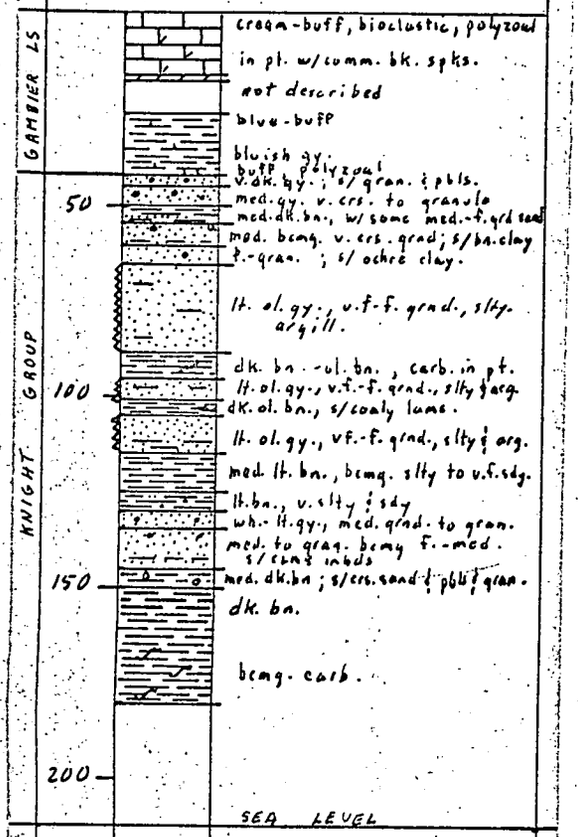


WELL: TARTWAUP S.H. No.27
ELEVATION: 292.7'
TOTAL DEPTH: 96'

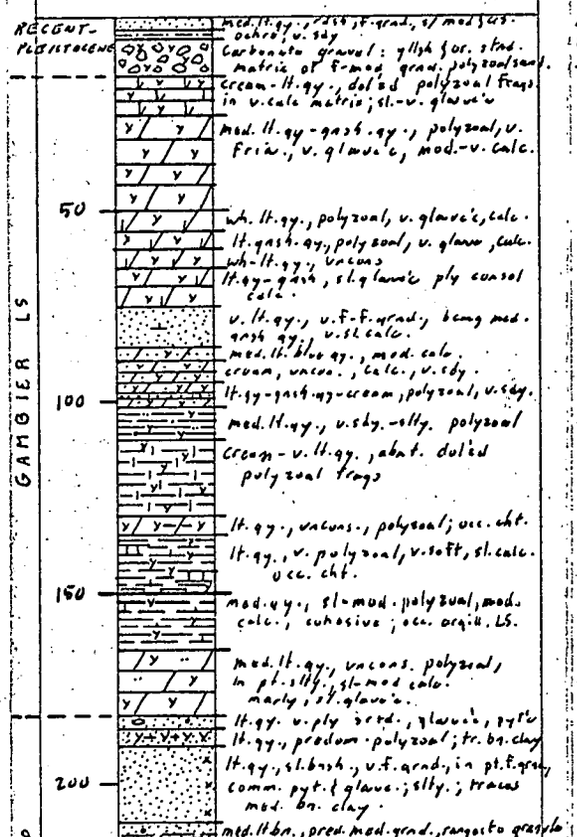


WELL: TARTWAUP S.H. BB
ELEVATION: 213.0'
TOTAL DEPTH: 180'

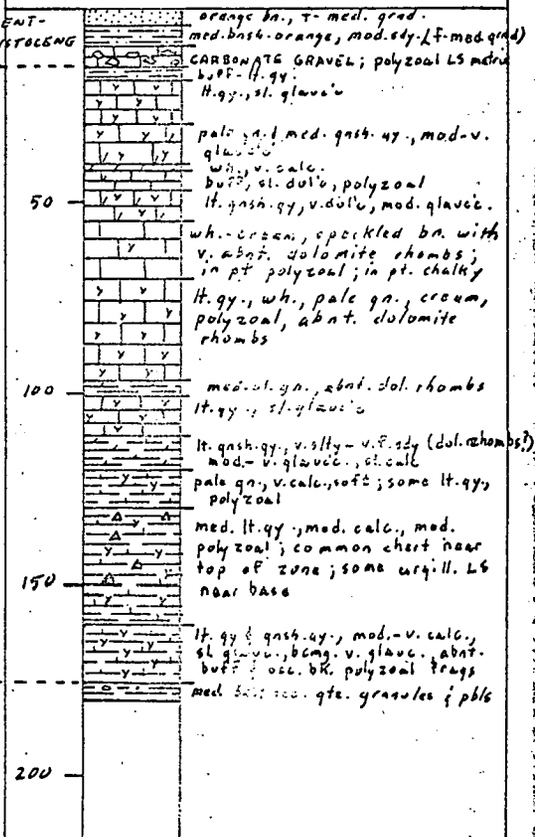
"quicksand"



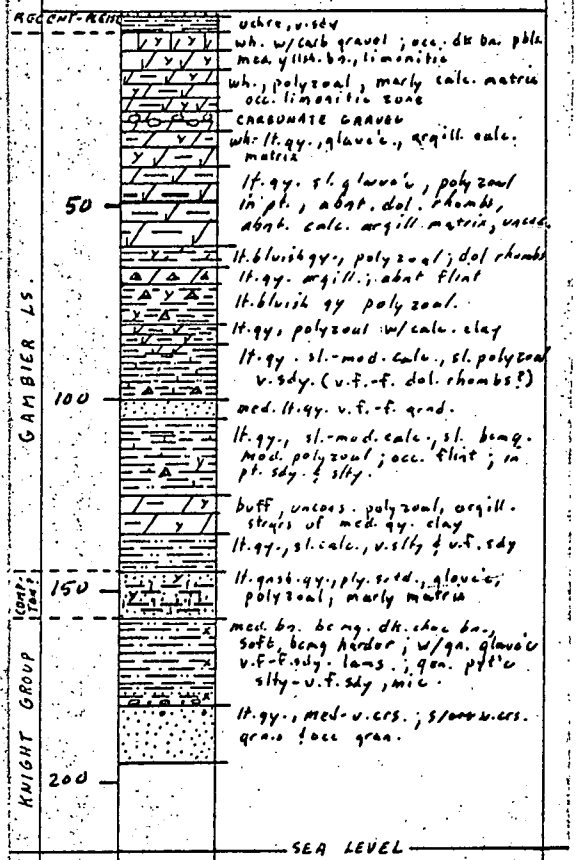
WELL: TARTWAUP S.H. 20
ELEVATION: 240.0'
TOTAL DEPTH: 270'



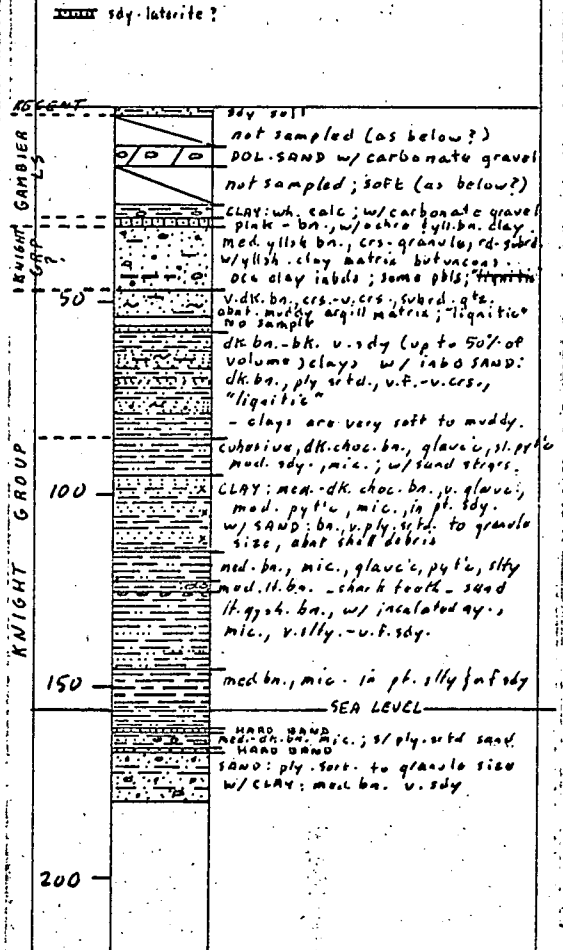
WELL: TARTWAUP S.H. No. 31
ELEVATION: 232.7
TOTAL DEPTH: 180'



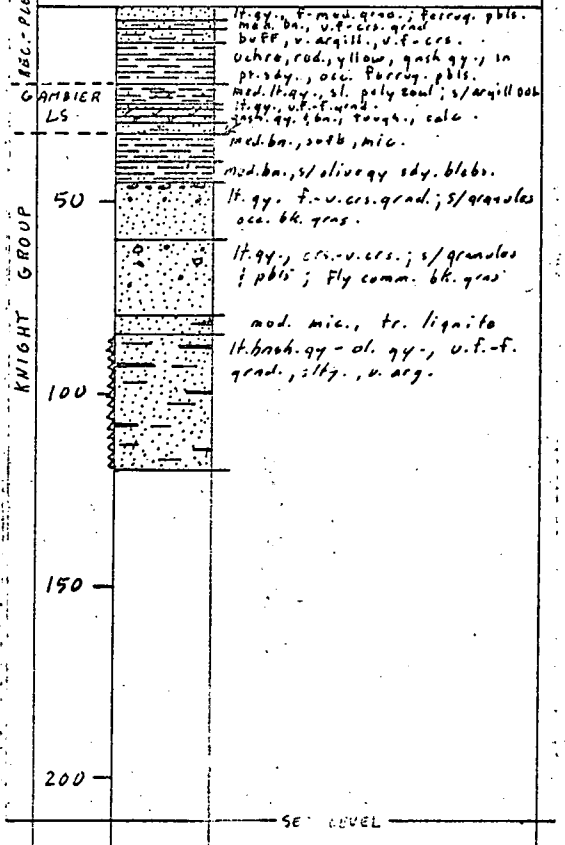
WELL: TARTWAUP S.H. 16
ELEVATION: 217.4
TOTAL DEPTH: 195'



WELL: TARTWAUP S.H. 15-B
ELEVATION: ≐ 161'
TOTAL DEPTH: 180'

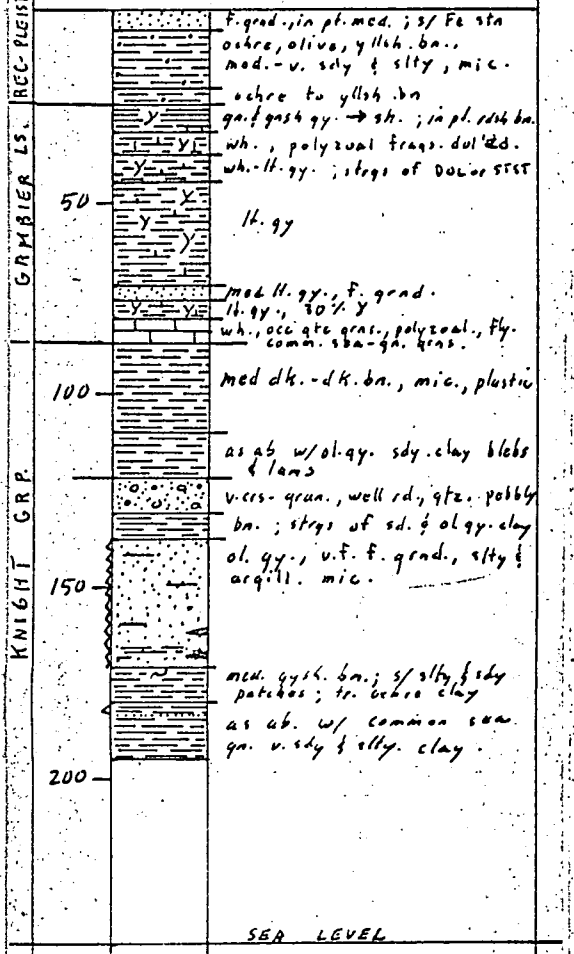


WELL: T-17B (TARTWAUP)
ELEVATION: 210.7'
TOTAL DEPTH: 120'



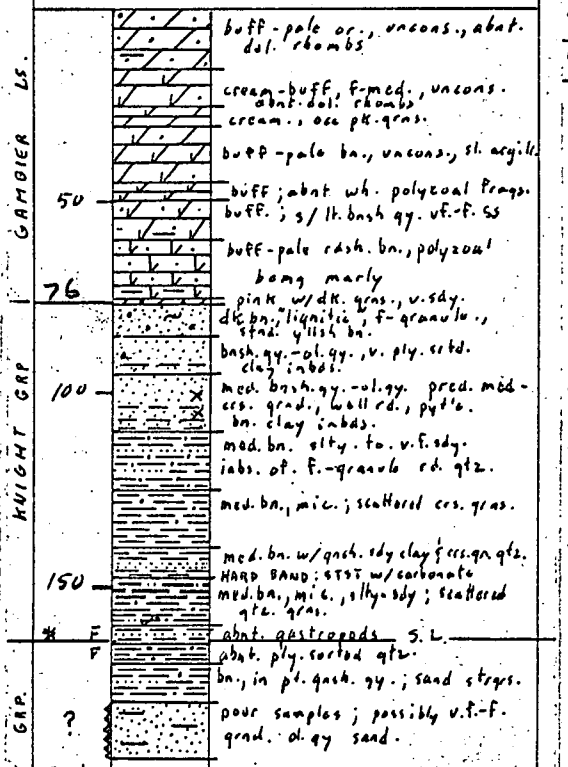
WELL: TARTWAUP S.H. 10
ELEVATION: 234.3'
TOTAL DEPTH: 195'

"quicksand"
Y bryozoal ("clay & marl")



WELL: T-13B
ELEVATION: ± 164.2'
TOTAL DEPTH: 195'
Top Knight +88'

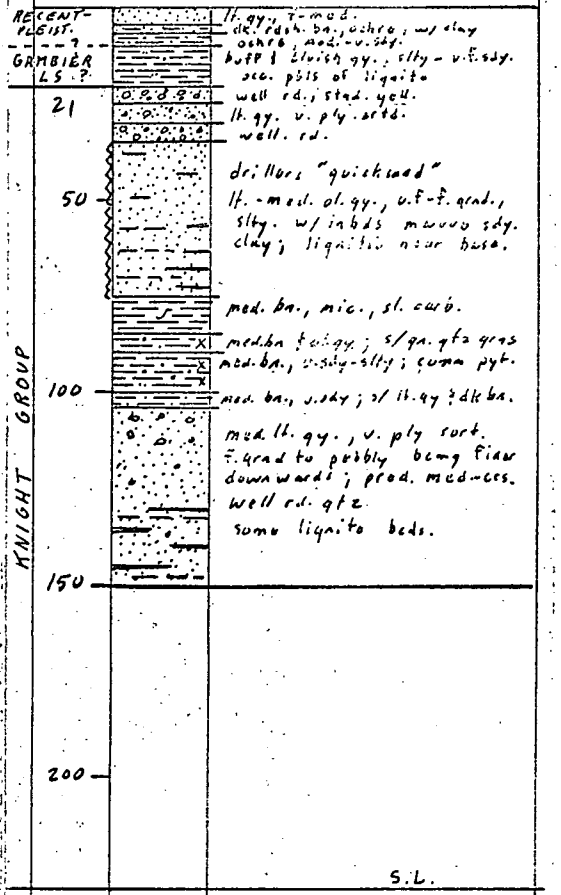
x pyrite
marker
? ½ possibly "quicksand"



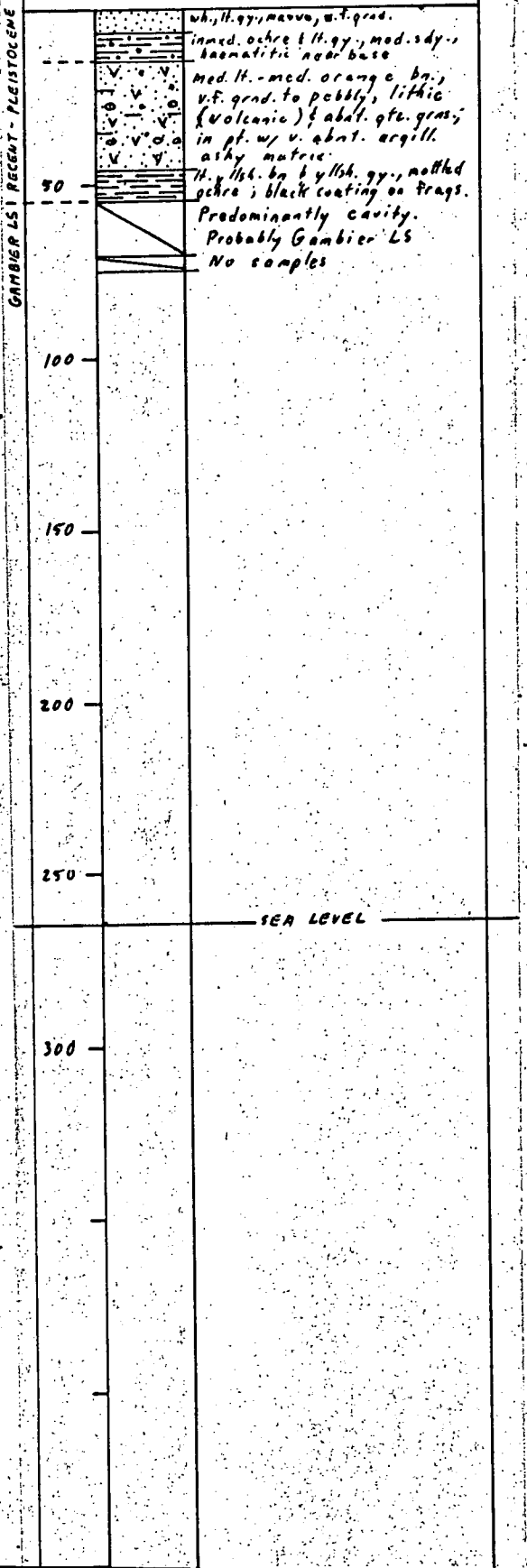
23-16.

WELL: T-6
ELEVATION: 229.0'
TOTAL DEPTH: 150'
Top Knight +208'

x pyt.
~ carb.



WELL: TARTWAUP S.H. 28
ELEVATION: 264.1'
TOTAL DEPTH: 75'



RIDDOCH

GREY

NANGWARRY

YOUNG

MINGBOOL

HINDMARSH

BENARA

BLANCHE

KRONGART

KALANGADOO

KALANGADOO No1

WEPAR

TARPEENA

SUTTON

WANDILO

MEDHURST

GLENCOE

MALLA

TANTANOOLA

LAKE LEAKE

LAKE EDWARD

BURRUNGULE

BROWN LAKE

MT. GAMBIER

BLUE LAKE

Mt. Gambier

AD. OIL. EXPL. CO.

SA OILWELLS

PRODUCERS OIL CO SPRING OIL BORE

ASSOC. OIL CO

ASSOC. OIL CO. KNIGHTS DOME

614-1

ALLIANCE OIL DEVELOPMENT AUSTRALIA N.L.

O.E.L. 22, SOUTH AUSTRALIA

TARTWAUP STRUCTURE DRILLING PROGRAMME

WELL LOCATION MAP

SCALE OF MILES

Prepared by: M.C. LEBLANC

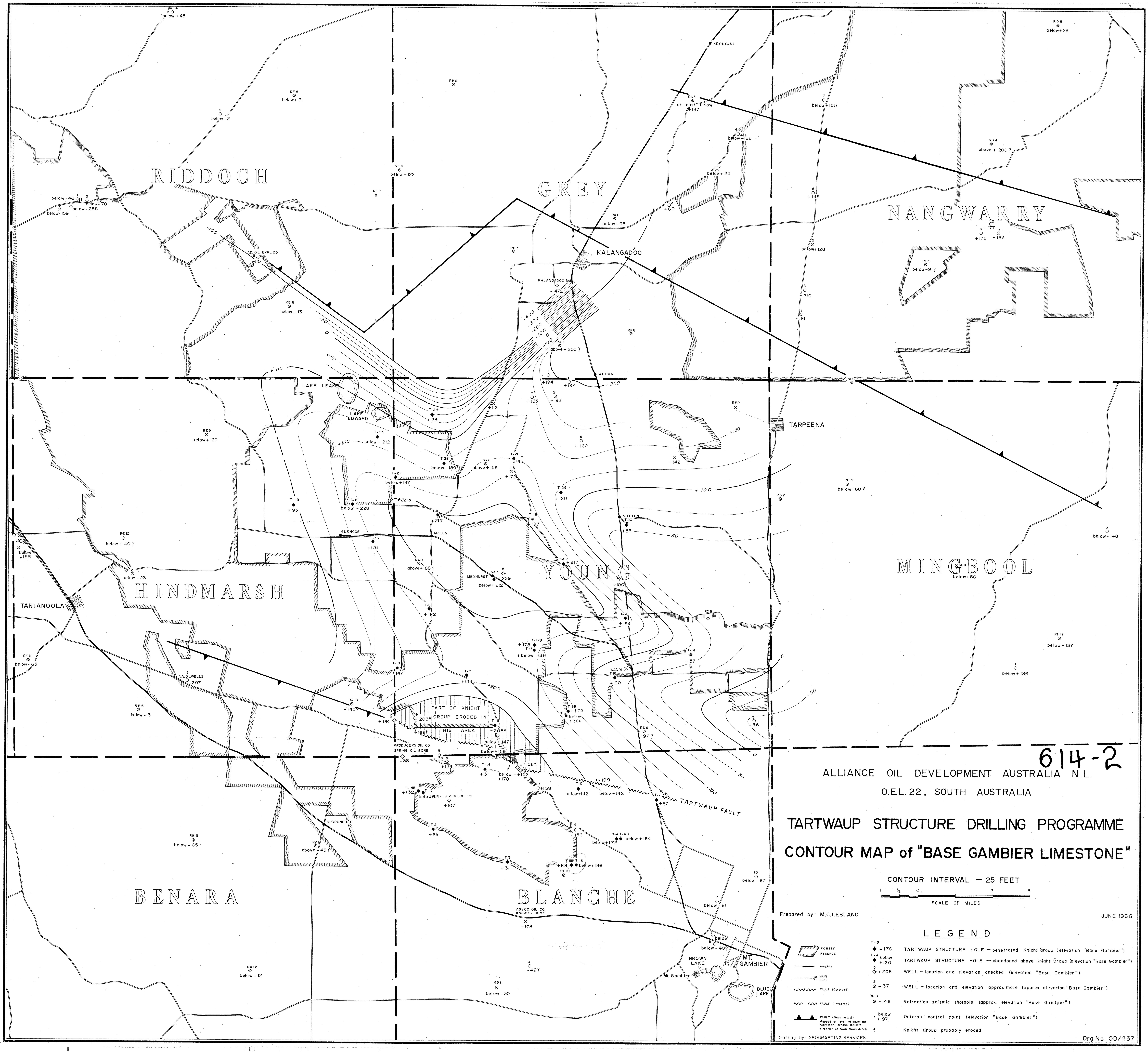
JUNE 1966

LEGEND

- FOREST RESERVE
- RAILWAY
- MAIN ROAD
- T-6 ◆ 217/185 — TARTWAUP STRUCTURE HOLE — penetrated Knight Group (elevation/total depth)
- T-4 ◆ 187/30 — TARTWAUP STRUCTURE HOLE — abandoned above Knight Group (elevation/total depth)
- 5 ◇ 198/150 — WELL — location and elevation checked (elevation/total depth)
- 2 ○ 245/310 — WELL — location and elevation approximate (elevation/total depth)
- RD10 ⊗ 140/80 — Refraction seismic shothole (elevation/total depth)
- • 287 — Outcrop control point (elevation)

Drafting by: GEODRAFTING SERVICES.

Drg. No. OD/437



614-2
ALLIANCE OIL DEVELOPMENT AUSTRALIA N.L.
O.E.L. 22, SOUTH AUSTRALIA
TARTWAUP STRUCTURE DRILLING PROGRAMME
CONTOUR MAP of "BASE GAMBIER LIMESTONE"
CONTOUR INTERVAL – 25 FEET
SCALE OF MILES
Prepared by: M.C.LEBLANC
JUNE 1966
LEGEND
FOREST RESERVE
RAILWAY
MAIN ROAD
FAULT (Observed)
FAULT (Inferred)
FAULT (Geophysical)
TARTWAUP STRUCTURE HOLE – penetrated Knight Group (elevation "Base Gambier")
TARTWAUP STRUCTURE HOLE – abandoned above Knight Group (elevation "Base Gambier")
WELL – location and elevation checked (elevation "Base Gambier")
WELL – location and elevation approximate (approx. elevation "Base Gambier")
Refraction seismic shothole (approx. elevation "Base Gambier")
Outcrop control point (elevation "Base Gambier")
Knight Group probably eroded
Drafting by: GEODRAFTING SERVICES.
Drg No. OD/437
RIDDOCH
GREY
NANGWARRY
HINDMARSH
YOUNG
MINGBOOL
BENARA
BLANCHE
KALANGADOO
KRONGART
WEPAR
TARPEENA
LAKE LEAKE
LAKE EDWARD
GLENCOE
MALLA
MEDHURST
SUTTON
WANDILO
TANTANOOLA
BURRUNGULE
BROWN LAKE
MT. GAMBIER
BLUE LAKE
TARTWAUP FAULT
PART OF KNIGHT GROUP ERODED IN THIS AREA
KALANGADOO No. 1
AD OIL EXPL. CO
SA. OIL WELLS
PRODUCERS OIL CO. SPRING OIL BORE
ASSOC. OIL CO.
ASSOC. OIL CO. KNIGHTS DOME