BINGAY CREEK COAL PROPERTY
COAL ASSESSMENT REPORT
FOR COAL LICENCES 374190, 414014, 415139 & 417302
NTS MAP 82J/2W
KOOTENAY LAND DISTRICT

HILLSBOROUGH
Resources Limited

June 2, 2006

Ministry of Energy, Mines & Petroleum Resources
Mineral Titles
P. O. Box 9326
6th Floor, 1810 Blanshard St.
Victoria, B. C.
V8W-9N3

Attention: Mrs. Kim Stone

Dear Kim:
RE: Bingay Creek Coal Property Coal Assessment Report

Please find enclosed two (2) copies of a report entitled, " Bingay Creek Coal Property Coal Assessment Report for Coal Licences 374190, 415139, & 417302". I hope this meets with your approval.

Best Regards,

Stephen L. Gardner
Hillsborough Resources Ltd.

TITLES DIVISION, MINERAL TITLES
VICTORIA, BC

JUN - 5 2006

FILE NO. 895
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☐ Executive Office: #1100 - 355 Burrard Street, Vancouver, BC V6C 2G8 • Phone: (604) 684-9288 • Fax: (604) 684-3178
☐ Corporate Office: P.O. Box 5000, Campbell River, BC V9W 5C5 • Phone: (250) 286-3224 • Fax: (250) 286-9727

Pages 28, 29, part of page 30, in addition to the following pages from Appendix I (parts of pages 8-10, 33, 41, 113, 140, 146, 149, and all of pages 114-135 and 141-145) remain confidential under the terms of the Coal Act Regulation, and have been removed from the public version.

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TABLE OF CONTENTS

	Page No.
INTRODUCTION	5
LOCATION AND DESCRIPTION OF PROPERTY	7
EXPLORATION PRIOR TO 2004	8
RECENT 2004-2005 EXPLORATION WORK	13
Examination of 1983 Core	13
Surface Mapping	14
Drilling Program	16
Drillhole Summary	21
SUMMARY OF COSTS	24
GEOLOGY	25
Stratigraphy	25
Structure	26
Coal Resources	28
Coal Quality	28
SUMMARY AND CONCLUSIONS	30

LIST OF FIGURES

	Page No.
Figure 1. - Property Location Map	4
Figure 2. - Geology and Infrastructure Map, Bingay Creek Property	6
Figure 3. - Location of Cross-Sections, Utah Mines Ltd. (1983)	9
Figure 4. - Cross-Section A – A', Utah Mines Ltd. (1983)	10
Figure 5. - Cross-Section B – B', Utah Mines Ltd. (1983)	11
Figure 6. - Surface Geology Map (C. G. Cathyl-Bickford)	15
Figure 7. - Beck Drilling & Environmental Rig No. 12 (photo)	18
Figure 8. - Location of Drillholes, Bingay Creek Property	23
Figure 9. - Cross-Sections, Bingay Creek Property (C. G. Cathyl-Bickford)	27

LIST OF TABLES

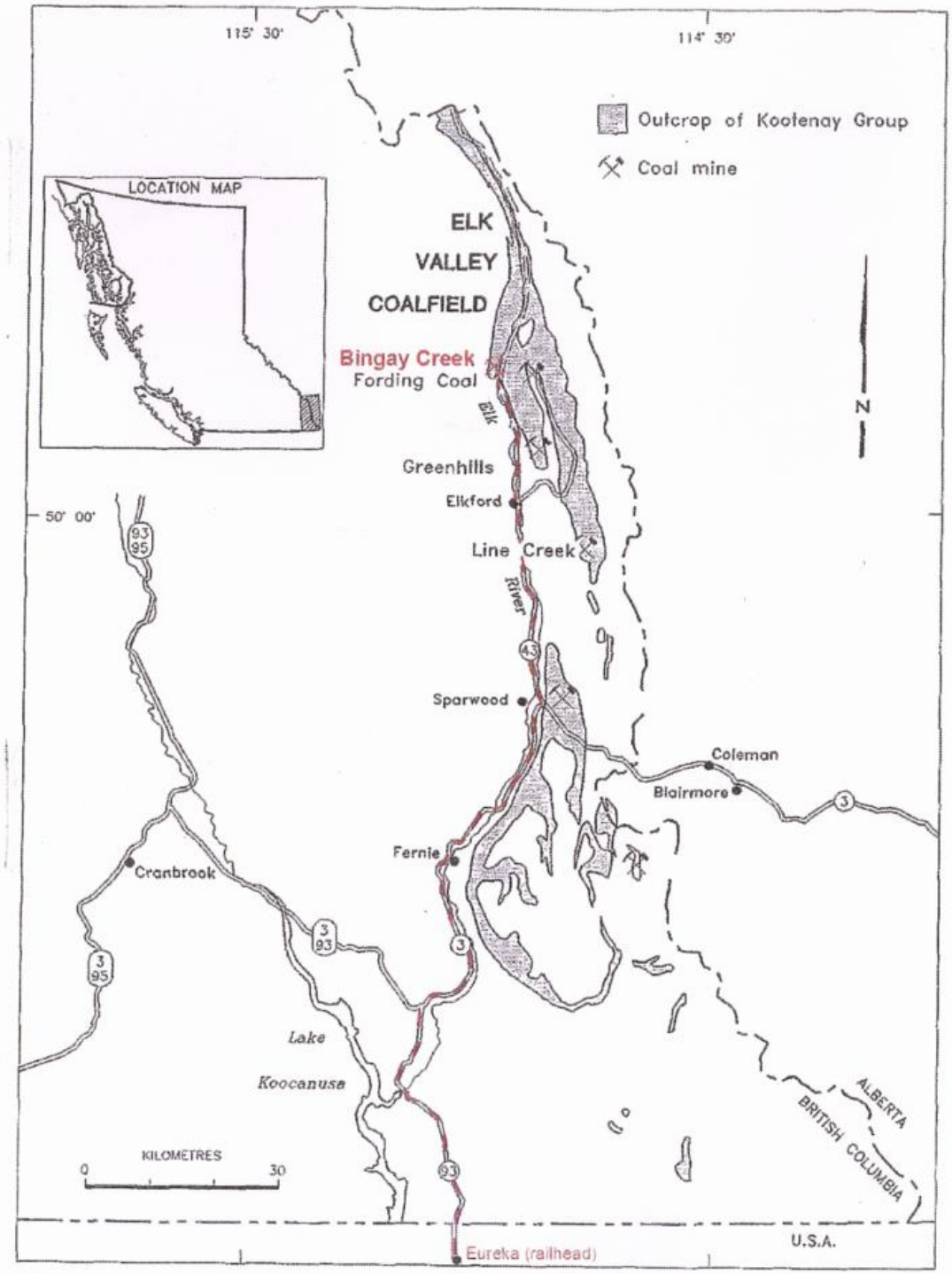
Table 1. - Drillhole Summary Table, Bingay Creek Exploration	22
Table 2. - Summary of Exploration Costs, 2004 – 2005	24
Table 3. - Table of Formations for the Bingay Creek Area	25

LIST OF APPENDICES

APPENDIX I . - "Geological Report on the Bingay Creek Coal Property" May, 2005 by C. Gwyneth Cathyl-Bickford, Westwater Mining Ltd.

APPENDIX II. - 1983 Core Photos, Corelog Descriptions, and Surface Mapping, June 2004

APPENDIX III. - 2004 – 2005 Geophysical Logs, Hillsborough Resources Ltd. Exploration Drilling



File: bingayroadmap.srf Date: 2004 Dec. 16
Drawn: C.G. Cathyl-Bickford, P.Geo.
Modified after Grieve, 1992. Scale: as shown

Hillsborough Resources Limited
Bingay Creek Coal Project
Figure 1: Project Location Map

INTRODUCTION

This report is intended to summarize recent exploration work that has been completed on the Bingay Creek Coal Property in the calendar years 2004 and 2005 for the purposes of compiling the data into a single document that meets the requirements of the B.C. Coal Mine Regulations regarding the filing of Assessment Reports. The report draws heavily from a previous report prepared and compiled by C. Gwyneth Cathyl-Bickford, P. Geo. in May of 2005, entitled " Geological Report on the Bingay Creek Coal Property" . This report provided a comprehensive evaluation of the recent exploration at Bingay Creek, within the context of the National Instrument 43-101 Securities Regulation pertaining to the dissemination of technical information for publicly-listed companies. Cathyl-Bickford's report is included in its entirety as ***"Appendix I"***. Pertinent technical data including outcrop descriptions, corelog descriptions, and core photos from the 1983 core are included as ***"Appendix II"***l. Copies of the geophysical logs for the 2004-2005 drill programs are included as ***"Appendix III."***l The remainder of the text of this report has been derived from the author's previous work on the Bingay Property going back to the early 1980's.

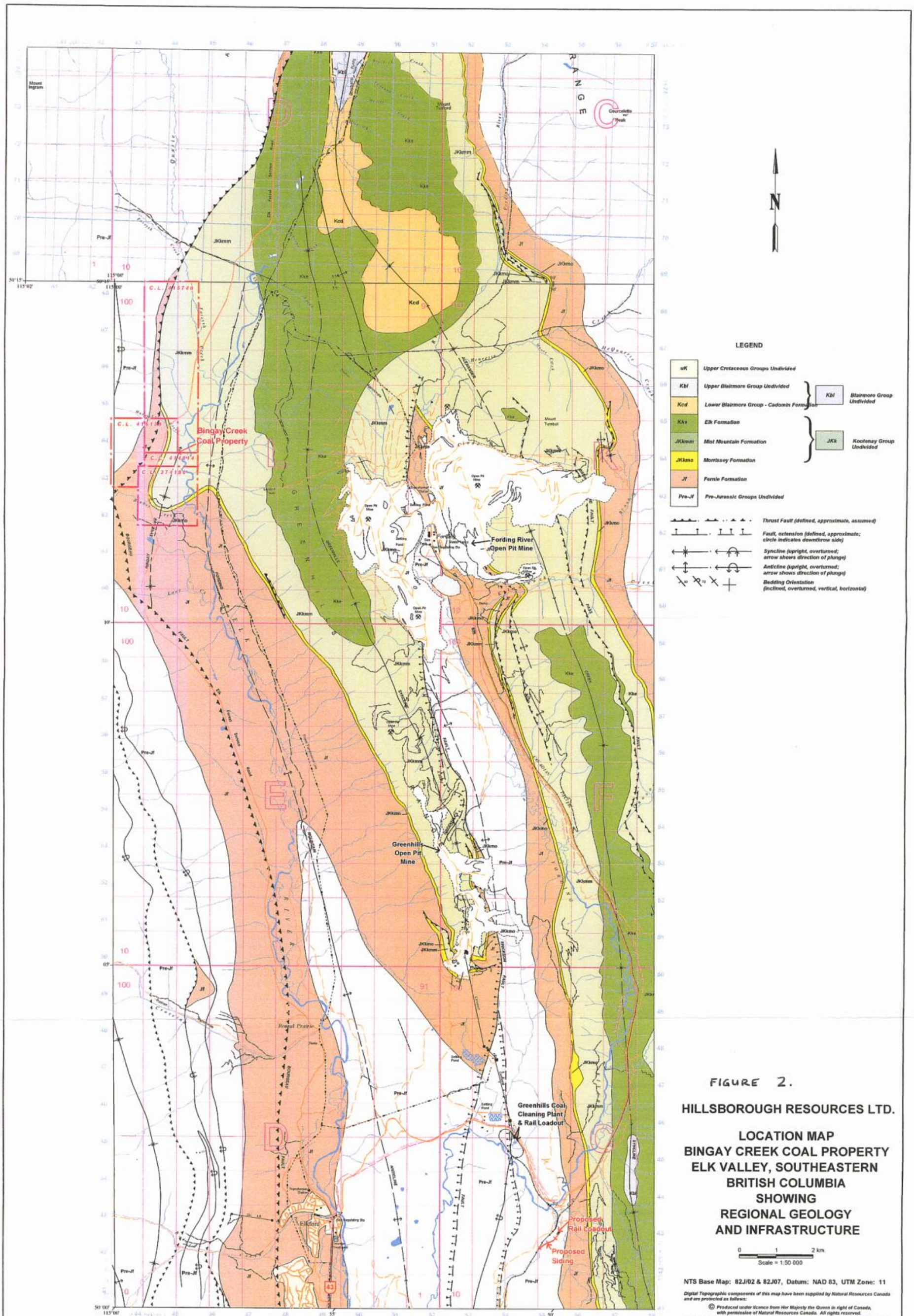


FIGURE 2.

HILLSBOROUGH RESOURCES LTD.

LOCATION MAP
BINGAY CREEK COAL PROPERTY
ELK VALLEY, SOUTHEASTERN
BRITISH COLUMBIA
SHOWING
REGIONAL GEOLOGY
AND INFRASTRUCTURE

NTS Base Map: 82J/02 & 82J07, Datum: NAD 83, UTM Zone: 11

Digital Topographic components of this map have been supplied by Natural Resources Canada and are protected as follows:

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Geology compilation and graphics by Lawrence Consulting and Resources Ltd. (403) 288-6384. Cartography by Gary Lawrence and Mark Pawson, March, 1991; updated October, 2002. Original geology cartography scanned and digitally rendered, November, 2000.

This edition prepared for Hillsborough Resources Ltd, November 15, 2004 by Lawrence Consulting and Resources Ltd.

LOCATION AND DESCRIPTION OF PROPERTY

The Bingay Creek Coal Property consists of 1,157 ha (2,859 acres) of Coal Exploration Licences located approximately 22 km north of the village of Elkford in South-eastern British Columbia. The licences are located on the floor of the Elk River Valley, west of the north to south flowing Elk River, and immediately north of Bingay Creek, an easterly-flowing tributary of the Elk River.

The property is accessed by 22 km of good gravel surface all-weather forest service road (the Elk Valley Forest Service Road), which starts at the village of Elkford. Elkford is accessed from the Crowsnest Highway No. 3 by paved secondary highway No. 43 from Sparwood, the industrial center of the Elk Valley.

The topography of the coal licence area is subdued, except for the prominent hill (called "Bingay Hill") which represents some of the steeply dipping, resistant sandstone beds on the flank and nose of the synclinal structure which contains the preserved coal measures of the Mist Mountain Fm., the main coal-bearing unit in the Elk Valley Coalfield. Elevations range from 1370 m above sea level at river level in the south-east portion of the property, to 1490 m above sea level at the top of Bingay Hill.

The Bingay Creek Coal Property falls within the Enhanced Coal Development Area of the Southern Rocky Mountain Management Plan. The property is flanked on the east by coal leases held by the Elk Valley Coal Limited Partnership. These are the only other coal tenures in the area.

EXPLORATION WORK (PRIOR TO 2004)

Prior to Hillsborough's involvement at Bingay Creek, the property had been subjected to surface mapping conducted by the original owners, Mssrs William and Bob Shenfield. The Shenfields optioned the property to Specific Natural Resources Ltd. in 1979. Specific also surface mapped the area but no drilling was conducted. In early 1983, the property was optioned to Utah Mines Ltd. Utah Mines Ltd. undertook the first detailed assessment work on the property. This work consisted of surface mapping and the drilling of 3 diamond coreholes, for a total metreage of 890 m. The Utah work provided enough information to determine the general structure of the coal-bearing Mist Mountain Formation at Bingay Creek: that of a steeply-dipping, asymmetrical, north-east plunging syncline containing at least 21 coal seams, three of which were of substantial thickness. The Utah work was also important in that cores of practically all the section of the Mist Mountain Fm were obtained. Cored sections of the coalbeds were analysed at Utah's Sunnyvale laboratory and provide a good basis for the determination of coal quality of the Bingay deposit. Utah did not provide any coal petrography testwork, however. The information derived from the Utah work is contained in Coal Assessment Report No. 256, entitled "1983 report of exploration activities (drilling report) on the Bingay Creek property, Coal Licence Nos. 7299, 7471, 7688 and 7689" by R. B. Anderson. In late 1984, Utah dropped their option on the property and the ownership reverted back to Shenfield and Associates. In May 1988 and again in 1990, hand trenching with some excavator work was undertaken by Shenfield to identify potential open pit reserve areas. In 1994, Shenfield and associates formed Iron Creek Exploration Co. Ltd. to explore for and develop the Bingay Creek Coal deposit. An application for a 10,000 tonne bulk sample was made to the British Columbia Ministry of Energy, Mines & Petroleum Resources. The bulk sample application was approved, subject to a reclamation bond of $35,000.00. No work was done during the 1994 or 1995 years.

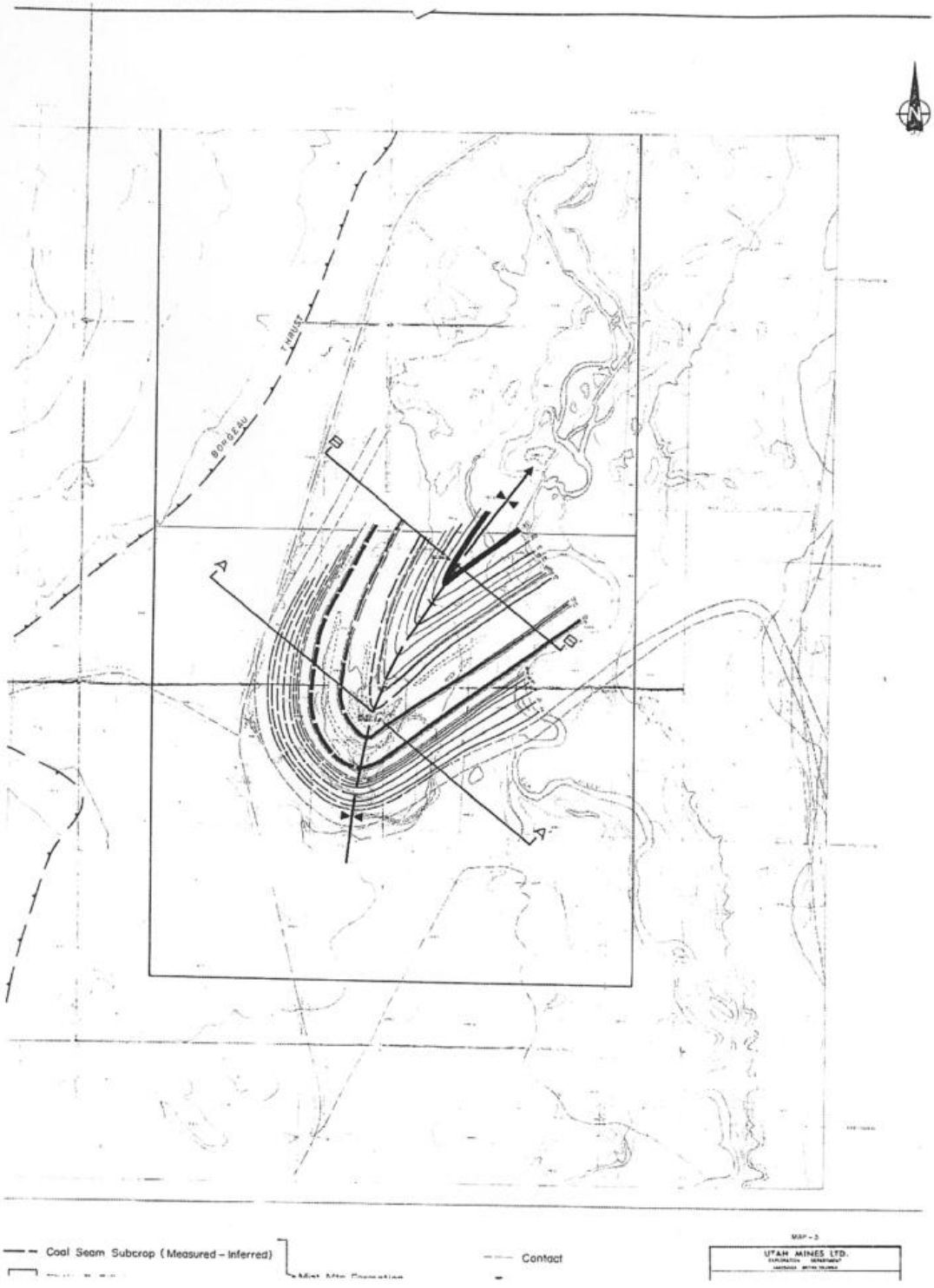

Figure 3: Location of Cross-Sections, Utah Mines Ltd.

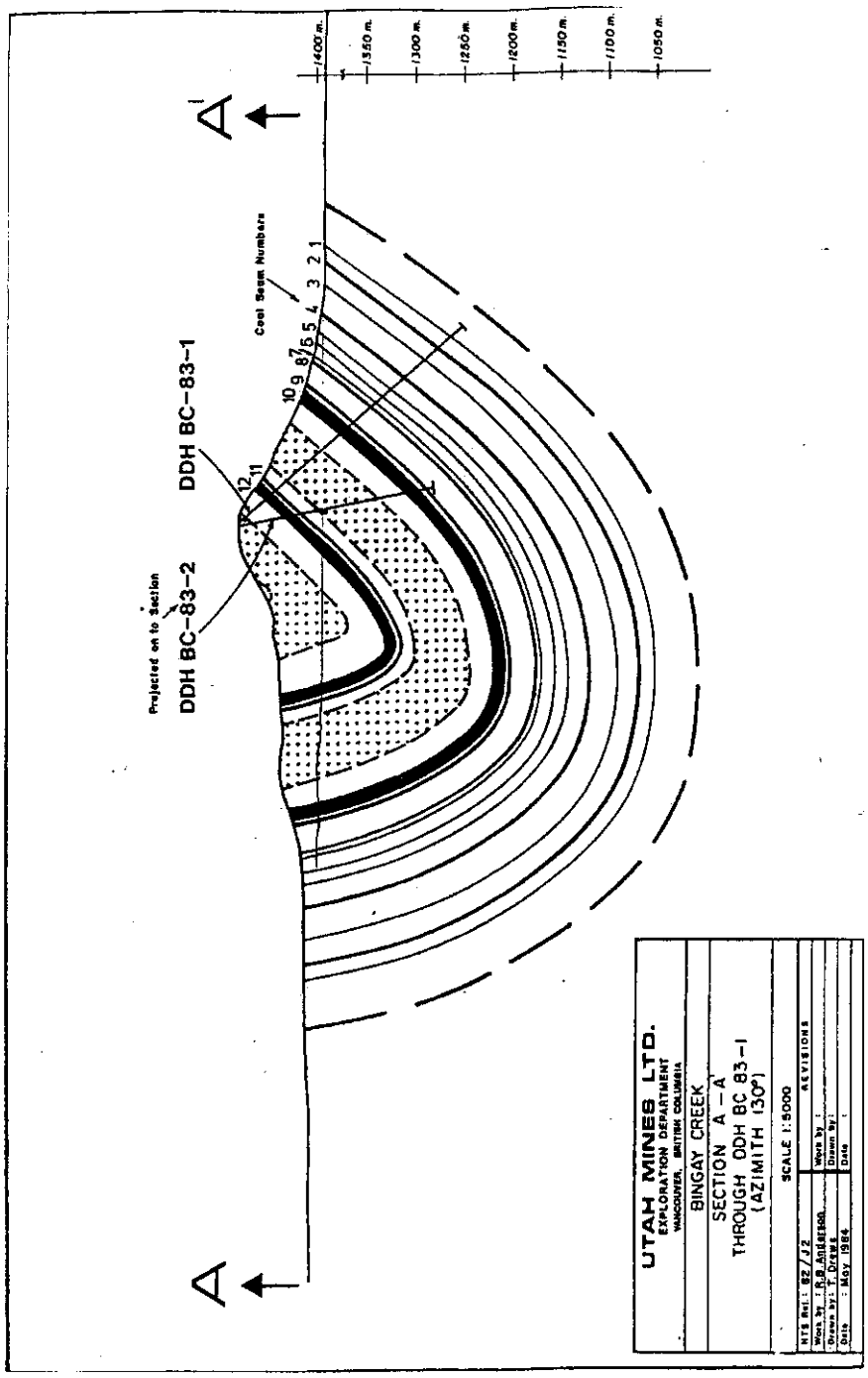

Figure 4: Cross-Section A – A', Utah Mines Ltd.

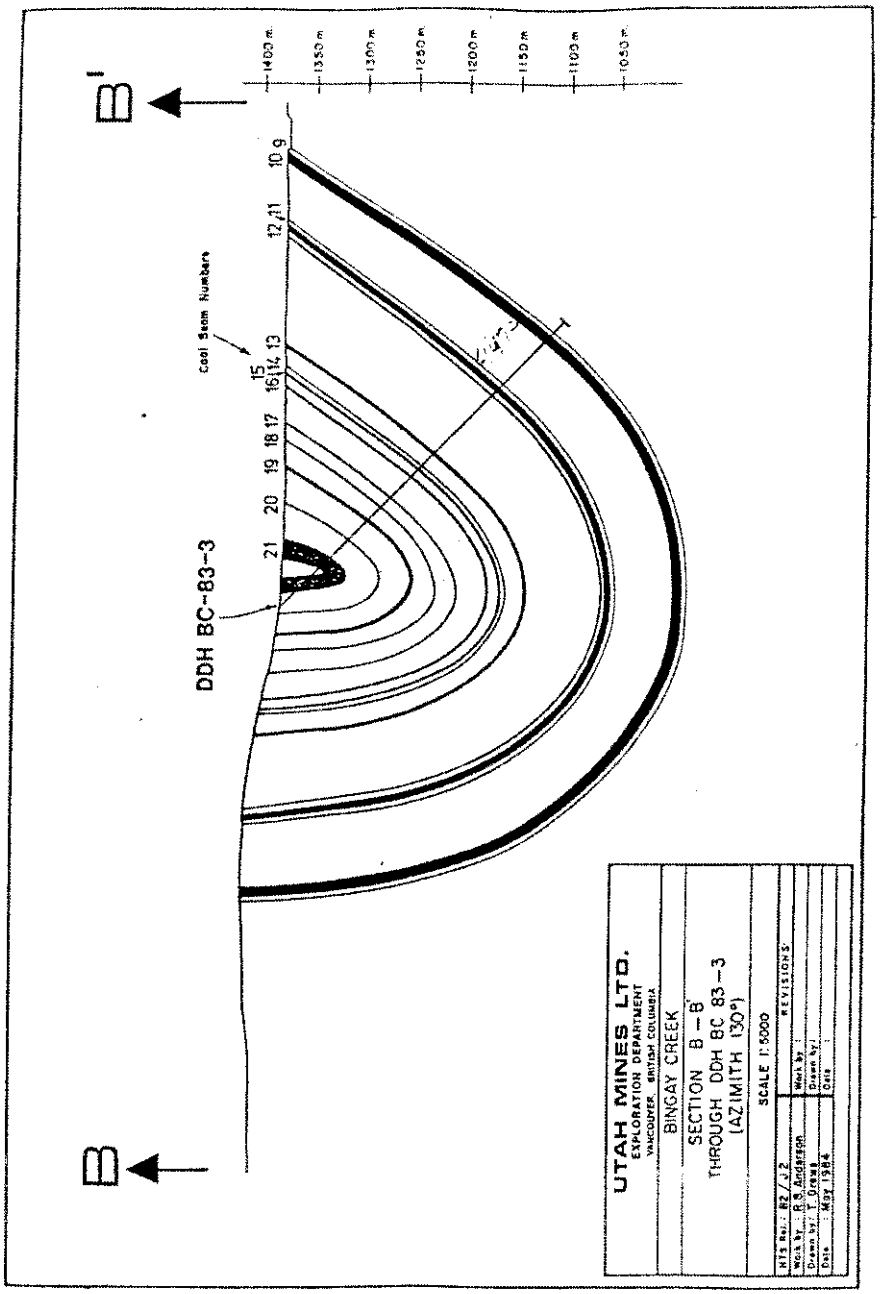

Figure 5: Cross-Section B – B', Utah Mines Ltd.

In 1996, the bulk sample permit was amended to remove 2,500 tonnes subject to the posting of a $7,000.00 reclamation bond. Most of the initial work was designed to investigate the No. 10 Seam interval, and whether it could yield a saleable thermal coal based on run-of-mine production. The 1996 work is covered by Coal Assessment Report No. 849, entitled "1996 exploration summary, Bingay Creek Coal Property, Elk Valley, British Columbia" by W. Shenfield and S. L. Gardner. No further work was done on the property until early 2004, when the property was optioned to Hillsborough Resources Ltd.

RECENT EXPLORATION WORK

Exploration work conducted by Hillsborough Resources Ltd. in 2004 and 2005 consisted of 3 phases:

1. Reviewed the existing information from the Utah Mines work of the early 1980's, plus trenching and open pit work conducted by the owners since that time. An important part of this review hinged on the organization and inspection of some 300 boxes of core from the earlier drilling. The core, after sorting and organizing, was found to be in a remarkable condition and proved very useful in terms of providing a physical record of the work, as well as a source of weathered rock for ARD\Metals leaching evaluation work which would not have been accomplished on a timely basis without such sample availability. Geotechnical investigations for pit wall slope studies were also performed on the core.
2. Performed confirmatory surface mapping of all rock outcrops and coal exposures on the property, especially that portion within the proposed mining area. This work was done prior to the drilling program.
3. Completed 14 surface drillholes at selected locations, for a total of 2,687 metres of drilling. Drilling was conducted with a reverse circulation, truck-mounted, air-rotary drill capable of 400 metre hole depths, on both vertical and angle-oriented drillholes.

Examination of 1983 Core

The 1983 Utah Mines drill core, consisting of 290 boxes of PQ size core in 3 drillholes, was stored in the open air at the residence of Mr. W. Shenfield at West Fernie since the Utah work was conducted. The core was sorted, re-catalogued, laid out and photographed by S. Gardner and W. Shenfield. C. G. Cathyl-Bickford, P. Geo. of Westwater Mining Inc. (Calgary, AB) examined the core and re-logged it. All of the coal intervals had previously been sent for analytical work; only the rock assemblage was remaining for inspection. During this period, K. Morin and N. Hutt of Minesite Drainage Assessment Group (Morwitz Enterprises Ltd.) inspected core of hole 83-03 and selected 28 intervals for sampling for A.R.D.\M.L. analysis. These samples were sent to ALS Chemex Laboratories in North Vancouver for analytical work. The core was also inspected for

geotechnical properties by S. Ennis of Norwest Corporation (Vancouver office). Core inspection was carried out on an intermittent basis during the July-August-September period. In October, the core was re-boxed and stored on pallets, remaining in storage at the residence of W. Shenfield at 1510 McLeod Ave., West Fernie.

Core descriptions and photographs are included in **Appendix II** of this report.

Surface Mapping

McElhanney Consultants Ltd. of Vancouver, B. C. was contracted to produce a new set of base maps for the property in May, 2004. The maps were generated using a number of air photo targets set on the ground and tied in to existing survey benchmarks and control. Additional topographic control points were installed by McElhanney prior to the fly-over using a remote station GPS unit. During this work, several known points including the Utah drillhole collars and the existing coal trenches were surveyed in with a remote station GPS.

The map was produced in Autocad digital format, on a scale of 1 : 2,000 with 2 metre contours.

Surface geology mapping was conducted by C. G. Cathyl-Bickford of Westwater Mining Inc (Calgary, AB) with support from S. Gardner. The mapping consisted of detailed examination of the two open pit trenches (the No. 10 Seam North Pit, and the No. 12 Seam Pit) and strike\dip measurement and description of all surface rock outcrops and old prospect pits on the Bingay Syncline. Cathyl-Bickford produced a surface geology map, using the McElhanney Base Map, which identifies the station locations and dip/strike attitudes. The plan map is shown as Figure 6. The field notes and description of the coal trenches is included as **Appendix II.**

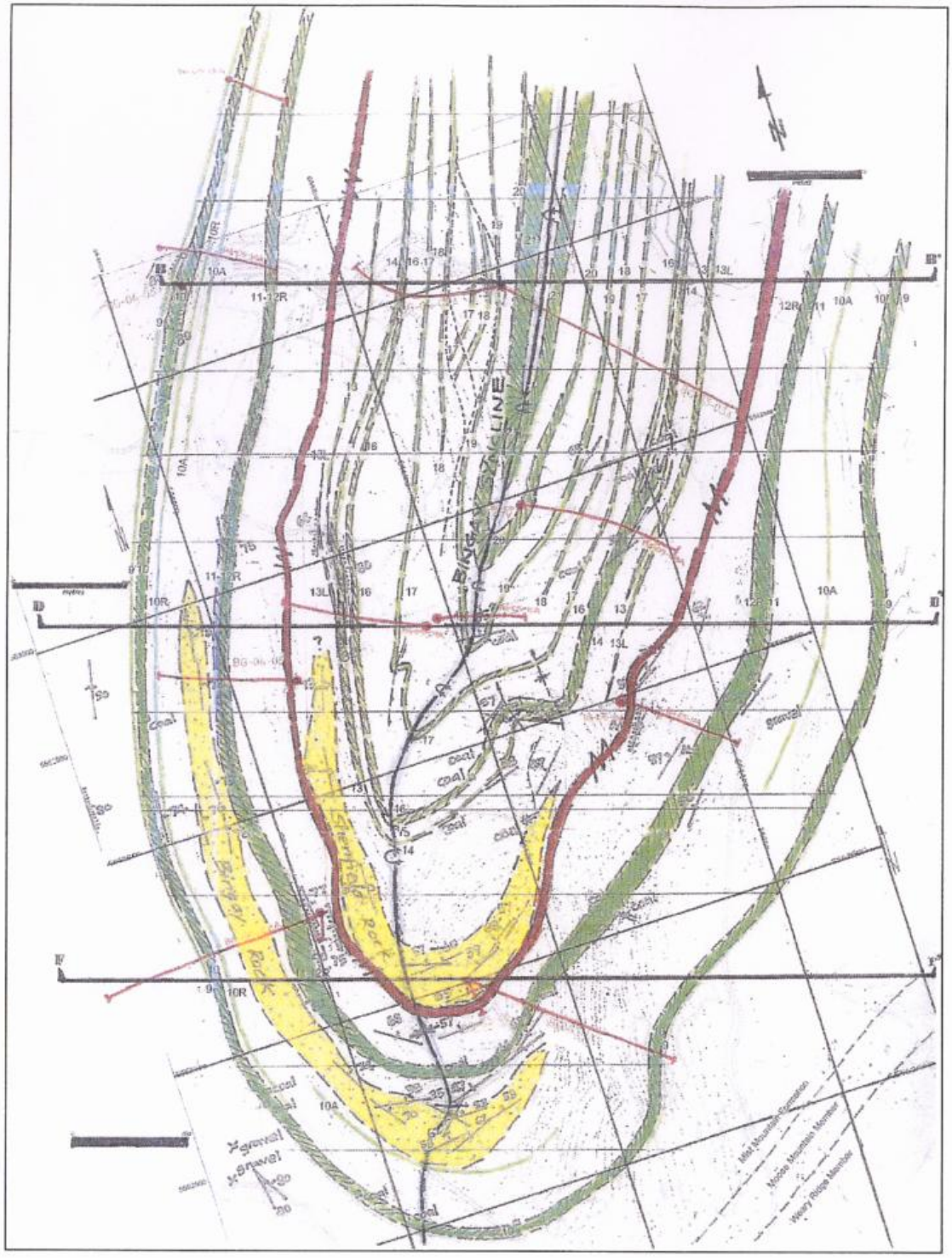

Figure 6. : Surface Geology Map, Bingay Creek Coal Property (showing location of cross-sections); courtesy C. G. Cathyl-Bickford, 2005.

Drilling Program

The drilling program was divided into two phases. The first phase was conducted from September 27 to October 15, 2004. The second phase was conducted from February 28, 2005 to March 29, 2005.

Phase 1 (Sept.-Oct. 2004): A D-7 dozer equipped with a ripper attachment and a Hitachi EX-230 excavator was mobilized to construct drill access roads, drill pads and sumps. This equipment was supplied by Brian's Excavating Ltd. (Blairmore, AB). Two new drill pads and sumps were constructed, and 1 existing drill pad (from 1983 work) was re-activated. A total of 350 metres of new drill access road construction was completed, with 1000 metres of skidder road upgrading completed for drill access. This work was conducted during September 8 to 15 inclusive.

Drilling equipment was mobilized to the site on September 27. A truck-mounted Reich Model R650 air-rotary reverse circulation drill rig was contracted from Beck Drilling and Environmental Ltd. (Calgary, AB). The drill rig is equipped with 4.5 in. O. D. reverse circulation (double-walled) drillpipe. Drilling tools include an Ingersoll-Rand downhole hammer (5.5 in. O. D.) or alternately a 5.25 in. O. D. tricone rock bit. The air package consists of a G. H. Mann 350 p.s.i. \ 850 c.f.m. compressor with a Bean water injection pump. A water injection rate of 1.5 igpm is required to cool the drilling tools during operations. The drilling rig is capable of installing vertical holes, and angled holes to a maximum of 45 degrees from horizontal. The rig is fitted with a geolograph for constant depth recording. The rig is fitted with a cyclone system for collecting the air\water\drill cuttings mixture into a single discharge, thus facilitating the collection of samples.

Drilling operations began on September 28 and the rig operated continuously on 12 hr. day shifts until October 15. Seven inch diameter surface casing was set in all holes. Very little surficial drift was encountered in the set-ups, therefore a maximum of 3 metres of surface casing was required. After surface casing was

set, the downhole hammer was run until water production exceeded the capacity of the hammer to function. This is usually about at the 150 metre depth, or shallower if large amounts of groundwater are encountered. When the downhole hammer becomes "watered-out" and can no longer function, the drill string is retrieved and a standard tri-cone rock bit is installed and run in for completion of the hole to total depth. The total hole depth was limited to the available drill string of 300 metres. If additional drill rods are available, and water production is moderate, the drill can penetrate to a depth of 500 metres on a vertical set-up (less for angled holes) before the capacity of the drill is exceeded.

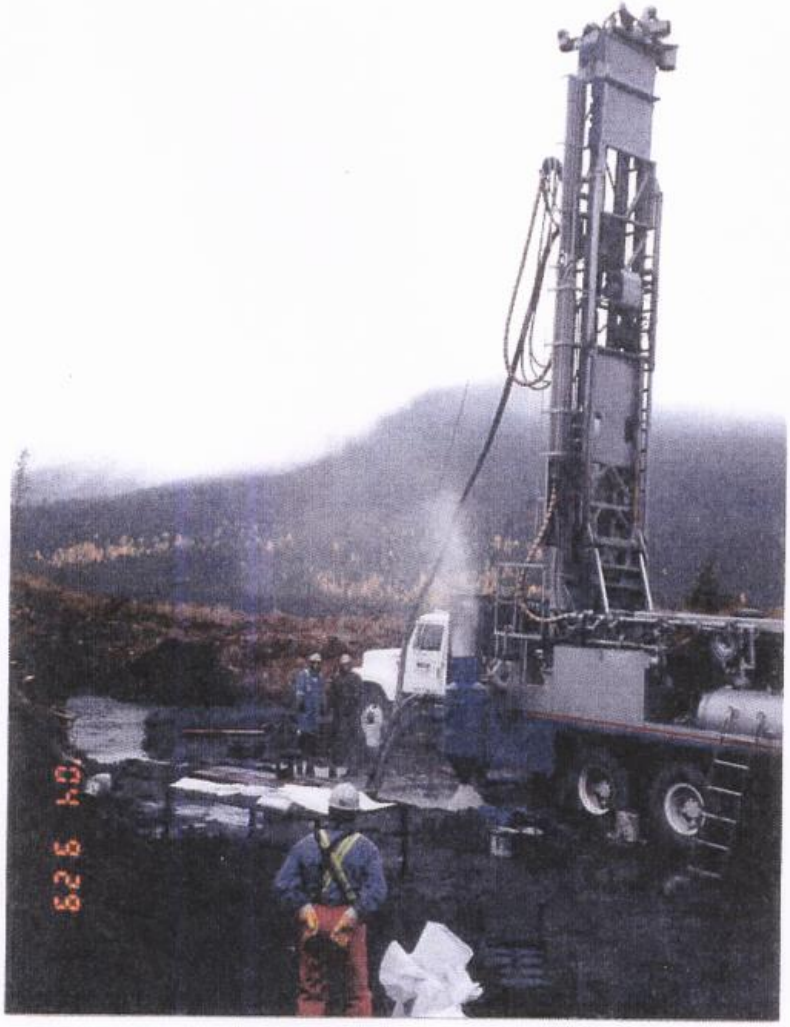

Figure 7. Beck Drilling and Environmental Rig No. 12: Purging accumulated water from hole BG-04-01V after making a connection.

A downhole geophysical logging unit supplied by Reeves Wireline (a division of Precision Drilling Inc.) was mobilized to the site on Oct. 3 and released on Friday, Oct. 15, after logging five of the six holes. A second geophysical unit supplied by Electrolog Services of Calgary, AB was mobilized for 1 day on November 3 to re-log hole BG-04-02A in order to confirm hole depth and orientation.

Open hole logging operations were conducted on holes BG-04-01 through BG-04-05. Due to caving hole conditions, logging through the drillpipe was conducted on some holes to ensure acquisition of logs, prior to attempting open hole logging. In all cases, open hole logging was successfully completed after removal of drill string. The exception was hole BG-04-02A, which could only be logged to 260 m. depth although the hole was drilled to 270 m. total depth.

In all cases, the standard coal suite including natural gamma, focused resistivity, compensated neutron-density and caliper log were run. In addition, a dipmeter tool, which includes a bed resolution tool plus a continuous hole deviation survey, was run after the standard logging suite was acquired. This tool is only effective to a maximum deviation angle of 50 degrees to horizontal; therefore data acquisition was impaired on hole BG-04-02A. Hole BG-04-02A was re-logged by Electrolog Services Inc. on November 3 using a different deviation tool in order to get an accurate borehole deviation.

Flowing hole conditions on hole BG-04-04A and hole BG-04-05A necessitated downhole packoff operations followed by hole cementing and abandonment operations to prevent water flow. This work was conducted during October 16 and 17 utilizing a tremie unit equipped with a high volume Moyno cement pump (supplied by Beck Drilling and Environmental). Five drillhole collars were capped with locking cap assemblies. Three holes (BG-04-01V, BG-04-02A, BG-04-03V) were capped and left open for use as groundwater monitoring wells. Drillhole BG-04-06V, which was a short vertical hole to test for oxidation of the coal in the existing No. 10 North coal trench and not collared with casing, was simply filled in with loose coal and abandoned.

Reclamation operations included the filling in of all sumps, recontouring of the drill pads, de-commissioning of one drill access road (the others were left open for additional drilling work in 2005), spreading of stockpiled topsoil on the drillpads, and subsequent seeding of a grass mix on the drillpads and

decommissioned road. Additional seeding with fall rye on some of the outside slopes of existing roads, plus the steeper portions of the decommissioned road was carried out. At the time of reclamation of the exploration drilling disturbance, the old open pit on the No. 12\11 Seam was backfilled with spoil, covered with topsoil and seeded. All reclamation work was conducted between the period October 15 to October 20.

Final survey and tie-in of the drill hole collars was carried out by McElhanney Consultants Ltd. on October 22. McElhanney used a remote station GPS unit for drillhole tie-in, with a local base station set up on control points that were installed for the original map compilation work.

Phase 2 (March, 2005)

On February 28, a Cat 330 excavator rented from Sowchuk Mine Services (a division of Tercon Construction Ltd.) was mobilized to the site to prepare drill pads and construct trail access to the east side of the syncline. Five drill pads and 800 m of existing and new exploration trail were constructed to provide access for the drill rig and related equipment. On March 8, Beck Drilling and Environmental Rig No. 12 was mobilized to the site and initiated the second round of reverse circulation drilling. Between March 8 and March 28, 8 reverse circulation drillholes for a total of 1,372 meters of drilling was completed. All holes were logged by Reeves Wireline (Precision Wireline Services) for gamma, density, focused resistivity, caliper, dipmeter, deviation and neutron curves, as in the previous Phase I work. Hole BG-05-11A and 12V, drilled from the same pad, encountered hole bridging problems in the coal. No log of the coal section is available for hole 12V, and only a partial log of the coal section is available for hole 11A.

The holes for Phase 2 drilling were left open, pending groundwater investigation studies. Metal caps with padlocks were installed to secure the holes. Only partial reclamation of the drill sites was undertaken in order to leave vehicle access to the drillhole collars for groundwater monitoring and later abandonment operations.

All drillhole collars were tied in using McElhanney Consulting Ltd. on March 26, 2005 with a remote station GPS unit.

Copies of the geophysical logs for the Phase 1 and Phase 2 drilling are included as **Appendix III.**

Drillhole Summary

Table 1.. summarizes the drillhole program conducted in 2004 on the Bingay Coal Property. ***Figure 8***. illustrates the location of the drillholes completed on the Bingay Creek Coal Property (after Cathyl-Bickford, 2005).

Table 1 : Drillhole Summary Table, Bingay Creek Exploration

Hole No.	U.T.M. Grid Location		Elevation	Azimuth	Tilt Angle	Total
	Easting	Northing	(m ASL)	(Deg. from T. N.)	(Deg. from horiz)	Depth (m)
BG-83-01DDH	11U0644117	5562601	1489.0	130	50	295.4
BG-83-02DDH	11U0644117	5562601	1489.0	175	80	200.0
BG-83-03DDH	11U0644330	5563180	1388.2	135	45	394.4
BG-04-01V	11U0644015	5562698	1452.3	0	90	270.1
BG-04-02A	11U0644012	5562698	1452.2	265	50	276.0
BG-04-03V	11U0644333	5563183	1387.2	0	90	306.7
BG-04-04A	11U0644332	5563183	1387.2	280	60	245.5
BG-04-05A	11U0644058	5562902	1440.1	284	50	186.0
BG-04-06V	11U0644065	5563271	1421.9	0	90	32.0
BG-05-07V	11U0644286	5562991	1402.5	0	90	185.0
BG-05-08A	11U0644299	5562986	1402.1	127	50	230.0
BG-05-09A	11U0644179	5562914	1416.0	292	50	225.0
BG-05-10A	11U0644188	5562917	1416.0	112	50	135.0
BG-05-11A	11U0644322	5562796	1417.5	127	50	186.0
BG-05-12V	11U0644321	5562793	1417.5	0	90	147.0
BG-05-13A	11U0644158	5563434	1416.7	132	50	94.5
BG-05-14A	11U0644057	5563313	1423.7	122	50	168.0

NOTES: All hole collars surveyed by McElhanney Consulting Ltd. in NAD 83 CSRS. Elevations derived from GPS measurements using the HT2.0 Geoid model.

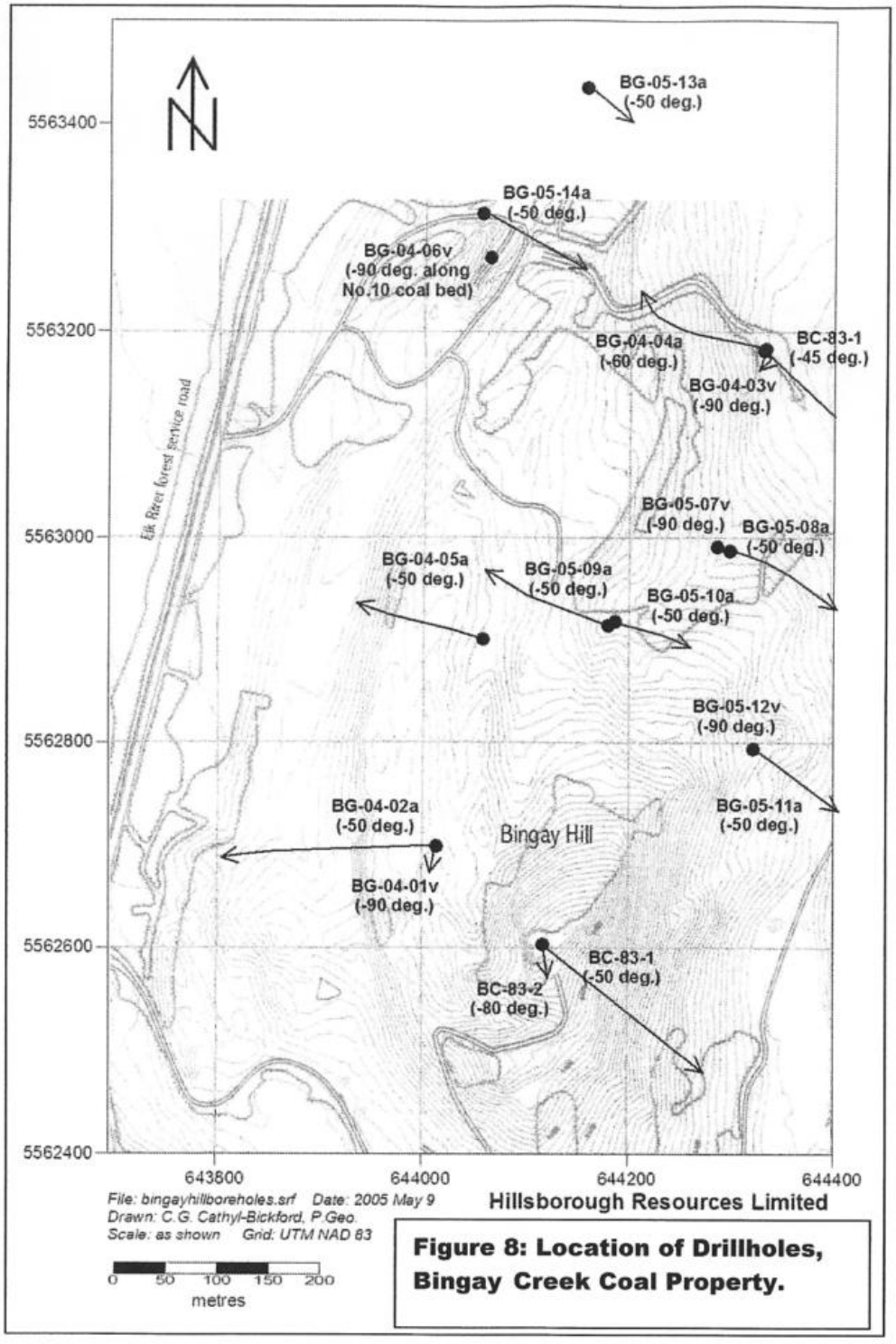

Figure 8: Location of Drillholes, Bingay Creek Coal Property.

SUMMARY OF COSTS

The following summary of costs is a statement of all field costs incurred during the 2004 and 2005 exploration work on the Bingay Creek Coal Property. It does not include head office administration or any costs associated with background environmental work, permitting or engineering studies.

Table 2. : Summary of Exploration Costs, Bingay Creek Exploration 2004 – 2005.

Cost Center	2004 Phase I	2005 Phase II	Total Costs
Base Mapping	14,250	0	14,250
Equipment Mob-Demob	15,600	14,000	29,600
Site Prep & Access	22,410	18,697	41,107
Drilling	88,834	82,477	171,311
Geophysical Logging	20,128	23,297	43,425
Surveying	3,750	3,000	6,750
Supervision	18,200	14,850	33,050
Reclamation/Abandonment	11,455	7,570	19,025
Lab & Analytical	8,962	31,984	40,946
Travel, Accom. & Misc.	19,806	12,080	31,886
Sub-Totals...	***223,395***	***207,955***	***431,350***

The all-in cost per meter of the exploration program is $160.53 per meter drilled, including the mapping program and logging of the 1983 core, plus all laboratory and reflectance work. The direct drilling cost charged by Beck Drilling and Environmental is $63.76 per meter drilled. Downhole geophysical logging cost $16.16 per meter.

GEOLOGY

Stratigraphy

The coal measures are found within the Mist Mountain Formation of the Lower Cretaceous Kootenay Group. The following Table of Formations is taken from C. G. Cathyl-Bickford's report and is modeled after Gibson (1985).

Table 3. : Table of formations for the Bingay Creek area

Quaternary	
Pleistocene to Holocene	
Qd	*DRIFT: Gravel, alluvium, talus and till; minor localised mucky peats.*
Jurassic and Cretaceous	
	KOOTENAY GROUP (Jura-Cretaceous rocks only):
Tithonian to Hauterivian?	
JKmm	*MIST MOUNTAIN FORMATION: Siltstone, variably-carbonaceous mudstone; channel-filling, well-sorted quartzose sandstone; coal; minor marlstone, ironstone and tonstein.*
Jmo	*MORRISSEY FORMATION: Sandstone and minor siltstone.*
Jmo2	*MOOSE MOUNTAIN MEMBER: Quartzose sandstone containing minor amounts of rock fragments; minor siltstone and gritstone; very resistant to erosion.*
Jmo1	*WEARY RIDGE MEMBER: Silty sandstone composed of quartz and rock fragments, with interbeds of siltstone; softer than overlying beds.*
Oxfordian to Tithonian?	
JF	*FERNIE FORMATION: Interbedded siltstone and feldspar-rich silty sandstone; minor silty mudstone.*
Triassic and older	
	ROCKY MOUNTAIN SUPERGROUP AND SPRAY RIVER GROUP (UNDIVIDED)
Stephanian to Rhaetian?	
Pre-JF	*Quartzitic and dolomitic sandstone, limestone and dolomite, mudstone and siltstone.*

The Mist Mountain Formation at Bingay Creek consists of at least 460 m of alternating fine grained sandstones, siltstones, shales and coals. There are at least 31 coalbeds contained within the Mist Mountain Formation at Bingay Creek (Cathyl-Bickford, 2005) which range in true thickness from 0.3 to 16.2 meters. There are three main coal zones which range from 9 to 16 meters thick: the Seam No. 9-10 interval, the Seam No. 11-12 interval and the Seam No. 21 interval (seams numbered from lowest to highest in the section). Two prominent ridge-forming massive sandstone units in the middle part of the Mist Mountain Fm. are located

above and below the Seam No. 11-12 interval, and these ridge formers account for the topographic expression named 'Bingay Hill'. Cathyl-Bickford has described the stratigraphic succession at Bingay Creek in detail in her report (see Pages 34 to 44, "Geological Report on the Bingay Creek Coal Property", May 2005).

Structure

As previously stated, the dominant structural feature on the Bingay Creek Property is the 'Bingay Syncline': a tight, asymmetrical synclinal fold structure which plunges to the north-north-east beneath the floodplain of the Elk River, and noses out to the southeast at the north side of the Bingay Creek valley. The west limb of the syncline is vertical, becoming overturned along plunge to the north. Borehole BG-05-13A identified moderate overturning and presents some possibility of a roll-over of the structure into a complementary anticlinal fold to the north and west of the syncline. The east limb of the Bingay Syncline dips from 45 to 65 degrees to the NW and surface mapping indicates some drag-folding structures that may be associated with minor thrust faulting. As can be seen from the differing styles of the three cross-sections in ***Figure 9*** (courtesy, C. G. Cathyl-Bickford, pp 39: "Geological Report on the Bingay Creek Coal Property", May, 2005), drill spacing and orientation does not yet allow for firm determinations of the synclinal configuration along strike. ***Figure 6*** on Page 17 (courtesy, C. G. Cathyl-Bickford, pp 36: "Geological Report on the Bingay Creek Coal Property", May, 2005) illustrates the location of the cross-sections in ***Figure 9***.

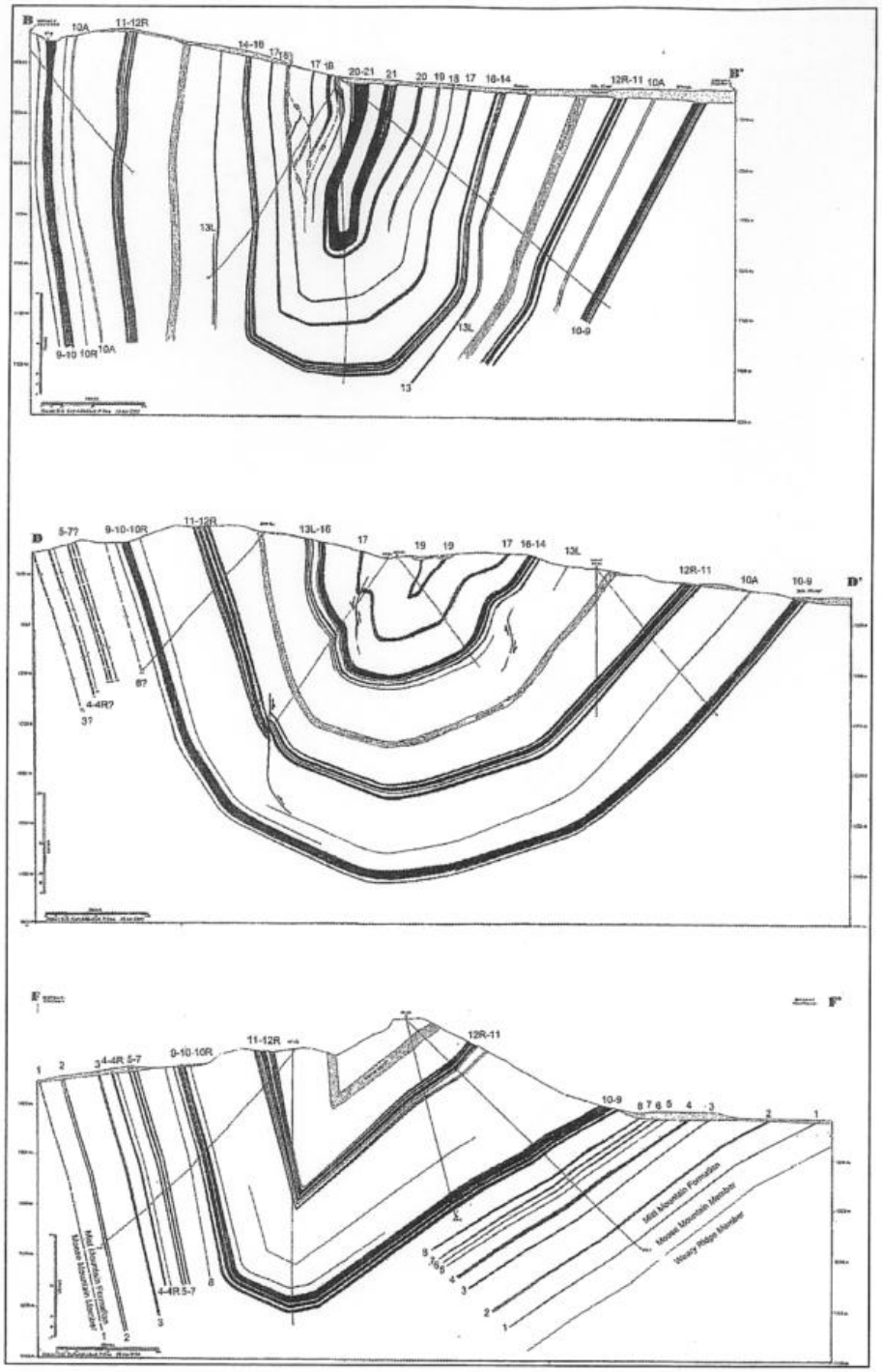

Figure 9: Cross-sections, Bingay Creek Coal Property (courtesy, C. G. Cathyl-Bickford, 2005)

Coal Resources

C. G. Cathyl-Bickford performed detailed coal resource calculations for the Bingay Creek Coal Property within the context of National Instrument 43-101 Securities Regulation for Canadian publicly-listed companies. These coal resource calculations are presented in Section 19 of her report (see pp 140, "Geological Report on the Bingay Creek Coal Property"). They can be summarized as follows:

[redacted]

The resources identified by Cathyl-Bickford are coals of immediate interest for surface mining, using a 20 : 1 (m^3/tonne) incremental strip ratio and a 2 : 1 coal-rock thickness ratio., with minimum aggregate seam thickness of 1 meter and maximum rock parting thickness of 0.6 meter. The presented numbers are resources only and no detailed feasibility work has been conducted at Bingay Creek, therefore average strip ratio calculations are not available.

Coal Quality

Generally speaking, Bingay Creek Coals are of medium volatile bituminous rank.

[redacted]

SUMMARY AND CONCLUSIONS

A program of historical review, surface mapping and reverse circulation drilling conducted by Hillsborough Resources Ltd. on the Bingay Creek Coal Property during the period May, 2004 to May 2005 resulted in the delineation of N.I. 43-101 compliant coal resources [redacted] These resources are classified according to the surface mining category. The program expenditures totaled $431,350.00, or an overall cost per meter of drilling of $160.53.

The Bingay Creek coal deposit is made up of 31 individual coalbeds in the Mist Mountain Formation, ranging in thickness from 0.30 meters to 16.20 meters. Three major coal units (the No. 9 -10, the No. 11-12 and the No. 20-21) range from 8 to 16 meters in thickness and account for the bulk of the coal resources identified to date. Additional drilling is required to bring seams 1 to 8 in the lower part of the Mist Mountain Formation into the measured resource base. The coal deposits at Bingay Creek are contained within a tight asymmetrical syncline (the Bingay Syncline) which plunges steeply to the north-north-east, nosing out to the south-south-west on the north side of Bingay Creek, an easterly-flowing tributary of the Elk River. Dips on the west limb of the syncline range from vertical to overturned, while dips on the east limb of the syncline range from 45 to 65 degrees to the north-west.

The Bingay coals are medium volatile bituminous, with mean maximum reflectance [redacted] The coking qualities of the individual seams range from low to good. Generally, the coal seams near the top of the stratigraphic sequence possess better coking qualities. However, the lower coals exhibit good coking qualities on the east limb of the syncline: spatial quality variations require further work to determine their impact on mine planning and blending.

Work to date has determined the need for additional investigation drilling to the northwest in order to explore the possibility of a complementary anticlinal fold which may contain additional Mist Mountain coals.

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APPENDIX I
GEOLOGY REPORT

ITEM 1: TITLE PAGE

GEOLOGICAL REPORT

ON THE

BINGAY CREEK
COAL PROPERTY

(KOOTENAY LAND DISTRICT, BRITISH COLUMBIA)

INCORPORATING THE RESULTS OF DRILLING DONE IN MARCH, 2005

FOR

HILLSBOROUGH RESOURCES LIMITED
1100-355 BURRARD STREET, VANCOUVER, BC V6C 2G8

BY

C. GWYNETH CATHYL-BICKFORD, P.GEO., LIC.GEOL.
PRINCIPAL GEOLOGIST, WESTWATER MINING LTD.

REPORT WR 207-12

31 MAY, 2005

ITEM 2: TABLE OF CONTENTS

ITEM 1: TITLE PAGE 1

ITEM 2: TABLE OF CONTENTS 2

2.1 LIST OF FIGURES 4
2.2 LIST OF TABLES 4

ITEM 3: SUMMARY 6

3.1 SUMMARY OF COAL RESOURCES 10
3.2 RECOMMENDED EXPLORATION 11
3.3 CAVEATS 11

ITEM 4: INTRODUCTION AND TERMS OF REFERENCE 12

4.1 TERMS OF REFERENCE 12
4.2 PURPOSE OF REPORT 12
4.3 SOURCES 12
4.4 EXTENT OF FIELD INVOLVEMENT OF THE QUALIFIED PERSON 14

ITEM 5: DISCLAIMER 15

ITEM 6: PROPERTY DESCRIPTION AND LOCATION 16

6.1 DESCRIPTION OF THE BINGAY CREEK PROPERTY 16
6.2 COMPANY'S INTERESTS IN THE PROPERTY 18
6.3 LOCATION OF KNOWN MINES AND MINERAL OCCURRENCES RELATIVE TO THE PROPERTY 19
6.4 ENVIRONMENTAL LIABILITIES 21
6.5 ROYALTIES AND ENCUMBRANCES 22
6.6 PERMIT REQUIREMENTS 22
6.7 EXPLORATION PERMIT STATUS AT BINGAY CREEK 22
6.8 TIMBER CUTTING PERMIT STATUS AT BINGAY CREEK 22

ITEM 7: ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY 23

7.1 ACCESSIBILITY 23
7.2 CLIMATE 23
7.3 LOCAL RESOURCES 25
7.4 INFRASTRUCTURE 25
7.5 PHYSIOGRAPHY 26
7.6 FOREST COVER 26
7.7 WILDLIFE 27

ITEM 8: HISTORY 28

8.1 PREVIOUS OWNERSHIP 28
8.2 EXPLORATION HISTORY 28
8.3 HISTORICAL COAL RESOURCE ESTIMATES 32
8.4 HISTORICAL COAL PRODUCTION 33

ITEM 9: GEOLOGICAL SETTING 34

9.1 REGIONAL GEOLOGICAL CONTEXT 34
9.2 BASIN FILL 34
9.3 LOCAL GEOLOGY 35
9.4 PROPERTY-SCALE GEOLOGY OF BINGAY CREEK 38

ITEM 10: DEPOSIT TYPES 46

10.1 DEPOSIT TYPE AT BINGAY CREEK 46
10.2 GEOLOGY TYPE AT BINGAY CREEK 46
10.3 DEPOSITIONAL MODELS FOR COALS OF THE MIST MOUNTAIN FORMATION 46

ITEM 11: MINERALISATION 50

11.1 COAL EXPLORATION CONCEPTS 50
11.2 COAL BEDS OF IMMEDIATE INTEREST FOR SURFACE MINING 50
11.3 DISCUSSION OF CORRELATION ISSUES 105
11.4 SEDIMENTOLOGICAL COMMENTARY 105
11.5 PALEONTOLOGICAL COMMENTARY 106

ITEM 12: EXPLORATION 107

12.1 STATEMENT OF RESPONSIBILITY 107
12.2 RELIABILITY OF RESULTS 107

ITEM 13: DRILLING 108

13.1 HISTORIC BOREHOLE DESIGN 109
13.2 HISTORIC CORE-LOGGING METHODS 109

ITEM 14: SAMPLING METHOD AND APPROACH 110

14.1 METHODOLOGY 110
14.2 ISSUES CONCERNING ACCURACY AND RELIABILITY 111
14.3 SAMPLE QUALITY ISSUES 111
14.4 GEOLOGICAL CONTROLS ON SAMPLING INTERVAL 112
14.5 COAL QUALITY DATA 113
14.6 COMMENTARY ON COAL QUALITY 132

ITEM 15: SAMPLE PREPARATION, ANALYSIS AND SECURITY 136

ITEM 16: DATA VERIFICATION 137

ITEM 17: ADJACENT PROPERTIES 138

17.1 EXPLORATION DATA FROM ADJOINING PROPERTIES 138

ITEM 18: MINERAL PROCESSING AND METALLURGICAL TESTING 139

18.2 ADVANCED COAL-PROCESSING TESTWORK 139
18.1 COALBED GAS TESTWORK 139

ITEM 19: MINERAL RESOURCES AND MINERAL RESERVE ESTIMATES 140

19.1 COAL RESOURCE ESTIMATES 140

ITEM 20: OTHER RELEVANT DATA AND INFORMATION 148

20.1 EXPLORATORY COST ANALYSIS 148

ITEM 21: INTERPRETATION AND CONCLUSIONS 149

ITEM 22: RECOMMENDATIONS 150

22.1 PHASE 1 DRILLING 150
22.2 TRENCHING 152
22.3 GEOLOGICAL FIELDWORK 152
22.4 ANALYTICAL WORK 152
22.5 PROPOSED EXPLORATION BUDGET FOR PHASE 1 153
22.6 COMMENTS ON PHASE 2 EXPLORATION 153

ITEM 23: REFERENCES 154

ITEM 24: DATE 158

ITEM 25: ADDITIONAL REQUIREMENTS FOR TECHNICAL REPORTS ON DEVELOPMENT PROPERTIES AND PRODUCTION PROPERTIES 159

ITEM 26: ILLUSTRATIONS 160

CERTIFICATE OF AUTHOR 161

TRANSMITTAL 161

2.1 List of Figures

Index	*Title*	*Page*
Figure 1	Project location map	13
Figure 2	Coal property map	17
Figure 3	Prospect workings at Bingay Hill	20
Figure 4	Existing borehole locations at Bingay Hill	21
Figure 5	Infrastructure map	24
Figure 6	Boreholes at and near Bingay Creek	29
Figure 7	Geology of Bingay Hill	36
Figure 8	Cross-sections	39
Figure 9	Postulated paleogeographic setting of Mist Mountain coals	47
Figure 10	Comparison of air-dried ash content and FSI for clean coal (float 1.40 s.g.) from 2004/05 boreholes	133
Figure 11	Comparison of air-dried ash content and FSI for clean coal (float 1.60 s.g.) from 2004/05 boreholes	134
Figure 12	Outline of coal resources	141
Figure 13	Recommended exploratory drilling	151

2.2 List of Tables

Index	*Title*	*Page(s)*
Table 1	Coal licence details	16
Table 2	Anniversary dates and annual rentals for Bingay Creek coal licences	18
Table 3	Summary of boreholes drilled within or adjacent to Bingay Creek property	28
Table 4	Table of formations for the Bingay Creek area	34
Table 5	Stratigraphic interpretation of boreholes and exploratory coalbed gas wells	35
Table 6A	True thickness (metres) of coals and partings in 1983 and 2004 boreholes	42-43
Table 6B	True thickness (metres) of coals and partings in 2005 boreholes	43-44
Table 7	Coal bed intersections in borehole BG-04-01v	51-53
Table 8	Coal bed intersections in borehole BG-04-02a	53-57
Table 9	Coal bed intersections in borehole BG-04-03v	57-61
Table 10	Coal bed intersections in borehole BG-04-04a	62-63
Table 11	Coal bed intersections in borehole BG-04-05a	64-65
Table 12	Coal bed intersections in borehole BG-05-07v	66-68
Table 13	Coal bed intersections in borehole BG-05-08a	68-72
Table 14	Coal bed intersections in borehole BG-05-09a	73-76
Table 15	Coal bed intersections in borehole BG-05-10a	77-78
Table 16	Coal bed intersections in borehole BG-05-11a	79-81
Table 17	Coal bed intersections in borehole BG-05-12v	81
Table 18	Coal bed intersections in borehole BG-05-13a	81-84
Table 19	Coal bed intersections in borehole BG-05-14a	84-86
Table 20	Coal bed intersections in borehole BC-83-1	87-90
Table 21	Coal bed intersections in borehole BC-83-2	91-93

LIST OF TABLES (CONTINUED)

Index	*Title*	*Page(s)*
Table 22	Coal bed intersections in borehole BC-83-3	93-101
Table 23	Coal bed intersections in Trench No.1	101
Table 24	Coal bed intersections in Trench No.2	102-103
Table 25	Coal bed intersections in Trench No.3	103-104
Table 26	Coal bed intersections in Trench No.4	104
Table 27	Coal bed intersections in Trench No.17	104
Table 28	Location data for Cominco Limited boreholes	108
Table 29	Location data for Utah Mines Ltd. boreholes	108
Table 30	Location data for Hillsborough Resources Limited boreholes	108
Table 31	Location data for AEC Oil and Gas coalbed gas exploratory wells	109
Table 32	Raw-coal quality data (air-dried basis) for the Bingay No.9-10 coal zone	113
Table 33	Raw-coal quality data (air-dried basis) for the Bingay No.11-12 coal zone	114
Table 34	Raw-coal quality data (air-dried basis) for the Bingay No.14 coal zone	114
Table 35	Raw-coal quality data (air-dried basis) for the Bingay No.15-16 coal zone	114
Table 36	Raw-coal quality data (air-dried basis) for the Bingay No.17 coal zone	114
Table 37	Raw-coal quality data (air-dried basis) for the Bingay No.18 coal zone	115
Table 38	Raw-coal quality data (air-dried basis) for the Bingay No.19 coal zone	115
Table 39	Raw-coal quality data (air-dried basis) for the Bingay No.20-21 coal zone	115
Table 40	Sink-float data for samples from the Bingay No.9-10 coal zone	117-119
Table 41	Sink-float data for samples from the Bingay No.11-12 coal zone	119-123
Table 42	Sink-float data for samples from the Bingay No.14 coal zone	123
Table 43	Sink-float data for samples from the Bingay No.15-16 coal zone	123-124
Table 44	Sink-float data for samples from the Bingay No.17 coal zone	124-125
Table 45	Sink-float data for samples from the Bingay No.18 coal zone	125-126
Table 46	Sink-float data for samples from the Bingay No.19 coal zone	126-127
Table 47	Sink-float data for samples from the Bingay No.20-21 coal zone	127-128
Table 48	Ultimate analyses of raw coal samples from Bingay Nos.10, 12 and 21 coal beds	129
Table 49	Ash fusion temperatures of raw coal from Bingay Nos.9-10, 11-12 and 20-21 coal zones	129
Table 50	Clean coal (float 1.60 s.g.) ash composition of Bingay Nos. 9 through 12 coal beds	130
Table 51	Hardgrove grindability of raw coal from Bingay Nos. 9-10, 11-12 and 20-21 coal zones	130
Table 52	Cross-references for coalbed gas exploration wells near Bingay Creek	138
Table 53	Coal resource evaluation constraints	140
Table 54	Coal resources of immediate interest for surface mining at Bingay Creek	143-145
Table 55	Breakdown of coal resources by coal zone	145
Table 56	Coal resource summary for Nos.9-10 through 20-21 coal zones at Bingay Creek property	146
Table 57	Recommended Phase 1 exploratory borehole locations	150
Table 58	Proposed Phase 1 exploration budget	153

ITEM 3: SUMMARY

This report presents the author's consideration of the geology and exploratory potential of the Bingay Creek coal property within southeastern British Columbia, Canada, pursuant to a letter of engagement from Hillsborough Resources Limited dated 1 June 2004.

Historic exploration (done at various times up until 2002) and work done by Hillsborough Resources Limited during the autumn of 2004 and spring of 2005 has sufficed to allow determination of coal resources of immediate interest for surface coal mining within the Bingay Creek coal property. Therefore, this report is written under the terms of *National Instrument 43-101*, in recognition that determining the property's coal geology and coal resources is an essential prerequisite to mine planning at Bingay Creek.

The purpose of this report is to evaluate the geology, coal resources and exploratory potential for coal at Bingay Creek, incorporating new coal resource estimates which have been prepared in accordance with current reporting standards. This report has been prepared for private use by Hillsborough Resources Limited, and for submission to regulatory agencies.

Information and data contained in this report come primarily from the author's interpretation of subsurface geological data collected by others, as cited in the reference list and within the report's text, supplemented by geological observations and interpretations made by the author in the course of her summer 2004 and spring 2005 fieldwork whilst in the employ of Westwater Mining Ltd.

Seventeen boreholes are known to have been drilled within the Bingay Creek coal licences: three by Utah Mines Ltd. in 1983, six by Hillsborough Resources Limited in 2004, and eight by Hillsborough Resources Limited in 2005.

Borehole data have been obtained by the author from the coal assessment report files of the B.C. Ministry of Energy and Mines, from the Ministry's petroleum and natural gas well log files, and from Hillsborough Resources Limited. Drilling cost information and copies of the Crown coal licences for the Bingay Creek property were provided by Mr. S.L. Gardner P.Geo., Hillsborough Resources Limited's Director of Exploration.

The Bingay Creek area, as presently considered, is bounded to the west by longitude 115°00' W, to the south by latitude 50°10' N, to the east by Elk River, and to the north by latitude 50°14' N. This area lies within the Montane Spruce continental biogeoclimatic subzone, within the Southern Rocky Mountains of southeastern British Columbia, Canada. Characteristic of this subzone is a temperate climate of continental type, with long, cold, relatively dry winters and short, warm summers.

The property consists of a northwest-trending block of Crown coal exploration licences totalling 565 hectares (1396 acres), issued by the British Columbia Ministry of Energy and Mines. The coal licences are held in good standing (verified by the author's query into the coal titles database maintained by the provincial Ministry of Sustainable Resource Management) by Hillsborough Resources Limited. The coal licences are contiguous, with no known inholdings of alienated coal rights. An additional 537 hectares (1327 acres) of coal licence lands have been applied for by Hillsborough Resources Limited, but have not yet been granted by the provincial government.

Annual rentals for the coal licences at Bingay Creek are up to date to September 15, 2005. Extension beyond that time will require payment of an annual rental fee, which will become due at various times according to the anniversary date of each licence.

The Bingay Creek coal lands are subject to a Crown coal production royalty, the amount and terms of which are set by the provincial government. The Bingay coal is also subject to a royalty payable to Iron Creek Exploration Ltd. under the terms of their agreement with Hillsborough Resources Limited. Details of these royalties are not known to the author.

The property is bounded to the east by coal mining leases held by Elk Valley Coal Corporation, and to the north, west and south by vacant Crown mineral lands. The nearest incorporated settlement to Bingay Creek is the Town of Elkford, whose urban core lies about 21 kilometres south of the Bingay Creek property. In comparison with most coal properties in British Columbia, exploration access to Bingay Creek is convenient, by virtue of its location adjacent to an all-weather forest service road, and the presence of branch roads within the property.

The closest railhead to Bingay Creek is about 30 kilometres away near Elkford, on the Fording River branch of the Canadian Pacific Railway. Coal shipments from Bingay Creek could also access the Burlington Northern railhead at Eureka, Montana; this railhead is situated about 168 kilometres from Bingay Creek, via Highways 43, 3 and 93.

The Bingay Creek property lies along the western margin of the Elk Valley coalfield of southeastern British Columbia. The coal-measures at Bingay Creek are hosted by the Mist Mountain Formation, part of the Jura-Cretaceous Kootenay Group. The Mist Mountain coal-measures are underlain by Jurassic rocks of the Morrisey and Fernie formations. The coal-measures are folded into an east-verging, northeast-plunging asymmetric syncline, known as the Bingay Syncline. Coals of interest for surface mining are present along both limbs of the syncline, within its tightly-compressed core, and across its southern nose at Bingay Hill.

The Bingay Creek coal property contains at least thirty-one correlatable coal beds which range in true thickness from 0.3 to 16.2 metres. Cumulative thickness of these coals is 62.6 metres, over a stratigraphic interval of 460 metres. Coal thus forms about 13.6% of the stratigraphic section at Bingay. Of these coals, 24 are at least 1 metre thick.

- Eight coal beds are concentrated into three relatively compact coal zones (the 9-10, 11-12 and 20-21 zones) for which resources were estimated in the course of the previous study (Cathyl-Bickford, 2004).
- Out of the other twenty-three coal beds, an additional eight beds have been sufficiently explored during the 2005 drilling programme to allow for coal-resource calculations; thus, a total of 16 major coal beds have been brought into the resource base within the present report.
- All coal beds greater than 1 metre thick (and consisting of at least 2/3 coal by thickness) lying between the No.9-10 and No.21 coal zones have now been brought into the resource base.
- Within the less-explored basal part of the Mist Mountain Formation (below the No.9 coal bed), eight coal beds with individual thicknesses of at least 1 metre and ranging up to 2.99 metres are present. These coals are only known from two boreholes, and therefore cannot yet be brought into the resource base.

The Bingay Creek coals consist of alternating bright (probably vitrinite-rich) and dull (probably inert-rich) bands, associated with thin and thick internal partings of variably-carbonaceous mudstone, and less-frequent partings of siltstone, ironstone, tonstein and sandstone.

Most of the internal partings within the coals contain plant debris and rootlet traces, indicative of the formation of paleosols. Rooting is somewhat less common beneath the coal beds, suggesting that some of the coals originated as floating 'peat islands' above the waters of lakes, ponds or lagoons. The Bingay Creek coals are slightly to intensely sheared, but most of the coals have retained coherent bedding and banding, and the coal-measures as a whole have retained their normal stratigraphic succession.

The Bingay Creek coals are of medium volatile to high volatile bituminous rank. The rank of the coals is highest (their volatile content is lowest) near the base of the coal-measures, and rank declines (volatile content increases) towards the top of the coal-measures.

Maceral composition data from reverse-circulation samples should be interpreted with caution. Macerals may be partitioned in a non-uniform manner between coarse and fine fractions of drill cuttings, and if the fine fractions are lost in the course of sampling, the maceral distribution of the resultant samples may be skewed. In the case of the final hole of the 2005 drilling programme, the author observed fine, bright (and very probably vitrinite-rich) coal being lost through the screens of the sampling pails, as well as through the meshes of sample bags. Coring of the Bingay coals (particularly large-diameter coring, which offers a better likelihood of high core recovery in sheared coals) may produce more representative petrographic samples in future exploration programmes.

Among the major coal zones at Bingay Creek (and on a raw, unwashed, coal basis), the 20-21 coals have the lowest ash contents, the 9-10 coals have slightly higher (but still quite low) ash contents, and the 11-12 coals have markedly higher ash contents.

[redacted]

Further analytical work, preferably including a test wash of the coals and coking tests of the clean coal products, will be needed to determine the wash-plant yields, and suitability of clean coal products for various markets. To perform this work effectively, samples of the coal which are large enough (and representative of the coal beds) must be taken. Large-diameter coring, or perhaps augering, of the coal may provide such samples.

In considering the possible clean coal product quality from the Bingay Creek coal deposit, it should be borne in mind that the deposit consists of numerous coal beds. During mining, the multiple coal beds afford the prospect of blending the various raw coals to assist in the preparation of desired coal products.

Issues with sample quality from reverse-circulation drilling

Reverse-circulation drilling – such as was employed by Hillsborough Resources during their autumn 2004 and spring 2005 exploration programmes – produces small cuttings of coal and rock, with a top size seldom exceeding 13 millimetres (half an inch). Fine powdery and very small chips of coal and rock are produced along with the larger cuttings; some of the minus-28-mesh material would have been lost through the screens in the sampling pail, and more of the fine material would have been lost through the open weaving of the sample bags.

- Loss of the fines from the reverse-circulation samples has probably acted to reduce the amount of fine, powdery vitrinite (essentially the 'bright' component of a banded coal) within the samples.
- Vitrinite contributes significantly to coal's agglomerating character, and it also tends to have a lower mineral-matter content, and hence a lower ash yield during proximate analysis, then do the other components of a coal bed.
- Therefore it is likely that the ash yields of the analysed samples would be higher than those which would be reported from the coal in place.
- Conversely, the agglomerating powers of the analysed samples (as expressed by their free swelling indices) would be lower that those which would be reported from the coal in place.
- Washability results from reverse-circulation cuttings may also be adversely impacted by the loss of fine, vitrinite-rich, coal particles from the samples.

The issue of sample bias in reverse-circulation cuttings samples is significant to the evaluation of the Bingay Creek coals, since virtually all of the coal-quality data available for the property is based on cuttings samples. In my opinion, the coking coal indices of the Bingay Creek coals are likely to be somewhat better (e.g. higher FSI, higher reactive maceral content) in samples taken from large-diameter diamond-drill cores, than from reverse-circulation cuttings.

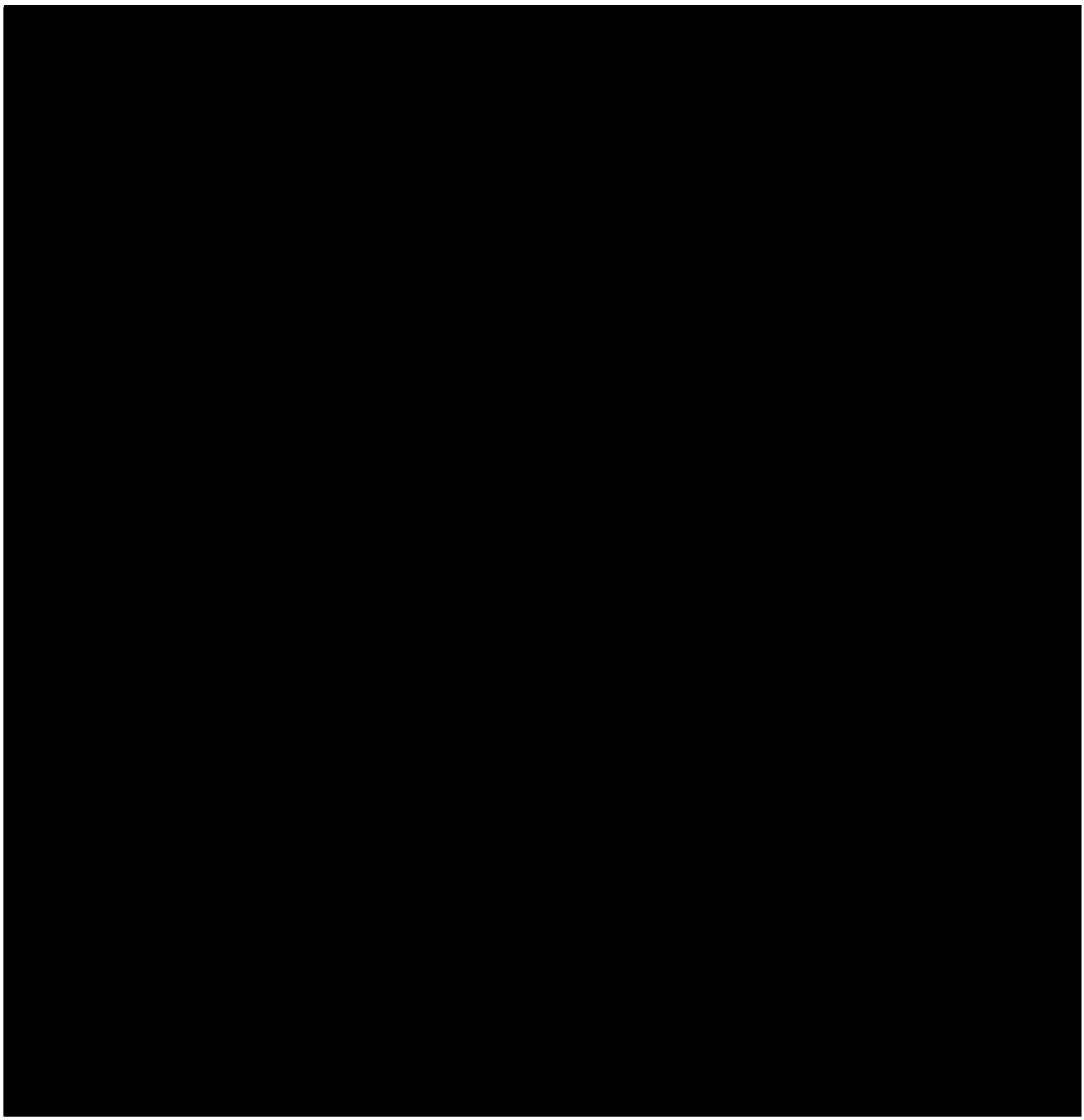
Recommended analytical protocol for future work

An appropriate suite of analyses would include the following tests on float 1.40 gm/cm^3, float 1.50 gm/cm^3 and float 1.60 gm/cm^3 products from sink-float tests:

- Full proximate analysis, including moisture, ash, sulphur, fixed carbon and volatile matter determinations.
- Ultimate analysis.
- Total sulphur and sulphur forms.
- Phosphorus in the coal and within coke buttons produced from the coal.

- Free-swelling index (FSI).
- Fluidity and dilatometry.
- Ash chemistry.
- Ash fusion temperate determination (at four points each, under oxidising and reducing conditions).
- Hardgrove Grindability Index.

Petrographic study, including determination of vitrinite reflectance and maceral composition should be done on those composite samples which, on the basis of the preceding tests, show good coking potential. As well, pilot-scale coking tests should be done on a representative mix of coals from the property.



[redacted]

3.2 RECOMMENDED EXPLORATION

Further work at Bingay Creek should mainly focus on assessing the potential for additional mineable coal in the underexplored zones lying between the No.8 coal bed and the Moose Mountain sandstone. As well, attention should be paid to extending measured and indicated coal resources northward along the western limb of the Bingay Syncline. Drilling should form the major part of further work at Bingay Creek, as it affords the only means to test the coals at depth. A budget planning factor of $180 (Canadian funds) per metre is suggested. Six boreholes, totalling 1200 metres, are recommended to be drilled.

- As well, trenching should be done, to collect additional information as to the structural attitude, thickness and near-surface quality of the coal beds.
- A modest amount of geological mapping should also be done, focussing on extending the known and inferred extent of near-surface coal-measures.
- Advanced testwork should be done on the Bingay Creek coals. Of principal interest are coking tests of the clean coal products obtained from washability tests.

The estimated overall cost of this exploration programme is $417,900 (Canadian funds, inclusive of 15% allowance for contingencies).

3.3 CAVEATS

a. ***Coal resources do not have demonstrated economic viability.***

b. ***In considering the coal resources at Bingay Creek, it must be borne in mind that many of the coal beds contain 'partings' of rock, coaly rock, and dirty coal.***

c. ***Some of the identified coal resources are defined by historic borehole data (the Utah 1983 boreholes), drilled within the property.***

All of the major coal beds at Bingay Creek contain partings of rock, coaly rock, and dirty coal, which would act to reduce the yield of clean coal out of run-of-mine production. The prospect of reduced clean coal yield is borne out by the results of sink-float tests performed on some of the coals.

Coal resources available to mining may be adversely impacted by environmental or socio-economic policy decisions made by local, provincial and federal government agencies.

ITEM 4: INTRODUCTION AND TERMS OF REFERENCE

4.1 TERMS OF REFERENCE

This report presents the author's consideration of the geology and exploratory potential of the Bingay Creek area, pursuant to a letter of engagement from Hillsborough Resources Limited dated 1 June 2004.

The Bingay Creek area, as presently considered, is bounded to the west by longitude 115°00' W, to the south by latitude 50°10' N, to the east by Elk River, and to the north by latitude 50°14' N. **Figure 1** shows the general location of the Bingay Creek coal property in relation to highways and settlements.

Historic exploration (done at various times up until 2002) and work done by Hillsborough Resources Limited during the autumn of 2004 and spring of 2005 has sufficed to allow determination of coal resources of immediate interest for surface coal mining within the Bingay Creek coal property. Therefore, this report is written under the terms of *National Instrument 43-101*, in recognition that determining the property's geology and coal resources is prerequisite to mine planning at Bingay Creek.

4.2 PURPOSE OF REPORT

The purpose of this report is to evaluate the geology, coal resources and exploratory potential for coal at Bingay Creek, incorporating new coal resource estimates which have been prepared in accordance with current reporting standards. This report has been prepared for private use by Hillsborough Resources Limited, and for submission to regulatory agencies.

This report supersedes an earlier report on the property (Cathyl-Bickford, 2004), which was compiled in December 2004.

4.3 SOURCES

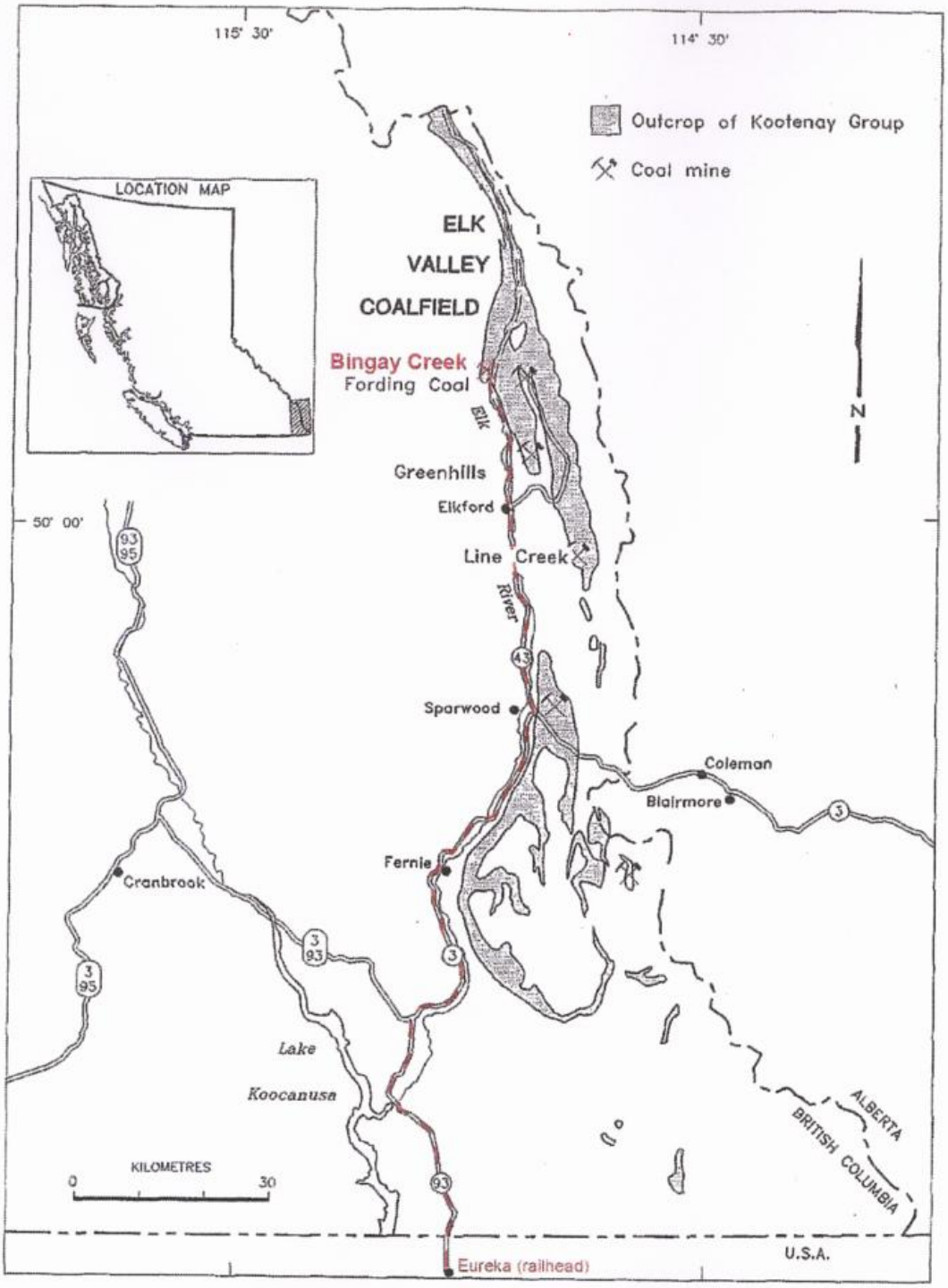
Information and data contained in this report come primarily from the author's interpretation of subsurface geological data collected by others, as cited in the reference list and within the report's text, supplemented by geological observations and interpretations made by the author during geological fieldwork.

Borehole information has been obtained by the author from the coal assessment report files of the B.C. Ministry of Energy and Mines, from the Ministry's petroleum and natural gas well log files, and from Hillsborough Resources Limited. Drilling cost information and copies of the Crown coal licences for the Bingay Creek property were provided by Mr. S.L. Gardner P.Geo., Hillsborough Resources Limited's Director of Exploration.

While the author, who is a qualified person for coal exploration and coal resource assessment, has conducted site visits and has interpreted all available subsurface data from the property, she did not participate in the original field exploration of the property, which was conducted between ca. 1903 and 2002. She also was not present on-site during the autumn 2004 drilling programme and the beginning of the 2005 programme, and has relied upon downhole geophysical logs for interpretation of the results from those programmes.

4.3.1 ACKNOWLEDGEMENTS

Assistance in locating archived geological data was graciously provided by Mr. Steve Gardner of Hillsborough Resources Limited. Particular thanks are due to Mr. William Shenfield of Iron Creek Exploration Ltd., for his assistance in core-handling as well as pleasant company in the woods during site visits in 2004 and 2005. In addition, the author has benefited greatly from discussions of local and regional geology with Messrs. Gardner and Shenfield, and of coal quality requirements of the coking trade with Mr. David Fawcett of Hillsborough Resources Limited. However, the author remains solely responsible for the contents and conclusions of the present report.



File: bingayroadmap.srf Date: 2004 Dec. 16
Drawn: C.G. Cathyl-Bickford. P.Geo.
Modified after Grieve. 1992. Scale: as shown

Hillsborough Resources Limited
Bingay Creek Coal Project
Figure 1: Project Location Map

4.4 EXTENT OF FIELD INVOLVEMENT OF THE QUALIFIED PERSON

The author conducted a geological reconnaissance of the Bingay Creek area in the course of her summer 2004 and spring 2005 fieldwork whilst in the employ of Westwater Mining Ltd; additionally, she witnessed the geophysical logging of the spring 2005 boreholes. Her understanding of climate and seasonal weather patterns has come from her own experiences whilst resident at her cabin in Peter Lougheed Provincial Park, a short distance northwest of the property, since the spring of 1991.

ITEM 5: DISCLAIMER

This report has been prepared for Hillsborough Resources Limited by Westwater Mining Ltd. Findings and conclusions presented within this report are based upon information developed by Westwater available at the time of presentation, and upon data supplied by outside sources. In addition to data collected by Westwater during field work, Westwater has relied on the results of exploration documented in various public and archival reports, as listed in **Section 23** of the present report.

An independent title search of mineral rights covering the Bingay Creek area has not been conducted by the author, and any or all responsibilities concerning mineral titles are hereby disclaimed. Reliance has been placed upon mineral title information provided by the British Columbia Ministry of Sustainable Resource Management, and by Hillsborough Resources Limited.

ITEM 6: PROPERTY DESCRIPTION AND LOCATION

The Bingay Creek property lies within the Southern Rocky Mountains of southeastern British Columbia, Canada (as shown on **Figure 1**).

6.1 DESCRIPTION OF THE BINGAY CREEK PROPERTY

Figure 2 shows the outline of the Bingay Creek coal property, and depicts the areas of licensed lands. The Bingay Creek property consists of a northwest-trending block of Crown coal exploration licences totalling 565 hectares (1396 acres), issued by the British Columbia Ministry of Energy and Mines. The property is bounded to the east by coal mining leases held by Elk Valley Coal Corporation, and to the north, west and south by vacant Crown mineral lands.

The Bingay Creek study area, as presently considered, is bounded to the west by longitude 115°00' W, to the south by latitude 50°10' N, to the east by Elk River, and to the north by latitude 50°14' N. The area of present interest for coal exploration lies within a rectangle bounded by 43 to 45 easting, and 62 to 65 northing (grid references are to UTM NAD 83). NTS map sheet 82J/2 covers the Bingay Creek area at 1:50,000 scale with topographic contours at 100-foot (ca. 30-metre) intervals. TRIM map sheets 82J.016 and 82J.026 cover the area at 1:20,000 scale.

The nearest incorporated settlement to Bingay Creek is the Town of Elkford, whose urban core lies about 21 kilometres south of the Bingay Creek property.

6.1.1 COAL LICENCE DETAILS

The Bingay Creek property consists of the coal exploration licences listed in **Table 1** and outlined in red on **Figure 2**.

All of the Bingay Creek coal licences are held in good standing (verified by the author's query into the coal titles database maintained by the provincial Ministry of Sustainable Resource Management) by Hillsborough Resources Limited. Licences previously owned by William Murrel Shenfield (as reported in the December 2004 report) have now been transferred over to Hillsborough's ownership. Details of each coal licence are presented below.

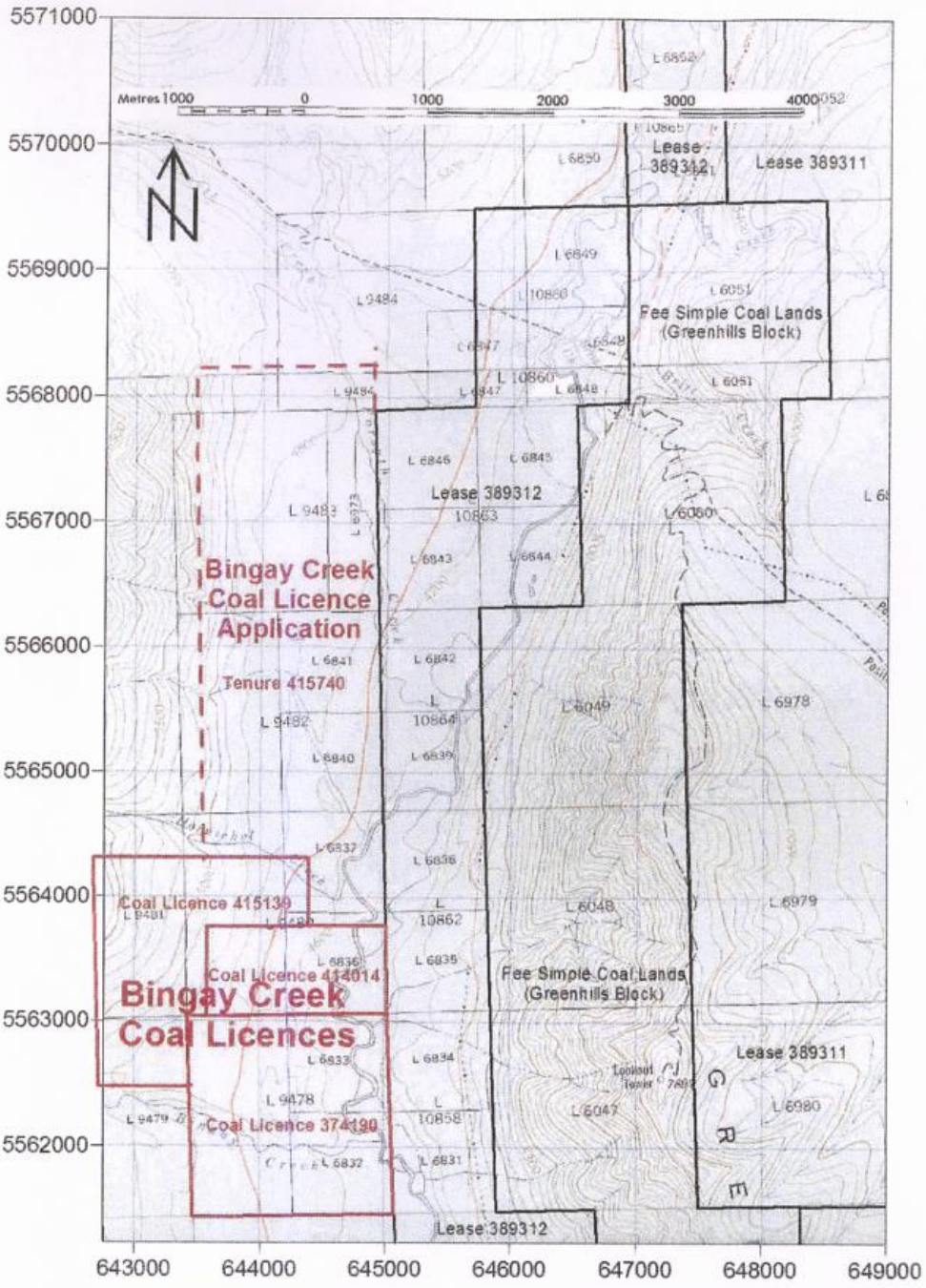
Table 1: Coal Licence Details

C.L. No.	Area in Hectares	Description	Licensee	Issue Date	Anniversary Date
374190	260	District Lot 9478 of Kootenay Land District	Hillsborough Resources Limited	January 18, 2000	January 18, 2006
414014	64	NTS 82 J/2 Block L Units 48. 49 save and except that portion within Lot 9478	Hillsborough Resources Limited	September 15, 2004	September 15, 2005
415139	241	NTS 82 J/2 Block L Units 50, 59 and 60 save and except that portion within Lot 9478.	Hillsborough Resources Limited	November 1, 2004	November 1, 2005

The coal licences are contiguous, with no known inholdings of alienated coal rights.

6.1.1.1 Coal licence applications

An additional 537 hectares (1327 acres) of coal licence lands have been applied for by Hillsborough Resources Limited, but have not yet been granted by the provincial government. This licence application (Tenure Number 415740) covers lands lying to the north of Coal Licence 415139.



File: bingaylandmap.srf Date: 2005 May 8
Drawn: C.G. Cathyl-Bickford, P Geo.
Base map: NTS 82/J2 (edition 2) and 82 J/7 (edition 3). Scale: as shown
Contour interval: 100 feet UTM NAD 27

Hillsborough Resources Limited
Bingay Creek Coal Project
Figure 2: Coal property map

6.1.2 CURRENT STATUS OF THE COAL LICENCES

Annual rentals for the coal licences at Bingay Creek are up to date to the autumn of 2005. Extension beyond that time will require payment of an annual rental fee, which will become due at various times according to the anniversary date of each licence.

The annual anniversary dates and annual rental fees for the Bingay Creek coal licences are shown below in **Table 2**:

Table 2: Anniversary dates and annual rentals for Bingay Creek coal licences

Coal licence number	*Anniversary date*	*Area in hectares*	*Annual rental rate in dollars per hectare*	*Annual rental fee*
374190	January 18th	260	$10.00	$2600.00
414014	September 15th	64	$7.00	$448.00
415139	November 1st	241	$7.00	$1687.00

6.1.3 SURVEY STATUS

The various district lots at Bingay Creek were surveyed early in the 19th century. A collection of blueprints in the CPR Papers (now held as M2269 of the Glenbow-Alberta Institute Archives in Calgary, Alberta) shows surveyed outlines of lots dating back to 1905.

Maps of differing vintages show different lot numbers for land parcels at Bingay Creek. It is possible that lots have been subdivided, or combined into larger lots with different numbers, during the past 100 years. As well, some archival maps identify various land parcels by what appear to be coal licence numbers rather than lot numbers.

Overgrown blazes and axe-cut stumps can nowadays be seen within the forested parts of the property; the author has, however, made no attempt to use these markings to relocate any old corner posts. Given the great length of time since the original survey, it is doubtful that much trace of the old corners could still be found.

Coal licence boundaries at Bingay Creek are defined according to the outlines of the various district lots, or according to unit boundaries of the provincial petroleum and natural gas grid, and are thus depicted on the official outline maps of the licences.

6.2 COMPANY'S INTERESTS IN THE PROPERTY

As mentioned in **Section 6.1** above, coal exploration licences at Bingay Creek are wholly held by Hillsborough Resources Limited.

6.2.1 FEE SIMPLE LANDS

No inholdings of fee simple mineral lands are known to exist at Bingay Creek; owing to the history of the area, it is exceedingly unlikely that any such inholdings would exist. However, privately held mineral lands do exist to the east of the property (**Figure 2**), where the Greenhills Block of fee simple coal lands covers the outcrop of the Kootenay Group along the western slopes of the Greenhills Range. These fee simple lands are not part of the Bingay Creek coal property, and are neither owned nor optioned by Hillsborough Resources Limited.

6.2.2 CROWN COAL LICENCES

Crown coal licences, as granted by the B.C. Ministry of Energy and Mines, carry with them the exclusive right to explore for coal within the licensed lands during the active term of the licence, *but these licences do not carry the rights to the coalbed gas, oil or natural gas within and beneath the licensed area.* Coal licences *do not* convey surface rights to the lands, and access upon the lands must be negotiated with individual land owners. The only known surface rights owner at Bingay Creek is the Crown in right of the Province of British Columbia. All of these lands are presently being managed as forest lands.

Coal licences have one year terms, which are renewable upon application to the provincial Minister of Energy and Mines. *Application for renewal must be made in advance of the expiry of the coal licences.*

6.3 LOCATION OF KNOWN MINES AND MINERAL OCCURRENCES RELATIVE TO THE PROPERTY

The Bingay Creek coal deposit is the only known mineral occurrence within the property (other than the surficial gravels which cover much of the western part of the property, but which are unlikely to be of any more than local interest owing to their distance from potential markets).

6.3.1 PROSPECT WORKINGS

Numerous prospect pits and trenches (**Figure 3**) of various vintages dot the flanks of Bingay Hill, and follow the subcrop traces of coal beds along both limbs of the Bingay Syncline. The pits and trenches are clearly of three distinct ages:

- Old pits and trenches with trees growing around and out of them, frequently marked by rusted metal powder tins; these workings probably date back to the early 1900s, as prospecting in this area was reported by Fraser (1908), and mentioned as dating to 1908-1910 by Grieve (1992).
- More recent pits and trenches with no trees, only partially covered by grass and shrubs; these workings probably date back to the 1970s and onwards, as their recent age has been described by Mr. Shenfield who has told me (personal communication, July 2004) that he dug many of them with his father (now deceased).
- Very recent trenches dug within the past 10 years, by Messrs. Gardner and Wm. Shenfield (Shenfield and Gardner, 1996). These trenches were dug with a mechanical excavator, which is presently parked on the property. Two of these trenches (here referred to as Trenches No.1 and No.2) were examined in detail by the author.

One old adit, locally known as the "400 ton adit" (Wm. Shenfield, personal communication, July 2004) lies within the forested valley in the north-central portion of Coal Licence 374190. The adit runs southwestward along strike of a coal bed which dips steeply to the northwest; its portal is caved, and a chimney-hole has developed above its brow, a few tens of metres southwest of its portal. At the portal of the adit, a dump of weathered coal is now covered by trees and shrubs.

Another adit may be present in a gully on the southwest face of Bingay Hill; its presence is inferred from an overgrown spoil pile of carbonaceous mudstone and fine coal. A very small possibility remains that other adits, not yet seen within the forested parts of the property, might exist. However, the *Annual Reports* of the provincial Minister of Mines do not record any historic coal production from the Bingay Creek area. It is therefore unlikely that substantial (i.e. shipping-scale) underground mine workings have been dug at Bingay Creek.

6.3.2 KNOWN SUBSURFACE OCCURRENCES AND SURFACE OUTCROPS OF COAL

Seventeen boreholes (as shown on **Figure 4**) are known to have been drilled within the Bingay Creek coal licences: three (designated BC-83-1 through -3) by Utah Mines Ltd. in 1983, six (designated BG-04-01 through -06) by Hillsborough Resources Limited in 2004, and eight (designated BG-05-07 through BG-05-14) by Hillsborough in 2005. All of these boreholes encountered at least one coal bed of mineable thickness.

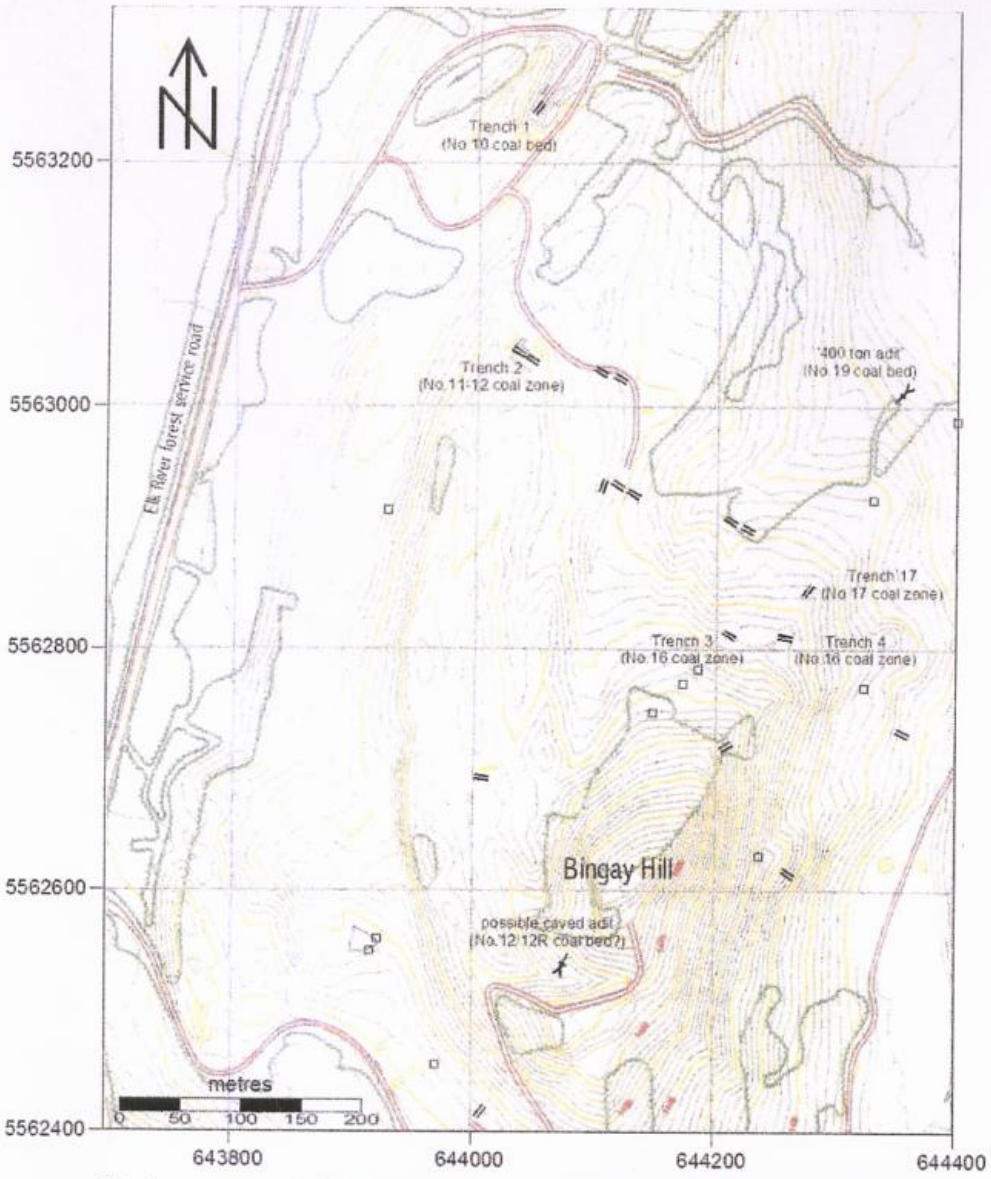


Figure 3: Prospect workings at Bingay Hill

Numerous subcrops of coal, manifested by coaly soil and coaly slopewash, are present within the property. Coal subcrops are particularly abundant on the north-sloping face of Bingay Hill, and can also be readily found on the west limb of the syncline. The few coal exposures seen on the east limb of the syncline are mostly within old trenches and pits; coal was also temporarily exposed during construction of drill access roads in this area during the summer of 2004 and spring of 2005.

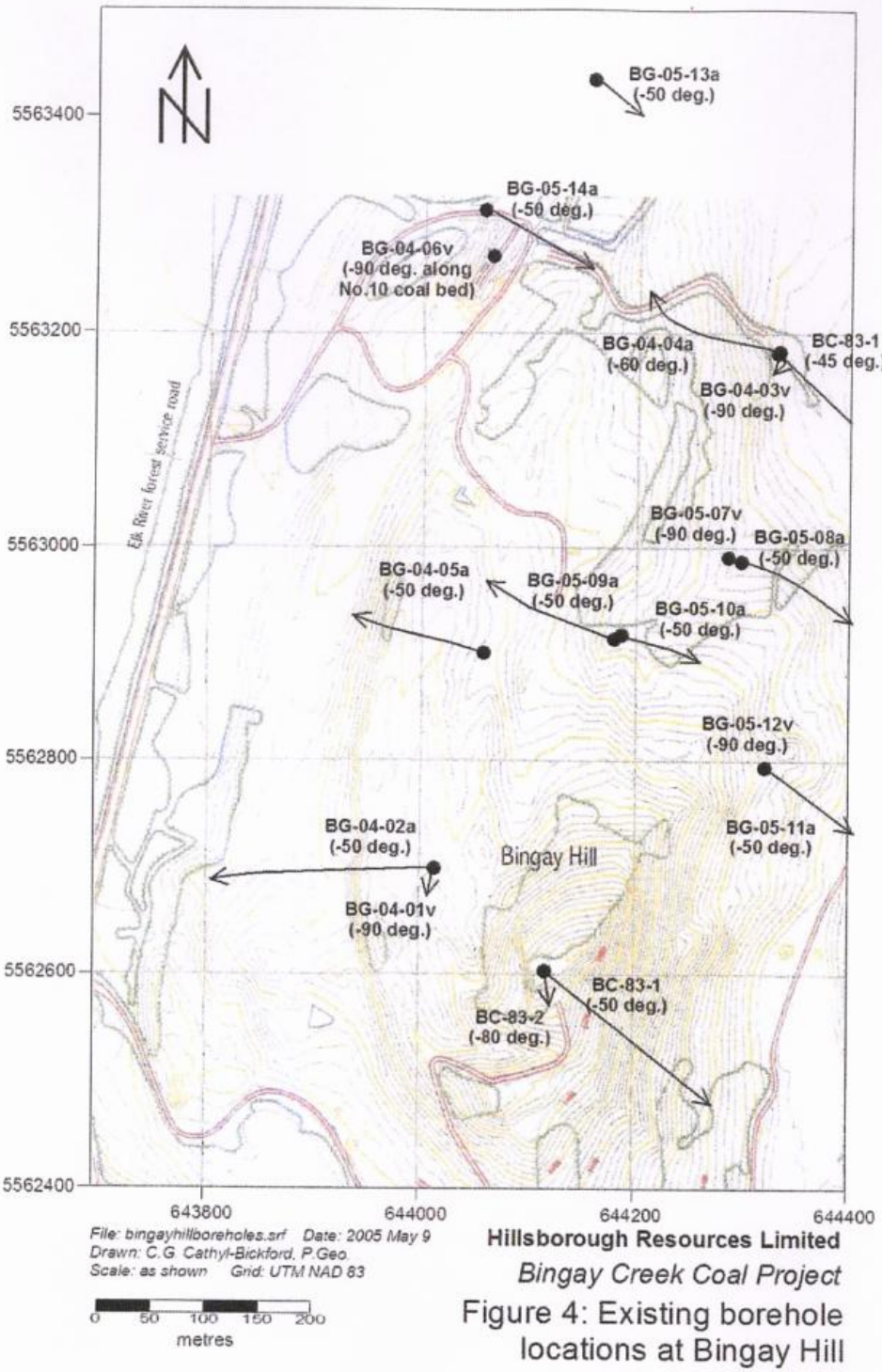


Figure 4: Existing borehole locations at Bingay Hill

6.4 ENVIRONMENTAL LIABILITIES

No specific environmental liabilities are known within the Bingay Creek property, other than the ubiquitous litter of old powder cans, segments of pipe, and piles of fine coal and waste rock that surround the various pits, trenches and adits. Reclamation of areas disturbed by the 2005 exploration programme is not yet complete.

6.4.1 ACID ROCK DRAINAGE

Morin and Hutt (2004) identified the potential for acid rock drainage from some of the rocks at Bingay Creek. In their report, they noted that "the percentages of net-acid-generating rock and their stratigraphic position relative to mine pits are not yet well established." According to Norwest (2005, page 4-1), "the percentage of net-acid-generating rock (not including coal) will be less than 15% and in the best case virtually zero."

6.5 ROYALTIES AND ENCUMBRANCES

The Bingay Creek coal lands are subject to a Crown coal production royalty, the amount and terms of which are set by the provincial government. The Bingay coal is also subject to a royalty payable to Iron Creek Exploration Ltd. under the terms of their agreement with Hillsborough Resources Limited. Details of these royalties are not known to the author.

6.6 PERMIT REQUIREMENTS

Coal exploration programmes in British Columbia must be conducted in accordance with the provisions of the *Mineral Exploration Code*, including the requirement to submit proposed programmes of exploratory work and reclamation for review and approval by the British Columbia Ministry of Energy and Mines.

For each programme, a *Notice of Work* must be filed, detailing the work to be done, and the means by which environmental damage will be mitigated by the operator. Following examination of this document, the Ministry of Energy and Mines may issue an exploration permit, which may include specific conditions concerning permissible work, special environmental precautions, and times at which work may be restricted owing to noise concerns or forest-fire hazard.

Crown coal licences do not carry an annual work requirement but they require the payment of an annual rental of $7.00 per hectare for the first five years, increasing to $10.00 per hectare in the second five years, and further increasing at $5.00 annually per hectare per five year period thereafter, to a maximum of $25.00 per hectare. Within the Bingay Creek property, Coal Licence 374190 presently has an annual rental of $10.00 per hectare, and Coal Licences 414014 and 415139 carry annual rentals of $7.00 per hectare.

6.7 EXPLORATION PERMIT STATUS AT BINGAY CREEK

A *Notice of Work* was submitted by Hillsborough for their 2004 coal drilling programme at Bingay Creek, and an exploration permit (number CX-12-4, approval 04-1200056-0901, dated September 2, 2004) was subsequently issued by the provincial Ministry of Energy and Mines. A follow-up notice was submitted for the 2005 programme, and an amended permit (approval 05-1200056-0215) was subsequently granted on February 15, 2005. As of May 2005, some of the required reclamation work has already been done, but more is planned for June of 2005 (S.L. Gardner, personal communication, April 2005).

6.8 TIMBER CUTTING PERMIT STATUS AT BINGAY CREEK

The provincial Ministry of Forests has issued a Free Use Permit (number FUP 18492, covering Coal Licence 374190) to Hillsborough Resources Limited. This permit allows the harvesting of timber not exceeding a volume of 50 cubic metres. Unless cancelled sooner by provincial foresters, the permit will expire on September 16, 2005.

ITEM 7: ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

In comparison with most coal properties in British Columbia, exploration access to Bingay Creek is fairly convenient, by virtue of its location adjacent to an all-weather forest service road, and the presence of branch roads within the property.

7.1 ACCESSIBILITY

Bingay Creek is served by the Elk River forest service road, as shown on **Figures 4** and **5**. This road is administered by the provincial Ministry of Forests as a multiple-use public road, upon which industrial and recreational traffic may travel. Local hunters, hikers and fisherfolk occasionally use the road to access recreational areas farther up the Elk River Valley.

The Elk River road is maintained by Tembec Industries Inc., who only maintain the parts of the road which they wish to use for log-haulage. As of the spring of 2005, this has meant that the first half of the road (nearest to Elkford) is occasionally graded, but it sees heavy truck traffic and at times the road is locally covered by deep mud. As such, the road can be used by pickup trucks with caution, but it is not safe for use by passenger cars. Were the Elk River road to be used for coal haulage, it would require resurfacing, for which ample supplies of gravel are present within the Bingay Creek property. The bridges on the road are of adequate strength for logging trucks, but may require levelling or resurfacing to support more frequent high-speed use by coal trucks.

The Bingay Creek coal property lies at signpost I-21 on the Elk River road, roughly 21 kilometres north of Elkford. Two side roads branch off eastward from the main road: the southern road follows the south face of Bingay Hill and gives access to the recently-logged flatlands east of the hill. The northern road climbs over the west limb of the syncline and gives access to the recent test pits on the Bingay Nos.10 and 11-12 coal beds. Total driving distance from the centre of the property to Elkford is 22 to 24 kilometres.

Elkford itself is served by paved provincial highways: Highway 43 which runs northward from Sparwood, and Highway 3 which connects westward to Fernie and Cranbrook, and eastward to Alberta. Driving time to Bingay from Vancouver is 15½ hours from Vancouver (via the southern Trans-Provincial route along Highways 1, 3 and 43), 5 hours from Calgary (via the Black Diamond route along Highways 2, 22X, 22, 3 and 43), and 2½ to 3 hours to Eureka, Montana.

The closest railhead to Bingay Creek is about 30 kilometres away near Elkford, on the Fording River branch of the Canadian Pacific Railway. Coal shipments from Bingay Creek could also access the Burlington Northern railhead at Eureka, Montana (as shown on **Figure 1**); this railhead is situated about 168 kilometres from Bingay Creek, via Highways 43, 3 and 93. The closest all-weather airport is at Cranbrook, with scheduled service available to major cities in western Canada.

7.2 CLIMATE

The Bingay Creek property lies within the dry cool subzone of the Montane Spruce continental biogeoclimatic zone (Medinger and Pojar, 1991; Braumandl and Curran, 1992). Characteristic of this subzone is a temperate climate of continental type, with long, cold, relatively dry winters with light snowfall, and short, warm, dry summers. Minimum temperatures are –25 to –35 Celsius (with the coldest temperature within the author's experience at nearby Lower Kananaskis Lake being -52C during the winter of 1992), with the coldest temperatures confined to brief 'polar outbreak' periods in January and February. Maximum temperatures are 33 to 38 Celsius, typically found during extended periods of clear weather in mid- to late-summer.

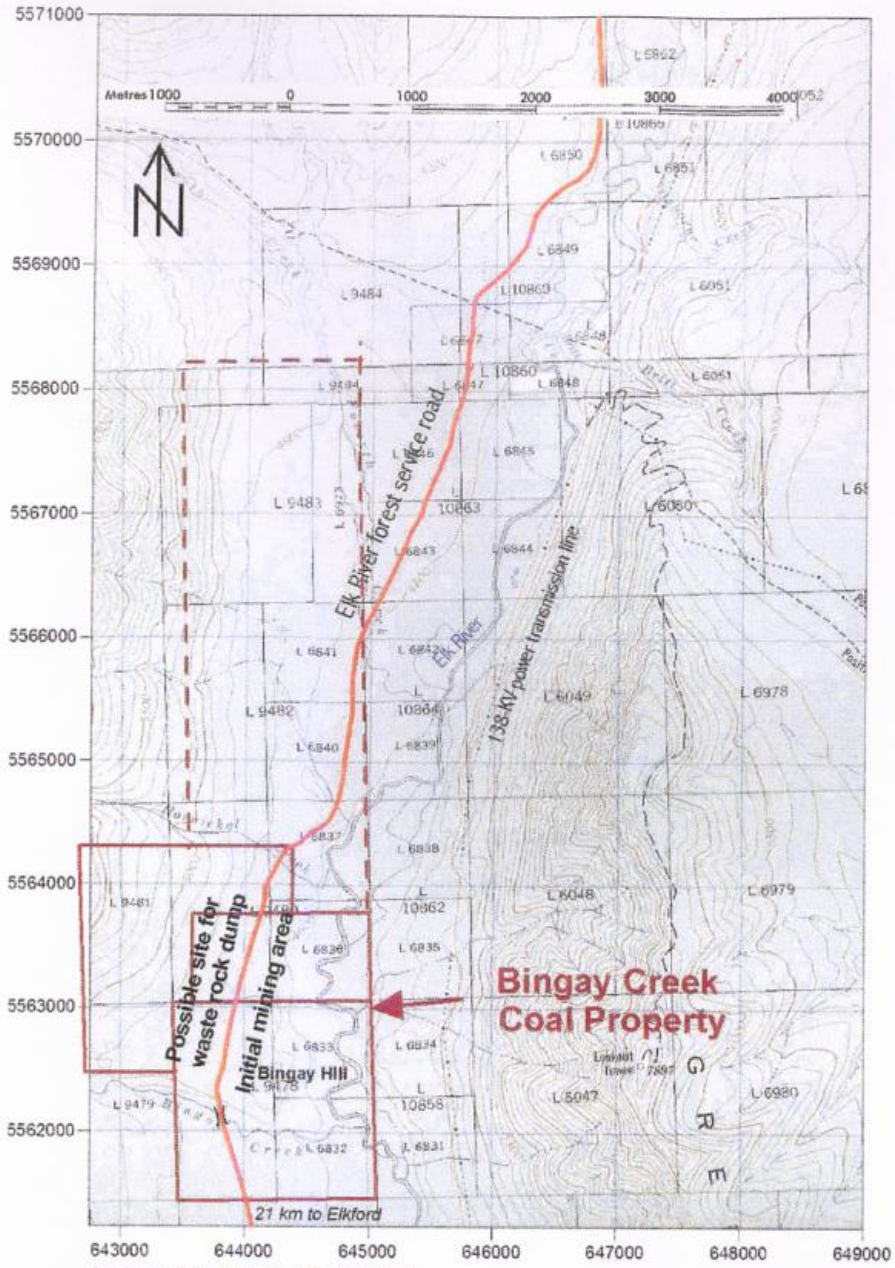


Figure 5: Infrastructure map

Snowfalls or freezing rain may occur at any time between mid-September and mid-May, with the bulk of snow falling in mid-March and early April. Snowfalls up to 40 cm are possible in a single intense mid-winter storm when cold polar air is over-ridden by moist maritime air, but these snowfalls rapidly compact and ablate, and snow cover seldom accumulates to depths greater than 60 cm.

Continuous snow cover is usually gone by the end of April, with isolated drifts remaining in sheltered and shaded areas. In the extraordinarily warm winter of 2004-2005, snow cover was mostly gone in mid-March, and the Elk Valley had been barren of snow for much of the winter.

Summers are warm and showery, with occasional afternoon thunderstorms. During dry summer weather, temperatures may exceed 30 Celsius.

7.3 LOCAL RESOURCES

Surface water supply is available from Bingay Creek and Elk River, and ample supplies of groundwater are available from the gravelled flats west of Elk River and north of Bingay Creek. Owing to fisheries concerns, industrial water supply will probably have to be abstracted from groundwater sources. Near-surface groundwater quality is unknown in detail, but anticipated to be acceptable for industrial use.

Substantial quantities of gravel, suitable for road-building, are present within the property. During the autumn 2004 drilling programme, road gravel was taken from cuts along one of the access roads within the property. Roads which were built in the spring of 2005 were mostly constructed from native gravelly soils. The size-consist and grading of these gravel sources were adequate for road-building.

Timber suitable for incidental use (such as stakes, fenceposts, short utility poles and cribbing) is present within the Bingay Creek property.

7.4 INFRASTRUCTURE

The Elk River Valley contains an energy-transport corridor along its eastern side. This corridor is occupied by a high-voltage above-ground power line (as shown on **Figure 5**). All-weather roads extend along both sides of the river. On the west side of the river, the Elk River forest service road bisects the Bingay Creek coal property.

7.4.1 SURFACE ACCESS FOR DRILLING PURPOSES

Access to the Bingay Creek coal property is regulated under the *Mines Act*, which allows for the reactivation and reconstruction of existing roads, as well as construction of new roads or exploration trails.

Surface rights at Bingay Creek are held by the Crown, with forest tenures held by Tembec Industries, Inc.

No private inholdings are known to exist at Bingay Creek.

7.4.2 ELECTRICAL POWER SUPPLY

Three-phase electrical power is available on the eastern side of Elk River, via the 138-KV KAN-ELK tieline connecting the British Columbia power grid to Trans-Alta Utilities' Kananaskis power plants. No power lines are presently in place on the west side of the river, and it is unlikely that any sub-transmission lines will be extended into the Bingay Creek property within the near future. Whenever industrial or exploration camps have been established along the Elk River, they have made use of portable light plants or generator sets.

7.4.3 EQUIPMENT AND SUPPLIES

Reverse-circulation drilling rigs capable of drilling to depths of 600 metres are available in southeastern British Columbia and southwestern Alberta. However, owing to the ongoing coal- and tar sands-exploration plays in western and northern Canada, the rigs must be contracted well in advance. To the best of the author's knowledge, Hillsborough Resources does not presently have a drilling rig booked for future work at Bingay Creek.

Heavy industrial and construction equipment, including excavation and road-building equipment, is available from the Crowsnest Pass area as well as from towns in southern Alberta. Drilling supplies are available from distributors in Alberta and British Columbia.

Machine shops, industrial suppliers, and freight terminals are available in Elkford and Fernie. Owing to the well-established open-pit coal-mining industry in the Elk Valley, necessary equipment and supplies for mining, earth-moving and blasting can be obtained locally.

7.4.4 TELECOMMUNICATIONS

Bingay Creek does not have landline telephone service; nor does it have Internet access. Cellular-telephone service is provided by Telus, from a switching office in Elkford. Cellular coverage is fair throughout the Bingay Creek property, with the exception of topographically-isolated areas such as creek bottoms.

7.5 PHYSIOGRAPHY

The Bingay Creek property lies within the Elk River valley, which traverses along the southern Canadian Rocky Mountains. The Elk River valley is one of a series of contiguous valleys which extend from Michel, British Columbia to Banff, Alberta. Both sides of the valley are bounded by mountain ranges. To the west are the rugged carbonate-rock peaks of the Western Front Ranges, and to the east are the more subdued sedimentary-rock ridges of the Greenhills Range.

Elk River itself is a broad, braided, gravel-bedded river which is choked by numerous gravel bars and bounded by beaver-dammed side-channels. Some of these side-channels are partially filled with mossy wetlands. Bingay Creek is an incised, partially rock-bound meandering to braided stream which flows into Elk River from the west.

No bridges cross the Elk River north of Elkford, but the river is shallow enough to be forded by people and animals with some difficulty owing to its swift and very cold current. Bingay Creek is crossed by one bridge which carries the Elk River forest service road, and the creek itself can be forded easily by people and animals.

Elevations within the Bingay Creek property range from about 1380 to 1490 metres above mean sea level. The lowest elevations are found along the course of Elk River, and the highest elevations are found on Bingay Hill.

7.5.1 SOILS

Soils of the Elk River valley have been mapped at a regional scale by the British Columbia Soil Survey (Lacelle, 1990) and at more detailed scale within the Bingay Hill area by Schori Consultants Inc. (Schori, 2005). Additionally, the author of the present report made passing observations on soils while mapping the bedrock outcrops near Bingay Hill.

Soil cover is generally quite thin at Bingay Hill and along the ridges which flank the northern slopes of the hill. Soil materials mostly consist of coarse-grained colluvium and regolith, mixed with large talus blocks below prominent sandstone ledges. Isolated swales near the hill are floored by wet, organic-rich silty muck; other than these areas, organic-rich topsoils appear to be patchy and generally very thin.

The lowland flats flanking Bingay Hill to the east and west are floored by extensive gravel deposits. To the west of the hill, the gravels appear to form part of an alluvial fan, into which is incised the channel of Bingay Creek. To the east of the hill, the gravels appear to form a succession of terraces, possibly of glaciofluvial and fluvial origin.

7.6 FOREST COVER

The Bingay Creek property is covered by Crown forest lands, which have been logged at various times during the past 30 years. Most of the southern half of the property was logged in the past 5 years, and it now presents easy going for cross-country traversing. Some of the logging roads have been reclaimed by

means of scarification followed by scattering of wood debris; this process effectively destroys the roadbed, and makes it more practical to build new roads rather than attempt to reconstruct roads which have been thus reclaimed. Mountain pine beetle has caused locally-severe damage to forests in the Elk River valley, including some of the mature trees at Bingay Creek. Salvage logging to recover beetle-infested trees has been in progress since 1983, and has been conducted at an accelerated rate during the past three years.

Most of the remaining forest at Bingay Creek consists of closely-spaced juvenile lodgepole pine with minor white spruce, subalpine fir and occasional western larch. Small patches of sub-mature to mature pine, fir and spruce are present in wetter lowland sites within the northern half of the property. Kinnikinnick and twinberry are present beneath older forest cover, and trailing strawberry plants are present along roadsides. Thistles, clover and various grasses grow along roadsides and other disturbed areas.

7.7 WILDLIFE

The Bingay Creek property contains an abundance of wildlife, including moose, black bear, grizzly bear, wolverine, porcupine, lynx, beaver, snowshoe hare, mule deer, marten, red squirrel and deer mouse. Birds include spruce grouse, woodpecker, common raven, Canada geese, American robins, and Steller's and gray jays. Other bird and animal species may also be present.

ITEM 8: HISTORY

8.1 PREVIOUS OWNERSHIP

Coal licences were first filed at Bingay Creek by the Elk Valley Coal and Coke Company in 1902-03, covering the lowlands of the Elk River valley along the western margin of the more extensive land-holdings of the Canadian Pacific Railway Syndicate. Employees of the railway company (who banded together as the Canadian Pacific Railway Syndicate) subsequently applied for grants of surface rights covering these coal lands, under the terms of the South African War Veterans' settlement programme, and the CPR filed for coal licences overtopping the Elk Valley lands in 1905. The CPR Papers (held at the Glenbow-Alberta Institute Archives in Calgary, Alberta) contain details of the legal wrangling between the two companies to secure and maintain control of the coal rights at Bingay Creek.

The Elk Valley Coal and Coke Company appears to have been successful in retaining the coal rights until at least 1908, as an engineering report by Fraser (1908) details some of the company's work on its coal licences in the Elk River valley. Insufficient detail is given in this report to allow confirmation of how much of the work was done within the bounds of the present Bingay Creek coal property.

Coal licences at Bingay Creek were held in the mid-1970s by Cominco, but subsequently dropped by that firm, as the land was again licensed to Specific Natural Resources in 1979, following the lifting of the provincial coal moratorium. Specific dropped their property in the early 1980s, and the land was again restaked in 1982, this time by Mr. Wm. Shenfield of Fernie, British Columbia, in partnership with Mr. S.L. Gardner. They sold the property to Utah Mines Ltd., who drilled the property in the late autumn of 1983. In 1986, Utah Mines abandoned their Canadian coal interests, and the Bingay Creek coal licences reverted to Mr. Shenfield's control in May of 1987.

In the late summer of 2004, Hillsborough Resources Limited optioned the Bingay Creek coal property from Mr. Shenfield. The Bingay Creek coal licences were subsequently transferred to Hillsborough Resources Limited, and Mr. Shenfield is not known to own any remaining coal lands in the vicinity of the property.

8.2 EXPLORATION HISTORY

Considerable exploration work has been done at and nearby to Bingay Creek, since the first discovery of coal along the upper Elk River valley in about 1902. Most of the work has involved diamond-drilling and rotary-drilling (totalling nine boreholes within the property, and six holes near but outside the property, as shown on **Figure 6** and noted in **Table 3**), but trenching, test-pitting and adit driveage has been done within the property, and the area has been geologically mapped in detail by the California Standard Company in 1955 and 1956, Utah Mines Ltd. in 1983 and by the author in the summer of 2004. Regional geological mapping has also been done by the provincial and federal geological surveys.

Table 3: Summary of boreholes drilled within or adjacent to Bingay Creek property:

Company:	*Dates:*	*Diamond-drill holes:*	*Rotary-drill holes:*
Elk Valley Coal and Coke Company	1910	unknown (neither logs nor locations are available)	
Cominco Limited	1974		6 holes (outside property; one hole is within application area)
Utah Mines Ltd.	1983	3 holes	
Hillsborough Resources Limited	2004		6 holes
	2005		8 holes
Subtotals		3 holes totalling 886.7 m	20 holes totalling 3074.8 m
Total		at least 23 holes totalling 3961.5 metres	

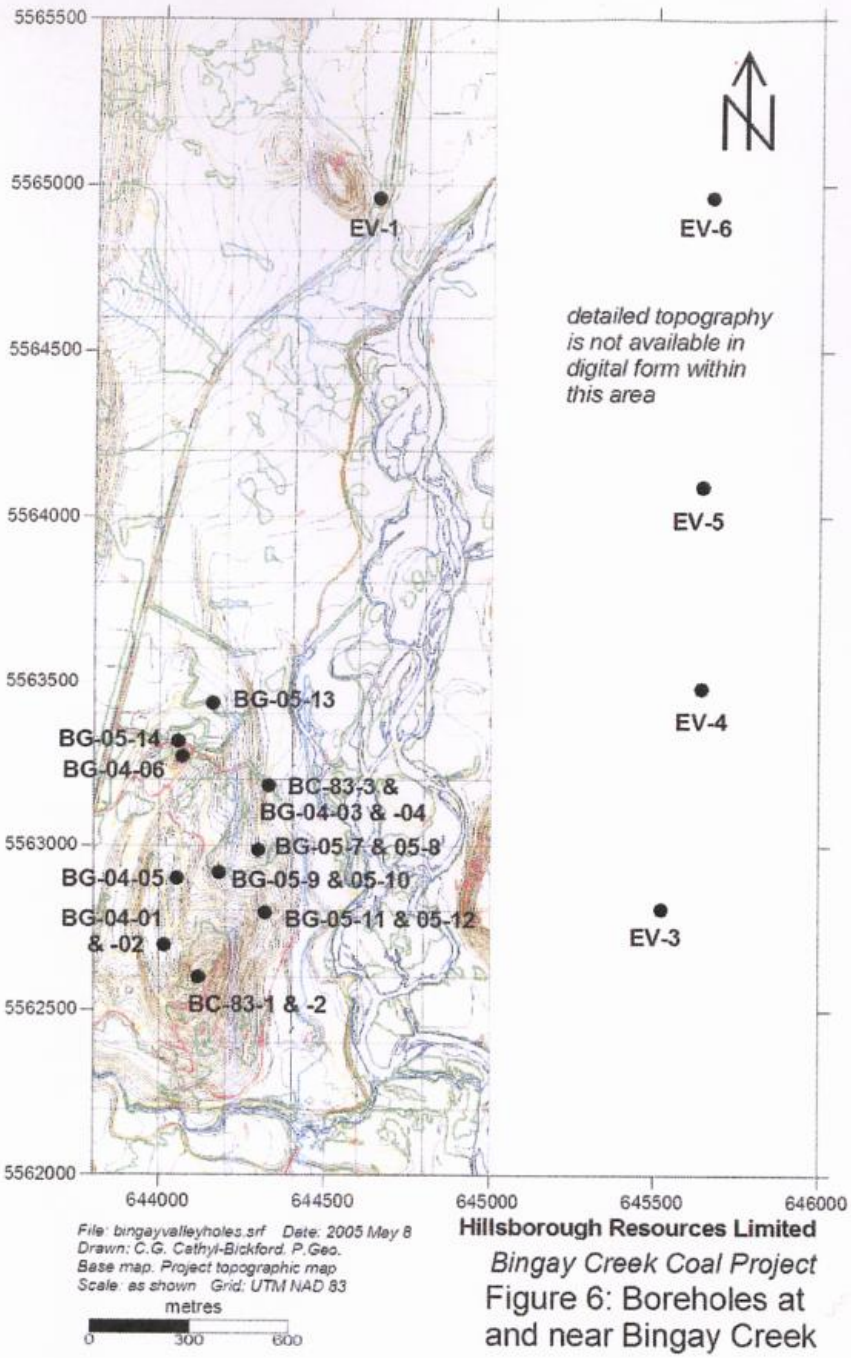


Figure 6: Boreholes at and near Bingay Creek

8.2.1 HISTORIC EXPLORATION

Eight firms have explored within and nearby the Bingay Creek property, prior to Hillsborough's 2004 and 2005 programmes. In order of historic precedence, they are the Elk Valley Coal and Coke Company Limited, Canadian Pacific Railway Syndicate, California Standard Company, Imperial Oil Limited, Cominco Limited, Specific Natural Resources Ltd., Utah Mines Ltd., and Iron Creek Exploration Ltd.

8.2.1.1 Elk Valley Coal and Coke Company Limited

The Elk Valley Coal and Coke Company Limited dug prospect pits and trenches, and drove at least one, perhaps two or more, adits within the Bingay coal beds. Few details of this work have come to light, other than a brief report by Fraser (1908) and passing mention by Grieve (1992).

The Elk Valley Coal and Coke Company Limited may also have drilled at Bingay Creek, since drill rods and pipes were found in the forest near the "400 ton adit" by William and Bob Shenfield in the 1970s (as reported by Jenks, 1979). Anderson (1984, page 6) quoted an article in the *Fernie Free Press*:

> *"In 1910, another company, the Elk Valley Coal and Coke Company, emerged and, on June 10 of that year, the Free Press reported that 20 men were on the scene and 'a diamond drill is being used for boring ... the first ... that has been taken up the Elk River." Evidence, in the form of hand trenches and coal spoil piles from this period were readily located."* .

However, no records of such drilling, neither logs nor locations, have yet been found by the author.

8.2.1.2 Canadian Pacific Railway Syndicate

The Canadian Pacific Railway Syndicate conducted geological mapping, dug trenches and pits, and drove several adits along the western slopes of the Greenhills Range, east of the Bingay Creek coal property (Wilson, 1904; Wolfhard, 1967). According to Wolfhard, this work commenced during 1901-1903 and continued until 1910. An undated blueprint map of the 'Elk River Coal Land' (held by the Glenbow-Alberta Institute Archives in the CPR Papers, M2269, Box 199, File 1962) shows results of this work, including an observation of bedding dipping 51 degrees to the northwest near Bingay Hill.

According to the 1974 map, none of the trenches, pits or adits were driven within the present outlines of the Bingay Creek coal property.

8.2.1.3 California Standard Company

During the summers of 1955 and 1956, structural geologist Dr. G.G.L. Henderson of the California Standard Company led a programme of geological mapping within the firm's provincial petroleum and natural gas exploration permits, covering an area from the Alberta border southward along both sides of the Elk River valley to latitude 49°30'. Two progress reports accompanied by geological maps at scales of 1:31,680 and 1:63,360 were submitted to the British Columbia government (Henderson, 1956; Bannister, 1957).

California Standard's geologists recognised the existence of Kootenay strata at Bingay Hill, and they also found Kootenay outcrops on the western bank of Elk River in Lot 6833.

8.2.1.4 Imperial Oil Limited

During the summer and autumn of 1959, Imperial Oil Limited conducted a programme of geological mapping and seismic surveys within the Elk River Valley (Labrecque, 1959). One of Imperial's seismic lines was shot along Britt and Forsyth creeks, north of Bingay Creek. Data quality on this line was poor, and the only reflector that could be mapped was considered to be the top of the Cambrian. Imperial's geological map shows the Bingay Creek area to be underlain by Triassic strata, with no recognition of the Kootenay coal-measures.

8.2.1.5 Cominco Limited

In 1967, Cominco Limited mapped the geology of their Elk River coal lands, including the lower canyon of Bingay Creek and Bingay Hill itself (Wolfhard, 1967). On a 1974 geological map which accompanies the open-filed copy of Wolfhard's report, Bingay Hill and the nearby canyon of Bingay Creek are shown

as being underlain by the Rocky Mountain Group (which is considerably older than the Kootenay coal--measures).

In 1974, Cominco Limited drilled six rotary-drill holes (numbered EV-1 through EV-6) along the Elk Valley, in an effort to ascertain the extent of Kootenay coal-measures beneath the valley floor within lands which at the time were held as coal licences by Cominco (Taplin, 1974). All six holes were drilled with a reverse-circulation drilling rig, using both air and mud as a drilling medium. These six holes are distinct from the similarly-named EV-series of exploratory drillholes located further north near Elk Pass (the Elk Valley Drill Project mentioned by Graham *et al*, 1977 and Gibson, 1985).

All of Cominco's boreholes lie outside the present Bingay Creek coal licences, but one of the holes (EV-1) was drilled within the area of Hillsborough's most recent coal licence application, along the Elk River forest service road.

Of the six holes, two were drilled on the west side of the river, and the remaining four were drilled on the east side of the river. Both of the western holes failed to reach bedrock, owing to caving and sloughing of wet surficial sand and gravel. One of the eastern holes (EV-4) struck coal in the basal Mist Mountain Member; the other three holes encountered shale and siltstone (probably Fernie Formation) at the bedrock surface.

On the strength of these borehole results, Cominco dropped their coal licences covering Bingay Creek.

8.2.1.6 Specific Natural Resources Ltd.

In the summer of 1979 John Jenks, accompanied by William and Bob Shenfield, made a geological reconnaissance of the Bingay Creek coal property (Jenks, 1979). Geological mapping and photogeological interpretation were the only work done by Specific Natural Resources.

8.2.1.7 Utah Mines Ltd.

In 1983, Utah Mines purchased the Bingay Creek coal property from Mr. William Shenfield. Subsequently, Utah mapped, trenched and drilled the Bingay Creek coal property, producing a substantial assessment report on the coal resources (Anderson, 1984). Utah drilled three boreholes into the Mist Mountain coal measures. One of the holes (BC-83-1) probably reached the Moose Mountain sandstone, but the other two holes stopped short of this marker zone. All three boreholes were drilled with a diamond-drill rig, recovering HQ core. All three boreholes were geophysically logged, with fair to good log quality. Cores from the boreholes are presently stored at Mr. Shenfield's residence in Fernie, where they were partially relogged by the author during the summer of 2004.

Utah's coal assessment report is available as an open file report (Anderson, 1984) from the provincial Ministry of Energy and Mines, with the exception that the Ministry has held confidential the detailed coal-quality information submitted by Utah.

8.2.1.8 Iron Creek Exploration Ltd.

In 1988 and 1990, Iron Creek Exploration Ltd. (under the direction of Mr. Shenfield) conducted an extensive programme of hand and mechanised trenching of the Bingay coal beds, with particular attention being given to the No.10 coal bed and the 11-12 coal zone.

In 1994, Iron Creek applied for a bulk sample permit from the provincial Ministry of Energy, Mines and Petroleum Resources (Shenfield and Gardner, 1996). A 2500-tonne sample was approved, and 200 tonnes were taken from the No.10 coal bed in Trench No.1 during 1996 (Gardner, 2004b). In 1997 and 2002, Iron Creek conducted additional trenching in the No.10 coal bed, as well as in the 11-12 coal zone at Trench No.2, and along a roadside exposure of the No.13 coal bed to the east of Trench No.2.

8.2.2 HILLSBOROUGH'S 2004 AND 2005 EXPLORATION PROGRAMMES

In 2004, Hillsborough drilled six reverse-circulation boreholes at Bingay Creek (Gardner, 2004b). All of these boreholes were collared within the Mist Mountain coal-measures, but drilling difficulties or planned shallow depth prevented reaching the Moose Mountain sandstones in any of the holes. Geophysical logs were run in five of the six holes. One of the holes was intentionally not logged, as it was drilled along the bedding of the No.10 coal bed in an effort to assess depth-of-oxidation of the coal.

The author's geological mapping of the Bingay Creek coal property was commissioned by Hillsborough as part of their 2004 exploration programme. As well, Hillsborough commissioned baseline and scoping studies for their planned submission of a surface-mining development programme to the provincial Ministry of Energy and Mines. These studies included a preliminary survey of acid rock drainage potential based on sampling of diamond-drill cores from Utah Mines' 1983 drilling programme (Morin and Hutt, 2004).

In 2005, Hillsborough drilled eight more reverse-circulation boreholes at Bingay Creek. As with the previous year's work, all of the boreholes were collared within, and finished within, the Mist Mountain coal-measures. Geophysical logs were run in all of the boreholes, but in one of the holes only the near-surface strata could be logged, owing to caving of the borehole.

8.2.3 PROVINCIAL GEOLOGICAL MAPPING

From 1980 until 1991, the British Columbia Geological Survey Branch conducted an extensive programme of geological, petrographic and photogeological mapping in the Elk River coalfield, including the Bingay Creek area. Two sets of preliminary geological maps (Grieve and Pearson, 1983, Grieve and Price, 1987), an open-file report with maps and cross-sections (Johnson and Smith, 1991) and a geological bulletin containing two maps (Grieve, 1992) document the results of this programme. Grieve and Pearson's 1983 mapping contains the most useful information concerning the geology of the Bingay Creek area, insofar as it extends within parts of the property.

8.2.4 FEDERAL GEOLOGICAL MAPPING

From 1915 until 1920, the Geological Survey of Canada conducted a regional mapping programme in the southern Rocky Mountains, covering the headwaters of the Elk and Highwood Rivers (Marshall, 1920; 1921). Mapping was done by J.S. Stewart, B. Rose and J.R. Marshall, and the overall geological compilation was done by J.R. Marshall. Marshall's map depicts "Kootenay Formation" at the confluence of Bingay Creek and Elk River, but his nearby cross-section shows all beds dipping to the east: it is likely that Marshall did not find the Kootenay outcrops at Bingay Creek.

In 1981 and 1982, R.A. Price, D.A. Grieve and C. Patenaude remapped the regional geology of this area, including the Bingay Creek area (Price and others, 1992). On their map, they show Kootenay coal-measures and three bedding attitudes at Bingay Hill, and they show a north-plunging syncline running across the hill.

8.3 HISTORICAL COAL RESOURCE ESTIMATES

Only three historical coal resource estimates have been reported for the Bingay Creek coal property; two of these estimates were made by Utah Mines Ltd. (Davis, 1984), both before and after completion of their 1983 diamond-drill programme. The third estimate was made by the author (Cathyl-Bickford, 2004), following completion of Hillsborough's 2004 exploration programme.

Davis' 1983 and 1984 estimates do not meet the present-day standards as mandated by Hughes et al (1989) in Geological Survey of Canada Paper 88-21, since he based his estimates on section lines with fewer control points than specified by Paper 88-21; furthermore, the spacing between the section lines and the distance of projection beyond section lines are greater than those currently mandated.

As well, the use of the word 'reserves' in past practice does not meet the present-day standard as required under *National Instrument 43-101*, which calls for engineering input into such determinations. Therefore, the author considers Davis' historic estimates to have been of coal resources rather than coal reserves.

8.4 HISTORICAL COAL PRODUCTION

No coal is known to have been produced from the Bingay Creek property, other than about 400 tonnes of coal dumped on the ground at the portal of the old "400 ton adit", and 200 tonnes of coal taken from the No.10 coal bed by Iron Creek Exploration Ltd. for analytical purposes within the terms of a bulk sample permit granted by the provincial government.

The existence of significant areas of undocumented mine-workings at Bingay Creek is regarded as unlikely. However, additional test pits and adits, not yet found by fieldwork, may be disclosed if additional areas of the property are cleared of trees.

ITEM 9: GEOLOGICAL SETTING

Geology of the Bingay Creek area is known mainly from field mapping of bedrock outcrops at Bingay Hill, tied together by boreholes, road cuts and trenches along its eastern and western flanks. The hill is bounded to the northwest and southwest by an extensive east-sloping apron of gravel, and to the northeast and southeast by terraced gravel deposits adjacent to the braidplain of Elk River.

9.1 REGIONAL GEOLOGICAL CONTEXT

The Bingay Creek property lies along the western margin of the Elk Valley coalfield. The coalfield is an infaulted remnant of a substantially larger body of coal-bearing sedimentary rocks, which is correlative with the Crowsnest Basin to the south and the Highwood Pass/Mount Allen/Canmore coalfields to the north. Coal-measures at Bingay Creek are hosted by the Mist Mountain Formation, part of the Jura-Cretaceous Kootenay Group. The Mist Mountain Formation is underlain by Jurassic rocks of the Morrisey and Fernie formations. **Table 4** presents the table of geological formations for the Bingay Creek area.

Table 4: Table of formations for the Bingay Creek area

Quaternary	
Pleistocene to Holocene	
Qd	*DRIFT: Gravel, alluvium, talus and till; minor localised mucky peats.*
Jurassic and Cretaceous	
	KOOTENAY GROUP (Jura-Cretaceous rocks only):
Tithonian to Hauterivian?	
JKmm	*MIST MOUNTAIN FORMATION: Siltstone, variably-carbonaceous mudstone; channel-filling, well-sorted quartzose sandstone; coal; minor marlstone, ironstone and tonstein.*
Jmo	*MORRISSEY FORMATION: Sandstone and minor siltstone.*
Jmo2	*MOOSE MOUNTAIN MEMBER: Quartzose sandstone containing minor amounts of rock fragments; minor siltstone and gritstone; very resistant to erosion.*
Jmo1	*WEARY RIDGE MEMBER: Silty sandstone composed of quartz and rock fragments, with interbeds of siltstone; softer than overlying beds.*
Oxfordian to Tithonian?	
JF	*FERNIE FORMATION: Interbedded siltstone and feldspar-rich silty sandstone; minor silty mudstone.*
Triassic and older	
	ROCKY MOUNTAIN SUPERGROUP AND SPRAY RIVER GROUP (UNDIVIDED)
Stephanian to Rhaetian?	
Pre-JF	*Quartzitic and dolomitic sandstone, limestone and dolomite, mudstone and siltstone.*

9.2 BASIN FILL

Within the Elk Valley coalfield, total preserved basin fill over the Precambrian cratonic rocks of North America is on the order of 10 kilometres, including sedimentary and volcanic rocks of Cambrian through Jurassic ages which together form economic basement beneath the Kootenay coal-measures. Detailed

study of these older rocks is mostly irrelevant to coal exploration, except insofar as they are overthrust over the western margin of the coalfield.

9.2.1 BASIN STYLE

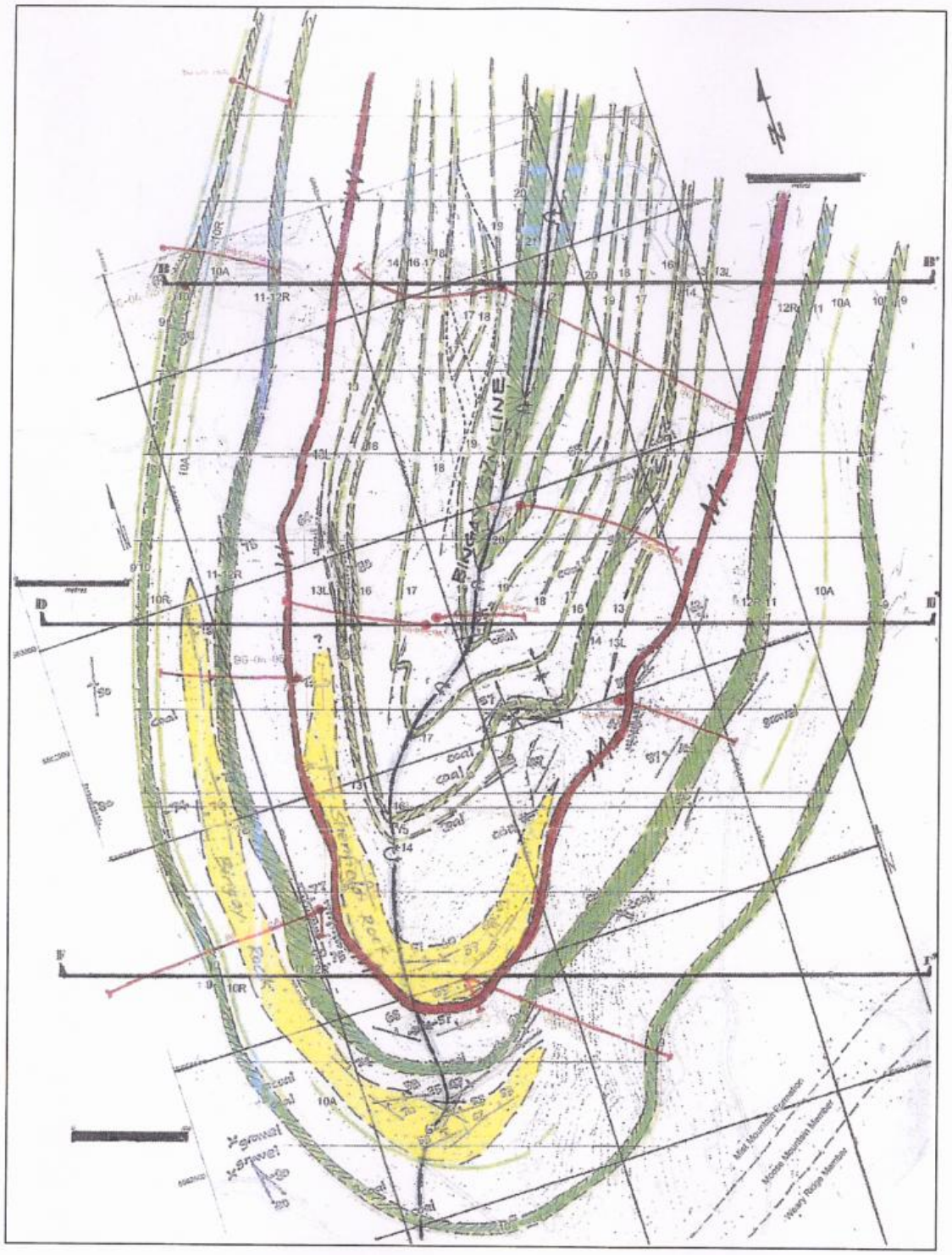
The coal-measures of the Elk Valley coalfield were deposited in a rapidly-subsiding foreland basin, which lay along the northeastern margin of the Columbian orogenic highlands. Rapid subsidence of the basin is evidenced by the abundance of detrital organic matter within the coal-measures, and the general scarcity of oxidised sediments. The Columbian highlands must have included active volcanic vents, since tonsteins (altered volcanic-ash bands) are present within the coal-measures. The Bingay Creek area was either quite remote from these volcanoes, or at an unfavourable position *vis-à-vis* prevailing winds during late Jurassic and early Cretaceous time, because the tonsteins are relatively thin (generally less than 5 cm thick).

9.3 LOCAL GEOLOGY

Interpreted bedrock geology of the Bingay Hill area is presented as **Figure 6**, based on the author's fieldwork during the summer of 2004 and spring of 2005, supplemented by structural observations depicted on the California Standard Company's geological map (Henderson, 1956). **Table 5** (following) presents formation and member tops, interpreted by the author from logs and records of boreholes drilled at and near the Bingay Creek area.

Table 5: Stratigraphic interpretation of boreholes and exploratory coalbed gas wells

	Elevation	*UTM (NAD 83)*		*Coals encountered*			*Stratigraphic tops (measured depths in metres)*			
Borehole/ well		Easting	Northing	Highest coal	Lowest coal	Bedrock	Mist Mountain	Moose Mountain	Weary Ridge	Fernie
EV-1	ca. 1404	644650	5564955	Bedrock not reached at 15.8 m						
EV-2		645660	5568090	Bedrock not reached at 39.6 m						
EV-3		645520	5562810	no coals		11.3				starts
EV-4		645640	5563480	yes, but no record is available		no record	starts?	10.7	no record	ca. 91
EV-5		645640	5564095	no coals		11.3				starts
EV-6		645665	5564960	no coals		12.2				starts ?
BC-83-1	1489.0	644117	5562601	No.12R	No.1	starts?	starts	286.3	not reached	
BC-83-2	1489.0	644117	5562601	No.12R	No.1	starts?	starts	not reached		
BC-83-3	1388.2	644330	5563180	No.21	No.9	5.5?	starts	not reached		
d-16-D	1457.9	646553	5569817	no coals		59?				starts
d-96-L	1445.25	646622	5568450	unknown		65.5	starts	not reached		
BG-04-01v	1452.3	644015	5562698	No.12R	No.9	2.4?	starts	not reached		
BG-04-02a	1452.2	644012	5562698	No.12R	No.2A	1.8	starts	not reached		
BG-04-03v	1387.2	644333	5563183	No.21	No.14		starts	not reached		
BG-04-04a	1387.3	644332	5563183	No.19	No.13L	1.8?	starts	not reached		
BG-04-05a	1440.1	644058	5562902	No.13	No.9	starts?	starts	not reached		
BG-04-06a	1421.9	644065	5563271	drilled vertically in No.10 coal bed			starts	not reached		
BG-05-07v	1402.5	644286	5562991	No.20	No.13	5.85	starts	not reached		
BG-05-08a	1402.1	644299	5562986	No.19	No.11	5.7	starts	not reached		
BG-05-09a	1416.0	644179	5562914	No.17	No.11	6.2	starts	not reached		
BG-05-10a	1416.0	644188	5562917	No.19	No.13	4.7	starts	not reached		
BG-05-11a	1417.5	644321	5562796	No.12R	No.9	5.8	starts	not reached		
BG-05-12v	1417.5	644321	5562793	No.12R?	No.9?	2.8	starts	not reached		
BG-05-13a	1416.7	644158	5563434	No.12R	No.10	1.0	starts	not reached		
BG-05-14a	1423.7	644057	5563313	No.12R	No.9	2.8	starts	not reached		



Notes: scale bars are 100 metres long; grid lines are UTM (NAD 83) at 200 metre spacing; major coal beds are shown cross-hatched in green, Shenfield Rock and Bingay Rock are shown in yellow with dotted ornament, and Anderson 'marine band' is marked by 'M.' Geology is by the author, as of March 2005.

Figure 7: Geological map of the explored portion of the Bingay Creek coal property

9.3.1 STRATIGRAPHIC ASSEMBLAGES

Three major stratigraphic assemblages are present at Bingay Hill. From base upwards they are 'Basement', 'Coal-measures' and 'Drift cover,' of Jurassic and older, Jura-Cretaceous and Quaternary ages successively.

9.3.1.1 Economic basement

Economic basement beneath the Mist Mountain Formation (essentially, the older rocks beneath which no mineable coal could be expected to be found) is formed by sandstone of the Moose Mountain and Weary Ridge members of the Jurassic Morrisey Formation, and interbedded siltstone, sandstone and mudstone of the Jurassic Fernie Formation.

The Moose Mountain Member forms prominent sandstone cliffs along the north bank of Bingay Creek, downstream from the forest service road bridge. The Moose Mountain sandstones are also well-exposed along the access road which skirts the southern face of Bingay Hill. The two older rock-units are exposed beneath the Moose Mountain beds, within the canyon of Bingay Creek.

In the subsurface at Bingay Hill, the Moose Mountain Member has only been definitely reached in one borehole: Utah Mines' borehole BC-83-1. Outside the property, Cominco boreholes EV-3, EV-5, EV-6 and exploratory gas well AECOG Mosquito d-16-D/82-J-7 all appear to have been collared in older shales or siltstones of the Fernie Formation. Cominco borehole EV-4 and exploratory gas well AECOG Mosquito d-96-L/82-J-2 both appear to have bottomed in Moose Mountain or Weary Ridge sandstone.

9.3.1.2 Coal-measures

Coal-measures in the Bingay Creek area are hosted by the Mist Mountain Formation of the Kootenay Group, of latest Jurassic to earliest Cretaceous age. Although younger coals are known from the overlying Elk Formation in the Greenhills Range (Grieve and Pearson, 1983), the Elk coals appear to have been stripped away by erosion within the Bingay Creek property. The base of the Cretaceous rocks is possibly represented by the high-gamma condensed section of the Anderson 'marine band' within the Bingay property (although this is solely the present author's conjecture, lacking confirmation by paleontology). During deposition of the Mist Mountain coal-measures, the Fernie Sea (the local name for the Interior Seaway) lay to the east and northeast, and orogenically-elevated highlands lay to the southwest.

The Mist Mountain Formation outcrops extensively on Bingay Hill, and along both limbs of the Bingay Syncline. Geophysical logs from Utah Mines' 1983-programme boreholes and Hillsborough's 2004- and 2005-programme boreholes lead the author to conclude that the holes were drilled through the middle and lower parts of the Mist Mountain coal-measures. Comparison of the drilled stratigraphic section at Bingay Creek with the surface sections reported by Gibson (1985) from the Greenhills Range suggests that the upper third or quarter of the Mist Mountain has been lost to erosion at Bingay Creek. The preserved thickness of the Mist Mountain Formation at Bingay is about 460 metres.

Gibson (1985) proposed that the Moose Mountain sandstones might represent a coastal barrier or strandplain system, above and behind which extensive peatlands could form within the deltaic complex that comprises the Mist Mountain coal-measures. Although Gibson did not recognise any definitely marine interbeds within the Mist Mountain Formation, he did note the presence of extensively-burrowed rocks within the basal Mist Mountain. Such intensely-bioturbated strata were also noted by the author in the course of relogging some of Utah Mines' 1983 diamond-drill cores; one of these has been designated as the Anderson 'marine band', lying between the No.13 Lower and No.12 Rider coal beds.

Forasmuch as the author's fieldwork during the summer of 2004 was focussed on elucidating the overall structure of the Bingay Syncline, only passing attention was paid to paleocurrent indicators. Some of the coal-measures rocks (most notably the thick sandstone beds) are rippled or cross-bedded, and such features afford the possibility that more detailed fieldwork might allow for the determination of

paleocurrent directions, and hence the outlining of small-scale paleotopographic features within the coal-measures at Bingay Creek.

9.3.2 DRIFT

The ground surface within the Elk River valley is mostly covered by a variably-thick drift mantle (a few metres to perhaps a few tens of metres) of glacial, glaciofluvial, alluvial and fluvial sediments, which together occupy the 'known covered areas' mapped by Henderson (1956). Bedrock exposures are therefore confined to isolated areas where sandstone-rich portions of the Kootenay coal-measures have resisted erosion, and to the incised canyon of Bingay Creek.

The best exposures of drift are in road-cuts along the Elk River forest service road, and in the cutbanks of the Elk River. Rounded boulders of Palaeozoic quartzite form isolated large glacial erratics at the ground surface within the Bingay Creek property, most notably on the southern slopes of Bingay Hill.

9.4 PROPERTY-SCALE GEOLOGY OF BINGAY CREEK

Figure 7 shows bedrock geology of the Bingay Creek area as presently understood by the author.

Within the Bingay Creek property *per se*, the Fernie Formation and the basal half of the Kootenay Group form bedrock; bounding the property to the east and west are younger and older rocks respectively.

9.4.1 STRUCTURAL GEOLOGY

Geological structure of the Bingay Creek property is known mainly from mapping of bedrock outcrops, supplemented by dipmeter records from most of the 2004 and 2005 boreholes.

Figure 8 presents three structural cross-sections (on lines ***B-B'***, ***D-D'***, and ***F-F'***, drawn at natural scale, with no vertical exaggeration) through the Bingay Syncline. Locations of these cross-sections are shown on **Figure 7**. All three of the sections are taken as views to the north-northeast across the syncline, looking in the down-plunge direction.

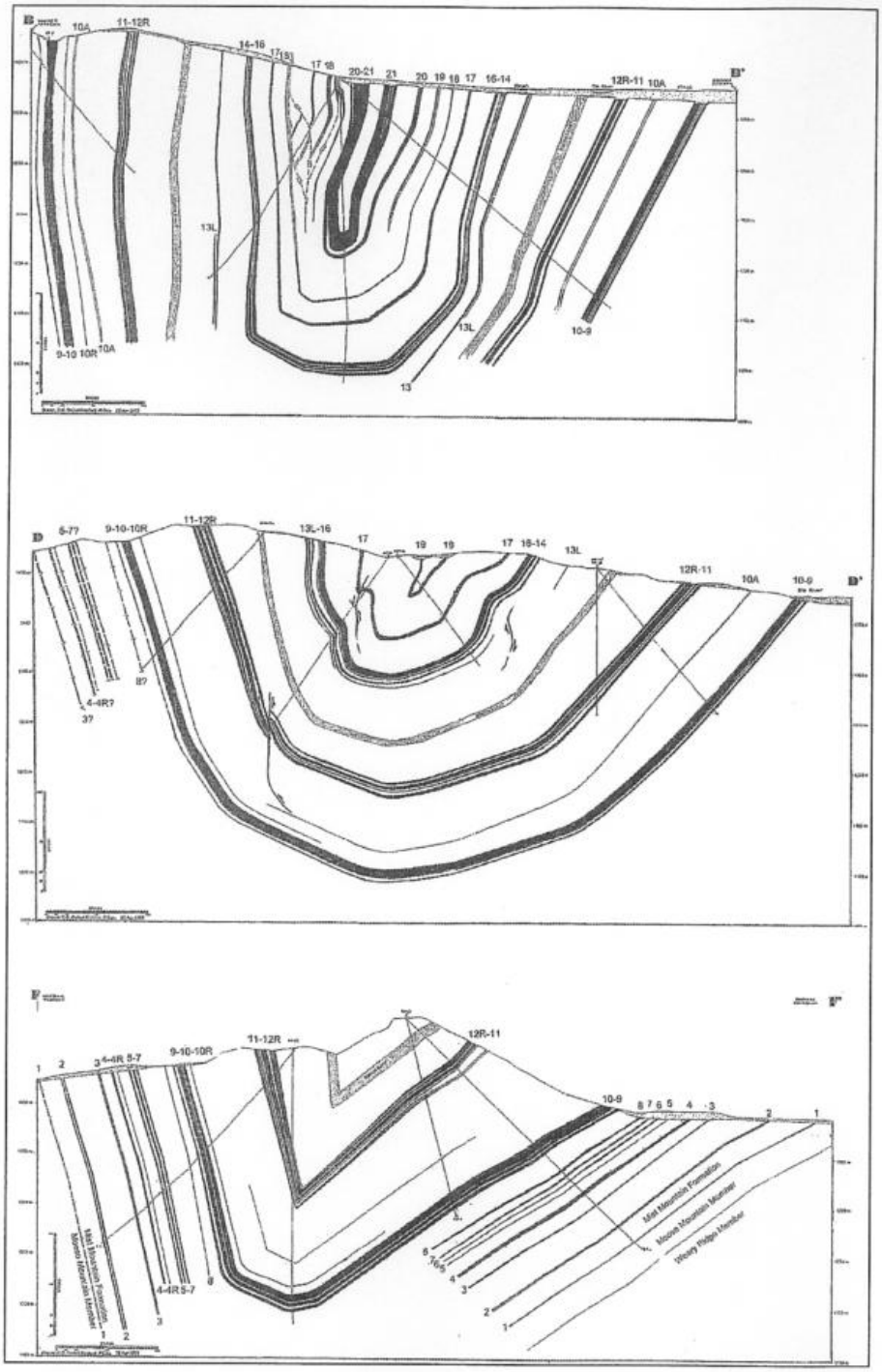
In all three of the sections, the eastern limb of the Bingay Syncline is shown as being significantly less steep-dipping than the western limb. Geological control for this conclusion is derived from walking-out the sandstones around the southern nose of the syncline, where bedding attitudes can be observed to gradually decrease as the sandstones are followed around from the western limb to the eastern limb.

Section B-B' is drawn through the far northern flank of Bingay Hill, with subsurface control from Utah Mines' borehole 83-3 and Hillsborough's boreholes 04-03v, 04-04a and 05-14a. The isoclinal core of the syncline is interpreted on the basis of there being multiple (and locally overturned) borehole intersections of the 20-21 coal zone. During the summer 2004 core-logging exercise, the author observed overturned bedding in the cores of borehole 83-3, and confidence in at least local overturning of the coal beds is therefore high. The interpreted pattern of small-scale thrusting within the western limb is drawn with much less confidence, since no core control is available.

Section D-D' is drawn through the near northern flank of Bingay Hill, with subsurface control from Hillsborough's boreholes 04-05a, 05-09a, 05-10a, 05-11a and 05-12v, and offsetting data from 05-7v and 05-8a. The structural interpretation is further constrained by a zone of variable bedding attitudes seen at the ground surface north of the hill, where several coal exposures were trenched during the spring 2005 exploration programme. The overall fold shape has been interpreted to be intermediate between that seen in the adjoining cross-sections. Two small west-verging (out-of-the-syncline) thrust faults were encountered by borehole 05-9a on the west limb of the syncline; a similar but opposing-vergence thrust fault is inferred to be present on the east limb.

Section F-F' is drawn through the crest of Bingay Hill, with subsurface control from Utah Mine's boreholes 83-1 and 83-2, and Hillsborough's boreholes 04-01v and 04-02a. Within this section, the 9-10 coal zone and the 11-12 coal zone show consistent multiple-bed architecture. It is possible that axial-plane

podding (tectonic thickening) may occur within these coals, but the boreholes do not show any evidence for such a structure and it is therefore not drawn within this section.



Scale bars on all sections are 100 metres long; no vertical exaggeration; views are to NNE; sections drawn by the author, April 2005, incorporating information from March 2005 drilling.

Figure 8: Cross-sections of the explored area

9.4.2 STRATIGRAPHIC MARKERS

Six informally-named stratigraphic markers are present in outcrop or subcrop within the explored part of the Bingay Creek coal property. These markers are best recognised at the southern end of the property, in the area of frequent rock outcrops at Bingay Hill, and may be traced northwards, albeit with increasing difficulty, to near the northern boundary of Coal Licence 374190.

From top down, the markers are:

- **Shenfield Rock** - a prominent ledge-forming multi-storey unit of quartzarenite (mapped by Utah's geologists as 'Channel Deposit 2'), which forms bold cliffs on the western side of Bingay Hill, and which caps the hill itself. The Shenfield Rock also forms a prominent northeast-trending ledge along the southeastern limb of the Bingay Syncline. The sandstone ranges from 15 to 35 metres thick; some of the thickness variation may be due to lateral pinch-out of some of its constituent channel-fills.
- **Anderson 'marine band'** - a recessive-weathering unit of interbedded mudstone, siltstone, limestone, and ironstone with occasional thin lenses of coal, which has a distinctively elevated geophysical response on gamma-ray logs (typically over 130 API units of log response). This unit is characteristically bioturbated, and on the strength of its gamma-log response it is interpreted as a discrete band of marine strata, perhaps deposited during a period of elevated sea level.
- **11-12 coal zone** - a recessive-weathering unit of thickly-interbedded coal (Bingay Nos.11, 11 Rider, 12 and 12 Rider coal beds) and variably-carbonaceous mudstone, with minor thin interbeds of siltstone and tonstein. The 11-12 Zone subcrops within a deep northwest-trending gully on the southern face of Bingay Hill; the zone also was formerly exposed in Trench No.2 (now reclaimed).
- **Bingay Rock** - a prominent ledge-forming multi-story unit of quartzarenite (mapped by Utah's geologists as 'Channel Deposit 1'), which forms a persistent ridge of vertically-dipping rocks along the western limb of the Bingay Syncline. The Bingay Rock ranges from 25 to 50 metres thick, locally scouring up to 15 metres into the underlying beds.
- **No.10 coal bed** - a recessive-weathering unit of coal (Bingay Nos.10 and locally 10 Rider coal beds), with minor thin interbeds of ironstone and tonstein. The No.10 coal bed is exposed in road cuts and trenches along the western limb of the Bingay Syncline, and it is also exposed in numerous old test pits along the western and southern flanks of Bingay Hill.
- **Moose Mountain sandstone** - a prominent ledge-forming unit of very hard and resistant quartzlitharenite, comprising the upper part of the Morrissey Formation. The Moose Mountain sandstone is well-exposed along the southwestern face of Bingay Hill, on the eastern side of Elk River Road, just above the fringing gravel flats. The Moose Mountain sandstone also forms a prominent vertically-dipping wall along the northern bank of Bingay Creek, downstream from the road bridge. The sandstone ranges from 12 to 25 metres thick.

Table 6A shows the relationship of the sandstone bands to the numerous coal beds which have been recognised within the Bingay Creek coal property. The sandstones are useful in walking-out the structure of the Bingay Hill area, and can be fairly readily recognised on the gamma-ray logs of the various boreholes drilled within the property. The Bingay Rock and Shenfield Rock may together correspond with the sandstone-rich Cliff Marker, which has been mapped by Cominco's geologists within the middle of the Kootenay coal-measures along the western slopes of the Greenhills Range (Wolfhard, 1967).

9.4.3 COAL BED DETAILS

The Bingay Creek coal property contains at least thirty-one correlatable (**Tables 6A** and **6B**) coal beds which range in true stratigraphic thickness from 0.3 to 16.2 metres. Cumulative thickness of these coals is

62.6 metres, over a stratigraphic interval of 460 metres. Coal thus forms about 13.6% of the stratigraphic section at Bingay. Of these coals, 24 are at least 1 metre thick.

- Eight coal beds are concentrated into three relatively compact coal zones (the 9-10, 11-12 and 20-21 zones) for which resources were estimated in the course of the previous study (Cathyl-Bickford, 2004).
- Out of the other twenty-three coal beds, an additional eight beds have been sufficiently explored during the 2005 drilling programme to allow for coal-resource calculations; thus, a total of 16 major coal beds have been brought into the resource base within the present report.
- All coal beds greater than 1 metre thick (and consisting of at least 2/3 coal by thickness) lying between the No.9-10 and No.21 coal zones have now been brought into the resource base.
- Within the less-explored basal part of the Mist Mountain Formation (below the No.9 coal bed), eight coal beds with individual thicknesses of at least 1 metre and ranging up to 2.99 metres are present. These coals are only known from two boreholes, and therefore cannot yet be brought into the resource base.

The Bingay Creek coals are normal banded humic coals (as are most coals within the world's coalfields, consisting of alternating bright and dull bands, generally associated with thin and thick partings of rock. Most of the rock partings consist of variably-carbonaceous mudstone, with less-frequent partings of siltstone, ironstone, tonstein and sandstone.

Most of the internal partings within the coals contain plant debris and rootlet traces, indicative of the formation of paleosols. The floors of the coal beds are often, but not always, rooted as well, suggesting that the coals formed from peats which were derived from in-situ vegetation. However, some of the coal beds' floors, most notably some delicately-laminated, soft, non-silty and very carbonaceous mudstones, lack rootlets altogether. This lack of rootlets suggests that, in such cases, the overlying coals may have originated as floating 'peat islands' above the waters of lakes, ponds or lagoons.

Where seen by the author in cores or in outcrops, the Bingay Creek coals have often been observed to be sheared. Shearing ranges from slight to intense, but most of the coals have retained coherent bedding and banding, and the true stratigraphic relationships within and amongst the coals are not difficult to discern. Coals are sometimes intensely weathered at outcrop, reducing them to essentially a smutty, coaly soil; for effective description of such coals, they must be trenched downward until less-weathered material is reached. The requisite depth of trenching at Bingay Creek ranges from a few decimetres to a few metres.

True stratigraphic thicknesses of the Bingay coal beds, and their intervening rock partings, are summarised below in **Table 6A** (for the 1983 and 2004 boreholes) and **Table 6B** (for the 2005 boreholes).

Table 6A: True thickness (metres) of coals and partings in 1983 and 2004 holes

	Utah Mines boreholes (1983)			Hillsborough boreholes (2004)					
	83-1	83-2	83-3	04-1v	04-2a	04-3v	04-4a	04-5a	04-6v
	True stratigraphic thicknesses (metres)								
Coal beds	coal/total	coal/total	Coal/total	coal/total	coal/total	coal/total	coal/total	coal/total	Coal/total
- repeats -						*-repeats -*			
No.19 Rider						1.65/1.65			
Parting						1.17			
No.19						3.88/3.88	1.68/1.68		
Parting							5.22		
No.18							2.91/2.91		
- west limb -			*- west limb -*			*- west limb -*			
No.21			14.04/16.16			6.43/6.43			
Parting			2.39			not present			
No.20R/21L			not present			(20 and 21			
Parting						are adjacent)			
No.20			0.60/0.84			3.72/3.72			
Parting						9.39			
No.19 Rider						0.08/0.08			
Parting						1.95			
No.19						1.13/1.29			
- east / axial -			*- east limb -*			*- axial area*			
No.21			12.25/13.86			13.78/14.22			
Parting			0.87			1.71			
No.20R/21L			21L:0.59/0.59			20R:0.79/0.79			
Parting			20.86			1.46			
No.20			4.12/4.47			1.10/2.32			
Parting			14.30			31.32			
No.19 Rider			not present			Not present			
Parting									
No.19			4.25/5.31						
Parting			12.56						
No.18			1.54/2.53			1.67/2.10	0.80/0.80		
Parting			16.51			18.91	12.63		
No.17			1.53/1.77			2.72/2.72	1.38/1.38		
Parting			25.96			34.96	17.35		
No.16			1.80/2.43			3.51/3.80	2.00/2.00		
Parting			3.77			0.45	0.34		
No.15 Rider			0.94/1.08			1.85/1.85	conjoined		
Parting			0.54			0.47	with No.15		
No.15			1.17/1.39			2.37/2.37	0.80/0.80		
Parting			0.85			1.52	1.06		
No.14			1.35/1.44			2.45/2.45	1.25/1.25		
Parting			14.37			= end of hole =	40.71		
No.13			2.20/2.57				0.60/0.60	0.24/0.24	
Parting			0.52				1.70	not present	
No.13 Lower			1.08/1.08				1.10/1.10		
Shenfield Rock (multi-storey sandstone unit)									
No.12 Rider	4.75/4.75	3.09/4.11	1.64/2.70	2.97/3.40	5.44/5.83		= end of hole =	2.32/2.32	
Parting	1.07	0.75	0.43	0.77	0.95			1.96	
No.12	3.14/3.14	2.58/3.30	4.31/5.03	2.27/2.64	4.31/4.71			3.03.3.42	
Parting	0.30	1.39	1.53	0.99	1.69			1.38	
No.11 Rider	1.47/1.47	0.37/0.59	0.47/0.49	0.48/0.58	0.40/0.40			4.29/4.29	
Parting	1.84	1.49	1.14	2.08	1.42			2.05	
No.11	2.16/4.27	1.78/2.27	1.26/1.99	0.60/0.69	1.53/1.65			2.04/2.04	
Bingay Rock (multi-storey sandstone unit)									

Note: boreholes 83-3, 04-3v and 04-4a are drilled in synclinal core

(Table 6A continues on next page)

Table 6A: True thickness (metres) of coals and partings in 1983 and 2004 holes (cont'd)

	Utah Mines boreholes			Hillsborough boreholes					
	83-1	83-2	83-3	04-1v	04-2a	04-3v	04-4a	04-5a	04-6v
	True stratigraphic thicknesses (metres)								
Coal beds	coal/total	coal/total	Coal/total	coal/total	coal/total	Coal/total	coal/total	coal/total	Coal/total
No.10	9.20/9.83	9.24/10.92	8.14/9.11	10.61/11.24	7.30/8.01			7.87/7.87	2004-6v is drilled along bedding of the No.10 coal bed
Parting	1.17	1.15	1.40	2.15	1.76			4.61	
No.9	2.26/2.65	2.92/3.52	1.81/2.33	3.93/5.73	1.80/2.01			0.74/0.74	
Parting	19.66	= end of hole =	= end of hole =	= end of hole =	11.07			= end of hole =	
No.8	0.83/0.83				0.63/0.63				
Parting	4.77				24.07				
No.7	1.08/1.28				1.15/1.15				
Parting	4.42				2.38				
No.6	1.18/1.18				1.10/1.37				
Parting	4.57				2.04				
No.5	1.03/1.03				1.34/1.34				
Parting	8.80				11.23				
No.4 Rider	not present				0.48/0.48				
Parting					3.89				
No.4	2.70/2.99				1.67/1.82				
Parting	12.66				11.70				
No.3	1.37/1.37				2.17/2.57				
Parting	15.44				3.55				
No.3 Lower	not present				0.44/0.44				
Parting					6.16				
No.2A/2R	0.82/1.11				0.75/1.02				
Parting	0.34				= end of hole =				
No.2	1.05/1.05								
Parting	10.55								
No.1 Rider	0.36/0.36								
Parting	5.60								
No.1	0.98/1.00								
Moose Mountain sandstone									

Table 6B: True thickness (metres) of coals and partings in 2005 holes

	Hillsborough boreholes - March 2005 programme							
	05-7v	05-8a	05-9a	05-10a	05-11a	05-12v	05-13a	05-14a
	True stratigraphic thicknesses (metres)							
Coal beds	coal/total	Coal/total	coal/total	coal/total	Coal/total	coal/total	coal/total	coal/total
				= hole starts =				
No.19 coal bed (west limb)				***2.07/2.07***				
	= hole starts =			SYNCLINAL AXIS AT 33.30 M				
No.20 coal bed	***7.91/7.91***							
Parting	18.31							
No.19 Rider coal bed	not present							
Parting		= hole starts =		*- east limb -*				
No.19 coal bed	***2.40/2.40***	***4.38/4.38***		***2.59/2.59***				
Parting	0.46	0.62		not present				
No.19 Lower coal bed	0.33/0.33	0.35/0.35						
Parting	12.98	12.41						
No.18 coal bed	***1.03/1.41***	***1.11/1.66***						
Parting	16.58	18.19	= hole starts =	25.89				
No.17 coal bed	***1.78/1.78***	***2.09/2.09***	***3.03/3.03***	***2.68/2.68***				
Parting	not present	not present	***0.52***	not present				
No.17 Lower coal bed			***0.76/0.76***					
Parting	24.01	35.55	33.23	31.48				

(Table 6B continues on next page)

Table 6B: True thickness (metres) of coals and partings in 2005 holes (continued)

	Hillsborough boreholes - March 2005 programme							
	05-7v	05-8a	05-9a	05-10a	05-11a	05-12v	05-13a	05-14a
	True stratigraphic thicknesses (metres)							
Coal beds	coal/total	coal/total	coal/total	coal/total	Coal/total	coal/total	coal/total	coal/total
No.16 Rider coal bed	0.23/0.23	not present	not present	not present				
Parting	2.84							
No.16 coal bed	***2.93/3.00***	***2.59/3.15***	***4.44/4.44***	***2.75/2.75***				
Parting	***0.23***	0.68	***no parting***	***no parting***				
No.15 Rider coal bed	***0.23/0.23***	***0.83/1.02***	***1.07/1.07***	***1.52/1.52***				
Parting	***0.19***	0.77	***0.42***	0.79				
No.15 coal bed	***1.06/1.06***	***1.36/1.36***	***1.69/1.69***	***1.36/1.36***				
Parting	0.93	1.71	3.97	2.22				
No.14 coal bed	0.32/0.32	***1.71/1.71***	***2.10/2.10***	***1.60/1.60***				
Parting	6.83	10.70	2.17	5.49				
No.13 coal bed	0.16/0/16	1.01/1.99	0.80/0.80	0.00/0.39			*both of these boreholes encountered inverted stratigraphic sequences*	
Parting	= end of hole =	3.72	2.63	= end of hole =				
No.13 Lower coal bed		***1.28/1.28***	0.34/0.34					
Parting (including sand-stone of 'Shenfield Rock')		76.04	79.69		= hole starts =	= hole starts =	= end of hole =	= end of hole =
No.12 Rider coal bed		***1.79/2.01***	***1.41/1.58***		***1.88/1.88***		***3.02/3.02***	***2.25/2.25***
Parting		1.23	3.12		0.90		***no parting***	***0.16***
- thrust repeats -			*- thrust repeats*					
No.12 coal bed			***1.73/1.73***					
Parting		*no thrust repeats in this section*	1.05		*No thrust repeats in this section*	*hole bridged off at depth of 95.28 metres, above the No.12 Rider; therefore unable to run logs through this zone*	*no thrust repeats in this section*	*no thrust repeats in this section*
No.11 Rider coal bed			0.30/0.30					
Parting			2.03					
No.11 coal bed			***2.22/2.42***					
-- thrust fault --			*fault @*					
No.12 coal bed		***4.53/4.66***	***2.59/2.79***		***5.31/6.01***		***2.56/2.76***	***2.15/2.15***
Parting		0.69	0.95		1.51		0.72	0.76
No.11 Rider coal bed		0.55/0.67	0.62/0.62		0.55/0.67		***1.17/1.17***	0.66/0.66
Parting		1.42	1.16		1.74		1.33	1.56
No.11 coal bed		***1.87/2.05***	***2.16/2.16***		***2.08/2.18***		0.95/0.95	***2.18/2.41***
Parting (including sand-stone of 'Bingay Rock')		= end of hole =	= end of hole =		49.31		24.85	38.63
No.10A coal bed					0.30/0.30		1.58/3.58	0.84/2.22
Parting					36.22		7.39	6.39
No.10 Rider coal bed					Not present	*unable to log this interval due to bridging-off of hole*	***0.73/0.89***	0.53/0.53
Parting							***0.58***	12.06
No.10 coal bed					***6.18/6.56***		***5.18/5.58***	***4.79/5.02***
Parting					1.96		6.31	6.91
No.9 coal bed					***1.84/1.99***		= hole starts =	***1.27/1.27***
Parting					= end of hole =	= end of hole? =		= hole starts =

9.4.4 DRIFT COVER

As mentioned before, the Bingay Creek area is patchily covered by unconsolidated Quaternary (probably mostly post-glacial) drift.

Soil cover is generally quite thin at Bingay Hill and along the ridges which flank the northern slopes of the hill. Soil materials appear to mostly consist of coarse-grained colluvium and regolith, mixed with large talus blocks below prominent sandstone ledges. Isolated swales near the hill are floored by wet, organic-rich silty muck; other than these areas, organic-rich topsoils appear to be patchy and generally very thin, being present mainly along stream channels.

The lowland flats flanking Bingay Hill to the east and west are floored by extensive gravel deposits. To the west of the hill, the gravels appear to form part of an alluvial fan, into which is incised the channel of Bingay Creek. To the east of the hill, the gravels appear to form a succession of terraces. The highest terraces, which consist of silty gravel, may be of glaciofluvial origin. The lower terraces, which consist of cleaner gravel, are likely associated with the braidplain of Elk River.

On the north slope of Bingay Hill, and extending northeastward towards the synclinal axis, patchy shoestring channel-fills of cobbly gravel locally follow the eroded subcrop traces of coal beds. Where explored by test pits and new road cuts, these gravels are several metres thick. These channel-fills may also be of glaciofluvial origin, related to the higher local hydrologic base-levels which occurred while the Elk River valley was occupied by a proglacial lake.

To the northwest of Bingay Hill, near the existing open-cut in the No.10 coal bed, the hummocky landscape is underlain by compact sandy stony (cobbly to bouldery) silt, which may have been deposited as fine-grained till within a complex of moraines.

ITEM 10: DEPOSIT TYPES

National Instrument 43-101 calls for the application of GSC Paper 88-21, *A Standardised Coal Resource/Reserve Reporting System For Canada* (Hughes and others, 1989) when reporting on coal properties. GSC Paper 88-21 specifies the subdivision of coals by deposit type and by geology type.

For coal deposits, the correct identification of deposit type and geology type is important, since the assignment of a coal deposit to a particular type determines the criteria which should be applied during coal-resource estimation.

10.1 DEPOSIT TYPE AT BINGAY CREEK

'Deposit type,' as considered in GSC Paper 88-21, refers to the anticipated means of exploitation of the coals. Possible deposit types range from 'surface mineable', underground mineable', and 'non-conventional' (which would include coals of interest for coalbed gas production) to 'sterilised'.

The coals at Bingay Creek fall within the 'surface mineable' deposit type.

10.2 GEOLOGY TYPE AT BINGAY CREEK

'Geology type,' as considered in GSC Paper 88-21, refers to the general geological complexity of the coals. In most Canadian instances, the amount of tectonic deformation of the coals is the main factor in assessing geology type, but sedimentological and stratigraphic complexities also come into play, particularly among coals which have undergone low levels of deformation.

The geology type at Bingay Creek is considered by the author to be 'complex', slightly beyond the midpoint of the GSC's scale from 'low' through 'moderate,' 'complex' and 'severe.'

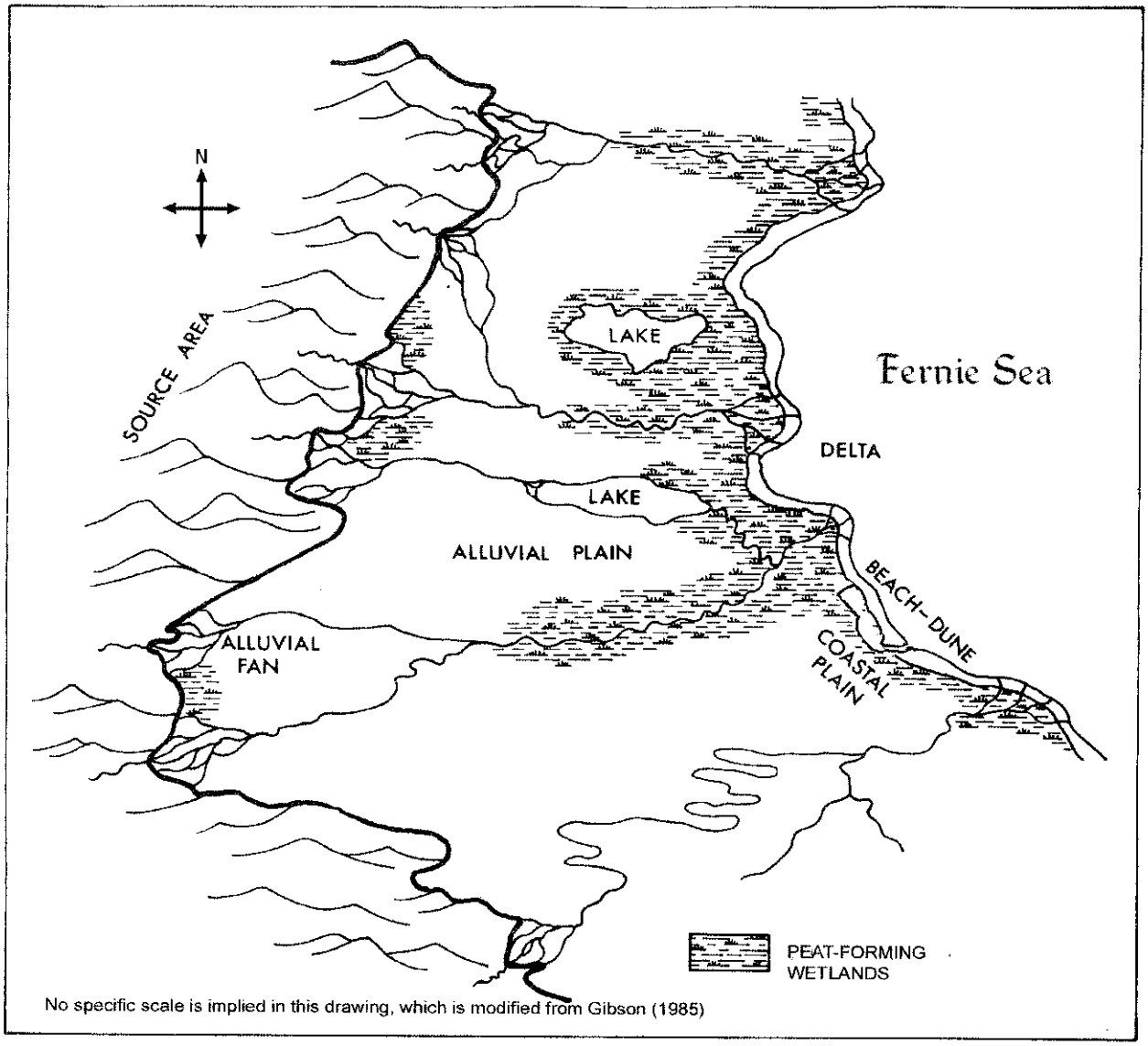
10.3 DEPOSITIONAL MODELS FOR COALS OF THE MIST MOUNTAIN FORMATION

Coal deposits of the Mist Mountain Formation at Bingay Creek are considered by the author to have formed through coalification of coastal-plain peat deposits, which were deposited in at least two distinct paleoenvironments, as first suggested by Gibson (1985).

- Coals of the basal part of the Mist Mountain Formation, from the Bingay No.1 coal bed immediately above the Morrisey Member sandstone, up to the No.10 coal bed, are interpreted to have been deposited as fresh- to slightly brackish-water peats which were formed in tidally-influenced coastal-plain wetlands fringing back-barrier lagoons or freshwater lakes, lying close to the Fernie Sea.
- Coals of the middle part of the Mist Mountain Formation, from the Bingay No.11-12 zone up to the No.21 coal bed, are interpreted to have been deposited as fresh-water peats which were formed in seasonally- to permanently-saturated alluvial-plain wetlands which lay between major stream channels in a lower to middle deltaic setting.
- Coals of the upper part of the Mist Mountain Formation are inferred to have been removed by erosion at Bingay Creek; accordingly, no model may be advanced for their original in this area.

During formation of the Mist Mountain coal-forming peats, the Fernie Sea (part of the Interior Seaway of Mesozoic North America) lay to the east of the Bingay Creek area, and of the Elk Valley and Crowsnest coalfields in general (Gibson, 1985). The deltaic sediments of the Mist Mountain Formation prograded eastward, successively overstepping the coastal sediments of the Moose Mountain Formation. Owing to this overstepping geometry, it is possible that the basal coal beds of the Bingay Creek area are older, and lie at stratigraphically lower positions, than the basal coal beds of the Fording River area further to the east.

Figure 9 (below) shows the generalised depositional model for the Mist Mountain coal-measures, modified slightly from a figure presented by Gibson (1985).



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Bingay Creek Coal Project

Figure 9:
Postulated paleogeographic setting of Mist Mountain coals

The depositional models here proposed for the coals at Bingay Creek have yet to be tested by exploration. Sedimentological examination of the findings of future boreholes will almost certainly impel the revision and reorientation of these models.

10.3.1 COASTAL-PLAIN WETLANDS (MODEL FOR LOWER MIST MOUNTAIN COALS)

Coals of the lower part of the Mist Mountain Formation at Bingay Creek (from the Bingay No.10 coal bed on down to the top of the Moose Mountain sandstone) are interpreted to be derived from fresh- to slightly

brackish-water peats, accumulated in tidally-influenced coastal-plain wetlands fringing back-barrier lagoons or freshwater lakes, lying close to the Fernie Sea. Preservation of these peats from erosion by waves and currents generated by major storms would have depended upon the presence of a well-developed delta-front barrier-beach, which incorporated a dunefield of sufficient height and width to withstand erosion. Gibson (1985, p.70) suggested that the upper Moose Mountain sandstones of the Morrisey Formation, which underlie the Mist Mountain coal-measures, were deposited as subaerial beach ridges and eolian dunes, locally crossed by fluvial channels.

The envisaged landward boundary of the coastal-plain wetlands would be along the seaward edges of slightly-elevated interfluvial areas; depending on the local gradients of the ground surface, the landward extent of the peat-forming wetlands could be substantial (perhaps on the order of several kilometres).

Given sufficient rainfall and freedom from catastrophic events such as major storms or earthquakes, the centres of lagoon-margin wetlands may be amenable to the formation of raised or domed mires, marked by greater thicknesses of peat. Ash yields of coals from such 'sweet spots' may depend on microclimate and the extent of local groundwater flows. For example, if the mire dries out, the peat can burn, producing a 'fire splay' band of coaly mudstone; excessive oxidation can also cause the loss of organic matter from the peat, resulting in higher mineral-matter contents.

The envisaged seaward boundary of the peats would be along the axis of the lagoons or lakes, where tidally-driven currents would exceed the velocities needed to scour sediments and prevent effective rooting of peat-forming plants. The lagoonal axes would likely be the sites of accumulation of organic-rich silts and muds, with scattered coarse fragments of woody debris.

10.3.2 ALLUVIAL-PLAIN WETLANDS (MODEL FOR MIDDLE MIST MOUNTAIN COALS)

Coals of the middle part of the Mist Mountain Member at Bingay Creek (from the Bingay No.11 coal bed upwards) are interpreted to be derived from freshwater peats, accumulated in wetlands which fringed meandering. The wetlands were bounded on their streamward side by levees and abandoned point-bar complexes, and on their landward side by slightly elevated interfluvial areas. The thick interbeds of coal and rock comprising the Bingay 11-12 coal zone (including the Nos.11, 11 Rider, 12 and 12 Rider coal beds) exemplify the thickness and internal stratigraphic complexity which appears to be characteristic of the middle coals of the Mist Mountain Formation.

Syndepositional flooding of the wetlands during major riverine flood events produced landward-thinning and landward-fining crevasse splay and overbank deposits; such deposits would account for the splitting which separates the closely-associated coal beds. Post-depositional erosion by slightly younger stream or river channels may locally truncate the coals altogether (as may be the case with the Bingay No.19 coal bed, or simply form narrow, slightly sinuous washout belts which interrupt the coals' continuity.

Further away from the major stream channels, the middle coals of the Mist Mountain Formation may pinch out into variably-oxidised paleosols, or interfinger with black coal mudstones, silty marlstones and ironstones deposited in contemporaneous lakes or ponds.

If the peats of the middle portion of the Mist Mountain Formation were sufficiently resistant to lateral erosion by meandering streams, and the rate of local sediment compaction (or regional subsidence) was sufficiently balanced against the rate of fluvial aggradation, the wetland environment may have been able to persist for a sufficiently long time that thick peats could accumulate, free of major clastic-sediment partings, and be preserved for subsequent coalification.

The middle coals, where seen in road cuts, trenches or test pits, are dominantly bright and coarsely-banded. Coalified stumps in growth position, fossilised root masses, and large isolated coalified logs within some rock partings suggest that the middle coals mostly originated through growth and in-situ accumulation of woody and sedgy plants, including large trees.

10.3.3 ALTERNATIVE DEPOSITIONAL MODELS FOR THE MIST MOUNTAIN COALS

Gibson (1985) noted the scarcity of fossilised plant roots beneath the Mist Mountain coals. This feature is by no means universal at Bingay Creek, as the author of the present report has observed rooted zones beneath most of the coal beds. Those coals which are not underlain may conceivably have been formed as floating peat islands overlying lakes or ponds; floating peat masses of such a form occur within the modern boreal wetlands of northern Canada.

The continuity of such coals would, of course, depend upon the dimensions of the lake or pond upon which the floating peat was formed; continuity would also require that the peat islands had formed during a period of time, or in a sheltered environment, such that damaging windstorms could not have torn the peat islands apart.

ITEM 11: MINERALISATION

In the context of the present report, 'mineralisation' is considered to consist of the coal beds of the Mist Mountain Formation. The coals of the Mist Mountain are well-known from existing historic drilling, both within the Bingay Creek coal property and at adjoining properties such as Greenhills and Fording River.

At Bingay Creek, the primary exploration target is coals within the middle third of the Mist Mountain Formation: specifically, the 9-10 through 20-21 coal zones.

Secondary targets are coals lying at stratigraphically lower positions within the Moose Mountain Formation, such as the Bingay No.4 and No.8 coal beds; these coals are known to at least locally attain mineable thickness, but they have not been addressed within the present study owing to their having been insufficiently explored to allow them to be incorporated into the known resource base.

11.1 COAL EXPLORATION CONCEPTS

Historic drilling in the vicinity of Bingay Creek appears to have been aimed at addressing several different geological issues:

- establishing the presence of coal-measures within the Elk Valley (as in Cominco's 1974 drilling programme),
- determining the number and thickness of coal beds within the Moose Mountain coal-measures (as in Utah Mines' 1983 drilling programme)
- assessing the coal quality and thickness of the coals within areas of immediate interest for surface mining (as in Hillsborough's 2004 and 2005 drilling programmes).

The problem now at hand for the Bingay Creek property is to confirm and refine structural interpretations, and increase the level-of-assurance of coal resources.

11.2 COAL BEDS OF IMMEDIATE INTEREST FOR SURFACE MINING

To be considered for surface mining, a coal bed must be at least one metre thick and its incremental strip ratio must not exceed 20 cubic metres per tonne. Several of the Bingay coal beds meet these criteria, with the best coal intersections being within the Nos. 9-10, 11-12, 14-16 and 20-21 coal zones.

11.2.1 INTERPRETATION OF BOREHOLE DATA

Tables 7 through **22** present the author's current interpretation of results from Hillsborough's 2004 and 2005 drilling programme, as well as Utah's 1983 drilling programme. Downhole geophysical logs of the various boreholes have been used to determine the thickness and stratigraphic identity of the coal beds.

Measured depths and thicknesses are presented on the left side of each table, whereas interpreted stratigraphic thicknesses ('true' thickness) are presented on the right side of each table. Apparent dips shown for boreholes are relative to imaginary planes perpendicular to the borehole axis at each coal intersection; they represent the author's own inference of the geometry of each coal intersection.

A four-part lithologic subdivision has been adopted, using the geophysical logs of each borehole to delineate coal, dirty coal, coaly rock, and rock. This is necessarily an arbitrary classification, as all gradations from clean coal to completely non-coaly rock are found in the Mist Mountain Formation. However, in practice, the distinction can be made by using density logs to distinguish coal as material with an apparent density less than 1.50 gm/cm^3; dirty coal at densities from 1.50 to 1.70 gm/cm^3, coaly rock at densities from 1.70 to 1.90 gm/cm^3, and rock at over 1.90 gm/cm^3.

Table 7: Coal bed intersections in borehole BG-04-01v

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.12 Rider coal bed --						79°	3.40
92.80	Dirty coal		1.10				
93.90	Coaly rock			0.35			
94.25	Dirty coal		0.50				
94.75	Rock				1.05		
95.80	Coal	10.55					
106.35	Rock				0.85		
107.20	Coal	1.60					
108.80	Dirty coal		1.00				
109.80	Coal	0.80					
-- Floor of Bingay No.12 Rider coal bed --						True coal thickness:	2.97 / 3.40
Totals for this coal bed:		12.95	2.60	0.35	1.90		
		Total coal: 15.55 m		*Total rock:* 2.25 m			
110.60	Coaly rock			0.40		79°	0.77
111.00	Rock				0.70		
111.70	Dirty coal		0.50				
112.20	Rock				1.45		
113.65	Coaly rock			0.65			
114.30	Rock				0.35		
-- Roof of Bingay No.12 coal bed --						77.5°	2.64
114.65	Coal	4.55					
119.20	Rock				0.55		
119.75	Coal	2.50					
122.25	Dirty coal		0.55				
122.80	Coal	0.30					
123.10	Rock				0.50		
123.60	Coal	0.95					
124.55	Rock				0.65		
125.20	Coal	1.65					
-- Floor of Bingay No.12 coal bed --						True coal thickness:	2.27 / 2.64
Totals for this coal bed:		9.95	0.55	Nil	1.70		
		Total coal: 10.50 m		*Total rock:* 1.70 m			
126.85	Rock				4.10	76°	0.99
-- Roof of Bingay No.11 Rider coal bed --						76°	0.58
130.95	Coal	1.50					
132.45	Coaly rock			0.40			
132.85	Coal	0.50					
-- Floor of Bingay No.11 Rider coal bed --						True coal thickness:	0.48 / 0.58
Totals for this coal bed:		2.00	Nil	0.40	Nil		
		Total coal: 2.00 m		*Total rock:* 0.40 m			

Table 7: Coal bed intersections in borehole BG-04-01v (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log

Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
133.35	Rock				1.40	75.5°	2.08
134.75	Coal	0.50					
135.25	Rock				6.40		
-- Roof of Bingay No.11 coal bed --						75°	0.69
141.65	Coal	1.95					
143.60	Coaly rock			0.35			
143.95	Dirty coal		0.35				
-- Floor of Bingay No.11 coal bed --						True coal thickness:	0.60 / 0.69
Totals for this coal bed:		1.95	0.35	0.35	Nil		
		Total coal: 2.30 m		*Total rock:* 0.35 m			
144.30	Rock				64.15		
-- Roof of Bingay No.10A coal bed --						21°	0.61
208.45	Coal	0.65					
-- Floor of Bingay No.10A coal bed --						True coal thickness:	0.61 / 0.61
Totals for this coal bed:		0.65	Nil	Nil	Nil		
		Total coal: 0.65 m		*Total rock:* 0.00 m			
209.10	Rock				23.80		
232.90	Coaly rock			0.25			
-- Roof of Bingay No.10 Rider coal bed --						17°	0.43
233.15	Coal	0.45					
-- Floor of Bingay No.10 Rider coal bed --						True coal thickness:	0.43 / 0.43
Totals for this coal bed:		0.45	Nil	Nil	Nil		
		Total coal: 0.45 m		*Total rock:* 0.00 m			
233.60	Coaly rock			0.30		23°	6.63
233.90	Rock				6.90		
-- Roof of Bingay No.10 coal bed --						26°	11.24
240.80	Dirty coal		0.70				
241.50	Coal	7.45					
248.95	Coaly rock			0.70			
249.65	Coal	3.65					
-- Floor of Bingay No.10 coal bed --						True coal thickness:	10.61 / 11.24
Totals for this coal bed:		11.10	0.70	0.70	Nil		
		Total coal: 11.80 m		*Total rock:* 0.70 m			
253.30	Rock				2.35	24°	2.15

Table 7: Coal bed intersections in borehole BG-04-01v (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.9 coal bed --						25.5°	5.73
255.65	Coal	3.10					
258.75	Rock				1.15		
259.90	Coal	0.40					
260.30	Rock				0.50		
260.80	Coal	0.35					
261.15	Coaly rock			0.35			
261.50	Dirty coal		0.50				
-- Floor of Bingay No.9 coal bed --						True coal thickness:	3.93 / 5.73
Totals for this coal bed:		3.85	0.50	0.35	1.65		
		Total coal: 4.35 m		*Total rock:* 2.00 m			

Table 8: Coal bed intersections in borehole BG-04-02a

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.12 Rider coal bed --						38°	5.83
23.45	Coal	2.00					
25.45	Dirty coal		0.30				
25.75	Coal	0.90					
26.65	Dirty coal		0.35				
27.00	Coal	2.25					
29.25	Dirty coal		0.25				
29.50	Coal	0.50					
30.00	Coaly Rock			0.50			
30.30	Dirty coal		0.35				
-- Floor of Bingay No.12 Rider coal bed --						True coal thickness:	5.44 / 5.83
Totals for this coal bed:		5.65	1.25	0.50	Nil		
		Total coal: 6.90 m		*Total rock:* 0.50 m			
30.65	Rock				0.50	37.5°	0.95
31.15	Coaly rock			0.35			
31.50	Rock				0.35		
-- Roof of Bingay No.12 coal bed --						37°	4.71
31.85	Dirty coal		0.70				
32.55	Coal	2.50					
35.05	Coaly rock			0.20			
35.25	Dirty coal		0.60				
35.85	Coaly rock			0.30			
36.15	Coal	0.50					
36.65	Dirty coal		0.65				
37.30	Coal	0.45					
-- Floor of Bingay No.12 coal bed --						True coal thickness:	4.31 / 4.71
Totals for this coal bed:		3.45	1.95	0.50	Nil		
		Total coal: 5.40 m		*Total rock:* 0.50 m			

Table 8: Coal bed intersections in borehole BG-04-02a (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log

Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
37.75	Rock				0.25	36.5°	1.69
38.00	Coaly rock			0.30			
38.30	Rock				1.55		
-- Roof of Bingay No.11 Rider coal bed --						36°	0.40
39.85	Coal	0.50					
-- Floor of Bingay No.11 Rider coal bed --						True coal thickness:	0.40 / 0.40
Totals for this coal bed:		0.50	Nil	Nil	Nil		
		Total coal: 0.50 m		*Total rock:* 0.00 m			
40.35	Rock				1.75	36°	1.42
-- Roof of Bingay No.11 coal bed --						36.5°	1.65
42.10	Coal	1.55					
43.65	Coaly rock			0.15			
43.80	Dirty coal		0.35				
-- Floor of Bingay No.11 coal bed --						True coal thickness:	1.53 / 1.65
Totals for this coal bed:		1.55	0.35	0.15	Nil		
		Total coal: 1.90 m		*Total rock:* 0.15 m			
44.15	Rock				0.40	37°	51.63
44.55	Coaly rock			0.35			
44.90	Rock				63.90		
-- Roof of Bingay No.10A coal bed --						37.5°	0.48
108.80	Coal	0.45					
109.25	Dirty coal		0.15				
-- Floor of Bingay No.10A coal bed --						True coal thickness:	0.48 / 0.48
Totals for this coal bed:		0.45	0.15	Nil	Nil		
		Total coal: 0.60 m		*Total rock:* 0.00 m			
109.40	Rock				13.80	35°	11.30
-- Roof of Bingay No.10 Rider coal bed --						32.5°	0.63
123.20	Coal	0.75					
-- Floor of Bingay No.10 Rider coal bed --						True coal thickness:	0.63 / 0.63
Totals for this coal bed:		0.75	Nil	Nil	Nil		
		Total coal: 0.75 m		*Total rock:* 0.00 m			
123.95	Rock				4.50	32°	4.37
128.45	Coaly rock			0.35			
128.80	Rock				0.30		

Table 8: Coal bed intersections in borehole BG-04-02a (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.10 coal bed --						33.5°	8.01
129.10	Dirty coal		0.40				
129.50	Coaly rock			0.25			
129.75	Coal	2.95					
132.70	Coaly rock			0.35			
133.05	Coal	3.15					
136.20	Dirty coal		0.10				
136.30	Coaly rock			0.25			
136.55	Coal	0.50					
137.05	Dirty coal		0.30				
137.35	Coal	0.45					
137.80	Dirty coal		0.25				
138.05	Coal	0.65					
-- Floor of Bingay No.10 coal bed --						True coal thickness :	7.30 / 8.01
Totals for this coal bed:		7.70	1.05	0.85	Nil		
		Total coal: 8.75 m		*Total rock:* 0.85 m			
138.70	Rock				2.15	35°	1.76
-- Roof of Bingay No.9 coal bed --						35°	2.01
140.85	Coal	1.80					
142.65	Coaly rock			0.25			
142.90	Dirty coal		0.40				
-- Floor of Bingay No.9 coal bed --						True coal thickness:	1.80 / 2.01
Totals for this coal bed:		1.80	0.40	0.25	Nil		
		Total coal: 2.20 m		*Total rock:* 0.25 m			
143.30	Rock				0.35	34°	11.07
143.65	Coaly rock			0.35			
144.00	Rock				12.65		
-- Roof of Bingay No.8 coal bed --						33°	0.63
156.65	Coal	0.75					
-- Floor of Bingay No.8 coal bed --						True coal thickness:	0.63 / 0.63
Totals for this coal bed:		0.75	Nil	Nil	Nil		
		Total coal: 0.75 m		*Total rock:* 0.00 m			
157.40	Rock				1.00	30°	24.07
158.40	Coaly rock			0.30			
158.70	Rock				26.50		

Table 8: Coal bed intersections in borehole BG-04-02a (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.7 coal bed --						28°	1.15
185.20	Coal	0.90					
186.10	Dirty coal		0.40				
-- Floor of Bingay No.7 coal bed --						True coal thickness:	1.15 / 1.15
Totals for this coal bed:		0.90	0.40	Nil	Nil		
		Total coal: 1.30 m		*Total rock:* 0.00 m			
186.50	Rock				2.70	28°	2.38
-- Roof of Bingay No.6 coal bed --						28°	
189.20	Coal	1.05					
190.25	Coaly rock			0.30			
190.55	Dirty coal		0.20				
-- Floor of Bingay No.6 coal bed --						True coal thickness:	1.10 / 1.37
Totals for this coal bed:		1.05	0.20	0.30	Nil		
		Total coal: 1.25 m		*Total rock:* 0.30 m			
190.75	Rock				1.75	27.5°	2.04
192.50	Coaly rock			0.30			
192.80	Rock				0.25		
-- Roof of Bingay No.5 coal bed --						27°	1.34
193.05	Coal	1.50					
-- Floor of Bingay No.5 coal bed --						True coal thickness:	1.34 / 1.34
Totals for this coal bed:		1.50	Nil	Nil	Nil		
		Total coal: 1.50 m		*Total rock:* 0.00 m			
194.55	Rock				13.10	32°	11.23
-- Roof of Bingay No.4 Rider coal bed --						37°	0.48
207.65	Coal	0.60					
-- Floor of Bingay No.4 Rider coal bed --						True coal thickness:	0.48 / 0.48
Totals for this coal bed:		0.60	Nil	Nil	Nil		
		Total coal: 0.60 m		*Total rock:* 0.00 m			
208.25	Rock				4.90	37.5°	3.89
-- Roof of Bingay No.4 coal bed --						37.5°	1.82
213.15	Coal	0.40					
213.55	Rock				0.20		
213.75	Coal	1.70					
-- Floor of Bingay No.4 coal bed --						True coal thickness:	1.67 / 1.82
Totals for this coal bed:		2.10	Nil	Nil	0.20		
		Total coal: 2.10 m		*Total rock:* 0.20 m			

Table 8: Coal bed intersections in borehole BG-04-02a (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
215.45	Rock				13.25	28°	11.70
-- Roof of Bingay No.3 coal bed --						27.5°	2.57
228.70	Coal	0.35					
229.05	Coaly rock			0.10			
229.15	Coal	1.55					
230.70	Rock				0.35		
231.05	Coal	0.55					
-- Floor of Bingay No.3 coal bed --						True coal thickness:	2.17 / 2.57
Totals for this coal bed:		2.45	Nil	0.10	0.35		
		Total coal: 2.45 m		*Total rock:* 0.45 m			
231.60	Rock				4.00	27.5°	3.55
-- Roof of Bingay No.3 Lower coal bed --						27.5°	0.44
235.60	Coal	0.50					
-- Floor of Bingay No.3 Lower coal bed --						True coal thickness:	0.44 / 0.44
Totals for this coal bed:		0.50	Nil	Nil	Nil		
		Total coal: 0.50 m		*Total rock:* 0.00 m			
236.10	Coaly rock			0.30		27.5°	6.16
236.40	Rock				6.65		
-- Roof of Bingay No.2A coal bed --						27.5°	1.02
243.05	Coal	0.50					
243.55	Coaly rock			0.30			
243.85	Dirty coal		0.35				
-- Floor of Bingay No.2A coal bed --						True coal thickness:	0.75 / 1.02
Totals for this coal bed:		0.50	0.35	0.30	Nil		
		Total coal: 0.85 m		*Total rock:* 0.30 m			

Table 9: Coal bed intersections in borehole BG-04-03v

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.19 Rider coal bed --						43°	1.65
10.75	Coal	2.25					
-- Floor of Bingay No.19 Rider coal bed --						True coal thickness:	1.65 / 1.65
Totals for this coal bed:		2.25	Nil	Nil	Nil		
		Total coal: 2.25 m		*Total rock:* 0.00 m			
13.00	Rock				1.75	48°	1.17

Table 9: Coal bed intersections in borehole BG-04-03v (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.19 coal bed --						53°	3.88
14.75	Coal	6.45					
-- Floor of Bingay No.19 coal bed --						True coal thickness:	3.88 / 3.88
Totals for this coal bed:		6.45	Nil	Nil	Nil		
		Total coal: 6.45 m		*Total rock:* 0.00 m			
21.20	Rock				13.65	60°	7.08
34.85	Coaly rock			0.50			
-- Roof of Bingay No.19 Lower coal bed --						67°	0.33
35.35	Coal	0.85					
-- Floor of Bingay No.19 Lower coal bed --						True coal thickness:	0.33 / 0.33
Totals for this coal bed:		0.85	Nil	Nil	Nil		
		Total coal: 0.85 m		*Total rock:* 0.00 m			
36.20	Coaly rock			0.45		67°	3.13
36.65	Rock				7.55		
-- Floor of Bingay No.19 coal bed --			OVERTURNED BEDS			67°	1.29
44.20	Dirty coal		0.40				
44.60	Coaly rock			0.40			
45.00	Coal	2.50					
-- Roof of Bingay No.19 coal bed --						True coal thickness:	1.13 / 1.29
Totals for this coal bed:		2.50	0.40	0.40	Nil		
		Total coal: 2.90 m		*Total rock:* 0.40 m			
47.50	Coaly rock			0.20		67°	1.95
47.70	Rock				4.80		
-- Floor of Bingay No.19 Rider coal bed --			OVERTURNED BEDS			67°	0.08
52.50	Dirty coal		0.20				
-- Roof of Bingay No.19 Rider coal bed --						True coal thickness:	0.08 / 0.08
Totals for this coal bed:		Nil	0.20	Nil	Nil		
		Total coal: 0.20 m		*Total rock:* 0.00 m			
52.70	Rock				23.55	66.5°	9.39

Table 9: Coal bed intersections in borehole BG-04-03v (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Floor of Bingay No.20 coal bed --			OVERTURNED BEDS			66°	3.72
76.25	Coal	9.15					
-- Roof of Bingay No.20 coal bed --						True coal thickness:	3.72 / 3.72
Totals for this coal bed:		9.15	Nil	Nil	Nil		
		Total coal: 9.15 m		*Total rock:* 0.00 m			
-- Floor of Bingay No.21 coal bed --			OVERTURNED BEDS			66°	6.43
85.40	Coal	8.85					
94.25	Dirty coal		0.55				
94.80	Coal	6.40					
-- Roof of Bingay No.21 coal bed --						True coal thickness:	6.43 / 6.43
Totals for this coal bed:		15.25	0.55	Nil	Nil		
		Total coal: 15.80 m		*Total rock:* 0.00 m			
101.20	Rock				2.30		
103.50	Coaly rock			0.65			
104.15	Rock				14.55		
118.70	Coaly rock			0.60			
119.30	Rock				9.80		
129.10	Coaly rock			0.65			
129.75	Rock				24.15		
153.90	Coaly rock			0.45			
-- Roof of Bingay No.21 coal bed --						37°	14.22
154.35	Coal	7.10					
161.45	Dirty coal		0.40				
161.85	Coal	3.40					
165.25	Coaly rock			0.55			
165.80	Coal	6.35					
-- Floor of Bingay No.21 coal bed --						True coal thickness:	13.78 / 14.22
Totals for this coal bed:		16.85	0.40	0.55	Nil		
		Total coal: 17.25 m		*Total rock:* 0.55 m			
172.15	Coaly rock			0.35		37.5°	1.71
172.50	Rock				1.80		
-- Roof of Bingay No.20 Rider coal bed --						38°	0.79
174.30	Dirty coal		0.25				
174.55	Coal	0.40					
174.95	Dirty coal		0.35				
-- Floor of Bingay No.20 Rider coal bed --						True coal thickness:	0.79 / 0.79
Totals for this coal bed:		0.40	0.60	Nil	Nil		
		Total coal: 1.00 m		*Total rock:* 0.00 m			
175.30	Rock				1.50	38°	1.46
176.80	Coaly rock			0.35			

Table 9: Coal bed intersections in borehole BG-04-03v (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.20 coal bed --						38°	2.32
177.15	Dirty coal		0.25				
177.80	Coaly rock			0.95			
178.75	Dirty coal		0.55				
179.30	Coaly rock			0.60			
179.90	Coal	0.20					
180.10	Dirty coal		0.40				
-- Floor of Bingay No.20 coal bed --						True coal thickness:	1.10 / 2.32
Totals for this coal bed:		0.20	1.20	1.55	Nil		
		Total coal: 1.40 m		*Total rock:* 1.55 m			
180.50	Rock				38.00	34.5°	31.32
-- Roof of Bingay No.18 coal bed --						31°	2.10
218.50	Dirty coal		0.40				
218.90	Coaly rock			0.30			
219.20	Dirty coal		0.35				
219.55	Coaly rock			0.20			
219.75	Coal	0.75					
220.50	Dirty coal		0.45				
-- Floor of Bingay No.18 coal bed --						True coal thickness:	1.67 / 2.10
Totals for this coal bed:		0.75	1.20	0.50	Nil		
		Total coal: 1.95 m		*Total rock:* 0.50 m			
220.95	Rock				22.55	33°	18.91
-- Roof of Bingay No.17 coal bed --						28.5°	2.72
243.50	Coal	1.75					
245.25	Dirty coal		0.15				
245.40	Coal	1.20					
-- Floor of Bingay No.17 coal bed --						True coal thickness:	2.72 / 2.72
Totals for this coal bed:		2.95	0.15	Nil	Nil		
		Total coal: 3.10 m		*Total rock:* 0.00 m			
246.60	Rock				1.05	28°	34.96
247.65	Coaly rock			0.45			
248.10	Rock				0.20		
248.30	Coaly rock			0.35			
248.65	Rock				37.55		

Table 9: Coal bed intersections in borehole BG-04-03v (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log

Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.16 coal bed --						16°	3.80
286.20	Coal	0.45					
286.65	Dirty coal		0.35				
287.00	Coal	0.80					
287.80	Dirty coal		0.70				
288.50	Coal	0.25					
288.75	Dirty coal		0.15				
288.90	Coaly rock			0.30			
289.20	Coal	0.95					
-- Floor of Bingay No.16 coal bed --						True coal thickness:	3.51 / 3.80
Totals for this coal bed:		2.45	1.20	0.30	Nil		
		Total coal: 3.65 m		*Total rock:* 0.30 m			
290.15	Coaly rock			0.50		26°	0.45
-- Roof of Bingay No.15 Rider coal bed --						22°	1.85
290.65	Dirty coal		0.50				
291.15	Coal	1.50					
-- Floor of Bingay No.15 Rider coal bed --						True coal thickness:	1.85 / 1.85
Totals for this coal bed:		1.50	0.50	Nil	Nil		
		Total coal: 2.00 m		*Total rock:* 0.00 m			
292.65	Rock				0.50	18.5°	0.47
-- Roof of Bingay No.15 coal bed --						14.5°	2.37
293.15	Dirty coal		0.35				
293.50	Coal	2.10					
-- Floor of Bingay No.15 coal bed --						True coal thickness:	2.37 / 2.37
Totals for this coal bed:		2.10	0.35	Nil	Nil		
		Total coal: 2.45 m		*Total rock:* 0.00 m			
295.60	Rock				1.55	11°	1.52
-- Roof of Bingay No.14 coal bed --						11°	2.45
297.15	Coal	2.50					
-- Floor of Bingay No.14 coal bed --						True coal thickness:	2.45 / 2.45
Totals for this coal bed:		2.50	Nil	Nil	Nil		
		Total coal: 2.50 m		*Total rock:* 0.00 m			

Table 10: Coal bed intersections in borehole BG-04-04a

Measured depths and thickness as interpreted from gamma-caliper-density log

Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.19 coal bed --						54°	1.68
8.85	Coal	2.85					
-- Floor of Bingay No.19 coal bed --						True coal thickness:	1.68 / 1.68
Totals for this coal bed:		2.85	Nil	Nil	Nil		
		Total coal: 2.85 m		*Total rock:* 0.00 m			
11.70	Rock				9.85	58°	5.22
-- Roof of Bingay No.18 coal bed --		STRUCTURALLY REPEATED				58°	2.91
21.55	Coal	5.50					
-- Floor of Bingay No.18 coal bed --						True coal thickness:	2.91 / 2.91
Totals for this coal bed:		5.50	Nil	Nil	Nil		
		Total coal: 5.50 m		*Total rock:* 0.00 m			
27.05	Rock				69.75		
-- Roof of Bingay No.18 Rider coal bed --						62°	0.52
96.80	Coal	1.10					
-- Floor of Bingay No.18 Rider coal bed --						True coal thickness:	0.52 / 0.52
Totals for this coal bed:		1.10	Nil	Nil	Nil		
		Total coal: 1.10 m		*Total rock:* 0.00 m			
97.90	Rock				0.35	62°	0.47
98.25	Dirty coal				0.30		
98.55	Coaly rock				0.35		
-- Roof of Bingay No.18 coal bed --						62°	0.80
98.90	Coal	1.70					
-- Floor of Bingay No.18 coal bed --						True coal thickness:	0.80 / 0.80
Totals for this coal bed:		1.70	Nil	Nil	Nil		
		Total coal: 1.70 m		*Total rock:* 0.00 m			
100.60	Coaly rock				0.30	60°	12.63
100.90	Rock				24.95		
-- Roof of Bingay No.17 coal bed --						58°	1.38
125.85	Coal	2.60					
-- Floor of Bingay No.17 coal bed --						True coal thickness:	1.38 / 1.38
Totals for this coal bed:		2.60	Nil	Nil	Nil		
		Total coal: 2.60 m		*Total rock:* 0.00 m			
128.45	Rock				34.35	60°	17.35
162.80	Coaly rock			0.35			

Table 10: Coal bed intersections in borehole BG-04-04a (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.16 coal bed --						62°	2.00
163.15	Dirty coal		0.45				
163.60	Coal	3.80					
-- Floor of Bingay No.16 coal bed --						True coal thickness:	2.00 / 2.00
Totals for this coal bed:		3.80	0.45	Nil	Nil		
		Total coal: 4.25 m		*Total rock:* 0.00 m			
167.40	Rock				0.70	60.5°	0.34
-- Roof of Bingay No.15 coal bed --						59°	0.80
168.10	Coal	1.55					
-- Floor of Bingay No.15 coal bed --						True coal thickness:	0.80 / 0.80
Totals for this coal bed:		1.55	Nil	Nil	Nil		
		Total coal: 1.55 m		*Total rock:* 0.00 m			
169.65	Rock				2.00	58°	1.06
-- Roof of Bingay No.14 coal bed --						57°	1.25
171.65	Coal	2.30					
-- Floor of Bingay No.14 coal bed --						True coal thickness:	1.25 / 1.25
Totals for this coal bed:		2.30	Nil	Nil	Nil		
		Total coal: 2.30 m		*Total rock:* 0.00 m			
173.95	Rock				3.30	46°	40.71
177.25	Coaly rock			0.45			
177.70	Rock				30.05		
207.75	Coaly rock			0.45			
208.20	Rock				24.35		
-- Roof of Bingay No.13 coal bed --						45°	0.60
232.55	Coal	0.85					
-- Floor of Bingay No.13 coal bed --						True coal thickness:	0.60 / 0.60
Totals for this coal bed:		0.85	Nil	Nil	Nil		
		Total coal: 0.85 m		*Total rock:* 0.00 m			
233.40	Rock				2.40	45°	1.70
-- Roof of Bingay No.13 Lower coal bed --						45°	1.10
235.80	Coal	0.90					
236.70	Dirty coal		0.65				
-- Floor of Bingay No.13 Lower coal bed --						True coal thickness:	1.10 / 1.10
Totals for this coal bed:		0.90	0.65	Nil	Nil		
		Total coal: 1.55 m		*Total rock:* 0.00 m			

Table 11: Coal bed intersections in borehole BG-04-05a

Measured depths and thickness as interpreted from gamma-caliper-density log

Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
10.50	Coaly rock			0.55		36°	0.44
-- Roof of Bingay No.13 coal bed --						36°	0.24
11.05	Coal	0.30					
-- Floor of Bingay No.13 coal bed --						True coal thickness:	0.24 / 0.24
Totals for this coal bed:		0.30	Nil	Nil	Nil		
		Total coal: 0.30 m		*Total rock:* 0.00 m			
11.35	Coaly rock			0.30		32.5°	41.33
11.65	Rock				48.70		
-- Roof of Bingay No.12 Rider coal bed --						29°	2.32
60.35	Coal	2.65					
-- Floor of Bingay No.12 Rider coal bed --						True coal thickness:	2.32 / 2.32
Totals for this coal bed:		2.65	Nil	Nil	Nil		
		Total coal: 2.65 m		*Total rock:* 0.00 m			
63.00	Rock				0.95	29.5°	1.96
63.95	Dirty coal		0.55				
64.50	Coaly rock			0.15			
64.65	Rock				0.60		
-- Roof of Bingay No.12 coal bed --						30°	3.42
65.25	Coal	2.25					
67.30	Dirty coal		0.35				
67.85	Coal	0.45					
68.30	Coaly rock			0.45			
68.75	Dirty coal		0.45				
-- Floor of Bingay No.12 coal bed --						True coal thickness:	3.03 / 3.42
Totals for this coal bed:		2.70	0.80	0.45	Nil		
		Total coal: 3.50 m		*Total rock:* 0.45 m			
69.20	Rock				0.50	30.5°	1.38
69.70	Coaly rock			0.45			
70.15	Rock				0.65		
-- Roof of Bingay No.11 Rider coal bed --						31°	4.29
70.80	Coal	0.95					
71.75	Dirty coal		0.45				
72.20	Coal	1.15					
73.35	Dirty coal		0.35				
73.70	Coal	2.10					
-- Floor of Bingay No.11 Rider coal bed --						True coal thickness:	4.29 / 4.29
Totals for this coal bed:		4.20	0.80	Nil	Nil		
		Total coal: 5.00 m		*Total rock:* 0.00 m			

Table 11: Coal bed intersections in borehole BG-04-05a (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
75.80	Coaly rock			0.35		31.5°	2.05
76.15	Rock				0.90		
77.05	Dirty coal		0.55				
77.60	Rock				0.60		
-- Roof of Bingay No.11 coal bed --						32°	2.04
78.25	Coal	2.40					
-- Floor of Bingay No.11 coal bed --						True coal thickness:	2.04 / 2.04
Totals for this coal bed:		2.40	Nil	Nil	Nil		
		Total coal: 2.40 m		*Total rock:* 0.00 m			
80.65	Rock				62.90	33.5°	52.45
-- Roof of Bingay No.10 Rider coal bed --						35°	0.53
143.55	Coal	0.65					
-- Floor of Bingay No.10 Rider coal bed --						True coal thickness:	0.53 / 0.53
Totals for this coal bed:		0.65	Nil	Nil	Nil		
		Total coal: 0.65 m		*Total rock:* 0.00 m			
144.20	Rock				11.40	34.5°	9.39
-- Roof of Bingay No.10 coal bed --						34.5°	7.87
155.60	Coal	9.55					
-- Floor of Bingay No.10 coal bed --						True coal thickness:	7.87 / 7.87
Totals for this coal bed:		9.55	Nil	Nil	Nil		
		Total coal: 9.55 m		*Total rock:* 0.00 m			
165.15	Rock				5.60	34°	4.61
-- Roof of Bingay No.9 coal bed --						34°	0.74
170.75	Coal	0.90					
-- Floor of Bingay No.9 coal bed --						True coal thickness:	0.74 / 0.74
Totals for this coal bed:		0.90	Nil	Nil	Nil		
		Total coal: 0.90 m		*Total rock:* 0.00 m			
171.65	Rock				5.60		
172.05	Coaly rock			0.25			
172.30	Rock				0.70		
173.00	Coaly rock			0.25			

No table of coal bed intersections is provided for borehole BG-04-06v, as this borehole was drilled for its entire length down the bedding of the Bingay No.10 coal bed, without reaching either the roof or the floor of the coal. The intended purpose of the borehole was to assess depth-of-oxidation of the No.10 coal bed, rather than to provide information concerning coal bed thickness.

Table 12: Coal bed intersections in borehole BG-05-07v

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.20 coal bed --						44°	7.91
7.38	Coal	8.25					
15.63	Dirty coal		0.18				
15.81	Coal	2.22					
17.03	Dirty coal		0.34				
-- Floor of Bingay No.20 coal bed --						True coal thickness:	7.91 / 7.91
Totals for this coal bed:		10.47	0.52	Nil	Nil		
		Total coal: 10.99 m		*Total rock:* 0.00 m			
17.37	Rock				18.83	50°	12.10
36.20	Dirty coal		0.50			49°	0.33
36.70	Rock				25.23	51°	15.88
-- Roof of Bingay No.19 coal bed --						50°	2.40
61.93	Coal	3.74					
-- Floor of Bingay No.19 Rider coal bed --						True coal thickness:	2.40 / 2.40
Totals for this coal bed:		3.74	Nil	Nil	Nil		
		Total coal: 3.74 m		*Total rock:* 0.00 m			
65.67	Rock				0.71	50°	0.46
-- Roof of Bingay No.19 Lower coal bed --						51°	0.33
66.38	Coal	0.52					
-- Floor of Bingay No.19 Lower coal bed --						True coal thickness:	0.33 / 0.33
Totals for this coal bed:		0.52	Nil	Nil	Nil		
		Total coal: 0.52 m		*Total rock:* 0.00 m			
66.90	Rock				21.08	52°	12.98
-- Roof of Bingay No.18 coal bed --						53°	1.41
87.98	Dirty coal		0.21				
88.19	Coaly rock			0.15			
88.34	Dirty coal		0.21				
88.55	Rock				0.29		
88.84	Coaly rock			0.19			
89.03	Coal	1.10					
90.13	Dirty coal		0.19				
-- Floor of Bingay No.18 coal bed --						True coal thickness:	1.03/ 1.41
Totals for this coal bed:		1.10	0.61	0.34	0.29		
		Total coal: 1.71 m		*Total rock:* 0.63 m			
90.32	Rock				26.35	51°	16.58
-- Roof of Bingay No.17 coal bed --						43°	1.78
116.67	Coal	2.43					
-- Floor of Bingay No.17 coal bed --						True coal thickness:	1.78/ 1.78
Totals for this coal bed:		2.43	Nil	Nil	Nil		
		Total coal: 2.43 m		*Total rock:* 0.00 m			

Table 12: Coal bed intersections in borehole BG-05-07v (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log

Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
119.10	Rock				1.25	43°	0.91
120.35	Coaly rock			0.20		43 °	0.15
120.55	Rock				36.10	52°	22.23
156.65	Coaly rock			1.17		52°	0.72
-- Roof of Bingay No.16 Rider coal bed --						52°	0.23
157.82	Dirty coal		0.38				
-- Floor of Bingay No.16 Rider coal bed --						True coal thickness:	0.23/ 0.23
Totals for this coal bed:		Nil	0.38	Nil	Nil		
		Total coal: 0.38 m		*Total rock:* 0.00 m			
158.20	Rock				4.83	54°	2.84
-- Roof of Bingay No.16 coal bed --						54°	3.00
163.03	Coal	0.50					
163.53	Coaly rock			0.13			
163.66	Coal	4.30					
167.96	Dirty coal		0.18				
-- Floor of Bingay No.16 coal bed --						True coal thickness:	2.93/ 3.00
Totals for this coal bed:		4.80	0.18	0.13	Nil		
		Total coal: 4.98 m		*Total rock:* 0.13 m			
168.14	Rock				0.36	50°	0.23
-- Roof of Bingay No.15 Rider coal bed --						46°	0.23
168.40	Dirty coal		0.33				
-- Floor of Bingay No.15 Rider coal bed --						True coal thickness:	0.23/ 0.23
Totals for this coal bed:		Nil	0.33	Nil	Nil		
		Total coal: 0.33 m		*Total rock:* 0.00 m			
168.73	Coaly rock			0.11		46°	0.08
168.84	Rock				0.16	46°	0.11
-- Roof of Bingay No.15 coal bed --						46°	1.06
169.00	Dirty coal		0.05				
169.05	Coal	1.47					
-- Floor of Bingay No.15 coal bed --						True coal thickness:	1.06/ 1.06
Totals for this coal bed:		1.47	0.05	Nil	Nil		
		Total coal: 1.52 m		*Total rock:* 0.00 m			
170.52	Rock				1.21	43°	0.88
171.73	Coaly rock			0.07		40°	0.05
-- Roof of Bingay No.14 coal bed --						40°	0.32
171.80	Coal	0.28					
174.08	Dirty coal		0.14				
-- Floor of Bingay No. 14 coal bed --						True coal thickness:	0.32/ 0.32
Totals for this coal bed:		0.28	0.14	Nil	Nil		
		Total coal: 0.42 m		*Total rock:* 0.00 m			

Table 12: Coal bed intersections in borehole BG-05-07v (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log

Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
174.22	Rock				8.73	38.5°	6.83
-- Roof of Bingay No.13 coal bed --						37°	
182.95	Coal	0.20					
-- Floor of Bingay No. coal bed --						True coal thickness:	0.16/ 0.16
Totals for this coal bed:		0.20	Nil	Nil	Nil		
		Total coal: 0.20 m		*Total rock:* 0.00 m			
183.15	Rock						

Table 13: Coal bed intersections in borehole BG-05-08a

Measured depths and thickness as interpreted from gamma-caliper-density log

Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.19 coal bed --						19°	4.38
22.33	Coal	2.25					
24.58	Dirty coal		0.14				
24.72	Coal	2.24					
-- Floor of Bingay No.19 coal bed --						True coal thickness:	4.38/ 4.38
Totals for this coal bed:		4.49	0.14	Nil	Nil		
		Total coal: 4.63 m		*Total rock:* 0.00 m			
26.96	Rock				0.65	18°	0.62
-- Roof of Bingay No.19 Lower coal bed --						17°	0.35
27.61	Coal	0.24					
27.85	Dirty coal		0.03				
27.88	Coal	0.10					
-- Floor of Bingay No.19 Lower coal bed --						True coal thickness:	0.35/ 0.35
Totals for this coal bed:		0.34	0.03	Nil	Nil		
		Total coal: 0.37 m		*Total rock:* 0.00 m			
27.98	Coaly rock			0.43		17°	0.41
28.11	Rock				12.55	17°	12.00
-- Roof of Bingay No.18 coal bed --						14°	1.66
40.66	Dirty coal		0.20				
40.86	Rock				0.30		
41.16	Dirty coal		0.08				
41.24	Coaly rock			0.19			
41.43	Coal	0.67					
42.10	Coaly rock			0.08			
42.18	Dirty coal		0.19				
-- Floor of Bingay No.18 coal bed --						Truc coal thickness:	1.11/ 1.66
Totals for this coal bed:		0.67	0.47	0.27	0.30		
		Total coal: 1.14 m		*Total rock:* 0.57 m			

Table 13: Coal bed intersections in borehole BG-05-08a (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
42.37	Rock				19.13	18°	18.19
-- Roof of Bingay No.17 coal bed --						18°	2.09
61.50	Coal	2.20					
-- Floor of Bingay No.17 coal bed --						True coal thickness:	2.09/ 2.09
Totals for this coal bed:		2.20	Nil	Nil	Nil		
		Total coal: 2.20 m		*Total rock:* 0.00 m			
63.70	Rock				0.58	18°	0.55
64.28	Coaly rock			0.34		18°	0.32
64.62	Rock				36.23	18°	34.46
100.85	Coaly rock			0.22		10°	0.22
-- Roof of Bingay No.16 coal bed --						10°	3.15
101.07	Coal	0.51					
101.58	Coaly rock			0.25			
101.73	Coal	1.37					
103.10	Dirty coal		0.15				
103.25	Coaly rock			0.32			
103.57	Coal	0.70					
-- Floor of Bingay No.16 coal bed --						True coal thickness:	2.59/ 3.15
Totals for this coal bed:		2.58	0.15	0.57	Nil		
		Total coal: 2.63 m		*Total rock:* 0.57 m			
104.27	Coaly rock			0.08		10°	0.08
104.35	Rock				0.61	10°	0.60
-- Roof of Bingay No.15 Rider coal bed --						10°	1.02
104.96	Dirty coal		0.12				
105.08	Coaly rock			0.09			
105.17	Dirty coal		0.20				
105.37	Coaly rock			0.11			
105.48	Coal	0.52					
-- Floor of Bingay No.15 Rider coal bed --						True coal thickness:	0.83/ 1.02
Totals for this coal bed:		0.52	0.32	0.20	Nil		
		Total coal: 0.84 m		*Total rock:* 0.20 m			
107.00	Rock				0.17	10°	0.17
107.17	Coaly rock			0.23		10°	0.23
107.40	Rock				0.26	10°	0.26
107.66	Coaly rock			0.11		10°	0.11

Table 13: Coal bed intersections in borehole BG-05-08a (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.15 coal bed --						13.5°	1.36
107.77	Coal	0.15					
107.92	Dirty coal		0.13				
108.05	Coal	1.12					
-- Floor of Bingay No.15 coal bed --						True coal thickness:	1.36/ 1.36
Totals for this coal bed:		1.27	0.13	Nil	Nil		
		Total coal: 1.40 m		*Total rock:* 0.00 m			
109.17	Rock				1.75	13°	1.71
-- Roof of Bingay No.14 coal bed --						13°	1.71
110.92	Coal	0.82					
111.74	Dirty coal		0.14				
111.88	Coal	0.79					
-- Floor of Bingay No.14 coal bed --						True coal thickness:	1.71/ 1.71
Totals for this coal bed:		1.61	0.14	Nil	Nil		
		Total coal: 1.75 m		*Total rock:* 0.00 m			
112.67	Rock				11.05	14.5°	10.70
-- Roof of Bingay No.13 coal bed --						16°	1.99
123.72	Dirty coal		0.06				
123.78	Coal	0.25					
124.03	Coaly rock			0.07			
124.10	Rock				0.25		
124.35	Coaly rock			0.15			
124.50	Rock				0.15		
124.65	Dirty coal		0.12				
124.77	Coaly rock			0.10			
124.87	Dirty coal		0.10				
124.97	Rock				0.20		
125.17	Dirty coal		0.08				
125.25	Coaly rock			0.10			
125.35	Coal	0.44					
-- Floor of Bingay No.13 coal bed --						True coal thickness:	1.01/ 1.99
Totals for this coal bed:		0.69	0.36	0.42	0.60		
		Total coal: 1.05 m		*Total rock:* 1.02 m			
125.79	Rock				2.21	16.5°	2.12
128.00	Dirty coal		0.16			17°	0.15
128.16	Coaly rock			0.11		17°	0.11
128.27	Dirty coal		0.08			17°	0.08
128.35	Coal	0.15				17°	0.14
128.50	Rock				1.17	17°	1.12

Table 13: Coal bed intersections in borehole BG-05-08a (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.13 Lower coal bed --						17°	1.28
129.67	Dirty coal		0.46				
130.13	Coal	0.67					
130.80	Dirty coal		0.07				
130.87	Coal	0.14					
-- Floor of Bingay No.13 Lower coal bed --						True coal thickness:	1.28/ 1.28
Totals for this coal bed:		0.81	0.53	Nil	Nil		
		Total coal: 1.34 m		*Total rock:* 0.00 m			
131.01	Rock				48.29	11.5°	47.32
179.30	Coaly rock			0.60		6°	0.60
179.90	Rock				28.47	9°	28.12
-- Roof of Bingay No.12 Rider coal bed --						12°	2.01
208.37	Coal	1.41					
209.78	Coaly rock			0.07			
209.85	Dirty coal		0.06				
209.91	Rock				0.16		
210.07	Dirty coal		0.11				
210.18	Coal	0.25					
-- Floor of Bingay No.12 Rider coal bed --						True coal thickness:	1.79/ 2.01
Totals for this coal bed:		1.66	0.17	0.07	0.16		
		Total coal: 1.83 m		*Total rock:* 0.23 m			
210.43	Rock				0.20	12°	0.20
210.63	Coaly rock			0.05		11.5°	0.05
210.68	Coal	0.05				11.5°	0.05
210.73	Coaly rock			0.09		11.5°	0.09
210.82	Rock				0.25	11°	0.25
211.17	Coaly rock			0.25		10.5°	0.25
211.42	Rock				0.35	10°	0.34
-- Roof of Bingay No.12 coal bed --						10°	4.66
211.77	Coal	0.10					
211.87	Dirty coal		0.10				
211.97	Coal	0.78					
212.75	Dirty coal		0.10				
212.85	Coal	1.40					
214.25	Dirty coal		0.12				
214.37	Coal	0.17					
214.54	Coaly rock			0.07			
214.61	Rock				0.06		
214.67	Coal	1.83					
-- Floor of Bingay No.12 coal bed --						True coal thickness:	4.53/ 4.66
Totals for this coal bed:		4.28	0.32	0.07	0.06		
		Total coal: 4.60 m		*Total rock:* 0.13 m			

Table 13: Coal bed intersections in borehole BG-05-08a (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
216.50	Coaly rock			0.08		10.5°	0.08
216.58	Rock				0.52	10.5°	0.51
218.10	Coaly rock			0.10		10.5°	0.10
-- Roof of Bingay No.11 Rider coal bed --						11°	0.67
218.20	Dirty coal		0.05				
218.25	Coal	0.38					
218.63	Coaly rock			0.12			
218.75	Dirty coal		0.13				
-- Floor of Bingay No.11 Rider coal bed --						True coal thickness:	0.55/ 0.67
Totals for this coal bed:		0.38	0.18	0.12	Nil		
		Total coal: 0.56 m		*Total rock:* 0.12 m			
218.88	Rock				1.45	11.5°	1.42
-- Roof of Bingay No.11 coal bed --						12°	2.05
220.33	Coal	1.62					
221.95	Coaly rock			0.19			
222.14	Coal	0.29					
-- Floor of Bingay No.11 coal bed --						True coal thickness:	1.87/ 2.05
Totals for this coal bed:		1.91	Nil	0.19	Nil		
		Total coal: 1.91m		*Total rock:* 0.19 m			
222.43	Rock						

Table 14: Coal bed intersections in borehole BG-05-09a

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.17 coal bed --						17.5°	3.03
38.05	Coal	3.18					
-- Floor of Bingay No.17 coal bed --						True coal thickness:	3.03/ 3.03
Totals for this coal bed:		3.18	Nil	Nil	Nil		
		Total coal: 3.18 m		*Total rock:* 0.00 m			
41.23	Rock				0.55	17.5°	0.52
-- Roof of Bingay No.17 Lower coal bed --						17.5°	0.76
41.78	Dirty coal		0.12				
41.90	Coal	0.68					
-- Floor of Bingay No.17 Lower coal bed --						True coal thickness:	0.76/ 0.76
Totals for this coal bed:		0.68	0.12	Nil	Nil		
		Total coal: 0.80 m		*Total rock:* 0.00 m			
42.58	Coaly rock			0.42		17.5°	0.40
43.00	Rock				34.62	18.5°	32.83
-- Roof of Bingay No.16 coal bed --						19.5°	4.44
77.62	Coal	4.71					
-- Floor of Bingay No.16 coal bed --						True coal thickness:	4.44/ 4.44
Totals for this coal bed:		4.71	Nil	Nil	Nil		
		Total coal: 4.71 m		*Total rock:* 0.00 m			
-- Roof of Bingay No.15 Rider coal bed --						19.5°	1.07
82.33	Coal	1.13					
-- Floor of Bingay No.15 Rider coal bed --						True coal thickness:	1.07/ 1.07
Totals for this coal bed:		1.13	Nil	Nil	Nil		
		Total coal: 1.13 m		*Total rock:* 0.00 m			
83.46	Rock				0.45	19.5°	0.42
-- Roof of Bingay No.15 coal bed --						19.5°	1.69
83.91	Coal	1.72					
85.63	Dirty coal		0.07				
-- Floor of Bingay No.15 coal bed --						True coal thickness:	1.69/ 1.69
Totals for this coal bed:		1.72	0.07	Nil	Nil		
		Total coal: 1.79 m		*Total rock:* 0.00 m			
85.70	Rock				4.15	21°	3.97
-- Roof of Bingay No.14 coal bed --						22°	2.10
89.85	Coal	1.25					
91.10	Dirty coal		0.10				
91.20	Coal	0.78					
91.98	Dirty coal		0.14				
-- Floor of Bingay No.14 coal bed --						True coal thickness:	2.10/ 2.10
Totals for this coal bed:		2.03	0.24	Nil	Nil		
		Total coal: 2.27 m		*Total rock:* 0.00 m			

Table 14: Coal bed intersections in borehole BG-05-09a (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
92.12	Rock				2.53	31°	2.17
-- Roof of Bingay No.13 coal bed --						40°	0.80
94.65	Coal	0.45					
95.10	Dirty coal		0.12				
95.22	Coal	0.48					
-- Floor of Bingay No.13 coal bed --						True coal thickness:	0.80/ 0.80
Totals for this coal bed:		0.93	0.12	Nil	Nil		
		Total coal: 1.05 m		*Total rock:* 0.00 m			
95.70	Rock				3.43	40°	2.63
-- Roof of Bingay No.13 Lower coal bed --						40°	0.34
99.13	Dirty coal		0.45				
-- Floor of Bingay No.13 Lower coal bed --						True coal thickness:	0.34/ 0.34
Totals for this coal bed:		Nil	0.45	Nil	Nil		
		Total coal: 0.45 m		*Total rock:* 0.00 m			
99.58	Coaly rock			0.07		40°	0.05
99.65	Rock				12.95	38°	10.20
112.60	Coaly rock			0.13		36°	0.11
112.73	Rock				82.15	33°	68.90
194.88	Coaly rock			0.17		30°	0.15
195.05	Rock				0.15	30°	0.13
195.20	Coaly rock			0.17		30°	0.15
-- Roof of Bingay No.12 Rider coal bed --						29°	1.58
195.37	Dirty coal		0.28				
195.65	Coal	0.78					
196.43	Coaly rock			0.12			
196.55	Dirty coal		0.17				
196.72	Coaly rock			0.08			
196.80	Dirty coal		0.06				
196.86	Coal	0.32					
-- Floor of Bingay No.12 Rider coal bed --						True coal thickness:	1.41/ 1.58
Totals for this coal bed:		1.10	0.51	0.20	Nil		
		Total coal: 1.61 m		*Total rock:* 0.20 m			
197.18	Coaly rock			0.13		29°	0.11
197.31	Rock				0.24	29°	0.21
197.55	Coaly rock			0.10		29°	0.09
197.65	Rock				0.33	29°	0.29
197.98	Dirty coal		0.22			29°	0.19
198.20	Rock				0.12	29°	0.10
198.32	Dirty coal		0.21			29°	0.18
198.53	Coaly rock			0.14		29°	0.12
198.67	Rock				0.58	33°	0.49
199.25	Coaly rock			0.07		37.5°	0.06

Table 14: Coal bed intersections in borehole BG-05-09a (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
199.32	Rock				1.53	33°	1.28
-- Roof of Bingay No.12 coal bed --						26°	1.73
200.85	Coal	1.80					
202.65	Dirty coal		0.12				
-- Floor of Bingay No.12 coal bed --						True coal thickness:	1.73/ 1.73
Totals for this coal bed:		1.80	0.12	Nil	Nil		
		Total coal: 1.92 m		*Total rock:* 0.00 m			
202.77	Coaly rock			0.05		26°	0.04
202.82	Rock				1.14	27.5°	1.01
-- Roof of Bingay No.11 Rider coal bed --						29°	0.30
203.96	Coal	0.27					
204.23	Dirty coal		0.07				
-- Floor of Bingay No.11 Rider coal bed --						True coal thickness:	0.30/ 0.30
Totals for this coal bed:		0.27	0.07	Nil	Nil		
		Total coal: 0.34 m		*Total rock:* 0.00 m			
204.30	Coaly rock			0.08		28°	0.07
204.38	Rock				2.22	28°	1.96
-- Roof of Bingay No.11 coal bed --						27°	2.42
206.80	Dirty coal		0.20				
207.00	Coaly rock			0.10			
207.10	Coal	1.17					
208.27	Rock				0.13		
208.40	Coal	1.12					
-- Floor of Bingay No.11 coal bed? --						True coal thickness:	2.22/ 2.42
Totals for this coal bed:		2.29	0.20	0.10	0.13		
		Total coal: 2.49 m		*Total rock:* 0.23 m			
209.52	----- *Thrust fault (No.11 coal bed thrust over No.12 coal bed)* -----						
-- Roof of Bingay No.12 coal bed --						26°	2.79
209.52	Coal	1.87					
211.39	Coaly rock			0.11			
211.50	Coal	0.83					
212.33	Coaly rock			0.11			
212.44	Dirty coal		0.18				
-- Floor of Bingay No.12 coal bed --						True coal thickness:	2.59/ 2.79
Totals for this coal bed:		2.70	0.18	0.22	Nil		
		Total coal: 2.88 m		*Total rock:* 0.22 m			
212.62	Rock				0.85	24.5°	0.77
213.47	Coaly rock			0.20		24.5°	0.18

Table 14: Coal bed intersections in borehole BG-05-09a (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.11 Rider coal bed --						28.5°	0.62
213.67	Coal	0.53					
214.20	Dirty coal		0.07				
214.27	Coal	0.10					
-- Floor of Bingay No.11 Rider coal bed --						True coal thickness:	0.62/ 0.62
Totals for this coal bed:		0.63	0.07	Nil	Nil		
		Total coal: 0.70 m		*Total rock:* 0.00 m			
214.37	Rock				1.22	28.5°	1.07
215.59	Coaly rock			0.10		28.5°	0.09
-- Roof of Bingay No.11 coal bed --						28.5°	2.16
215.69	Coal	1.05					
216.74	Dirty coal		0.08				
216.82	Coal	1.33					
-- Floor of Bingay No.11 coal bed --						True coal thickness:	2.16/ 2.16
Totals for this coal bed:		2.38	0.08	Nil	Nil		
		Total coal: 2.46 m		*Total rock:* 0.00 m			
218.15	Rock						

Table 16: Coal bed intersections in borehole BG-05-11a

Measured depths and thickness as interpreted from gamma-caliper-density log

Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
59.30	Coaly rock			0.40		10.5°	0.39
59.70	Rock				2.55	13.5°	2.48
62.25	Coaly rock			0.15		16.5°	0.14
62.40	Dirty coal		0.24			16.5°	0.23
62.64	Rock				0.24	16.5°	0.23
62.88	Coaly rock			0.19		16.5°	0.18
63.07	Dirty coal		0.03			16.5°	0.03
63.10	Coaly rock			0.07		16.5°	0.07
63.17	Rock				0.43	17°	0.41
63.60	Coaly rock			0.08		17.5°	0.07
63.68	Dirty coal		0.27			17.5°	0.26
63.95	Coaly rock			0.30		17.5°	0.29
64.25	Rock				4.73	20°	4.44
68.98	Coaly rock			0.22		13.5°	0.21
69.20	Rock				1.20	13.5°	1.17
70.40	Coaly rock			0.27		7°	0.27
70.67	Rock				1.95	12°	1.91
-- Roof of Bingay No.12 Rider coal bed --						9°	1.88
72.62	Dirty coal		0.11				
72.73	Coal	1.27					
74.00	Dirty coal		0.15				
74.15	Coal	0.32					
74.47	Dirty coal		0.05				
-- Floor of Bingay No.12 Rider coal bed --						True coal thickness:	1.88/ 1.88
Totals for this coal bed:		1.59	0.31	Nil	Nil		
		Total coal: 1.90 m		*Total rock:* 0.00 m			
74.52	Rock				0.38	7°	0.38
74.90	Dirty coal		0.12			7°	0.12
75.02	Rock				0.33	7°	0.33
75.35	Coaly rock			0.07		7°	0.07
-- Roof of Bingay No.12 coal bed --						9°	6.01
75.42	Dirty coal		0.25				
75.67	Rock				0.15		
75.82	Dirty coal		0.38				
76.20	Rock				0.25		
76.45	Dirty coal		0.05				
76.50	Coal	2.67					
79.17	Coaly rock			0.13			
79.30	Coal	1.64					
80.94	Coaly rock			0.17			
81.11	Coal	0.23					
81.34	Dirty coal		0.12				

Note: section of No.12 coal bed continues on next page

Table 16: Coal bed intersections in borehole BG-05-11a (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
81.46	Coal	0.04					
-- Floor of Bingay No.12 coal bed --						True coal thickness:	5.31/ 6.01
Totals for this coal bed:		4.58	0.80	0.30	0.40		
		Total coal: 5.38 m		*Total rock:* 0.70 m			
81.50	Rock				1.54	11.5°	1.51
-- Roof of Bingay No.11 Rider coal bed --						15.5°	0.67
83.04	Dirty coal		0.17				
83.21	Rock				0.13		
83.34	Coal	0.33					
83.67	Dirty coal		0.07				
-- Floor of Bingay No.11 Rider coal bed --						True coal thickness:	0.55/ 0.67
Totals for this coal bed:		0.33	0.24	Nil	0.13		
		Total coal: 0.57 m		*Total rock:* 0.13 m			
83.74	Rock				0.31	11°	0.30
84.05	Coaly rock			0.10		11°	0.10
84.15	Rock				1.37	11°	1.34
-- Roof of Bingay No.11 coal bed --						10°	2.18
85.52	Coal	0.15					
85.67	Dirty coal		0.14				
85.81	Coal	1.50					
87.31	Dirty coal		0.11				
87.42	Coal	0.04					
87.46	Dirty coal		0.07				
87.53	Coaly rock			0.10			
87.63	Dirty coal		0.10				
-- Floor of Bingay No.11 coal bed --						True coal thickness:	2.08/ 2.18
Totals for this coal bed:		1.69	0.42	0.10	Nil		
		Total coal: 2.11 m		*Total rock:* 0.10 m			
87.73	Rock				50.07	10°	49.31
-- Roof of Bingay No.10 Rider coal bed --						6°	0.30
127.80	Coal	0.30					
-- Floor of Bingay No.10 Rider coal bed --						True coal thickness:	0.30/ 0.30
Totals for this coal bed:		0.30	Nil	Nil	Nil		
		Total coal: 0.30 m		*Total rock:* 0.00 m			
128.10	Rock				36.84	10.5°	36.22
-- Roof of Bingay No. 10 coal bed --						6°	6.56
164.94	Dirty coal		0.14				
165.08	Coal	0.15					
165.23	Dirty coal		0.44				
165.67	Coal	1.97					

Note: section of No.10 coal bed continues on next page

Table 16: Coal bed intersections in borehole BG-05-11a (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
167.64	Coaly rock			0.03			
167.67	Rock				0.08		
167.75	Dirty coal		0.09				
167.84	Coal	2.35					
170.19	Dirty coal		0.07				
170.26	Coal	0.39					
170.65	Dirty coal		0.17				
170.82	Rock				0.15		
170.97	Coal	0.20					
172.17	Coaly rock			0.13			
172.30	Dirty coal		0.24				
-- Floor of Bingay No. 10 coal bed --						True coal thickness:	6.18/ 6.56
Totals for this coal bed:		5.06	1.15	0.16	0.23		
		Total coal: 6.21 m		*Total rock:* 0.39 m			
172.54	Rock				1.96	2°	1.96
-- Roof of Bingay No. 9 coal bed --						4.5°	1.99
174.50	Coal	0.85					
175.35	Coaly rock			0.15			
175.50	Coal	1.00					
-- Floor of Bingay No. 9 coal bed --						True coal thickness:	1.84/ 1.99
Totals for this coal bed:		1.85	Nil	0.15	Nil		
		Total coal: 1.85 m		*Total rock:* 0.15 m			
176.50	Rock				0.40	9°	0.40
176.90	Coaly rock			0.30		9°	0.30
177.20	Rock						

Table 17: Coal bed intersections in borehole BG-05-12v

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
93.50	Coaly rock			0.85			
94.35	Rock						
Note: Coaly rock from 93.50 to 94.35 m caved and bridged hole at 95.28 m. Could not log below 94.70 m.							

Table 18: Coal bed intersections in borehole BG-05-13a

Note: stratigraphic section is inverted throughout this borehole.

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.9 coal bed? --							
1.00	Rock				10.03	51°	6.31
-- Floor of Bingay No.10 coal bed --						38°	5.01
11.03	Coal	1.08					

Note: section of No.10 coal bed continues on next page

Table 15: Coal bed intersections in borehole BG-05-10a

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Floor of Bingay No.19 coal bed (overturned)--						21°	2.07
27.15	Coal	2.22					
-- Roof of Bingay No.19 coal bed (overturned) --						True coal thickness:	2.07/ 2.07
Totals for this coal bed:		2.22	Nil	Nil	Nil		
		Total coal: 2.22 m		*Total rock:* 0.00 m			
29.37	Rock				0.33	34°	0.27
29.70	Coaly rock			0.50		34°	0.42
30.20	Rock				3.10	34?°	2.57?
----- probable synclinal axis at 33.30 m; beds above this point are overturned -----							
33.30	Rock				3.50	22?°	3.25?
36.80	Coaly rock			0.35		22°	0.32
37.15	Rock				0.30	22°	0.28
-- Roof of Bingay No.19 coal bed --						32°	2.59
37.45	Coal	3.05					
-- Floor of Bingay No.19 coal bed --						True coal thickness:	2.59/ 2.59
Totals for this coal bed:		3.05	Nil	Nil	Nil		
		Total coal: 3.05 m		*Total rock:* 0.00 m			
40.50	Rock				32.00	36°	25.89
-- Roof of Bingay No.17 coal bed --						26.5°	2.68
72.50	Coal	3.00					
-- Floor of Bingay No.17 coal bed --						True coal thickness:	2.68/ 2.68
Totals for this coal bed:		3.00	Nil	Nil	Nil		
		Total coal: 3.00 m		*Total rock:* 0.00 m			
75.50	Rock				0.70	34°	0.58
76.20	Coaly rock			0.22		34°	0.18
76.42	Dirty coal		0.43			34°	0.36
76.85	Rock				33.15	24.5°	30.17
110.00	Coaly rock			0.20		15°	0.19
-- Roof of Bingay No.16 coal bed --						15°	2.75
110.20	Coal	0.52					
110.72	Dirty coal		0.28				
111.00	Coal	2.05					
-- Floor of Bingay No.16 coal bed --						True coal thickness:	2.75/ 2.75
Totals for this coal bed:		2.57	0.28	Nil	Nil		
		Total coal: 2.85 m		*Total rock:* 0.00 m			
-- Roof of Bingay No.15 Rider coal bed --						15°	1.52
113.05	Coal	1.57					
-- Floor of Bingay No.15 Rider coal bed --						True coal thickness:	1.52/ 1.52
Totals for this coal bed:		1.57	Nil	Nil	Nil		
		Total coal: 1.57 m		*Total rock:* 0.00 m			
114.62	Rock				0.83	17°	0.79

Table 15: Coal bed intersections in borehole BG-05-10a (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.15 coal bed --						20°	1.36
115.45	Coal	1.45					
-- Floor of Bingay No.15 coal bed --						True coal thickness:	1.36/ 1.36
Totals for this coal bed:		1.45	Nil	Nil	Nil		
		Total coal: 1.45 m		*Total rock:* 0.00 m			
116.90	Rock				2.45	25°	2.22
-- Roof of Bingay No.14 coal bed --						27°	1.60
119.35	Coal	1.80					
-- Floor of Bingay No.14 coal bed --						True coal thickness:	1.60/ 1.60
Totals for this coal bed:		1.80	Nil	Nil	Nil		
		Total coal: 1.80 m		*Total rock:* 0.00 m			
121.15	Rock				6.25	28.5°	5.49
-- Roof of Bingay No.13 coal bed (horizon) --						30°	0.39
127.40	Coaly rock			0.45			
-- Floor of Bingay No.13 coal bed (horizon) --						True coal thickness:	0.00/ 0.39
Totals for this coal bed:		Nil	Nil	0.45	Nil		
		Total coal: 0.00 m		*Total rock:* 0.45 m			
127.85	Rock						

Table 18: Coal bed intersections in borehole BG-05-13a (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log

Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
12.11	Coaly rock			0.14			
12.25	Coal	0.19					
12.44	Rock				0.30		
12.74	Coal	0.86					
13.60	Dirty coal		0.13				
13.73	Coal	0.18					
13.91	Dirty coal		0.09				
14.00	Coal	2.27					
16.27	Dirty coal		0.13				
16.40	Rock				0.07		
16.47	Dirty coal		0.16				
16.63	Coal	1.48					
-- Roof of Bingay No.10 coal bed --						True coal thickness:	5.18/ 5.58
Totals for this coal bed:		6.06	0.51	0.14	0.37		
		Total coal: 6.57 m		*Total rock:* 0.51 m			
18.11	Rock				0.79	42.5°	0.58
-- Floor of Bingay No.10 Rider coal bed --						23°	
18.90	Dirty coal		0.06				
18.96	Coal	0.36					
19.32	Coaly rock			0.03			
19.35	Rock				0.09		
19.46	Coaly rock			0.06			
19.52	Coal	0.14					
19.66	Dirty coal		0.23				
-- Roof of Bingay No.10 Rider coal bed --						True coal thickness:	0.73/ 0.89
Totals for this coal bed:		0.50	0.29	0.09	0.09		
		Total coal: 0.79 m		*Total rock:* 0.18 m			
19.85	Rock				9.85	48°	6.59
29.70	Coal	0.23				48°	0.15
29.93	Rock				0.97	48°	0.65
-- Floor of Bingay No.10A coal bed --						46°	3.58
30.90	Dirty coal		0.12				
31.02	Coaly rock			0.03			
31.05	Coal	0.33					
31.38	Dirty coal		0.12				
31.50	Coal	0.05					
31.55	Coaly rock			0.05			
31.60	Rock				0.45		
32.05	Dirty coal		0.22				
32.27	Rock				1.08		
33.35	Coaly rock			0.20			
33.55	Coal	0.92					

Note: section of No.10A coal bed continues on next page

Table 18: Coal bed intersections in borehole BG-05-13a (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
34.47	Coaly rock			0.06			
34.53	Rock				1.00		
35.53	Dirty coal		0.07				
35.60	Coal	0.45					
-- Roof of Bingay No.10A coal bed --						True coal thickness:	1.58/ 3.58
Totals for this coal bed:		1.75	0.53	0.34	2.53		
		Total coal: 2.28 m		*Total rock:* 2.87 m			
36.05	Rock				1.86	46°	1.29
37.91	Coal	0.14				46°	0.10
38.05	Dirty coal		0.07			46°	0.05
38.12	Rock				31.02	41°	23.41
-- Floor of Bingay No.11 coal bed --						42°	0.95
69.14	Coal	1.17					
70.31	Dirty coal		0.11				
-- Roof of Bingay No.11 coal bed --						True coal thickness:	0.95/ 0.95
Totals for this coal bed:		1.17	0.11	Nil	Nil		
		Total coal: 1.28 m		*Total rock:* 0.00 m			
70.42	Coaly rock			0.08		37°	0.06
70.50	Rock				0.62	37°	0.50
71.12	Coaly rock			0.06		37°	0.05
71.18	Coal	0.12				37°	0.10
71.30	Coaly rock			0.05		37°	0.04
71.35	Rock				0.52	37°	0.42
71.87	Coaly rock			0.17		37°	0.14
-- Floor of Bingay No.11 Rider coal bed --						43.5°	1.17
72.04	Dirty coal		0.11				
72.15	Coal	0.63					
72.78	Dirty coal		0.14				
72.92	Coal	0.40					
73.32	Dirty coal		0.06				
73.38	Coaly rock			0.08			
73.46	Coal	0.19					
-- Roof of Bingay No.11 Rider coal bed --						True coal thickness:	1.11/ 1.17
Totals for this coal bed:		1.22	0.31	0.08	Nil		
		Total coal: 1.53 m		*Total rock:* 0.08 m			
73.65	Coaly rock			0.07		50°	0.04
73.72	Rock				0.16	50°	0.10
73.98	Dirty coal		0.13			50°	0.08
74.11	Coaly rock			0.05		47°	0.03
74.16	Dirty coal		0.10			47°	0.07
74.26	Rock				0.16	47°	0.11
74.42	Dirty coal		0.15			47°	0.10

Table 18: Coal bed intersections in borehole BG-05-13a (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
74.57	Rock				0.30	50°	0.19
-- Floor of Bingay No.12 coal bed --						48.5°	2.76
74.87	Dirty coal		0.28				
75.15	Rock				0.13		
75.28	Dirty coal		0.13				
75.41	Coaly rock			0.07			
75.48	Coal	1.53					
77.01	Coaly rock			0.09			
77.10	Dirty coal		0.05				
77.15	Coal	1.77					
78.92	Dirty coal		0.11				
-- Roof of Bingay No.12 coal bed --						True coal thickness:	2.56/ 2.76
Totals for this coal bed:		3.30	0.57	0.16	0.13		
		Total coal: 3.87 m		*Total rock:* 0.29 m			
-- Floor of Bingay No.12 Rider coal bed --						45°	3.02
79.03	Coal	0.12					
79.15	Dirty coal		0.05				
79.20	Coal	2.83					
82.03	Dirty coal		0.09				
82.12	Coal	0.43					
82.55	Dirty coal		0.08				
82.63	Coal	0.67					
-- Roof of Bingay No.12 Rider coal bed --						True coal thickness:	3.02/ 3.02
Totals for this coal bed:		4.05	0.22	Nil	Nil		
		Total coal: 4.27 m		*Total rock:* 0.00 m			
83.30	Rock				0.52	44°	0.37
83.82	Coaly rock			0.09		44°	0.06
83.91	Rock				0.81	44°	0.58
84.72	Coaly rock			0.13		44°	0.09
84.85	Rock				2.53	44°	1.82
87.38	Coal	0.12				44°	0.09
87.50	Rock						

Table 19: Coal bed intersections in borehole BG-05-14a

Note: stratigraphic section is inverted throughout this borehole.

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
23.20	Dirty coal		0.40			51°	0.25
23.60	Rock				1.00	51°	0.63
24.60	Dirty coal		0.45			51°	0.28
25.05	Rock				2.87	51°	1.81

Table 19: Coal bed intersections in borehole BG-05-14a (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log

Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Floor of Bingay No.9 coal bed --						49°	1.27
27.92	Dirty coal		0.33				
28.25	Coal	1.60					
-- Roof of Bingay No.9 coal bed --						True coal thickness:	1.27/ 1.27
Totals for this coal bed:		1.60	0.33	Nil	Nil		
		Total coal: 1.93 m		*Total rock:* 0.00 m			
29.85	Rock				10.75	50°	6.91
-- Floor of Bingay No.10 coal bed --						49°	5.02
40.60	Coal	2.25					
42.85	Dirty coal		0.15				
43.00	Coal	2.85					
45.85	Rock				0.35		
46.20	Coal	1.52					
47.72	Dirty coal		0.24				
47.96	Coal	0.29					
-- Roof of Bingay No.10 coal bed --						True coal thickness:	4.79/ 5.02
Totals for this coal bed:		6.91	0.39	Nil	0.35		
		Total coal: 7.30 m		*Total rock:* 0.35 m			
48.25	Coaly rock			0.30		44°	0.22
48.55	Rock				17.69	48°	11.84
-- Floor of Bingay No.10 Rider coal bed --						51°	0.53
66.24	Dirty coal		0.18				
66.42	Coal	0.66					
-- Roof of Bingay No.10 Rider coal bed --						True coal thickness:	0.53/ 0.53
Totals for this coal bed:		0.66	0.18	Nil	Nil		
		Total coal: 0.84 m		*Total rock:* 0.00 m			
67.08	Rock				7.72	52.5°	4.70
74.80	Coaly rock			0.35		54°	0.21
75.15	Rock				2.40	52°	1.48
-- Floor of Bingay No.10A coal bed --						50°	2.22
77.55	Coal	0.50					
78.05	Rock				0.65		
78.70	Coaly rock			0.80			
79.50	Rock				0.70		
80.20	Dirty coal		0.35				
80.55	Coal	0.45					
-- Roof of Bingay No.10A coal bed --						True coal thickness:	0.84/ 2.22
Totals for this coal bed:		0.95	0.35	0.80	1.35		
		Total coal: 1.30 m		*Total rock:* 2.15 m			
81.00	Rock				25.22	57°	13.74
106.22	Coal	0.46				34°	0.38
106.68	Rock				34.97	45.5°	24.51

Table 19: Coal bed intersections in borehole BG-05-14a (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Floor of Bingay No.11 coal bed --						44°	2.41
141.65	Coal	0.70					
142.35	Dirty coal		0.33				
142.68	Coal	1.32					
144.00	Rock				0.32		
144.32	Coal	0.68					
-- Roof of Bingay No.11 coal bed --						True coal thickness:	2.18/ 2.41
Totals for this coal bed:		2.70	0.33	Nil	0.32		
		Total coal: 3.03 m		*Total rock:* 0.32 m			
145.00	Rock				1.62	45°	1.15
145.62	Coaly rock			0.58		45°	0.41
-- Floor of Bingay No.11 Rider coal bed --						49°	0.66
146.20	Coal	1.00					
-- Roof of Bingay No.11 Rider coal bed --						True coal thickness:	0.66/ 0.66
Totals for this coal bed:		1.00	Nil	Nil	Nil		
		Total coal: 1.00 m		*Total rock:* 0.00 m			
147.20	Rock				1.12	47°	0.76
-- Floor of Bingay No.12 coal bed --						35°	2.15
148.32	Dirty coal		0.53				
148.85	Coal	2.10					
-- Roof of Bingay No.12 coal bed --						True coal thickness:	2.15/ 2.15
Totals for this coal bed:		2.10	0.53	Nil	Nil		
		Total coal: 2.63 m		*Total rock:* 0.00 m			
150.95	Coaly rock			0.20		35°	0.16
-- Roof of Bingay No.12 Rider coal bed --						35°	2.25
151.15	Coal	2.75					
-- Floor of Bingay No.12 Rider coal bed --						True coal thickness:	2.25/ 2.25
Totals for this coal bed:		2.75	Nil	Nil	Nil		
		Total coal: 2.75 m		*Total rock:* 0.00 m			
153.90	Rock				1.05	35°	0.86
154.95	Dirty coal		0.50			35°	0.41
155.45	Rock				1.10	35°	0.90
156.55	Coaly rock			0.33		35°	0.27
156.88	Dirty coal		0.32			35°	0.26
157.20	Rock						

Table 20: Coal bed intersections in borehole BC-83-1

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.12 Rider coal bed --						14°	4.75
55.00	Coal	2.15					
57.15	Dirty coal		0.60				
57.75	Coal	2.15					
-- Floor of Bingay No.12 Rider coal bed --						True coal thickness:	4.75 / 4.75
Totals for this coal bed:		4.30	0.60	Nil	Nil		
		Total coal: 4.90 m		*Total rock:* 0.00 m			
59.90	Rock				1.10	12.7°	1.07
-- Roof of Bingay No.12 coal bed --						11.5°	3.14
61.00	Coal	3.20					
-- Floor of Bingay No.12 coal bed --						True coal thickness:	3.14 / 3.14
Totals for this coal bed:		3.20	Nil	Nil	Nil		
		Total coal: 3.20 m		*Total rock:* 0.00 m			
64.20	Rock				0.30	11.2°	0.30
-- Roof of Bingay No.11 Rider coal bed --						11°	1.47
64.50	Coal	0.90					
65.40	Dirty coal		0.20				
65.60	Coal	0.40					
-- Floor of Bingay No.11 Rider coal bed --						True coal thickness:	1.47 / 1.47
Totals for this coal bed:		1.30	0.20	Nil	Nil		
		Total coal: 1.50 m		*Total rock:* 0.00 m			
66.00	Rock				1.90	15°	1.84
-- Roof of Bingay No.11 coal bed --						19°	4.27
67.90	Coal	0.18					
68.08	Rock				0.05		
68.13	Coal	0.32					
68.45	Rock				1.85		
70.30	Coal	0.70					
71.00	Dirty coal		0.38				
71.38	Rock				0.34		
71.72	Coal	0.46					
72.18	Dirty coal		0.24				
-- Floor of Bingay No.11 coal bed --						True coal thickness:	2.16 / 4.27
Totals for this coal bed:		1.66	0.62	Nil	2.24		
		Total coal: 2.28 m		*Total rock:* 2.24 m			
72.42	Rock				55.11	26°	49.53

Table 20: Coal bed intersections in borehole BC-83-1 (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log

Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.10A coal bed --						10°	0.07
127.53	Coal	0.07					
-- Floor of Bingay No.10A coal bed --						True coal thickness:	0.07 / 0.07
Totals for this coal bed:		0.07	Nil	Nil	Nil		
		Total coal: 0.07 m		*Total rock:* 0.00 m			
127.60	Rock				29.40	14°	28.53
-- Roof of Bingay No.10 Rider coal bed --						10°	0.44
157.00	Coal	0.45					
-- Floor of Bingay No.10 Rider coal bed --						True coal thickness:	0.44 / 0.44
Totals for this coal bed:		0.45	Nil	Nil	Nil		
		Total coal: 0.45 m		*Total rock:* 0.00 m			
157.45	Rock				2.70	15°	2.60
-- Roof of Bingay No.10 coal bed --						16.5°	9.83
160.15	Coal	2.55					
162.70	Coaly rock			0.15			
162.85	Coal	4.65					
167.50	Rock				0.50		
168.00	Dirty coal		0.75				
168.75	Coal	1.75					
-- Floor of Bingay No.10 coal bed --						True coal thickness:	9.20 / 9.83
Totals for this coal bed:		8.95	0.75	0.15	0.50		
		Total coal: 9.60 m		*Total rock:* 0.65 m			
170.50	Rock				1.20	13°	1.17
-- Roof of Bingay No.9 coal bed --						10.5°	2.65
171.70	Dirty coal		0.15				
171.85	Coal	1.20					
173.05	Coaly rock			0.40			
173.45	Dirty coal	0.95					
-- Floor of Bingay No.9 coal bed --						True coal thickness:	2.26 / 2.65
Totals for this coal bed:		2.15	0.15	0.40	Nil		
		Total coal: 2.30 m		*Total rock:* 0.40 m			
174.40	Rock				20.10	12°	19.66
-- Roof of Bingay No.8 coal bed --						11°	0.83
194.50	Coal	0.85					
-- Floor of Bingay No.8 coal bed --						True coal thickness:	0.83 / 0.83
Totals for this coal bed:		0.85	Nil	Nil	Nil		
		Total coal: 0.85 m		*Total rock:* 0.00 m			

Table 20: Coal bed intersections in borehole BC-83-1 (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
196.35	Rock				4.85	10.5°	4.77
-- Roof of Bingay No.7 coal bed --						10°	1.28
201.20	Coal	0.60					
201.80	Coaly rock			0.20			
202.00	Coal	0.50					
-- Floor of Bingay No.7 coal bed --						True coal thickness:	1.08 / 1.28
Totals for this coal bed:		1.10	Nil	0.20	Nil		
		Total coal: 1.10 m		*Total rock:* 0.20 m			
202.50	Rock				4.50	10.5°	4.42
-- Roof of Bingay No.6 coal bed --						11°	1.18
207.00	Coal	1.20					
-- Floor of Bingay No.6 coal bed --						True coal thickness:	1.18 / 1.18
Totals for this coal bed:		1.20	Nil	Nil	Nil		
		Total coal: 1.20 m		*Total rock:* 0.00 m			
208.20	Rock				4.65	10.5°	4.57
-- Roof of Bingay No.5 coal bed --						10°	1.03
212.85	Dirty coal		0.25				
213.10	Coal	0.80					
-- Floor of Bingay No.5 coal bed --						True coal thickness:	1.03 / 1.03
Totals for this coal bed:		0.80	0.25	Nil	Nil		
		Total coal: 1.05 m		*Total rock:* 0.00 m			
213.90	Rock				8.95	10.5°	8.80
-- Roof of Bingay No.4 coal bed --						11°	2.99
222.85	Dirty coal		0.25				
223.10	Coaly rock			0.30			
223.40	Coal	2.50					
-- Floor of Bingay No.4 coal bed --						True coal thickness:	2.70 / 2.99
Totals for this coal bed:		2.50	0.25	0.30	Nil		
		Total coal: 2.75 m		*Total rock:* 0.30 m			
225.90	Rock				12.90	11°	12.66
-- Roof of Bingay No.3 coal bed --						11°	1.37
238.80	Coal	0.40					
239.20	Dirty coal		0.20				
239.40	Coal	0.60					
-- Floor of Bingay No.3 coal bed --						True coal thickness:	1.37 / 1.37
Totals for this coal bed:		1.00	0.40	Nil	Nil		
		Total coal: 1.40 m		*Total rock:* 0.00 m			

Table 20: Coal bed intersections in borehole BC-83-1 (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log

Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
240.00	Rock				0.50		
240.50	Coaly rock			0.30			
240.80	Rock				12.70	13°	15.44
263.50	Coaly rock			0.60			
264.10	Rock				1.75		
-- Roof of Bingay No.2 Rider coal bed --						15°	1.11
265.85	Dirty coal		0.25				
266.10	Coaly rock			0.30			
266.40	Coal	0.60					
-- Floor of Bingay No.2 Rider coal bed --						True coal thickness:	0.82 / 1.11
Totals for this coal bed:		0.60	0.25	0.30	Nil		
		Total coal: 0.85 m		*Total rock:* 0.30 m			
267.00	Coaly rock			0.35		15.5°	0.34
-- Roof of Bingay No.2 coal bed --						16°	1.05
267.35	Coal	1.10					
-- Floor of Bingay No.2 coal bed --						True coal thickness:	1.05 / 1.05
Totals for this coal bed:		1.10	Nil	Nil	Nil		
		Total coal: 1.10 m		*Total rock:* 0.00 m			
268.45	Rock				10.85	13.5°	10.55
-- Roof of Bingay No.1 Rider coal bed --						12°	0.36
279.30	Coal	0.37					
-- Floor of Bingay No.1 Rider coal bed --						True coal thickness:	0.36 / 0.36
Totals for this coal bed:		0.37	Nil	Nil	Nil		
		Total coal: 0.37 m		*Total rock:* 0.00 m			
279.67	Rock				5.73	12°	5.60
-- Roof of Bingay No.1 coal bed --		FAULTED OFF AT BASE?				12°	1.00
285.40	Coal	0.10					
285.50	Coaly rock			0.02			
285.40	Coal	0.90					
-- Floor of Bingay No.1 coal bed --						True coal thickness:	0.98/ 1.00
Totals for this coal bed:		1.00	Nil	0.02	Nil		
		Total coal: 1.00 m		*Total rock:* 0.02 m			

Table 21: Coal bed intersections in borehole BC-83-2

Measured depths and thickness as interpreted from gamma-caliper-density log

Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.12 Rider coal bed --						41°	4.11
61.55	Coal	0.75					
62.30	Coaly rock			0.30			
62.60	Coal	0.60					
63.20	Coaly rock			0.35			
63.55	Coal	0.50					
64.05	Dirty coal		0.25				
64.30	Rock				0.40		
64.70	Coal	0.60					
65.30	Dirty coal		0.15				
65.45	Coal	0.55					
66.00	Coaly rock			0.30			
66.30	Coal	0.70					
-- Floor of Bingay No.12 Rider coal bed --						True coal thickness:	3.09 / 4.11
Totals for this coal bed:		3.70	0.40	0.95	0.40		
		Total coal: 4.10 m		*Total rock:* 1.35 m			
67.00	Rock				0.50	41°	0.75
67.50	Dirty coal		0.15				
67.65	Rock				0.35		
-- Roof of Bingay No.12 coal bed --						41.5°	3.30
68.00	Coal	0.85					
68.85	Dirty coal		0.35				
69.20	Coal	0.30					
69.50	Rock				0.40		
69.90	Coal	0.30					
70.20	Coaly rock			0.25			
70.45	Coal	0.25					
70.70	Dirty coal		0.30				
71.00	Coal	0.50					
71.50	Coaly rock			0.30			
71.80	Coal	0.30					
-- Floor of Bingay No.12 coal bed --						True coal thickness:	2.58 / 3.30
Totals for this coal bed:		2.80	0.65	0.55	0.40		
		Total coal: 3.45 m		*Total rock:* 0.95 m			
72.10	Rock				0.25	41.5°	1.39
72.35	Dirty coal		0.35				
72.70	Rock				1.25		
-- Roof of Bingay No.11 Rider coal bed --						42°	0.59
73.95	Dirty coal		0.25				
74.20	Rock				0.30		
74.50	Dirty coal		0.25				
-- Floor of Bingay No.11 Rider coal bed --						True coal thickness:	0.37 / 0.59
Totals for this coal bed:		Nil	0.50	Nil	0.30		
		Total coal: 0.50 m		*Total rock:* 0.30 m			

Table 21: Coal bed intersections in borehole BC-83-2 (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log

Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
74.75	Rock				2.00	42°	1.49
-- Roof of Bingay No.11 coal bed --						42°	2.27
76.75	Dirty coal		0.35				
77.10	Coal	0.60					
77.70	Rock				0.45		
78.15	Coal	0.85					
79.00	Coaly rock			0.20			
79.20	Dirty coal		0.60				
-- Floor of Bingay No.11 coal bed --						True coal thickness:	1.78 / 2.27
Totals for this coal bed:		1.45	0.95	0.20	0.45		
		Total coal: 2.40 m		*Total rock:* 0.65 m			
79.80	Rock				60.40	36°	48.86
-- Roof of Bingay No.10A coal bed --						30°	1.60
140.20	Coal	0.80					
141.00	Rock				0.75		
141.75	Coal	0.30					
-- Floor of Bingay No.10A coal bed --						True coal thickness:	0.95 / 1.60
Totals for this coal bed:		1.10	Nil	Nil	0.75		
		Total coal: 1.10 m		*Total rock:* 0.75 m			
142.05	Rock				28.50	26.5°	25.50
-- Roof of Bingay No.10 Rider coal bed --						23°	0.60
170.55	Dirty coal		0.65				
-- Floor of Bingay No.10 Rider coal bed --						True coal thickness:	0.60 / 0.60
Totals for this coal bed:		Nil	0.65	Nil	Nil		
		Total coal: 0.65 m		*Total rock:* 0.00 m			
171.20	Rock				3.55	22°	3.29
-- Roof of Bingay No.10 coal bed --						21°	10.92
174.75	Dirty coal		0.90				
175.65	Coal	2.10					
177.75	Coaly rock			0.25			
178.00	Coal	2.50					
180.50	Coaly rock			0.25			
180.75	Coal	1.80					
182.55	Rock				0.30		
182.85	Coaly rock			0.20			
183.05	Rock				0.25		
183.30	Coal	0.40					
183.70	Coaly rock			0.30			
184.00	Coal	0.30					
184.30	Coaly rock			0.25			
184.55	Coal	0.80					
185.35	Dirty coal		0.25				
185.60	Coal	0.85					
-- Floor of Bingay No.10 coal bed --						True coal thickness:	9.24 / 10.92
Totals for this coal bed:		8.75	1.15	1.25	0.55		
		Total coal: 9.90 m		*Total rock:* 1.80 m			

Table 21: Coal bed intersections in borehole BC-83-2 (continued)

Measured depths and thickness as interpreted from gamma-caliper-density log

Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
186.45	Rock				1.25	23°	1.15
-- Roof of Bingay No.9 coal bed --						22°	3.52
187.70	Coal	0.70					
188.40	Coaly rock			0.30			
188.70	Coal	1.70					
190.40	Rock				0.30		
190.70	Coal	0.35					
191.05	Rock				0.35		
191.40	Coal	0.40					
-- Floor of Bingay No.9 coal bed						True coal thickness:	2.92 / 3.52
Totals for this coal bed:		3.15	Nil	0.30	0.65		
		Total coal: 3.15 m		*Total rock:* 0.65 m			
191.80	Rock				0.70	20°	0.66
192.50	Coal	0.30				20°	0.28

Table 22: Coal bed intersections in borehole BC-83-3

Measured depths and thickness as interpreted from gamma-caliper-density log

Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Floor of Bingay No.20 Lower coal bed --			OVERTURNED BEDS			40°	0.38
9.50	Dirty coal		0.50				
-- Roof of Bingay No.20 Lower coal bed --						True coal thickness:	0.38 / 0.38
Totals for this coal bed:		Nil	0.50	Nil	Nil		
		Total coal: 0.50 m		*Total rock:* 0.00 m			
10.00	Rock				4.95	40°	3.79
-- Floor of Bingay No.20 coal bed --			OVERTURNED BEDS			40°	0.84
14.95	Dirty coal		0.04				
14.99	Coal	0.51					
15.50	Rock				0.32		
15.82	Coal	0.23					
-- Roof of Bingay No.20 coal bed --						True coal thickness:	0.60 / 0.84
Totals for this coal bed:		0.74	0.04	Nil	0.32		
		Total coal: 0.78 m		*Total rock:* 0.32 m			
16.05	Rock				3.10	39.5°	2.39

Table 22: Coal bed intersections in borehole BC-83-3 (continued):

Measured depths and thickness as interpreted from gamma-caliper-density log

Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Floor of Bingay No.21 coal bed --			OVERTURNED BEDS			39°	16.16
19.15	Coal	0.60					
19.75	Coaly rock			0.25			
20.00	Coal	0.35					
20.35	Coaly rock			0.30			
20.65	Coal	2.40					
23.05	Coaly rock			0.30			
23.35	Coal	2.80					
26.15	Rock				0.50		
26.65	Coaly rock			0.40			
27.05	Coal	1.50					
28.55	Coaly rock			0.35			
28.90	Dirty coal		1.15				
30.05	Coal	1.80					
31.85	Coaly rock			0.35			
32.20	Coal	4.00					
36.20	Coaly rock			0.30			
36.50	Coal	3.45					
-- Roof of Bingay No.21 coal bed --						True coal thickness:	14.04 / 16.16
Totals for this coal bed:		16.90	1.15	2.25	0.50		
		Total coal: 18.05 m		*Total rock:* 2.75 m			
39.95	Rock				17.05		
-- Roof of Bingay No.21 coal bed --						30°	13.86
57.00	Coal	3.25					
60.25	Coaly rock			0.10			
60.35	Coal	1.10					
61.45	Rock				0.25		
61.70	Coal	1.75					
63.45	Coaly rock			0.25			
63.70	Coal	1.70					
65.40	Coaly rock			0.30			
65.70	Coal	1.20					
66.90	Dirty coal		0.15				
67.05	Coaly rock			0.35			
67.40	Coal	0.65					
68.15	Rock				0.50		
68.65	Coal	4.25					
72.90	Coaly rock			0.10			
73.00	Coal	0.10					
-- Floor of Bingay No.21 coal bed --						True coal thickness:	12.25 / 13.86
Totals for this coal bed:		14.00	0.15	1.10	0.75		
		Total coal: 14.15 m		*Total rock:* 1.85 m			

Table 22: Coal bed intersections in borehole BC-83-3 (continued):

Measured depths and thickness as interpreted from gamma-caliper-density log

Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
73.10	Rock				1.00	30°	0.87
-- Roof of Bingay No.21 Lower coal bed --						30°	0.59
74.10	Coal	0.53					
74.63	Dirty coal		0.15				
-- Floor of Bingay No.21 Lower coal bed --						True coal thickness:	0.59 / 0.59
Totals for this coal bed:		0.53	0.15	Nil	Nil		
		Total coal: 0.68 m		*Total rock:* 0.00 m			
74.78	Rock				2.28	20.5°	20.86
77.06	Coal	0.39					
77.45	Rock				8.40		
85.85	Coal	0.60					
86.45	Rock				10.60		
-- Roof of Bingay No.20 coal bed --						11°	4.47
97.05	Coal	1.00					
98.05	Coaly rock			0.20			
98.25	Coal	2.60					
100.85	Coaly rock			0.15			
101.00	Coal	0.60					
-- Floor of Bingay No.20 coal bed --						True coal thickness:	4.12 / 4.47
Totals for this coal bed:		4.20	Nil	0.35	Nil		
		Total coal: 4.20 m		*Total rock:* 0.35 m			
101.60	Rock				16.95	32.5°	14.30
-- Roof of Bingay No.19 coal bed --						15°	5.31
118.55	Coal	1.30					
119.85	Dirty coal		1.10				
120.95	Coal	0.90					
121.85	Coaly rock			0.15			
122.00	Coal	0.50					
122.50	Coaly rock			0.30			
122.80	Rock				0.65		
123.45	Coal	0.60					
-- Floor of Bingay No.19 coal bed --						True coal thickness:	4.25 / 5.31
Totals for this coal bed:		3.30	1.10	0.45	0.65		
		Total coal: 4.40 m		*Total rock:* 1.10 m			
124.05	Rock				8.15	15°	12.56
132.20	Dirty coal		0.18				
132.38	Rock				4.67		

Table 22: Coal bed intersections in borehole BC-83-3 (continued):

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.18 coal bed --						17°	2.53
137.05	Dirty coal		0.40				
137.45	Rock			0.60			
138.05	Coal	0.90					
138.95	Rock			0.37			
139.32	Coal	0.17					
139.49	Rock			0.07			
139.56	Coal	0.14					
-- Floor of Bingay No.18 coal bed --						True coal thickness:	1.54 / 2.53
Totals for this coal bed:		1.21	0.40	1.04	Nil		
		Total coal: 1.61 m		*Total rock:* 1.04 m			
139.70	Rock				17.41	18.5°	16.51
-- Roof of Bingay No.17 coal bed --						20°	1.77
157.11	Coal	0.07					
157.18	Coaly rock			0.03			
157.21	Rock				0.03		
157.24	Coal	0.06					
157.30	Rock				0.20		
157.50	Coal	1.50					
-- Floor of Bingay No.17 coal bed --						True coal thickness:	1.53 / 1.77
Totals for this coal bed:		1.63	Nil	0.03	0.23		
		Total coal: 1.63 m		*Total rock:* 0.26 m			
159.00	Coaly rock			0.01		23°	25.96
159.01	Rock				1.44		
160.45	Dirty coal		0.25				
160.70	Rock				26.50		
-- Roof of Bingay No.16 coal bed --						26°	2.43
187.20	Coal	0.60					
187.80	Coaly rock			0.30			
188.10	Coal	0.80					
188.90	Rock				0.40		
189.30	Coal	0.60					
-- Floor of Bingay No.16 coal bed --						True coal thickness:	1.80 / 2.43
Totals for this coal bed:		2.00	Nil	0.30	0.40		
		Total coal: 2.00 m		*Total rock:* 0.70 m			
189.90	Rock				4.20	26°	3.77

Table 22: Coal bed intersections in borehole BC-83-3 (continued):

Measured depths and thickness as interpreted from gamma-caliper-density log

Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.15 Rider coal bed --						26°	1.08
193.80	Coal	0.15					
193.95	Rock				0.15		
194.10	Coal	0.60					
194.70	Coaly rock			0.25			
194.95	Coal	0.30					
-- Floor of Bingay No.15 Rider coal bed --						True coal thickness:	0.94 / 1.08
Totals for this coal bed:		1.05	Nil	0.25	0.15		
		Total coal: 1.05 m		*Total rock:* 0.15 m			
195.25	Rock				0.25	26°	0.54
195.50	Coaly rock			0.15			
195.65	Rock				0.20		
-- Roof of Bingay No.15 coal bed --						26°	1.39
195.85	Coal	0.65					
196.50	Coaly rock			0.10			
196.60	Coal	0.30					
196.90	Coaly rock			0.15			
197.05	Coal	0.35					
-- Floor of Bingay No.15 coal bed --						True coal thickness:	1.17 / 1.39
Totals for this coal bed:		1.30	Nil	0.25			
		Total coal: 1.30 m		*Total rock:* 0.25 m			
197.40	Rock				0.95	26°	0.85
-- Roof of Bingay No.14 coal bed						26°	1.44
198.35	Coal	1.00					
199.35	Coaly rock			0.10			
199.45	Coal	0.50					
-- Floor of Bingay No.14 coal bed --						True coal thickness:	1.35 / 1.44
Totals for this coal bed:		1.50	Nil	0.10	Nil		
		Total coal: 1.50 m		*Total rock:* 0.10 m			
199.95	Coaly rock			0.25			
200.20	Rock				15.36	23°	14.37

Table 22: Coal bed intersections in borehole BC-83-3 (continued):

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.13 coal bed --						20°	2.57
215.56	Coal	0.49					
216.05	Dirty coal		0.35				
216.40	Coal	0.15					
216.55	Dirty coal		0.35				
216.90	Coal	0.20					
217.10	Dirty coal		0.20				
217.30	Coal	0.10					
217.40	Rock				0.40		
217.80	Coal	0.50					
-- Floor of Bingay No.13 coal bed --						True coal thickness:	2.20 / 2.57
Totals for this coal bed:		1.44	0.90	Nil	0.40		
		Total coal: 2.34 m		*Total rock:* 0.40 m			
218.30	Rock				0.55	20°	0.52
-- Roof of Bingay No.13 Lower coal bed --						20°	1.08
218.85	Coal	1.15					
-- Floor of Bingay No.13 Lower coal bed --						True coal thickness:	1.08 / 1.08
Totals for this coal bed:		1.15	Nil	Nil	Nil		
		Total coal: 1.15 m		*Total rock:* 0.00 m			
220.00	Rock				12.05		
232.05	Dirty coal		0.65				
232.70	Rock				0.30		
233.00	Dirty coal		0.25				
233.25	Rock				60.50	17.5°	70.34
-- Roof of Bingay No.12 Rider coal bed --						15°	2.70
293.75	Coal	0.45					
294.20	Coaly rock			0.25			
294.45	Coal	0.60					
295.05	Coaly rock			0.15			
295.20	Rock				0.45		
295.65	Coal	0.35					
296.00	Rock				0.25		
296.25	Dirty coal		0.30				
-- Floor of Bingay No.12 Rider coal bed --						True coal thickness:	1.64 / 2.70
Totals for this coal bed:		1.40	0.30	0.40	0.70		
		Total coal: 1.70 m		*Total rock:* 1.10 m			
296.55	Rock				0.45	15°	0.43

Table 22: Coal bed intersections in borehole BC-83-3 (continued):

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.12 coal bed --						16.5°	5.03
297.00	Dirty coal		0.20				
297.20	Rock				0.15		
297.35	Dirty coal		0.45				
297.80	Coal	0.50					
298.30	Coaly rock			0.20			
298.50	Coal	1.40					
299.90	Dirty coal		0.15				
300.05	Coaly rock			0.15			
300.20	Coal	0.45					
300.65	Coaly rock			0.25			
300.90	Coal	0.45					
301.35	Dirty coal			0.90			
-- Floor of Bingay No.12 coal bed --						True coal thickness:	3.45 / 5.03
Totals for this coal bed:		2.80	0.80	1.50	0.15		
		Total coal: 3.60 m		*Total rock:* 1.65 m			
302.25	Rock				1.59	15.5°	1.53
-- Roof of Bingay No.11 Rider coal bed --						15°	0.49
303.84	Coal	0.27					
304.11	Rock [ASH BAND]				0.02		
304.13	Coal	0.22					
-- Floor of Bingay No.11 Rider coal bed						True coal thickness:	0.47 / 0.49
Totals for this coal bed:		0.49	Nil	Nil	0.02		
		Total coal: 0.49 m		*Total rock:* 0.02 m			
304.35	Rock				1.20	18°	1.14
-- Roof of Bingay No.11 coal bed --						14°	1.99
305.55	Coal	0.45					
306.00	Coaly rock			0.30			
306.30	Dirty coal		0.35				
306.65	Rock				0.20		
306.85	Coal	0.25					
307.10	Coaly rock			0.25			
307.35	Coal	0.25					
-- Floor of Bingay No.11 coal bed --						True coal thickness:	1.26 / 1.99
Totals for this coal bed:		0.95	0.35	0.55	0.20		
		Total coal: 1.30 m		*Total rock:* 0.75 m			
307.60	Rock				8.93	13.5°	8.68

Table 22: Coal bed intersections in borehole BC-83-3 (continued):

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
-- Roof of Bingay No.10A coal bed --						13°	0.26
316.53	Coal	0.11					
316.64	Rock				0.03		
316.67	Coal	0.13					
-- Floor of Bingay No.10A coal bed --						True coal	0.23 /
Totals for this coal bed:		0.24	Nil	Nil	0.03	thickness:	0.26
		Total coal: 0.24 m		*Total rock:* 0.03 m			
316.80	Rock				16.80	13°	16.37
-- Roof of Bingay No.10 Rider coal bed --						13°	2.58
333.60	Coal	0.40					
334.00	Coaly rock			0.36			
334.36	Coal	0.11					
334.47	Rock				0.42		
334.89	Coal	0.14					
335.03	Rock				0.04		
335.07	Coaly rock			0.06			
335.13	Rock				0.53		
335.66	Coal	0.59					
-- Floor of Bingay No.10 Rider coal bed --						True coal	1.21 /
Totals for this coal bed:		1.24	Nil	0.42	0.99	thickness:	2.58
		Total coal: 1.24 m		*Total rock:* 1.41 m			
336.25	Rock				34.00	13°	33.13
-- Roof of Bingay No.10 coal bed --						13°	9.11
370.25	Coal	0.25					
370.50	Rock				0.15		
370.65	Coal	2.05					
372.70	Dirty coal		0.25				
372.95	Rock				0.10		
373.05	Coal	0.60					
373.65	Dirty coal		0.35				
374.00	Coal	1.00					
375.00	Dirty coal		0.45				
375.45	Coal	0.55					
376.00	Rock				0.10		
376.10	Coal	0.70					
376.80	Dirty coal		0.50				
377.30	Coaly rock			0.50			
377.80	Dirty coal		0.35				
378.15	Coal	0.95					
379.10	Coaly rock			0.15			
379.25	Dirty coal		0.35				
-- Floor of Bingay No.10 coal bed --						True coal	8.14 /
Totals for this coal bed:		6.10	2.25	0.65	0.35	thickness:	9.11
		Total coal: 8.35 m		*Total rock:* 1.00			

Table 22: Coal bed intersections in borehole BC-83-3 (continued):

Measured depths and thickness as interpreted from gamma-caliper-density log							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
379.60	Coaly rock			0.08		15°	1.40
379.68	Rock				1.37		
-- Roof of Bingay No.9 coal bed --						14.5°	2.33
381.05	Coal	0.45					
381.50	Coaly rock			0.15			
381.65	Coal	1.05					
382.70	Rock				0.16		
382.86	Coal	0.02					
382.88	Rock				0.12		
383.00	Coal	0.06					
383.06	Coaly rock			0.05			
383.11	Coal	0.21					
383.32	Coaly rock			0.06			
383.38	Coal	0.08					
-- Floor of Bingay No.9 coal bed --						True coal thickness:	1.81 / 2.33
Totals for this coal bed:		1.87	Nil	0.26	0.28		
		Total coal: 1.87 m		*Total rock:* 0.54 m			

11.2.2 INTERPRETATION OF TRENCH DATA

Tables 23 through **27** present the author's measurement and interpretation of the coal beds exposed in Trenches 1 through 4, and Trench 17, all of which lie within Coal Licence 374190. Trenches 1 and 2 were logged by the author in 2004, whereas the other trenches were logged in 2005. Note that trenches were not numbered consecutively: Trenches 5 through 16 have not yet been dug, and Trench 4 was originally given the field name of "Bent Trench" owing to its position along a sharp corner in an access road.

Table 23: Coal bed intersections in Trench No.1:

Measured thickness as observed in trench face, across true stratigraphic thickness of beds							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
	Rock						
	Coaly rock			0.23		80°	0.23
-- Roof of Bingay No.10 coal bed --							9.76
0.00	Coal	6.17					
6.17	Rock				0.06		
6.23	Coal	0.47					
6.70	Coaly rock			0.13			
6.83	Coal	0.97					
7.80	Rock				0.01		
7.81	Coal	1.28					
9.09	Rock [ASH BAND]				0.02		
9.11	Coal	0.03					
9.14	Coaly rock			0.07			
9.21	Coal	0.55					
-- Floor of Bingay No.10 coal bed --						True coal thickness:	9.47 / 9.76
Totals for this coal bed:		9.47	Nil	0.20	0.09		
		Total coal: 9.47 m		*Total rock:* 0.29 m			

Table 24: Coal bed intersections in Trench No.2:

Measured thickness as observed in trench face, across true stratigraphic thickness of beds							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
	Rock				>0.57	73°	>0.57
	Coaly rock			0.12			0.12
-- Roof of Bingay No.12 Rider coal bed --							2.59
0.00	Coal	1.14					
1.14	Rock				0.02	82°	
1.16	Coal	0.04					
1.20	Rock				0.03		
1.23	Coal	0.09					
1.32	Rock				0.01		
1.33	Coal	0.05					
1.38	Rock				0.02		
1.40	Coal	0.50					
1.90	Rock				0.14		
2.04	Coal	0.07					
2.11	Rock				0.02		
2.13	Dirty coal		0.12				
2.25	Rock				0.03		
2.28	Coal	0.31					
-- Floor of Bingay No.12 Rider coal bed --						True coal thickness:	2.32 / 2.59
Totals for this coal bed:		2.20	0.12	Nil	0.27		
		Total coal: 2.32 m		*Total rock:* 0.27 m			
	Coaly rock			0.06			1.44
	Rock				0.37		
	Coaly rock			0.20			
	Rock				0.76	85°	
	Coaly rock			0.05			
-- Roof of Bingay No.12 coal bed --							1.58
	Coal	0.24					
	Coaly rock			0.18			
	Rock				0.20		
	Dirty coal		0.24				
	Coal	0.72					
-- Floor of Bingay No.12 coal bed --						True coal thickness:	1.20 / 1.58
Totals for this coal bed:		0.96	0.24	0.18	0.20		
		Total coal: 1.20 m		*Total rock:* 0.38 m			
	Rock				0.42	74°	
	Coaly rock			0.20			
-- Roof of Bingay No.11 Rider coal bed --							3.37
	Coal	0.04					
	Coaly rock			0.04			
	Coal	0.17					
	Coaly rock			0.13			
	Coal	0.35					
	Coaly rock			0.30			

Table 24: Coal bed intersections in Trench No.2 (continued):

Measured thickness as observed in trench face, across true stratigraphic thickness of beds							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Apparent dip	Stratigraphic thickness
	Dirty coal		0.36				
	Rock				0.01		
	Dirty coal		0.08				
	Coal	0.31					
	Coaly rock			0.11			
	Coal	0.43					
	Dirty coal		0.26				
	Rock				0.08		
	Coal	0.44					
	Rock [ASH BAND]				0.04		
	Coal	0.22					
-- Floor of Bingay No.11 Rider coal bed --						True coal thickness:	2.66 / 3.37
Totals for this coal bed:		1.96	0.70	0.58	0.13		
		Total coal: 2.66 m		*Total rock:* 0.71 m			
	Rock				1.06		2.28
	Coaly rock			0.24			
	Coal	0.07					
	Rock				0.12		
	Coaly rock			0.28			
	Rock				0.32		
	Coaly rock			0.02			
	Rock				0.17		
-- Roof of Bingay No.11 coal bed --							2.09
	Coal	0.49					
	Coaly rock			0.25			
	Coal	0.72					
	Coaly rock			0.20			
	Dirty coal		0.25				
	Coal	0.18					
-- Floor of Bingay No.11 coal bed --						True coal thickness:	1.64 / 2.09
Totals for this coal bed:		1.39	0.25	0.45	Nil		
		Total coal: 1.64 m		*Total rock:* 0.45 m			
	Rock				>1.60	90°	

Table 25: Coal bed intersections in Trench No.3:

Measured thickness as observed in trench face, across true stratigraphic thickness of beds							
Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Measured dip	Stratigraphic thickness
	Rock				>4.63	58°	>4.63
-- Roof of Bingay No.16 coal bed --						53°	3.27
	Coal	0.73					
	Coaly rock			0.07			
	Coal	0.14					
	Rock				0.05	51°	
	Dirty coal		0.09				

Table 25: Coal bed intersections in Trench No.3 (continued):

Measured thickness as observed in trench face, across true stratigraphic thickness of beds

Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Measured dip	Stratigraphic thickness
	Coal	1.13					
	Dirty coal		0.24				
	Coaly rock			0.08			
	Rock				0.15		
	Coal	0.59				54°	
-- Floor of Bingay No.16 coal bed --						True coal thickness:	2.92 / 3.27
Totals for this coal bed:		2.59	0.33	0.15	0.20		
		Total coal: 2.92 m		*Total rock:* 0.35 m			

Table 26: Coal bed intersections in Trench No.4:

Measured thickness as observed in trench face, across true stratigraphic thickness of beds

Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Measured dip	Stratigraphic thickness
	Rock				>0.66	60°	>0.66
-- Roof of Bingay No.16 coal bed --							
	Dirty coal		0.15				
	Coal	1.06					
	Coaly rock			0.17			
	Coal	0.73					
	Coaly rock			0.13			
	Coal	0.73					
	Coaly rock			0.17			
	Coal	0.48					
-- Floor of Bingay No.16 coal bed --						True coal thickness:	3.15 / 3.62
Totals for this coal bed:		3.00	0.15	0.47	Nil		
		Total coal: 3.15 m		*Total rock:* 0.47 m			
	Rock				>0.69	58°	>0.69

Table 27: Coal bed intersections in Trench No.17:

Measured thickness as observed in trench face, across true stratigraphic thickness of beds

Top (metres)	Lithology	Coal (m)	Dirty coal (m)	Coaly rock (m)	Rock (m)	Measured dip	Stratigraphic thickness
	Rock				>2.30	54°	>2.30
-- Roof of Bingay No.17 coal bed --							2.53
	Dirty coal		0.01				
	Coal	1.80					
	Coal (durain?)	0.03					
	Coal	0.69					
-- Floor of Bingay No.17 coal bed --						True coal thickness:	2.53 / 2.53
Totals for this coal bed:		2.52	0.01	Nil	Nil		
		Total coal: 2.53 m		*Total rock:* 0.00 m			
	Coaly rock			0.08			0.08
	Rock				>0.34	41°	>0.34

11.3 DISCUSSION OF CORRELATION ISSUES

Confidence in property-scale coal correlations varies according to the amount of data available, and according to the perceived depositional complexities of the various coal beds. The postulated 'marine band' between the 11-12 and 13L-13 coal zones is the best non-coal stratigraphic marker within the property (with the possible exception of the Moose Mountain sandstone, which lies below the known coal-measures and is therefore of less utility in correlation studies).

The coal beds within the 9-10, 11-12, 14-16 and 20-21 coal zones, as well as the No.17 coal bed, can be correlated with confidence, based primarily on their individual 'signatures' on downhole gamma and density logs. Confidence is highest in the case of the 9-10 coal zone, which has a very distinctive gamma-density geophysical log signature. Confidence is somewhat less high in the case of the No.17 coal bed and the 11-12 and 14-16 coal zones, and only moderate in the case of the 20-21 coal zone, which lies in a structurally-complex configuration.

Two of Utah Mines' 1983 diamond-drill holes tested coals (the Bingay No.1 through No.8 coal beds) which lie between the Moose Mountain sandstone and the No.9 coal bed. The continuity and correlation of these lower coals are not as well known as for the No.9 and higher coals.

At the present stage of knowledge, it is premature to attempt to correlate the Bingay coals to those found in adjoining properties.

11.4 SEDIMENTOLOGICAL COMMENTARY

Sedimentological features which may be useful in future attempts at local- to property-scale coal correlation include:

- Vertical petrographic profiles (comparison of 'dull-bright' banding) of the coals.
- Presence of volcanic ash partings (which may manifest as 'granular' bands of 'bone' or 'kaolinitic fragmental clayrock', or as white- or light grey-weathering 'kaolinitic claystones' or 'kaolinitic siltstones').
- Zones of sand- or silt-filled 'worm burrows' within the coals, or within associated carbonaceous mudrocks.
- Recognition of correlative rootlet beds (paleosol horizons) in areas where coals are otherwise thin or absent.
- Recognition of the absence of rootlet beds beneath some of the coals, possibly indicative of their deposition in a lacustrine setting.

Broader-scale correlation of depositional cycles within the coal-measures may be made easier by recognition of sedimentological features within associated non coal-bearing strata (Elliott, Jones and Rippon, 1984). Of possible use (although with the caveat that these features may occur at more than one stratigraphic level) are:

- Recognition of subtle erosional surfaces which may occur at the regional scale.
- Glauconitic zones, particularly where associated with erosional lag deposits.
- Facies-characteristic trace fossils such as *Thalassinoides*, *Teredolites* or *Macaronichnus*.
- Concentrations of heavy-mineral bands.
- Concentrations of marlstone or limestone bands.

11.5 PALEONTOLOGICAL COMMENTARY

Pearson and Duff (1976) recognised two fossiliferous 'marine bands' in the Kootenay coal-measures. The lower of the two bands is situated about 300 metres above the top of the Moose Mountain sandstone; the stratigraphic position of the upper band was not precisely determined. At least one of the bands contained ammonite fossils. As a point of comparison, the postulated 'marine band' within the explored portion of the Bingay Creek coal property (as recognised in geophysical logs by the present author) lies about 280 metres above the top of the Moose Mountain sandstone.

The principal benefit of 'marine bands' is that they are useful as stratigraphic markers at the property scale: recognition of distinctive fossils within faulted sequences of strata might also allow for determination of the extent of stratigraphic loss or repeat across the faults. In their report, Pearson and Duff recommended the collection of fossils from diamond-drill core, as opposed to attempting to collect fossils from weathered outcrops.

Fossils collected by Pearson and Duff during their 1975 fieldwork were sent to the Geological Survey of Canada for determination. However, the author has been unable to find any published results of such studies.

ITEM 12: EXPLORATION

During the autumn of 2004, Hillsborough Resources Limited conducted a drilling programme within the Bingay Creek property. A brief summary of this work has been compiled by Hillsborough's director of exploration, S.L. Gardner P.Geo. (2004).

The author's own fieldwork during the summer of 2004 was conducted prior to the drilling of Hillsborough's boreholes, and was intended to provide a context for her subsequent interpretation of the results from those boreholes.

Further drilling and trenching was done by Hillsborough in the spring of 2005, also under the direction of Mr. Gardner. The author was present for the latter part of this programme, witnessing the geophysical logging of the boreholes as well as measuring the sections of coal beds exposed in trenches. A limited amount of fieldwork was done by the author in conjunction with this programme, but mapping was hampered by the snow cover which limited access to areas not immediately adjacent to roads and trails.

12.1 STATEMENT OF RESPONSIBILITY

As part of the current study, the author has examined and interpreted the downhole geophysical logs of every one of the known boreholes (including the 2004 and 2005 programmes) drilled at Bingay Creek, examined the accessible trenches and test pits within the property, relogged some of Utah's 1983 diamond-drill cores, and mapped the bedrock geology of the property. She has also reassessed the correlation of the coal beds encountered in these boreholes, trenches and test pits, and determined their stratigraphic placement in the context of the broader stratigraphy of the Elk River coalfield. The author has done this work, and written the present report, acting in her capacity as an independent consulting geologist to Hillsborough Resources Limited.

12.2 RELIABILITY OF RESULTS

Alternative interpretations of geological data, particularly of the subsurface structure between boreholes, are certainly possible, and indeed may emerge more clearly if Hillsborough Resources Limited elects to conduct additional drilling in the future.

ITEM 13: DRILLING

Historic exploratory drilling at and near the Bingay Creek coal property has been by means of diamond-drilling and rotary-drilling. Within the Bingay Creek property itself, seventeen boreholes have been drilled, by Utah Mines Ltd. and Hillsborough Resources Limited. One hole has been drilled within the coal-licence application area which adjoins the property to the north. This hole, and five others lying further to the north and east within the Elk River valley, was drilled by Cominco Ltd. Two coalbed gas wells have been drilled by AEC Oil and Gas within the Elk River valley; these wells are located yet farther east and north of the Bingay Creek coal property.

Locations of the coal-exploration boreholes, and the coalbed gas wells, are presented in **Tables 28 through 31**. Locations of the boreholes near Bingay Hill are shown in **Figure 4** (presented in **Section 6** of this report), and for the nearby portions of Elk Valley, in **Figure 6** (presented in **Section 8** of this report).

Table 28: Location data for Cominco Limited boreholes

Borehole	*UTM 83 coordinates*	*Elevation (m)*	*Depth (m)*	*Land status*	*Year*
EV-1	11U 644650 E, 5564955 N	1407	15.8	under application	1974
EV-2	11U 645660 E, 5568090 N	1442	39.6	outside property (to north)	1974
EV-3	11U 645520 E, 5562810 N	1462	27.7	outside property (to east)	1974
EV-4	11U 645640 E, 5563480 N	1451	153.0	outside property (to east)	1974
EV-5	11U 645640 E, 5564095 N	1446	78.9	outside property (to east)	1974
EV-6	11U 645665 E, 5564960 N	1443	84.1	outside property (to east)	1974

Note: elevations are taken from Cominco's base map accompanying Taplin's 1974 report.

Table 29: Location data for Utah Mines Ltd. boreholes

Borehole	*UTM 83 coordinates*	*Elevation (m)*	*Depth (m)*	*Land status*	*Year*
BC-83-1	11U 644117 E, 5562601 N	1488.96	295.35 m	Licence 374190	1983
BC-83-2	11U 644117 E, 5562601 N	1488.96	199.95 m	Licence 374190	1983
BC-83-3	11U 644330 E, 5563180 N	1388.20	394.41 m	Licence 374190	1983

Table 30: Location data for Hillsborough Resources Limited boreholes

Borehole	*UTM 83 coordinates*	*Elevation (m)*	*Depth (m)*	*Land status*	*Year*
BG-04-1v	11U 644015 E, 5562698 N	1452.3	270.1	Licence 374190	2004
BG-04-2a	11U 644012 E, 5562698 N	1452.2	276.0	Licence 374190	2004
BG-04-3v	11U 644333 E, 5563183 N	1387.2	306.7	Licence 374190	2004
BG-04-4a	11U 644332 E, 5563183 N	1387.2	245.5	Licence 374190	2004
BG-04-5a	11U 644058 E, 5562902 N	1440.1	186.0	Licence 374190	2004
BG-04-6v	11U 644065 E, 5563271 N	1421.9	32.0	Licence 374190	2004
BG-05-07v	11U 644286 E, 5562991 N	1402.5	184.0	Licence 374190	2005
BG-05-08a	11U 644299 E, 5562986 N	1402.1	229.3	Licence 374190	2005
BG-05-09a	11U 644179 E, 5562914 N	1416.0	222.3	Licence 374190	2005
BG-05-10a	11U 644188 E, 5562917 N	1416.0	134.6	Licence 374190	2005
BG-05-11a	11U 644321 E, 5562796 N	1417.5	183.3	Licence 374190	2005
BG-05-12v	11U 644321 E, 5562793 N	1417.5	147.0	Licence 374190	2005
BG-05-13a	11U 644158 E, 5563434 N	1416.7	92.0	Licence 374190	2005
BG-05-14a	11U 644057 E, 5563313 N	1423.7	166.7	Licence 374190	2005

Note: 'a' denotes holes drilled at an angle to vertical; 'v' denotes holes intended to be vertical.

Table 31: Location data for AEC Oil and Gas coalbed gas exploratory wells

Well	*UTM 83 coordinates*	*Elevation (m)*	*Depth (m)*	*Land status*	*Year*
d-16-D/82-J-7	11U 646553 E, 5570039 N	1457.9	238.99	outside property (to north)	2000
d-96-L/82-J-2	11U 646622 E, 5568450 N	1454.4	455.0	outside property (northeast)	2000

Note: elevations given for coalbed gas wells are for Kelly bushings (industry-standard reference points)

13.1 HISTORIC BOREHOLE DESIGN

Cominco's 1974 drilling programme used reverse-circulation rotary-drills contracted from Big Indian Drilling (Taplin, 1974). Only two of the six boreholes in this programme were geophysically logged, owing to difficult hole conditions and unfavourable geological results. No information has been found concerning whether the casings of these holes were pulled out, or whether they were cemented.

Utah Mines' 1983 drilling programme used diamond-drills contracted from Tonto Drilling (Anderson, 1984). All three of the boreholes in this programme were geophysically logged. None of the boreholes were cemented, and casing was left in the near-surface portions of all three boreholes. None of the three holes were cemented, owing to the anticipated surface-mining to be done at Bingay Creek. Casing of borehole BC-83-3 (the most northerly hole) was accidentally knocked out of position during earth-moving operations in the summer of 2004.

13.2 HISTORIC CORE-LOGGING METHODS

During the 1983 Utah Mines drilling programme, diamond-drill core was logged on-site by the project geologists, and then transported for storage at Mr. William Shenfield's residence in Fernie, British Columbia. Utah's geologists used a photographic corebook (Ruby and others, 1981) as a means of structured core description; their logs were then transferred to computer files and translated from the numeric corebook codes into brief English-language descriptions.

Modern practices of logging of all cores in terms of recovery, recovered condition, and positions of rock units *vis-à-vis* drillers' depth-blocks and core-box ends, do not seem to have been carried out by Utah. However, their geologists often marked rock-unit boundaries and corebook codes with chalk, directly upon the cores, and many of these chalk marks have survived to the present day.

13.2.1 RELIABILITY OF HISTORIC CORE LOGS

During the summer 2004 field season, the author re-examined some of the cores from the 1983 diamond-drill programme. Utah Mines' core logs were found to be good general descriptions of the cores, and in the author's opinion they fairly represent the gross lithologic features of the rocks from which they were cored.

ITEM 14: SAMPLING METHOD AND APPROACH

Minimal information is available concerning historic sampling methods and the rationale governing their selection. For present purposes, it may be reasonable to presume that the geologists who took the historic samples did so according to standard practice of their day. All of the historic samples (from the Bingay Creek property) for which analyses are publicly-available were taken for purposes of coal exploration.

14.1 METHODOLOGY

In coal exploration, sampling methodology varies according to the means by which coal beds are being drilled. Sampling of diamond-drill core samples (as in the Utah Mines 1983 programme) is typically conducted in a different manner than would be sampling of reverse-circulation cutting samples (as in the Hillsborough 2004 and 2005 programmes); this difference is inherent to the differing mechanical process by which drilling is accomplished, and the concomitant difference in physical state of the recovered materials.

14.1.1 DIAMOND-DRILL CORE SAMPLING

At the time that the Utah Mines boreholes were being drilled in 1983, it was common practice for geologists to sample entire runs of coal core within a given coal zone, taking as a single sample all of the recovered coal core together with core of any rock partings. If a thick parting formed a prominent band within the coal zone, the coals above and below the parting would usually have been sampled separately, provided that at least one of the coals was of potentially-mineable thickness.

Coal cores would typically have been placed in cloth sacks (or, less commonly, lidded steel pails), and tagged with a sample number both within and on the outside of the container.

The author was acquainted with Utah Mines' project geologists (Bob Anderson and Norm Duncan), and is wholly comfortable with their level of expertise in 1983; their work would have been comparable to the reasonable standard field practice amongst Canadian coal geologists.

14.1.2 REVERSE-CIRCULATION CUTTINGS SAMPLING

During Hillsborough's autumn 2004 and spring 2005 drilling programmes, cores were not retrieved from the coal beds. Instead, cuttings discharged by the reverse-circulation drilling rig were sampled. The following details of reverse-circulation sampling methodology are based on Gardner's (2004b) exploration report. Samples collected in 2004 were taken by S.L. Gardner and J.A. McMillan, geologists for Hillsborough Resources Limited and Quinsam Coal Corporation respectively. Samples collected in 2005 were taken by S.L. Gardner.

14.1.2.1 Sampling of coals and associated coaly rocks

Cuttings of coal and coaly rock were collected over increments of one metre or less. The driller and geologists kept a close watch over the drill's cyclone discharge. When they saw coaly water or black cuttings, the driller stopped drilling ahead, and the rig hand placed a screen-fitted pail under the cyclone's discharge point. The pail's screens were sized at 28 mesh, allowing water and fine cuttings to flow freely out of the sample pail, and retaining coarser cuttings.

Drilling proceeded ahead at increments of one metre (or in some case, shorter increments), stopping each time to allow the geologists to transfer the pail's contents to a large woven-fibre sample bag, As with the screened pail, the sample bags allowed water and fine cuttings to drain outward, while retaining the coarse cuttings.

As each bag was filled, it was labelled with an identification tag contained within a smaller plastic bag to prevent defacement of the tag. The tops of the sample bags were secured with plastic ties. Sample

bags were allowed to sit overnight for drainage of water, then sent onward to Elk Valley Environmental Services for analysis.

14.1.2.2 Sampling of other rock strata

Cuttings of rock strata overlying and intervening between the coal beds were taken at half-metre intervals, by holding a sieve within the discharge stream from the drill's cyclone system. Groups of two, three or four samples were aggregated to form composite samples of 1-, 1.5- or 2-metre intervals, with shorter sample intervals being used within strata adjacent to coal beds.

Owing to the rapidity of the drill's advance, no attempt was made at detailed field description of drill cuttings. Each composite sample was placed in a labelled cloth bag, and groups of about thirty samples were in turn placed in a larger sample sack.

Rock samples were taken to Mr. William Shenfield's residence in Fernie, B.C. for storage. Seventy-eight rock samples, which were collected from borehole BG-04-05a, were sent on to ALS-Chemex Laboratories for acid rock drainage studies and metal leaching tests. Results of these studies have been reported by the Minesite Drainage Assessment Group (Morin and Hutt, 2004).

14.1.3 TRENCH SAMPLING

In 1996, Iron Creek Exploration Ltd. took two samples from trenches which were dug into the Bingay No.10 coal bed, near the present-day Trench No.1 of the Bingay Creek coal property. Trenching and sampling methods as reported by Shenfield and Gardner (1996) were as follow:

- An area of about 0.5 hectares was cleared of trees;
- Topsoil was stripped and stacked from about 0.2 hectares within the cleared land;
- The No.10 coal bed was exposed along about 100 metres of strike length;
- About one metre of highly-oxidised coal bloom was stripped from the top of the coal bed;
- Two trenches (Trench 'B' and Trench 'C') were dug into the stripped area, about 30 metres apart;
- A 40-kilogramme channel sample of coal was taken from each trench;
- The samples were shipped to Loring Laboratories for analytical work.

The exact location of Trenches 'B' and 'C' are not known to the author, owing to their vicinity have been more extensively excavated. However, the 1996 report indicates that these two trenches lay near, (and very likely within) the present-day outline of Trench No.1, within the Bingay No.10 coal bed.

14.2 ISSUES CONCERNING ACCURACY AND RELIABILITY

Even fresh-appearing hard coal may be sufficiently oxidised at outcrop, to alter its physical and chemical properties. It is therefore reasonable to assume that determinations of calorific value, agglomerating properties and vitrinite reflectance from the outcropping coals may be underestimates as compared with the values which could be obtained from unweathered coal.

14.3 SAMPLE QUALITY ISSUES

As is the case with most coal properties, coal sample quality at Bingay Creek is quite likely to have been impacted by recovery and physical condition of drill cores (see Section 14.3.1 below), by the loss of fines during sampling of reverse-circulation drill cuttings (see Section 14.3.2 below), and by operational decisions to sample only those coals which the sampler judged as having some reasonable chance of being mineable.

14.3.1 RECOVERY AND PHYSICAL CONDITION OF BOREHOLE CORES

No information is available concerning core recovery from Utah Mines' diamond-drill holes at Bingay Creek, or the physical condition of the cores. The lack of knowledge concerning core recovery is a critical concern in interpreting the results of Utah Mines' sampling of the Bingay coals.

14.3.1.1 Speculations concerning sample bias in borehole cores

Historic coal sampling from Utah Mines' 1983 diamond-drill programme appears to have been focussed at determining the quality of the best-appearing and thickest coal intersections. Sampling bias can reasonably be expected to have been towards sampling those coals which had, in the sampler's own estimation, some chance of being mineable. This does not by itself invalidate the analytical results, but it does limit the amount of data available for certain coal beds which are of variable thickness and might not have always been sampled.

Sample bias may also have occurred, when sampling diamond-drill cores, because the drilling method employed may have resulted in selective recovery of only the hardest and most competent bands within a given coal bed. During the author's re-examination of diamond-drill cores from this programme, preserved cores from thinner coal beds (which had not been sampled) showed that coals tended to be more intensely sheared and mushy than were their associated rock partings; the author therefore considers it likely that core loss was preferentially concentrated within sheared coals.

14.3.2 RECOVERY AND PHYSICAL CONDITION OF REVERSE-CIRCULATION CUTTINGS

Reverse-circulation drilling – such as was employed by Hillsborough Resources during their autumn 2004 and spring 2005 exploration programmes – produces small cuttings of coal and rock, with a top size seldom exceeding 13 millimetres (half an inch). Fine powdery and very small chips of coal and rock are produced along with the larger cuttings; some of the minus-28-mesh material would have been lost through the screens in the sampling pail, and more of the fine material would have been lost through the open weaving of the sample bags. Loss of the fine material is evidenced by the appearance of fine black mud, containing abundant shiny particles of bright coal, in the water which flows out of the screens in the sampling pails, and which gradually seeps from the sides of the sample bags.

14.3.2.1 Speculations concerning sample bias in cuttings samples

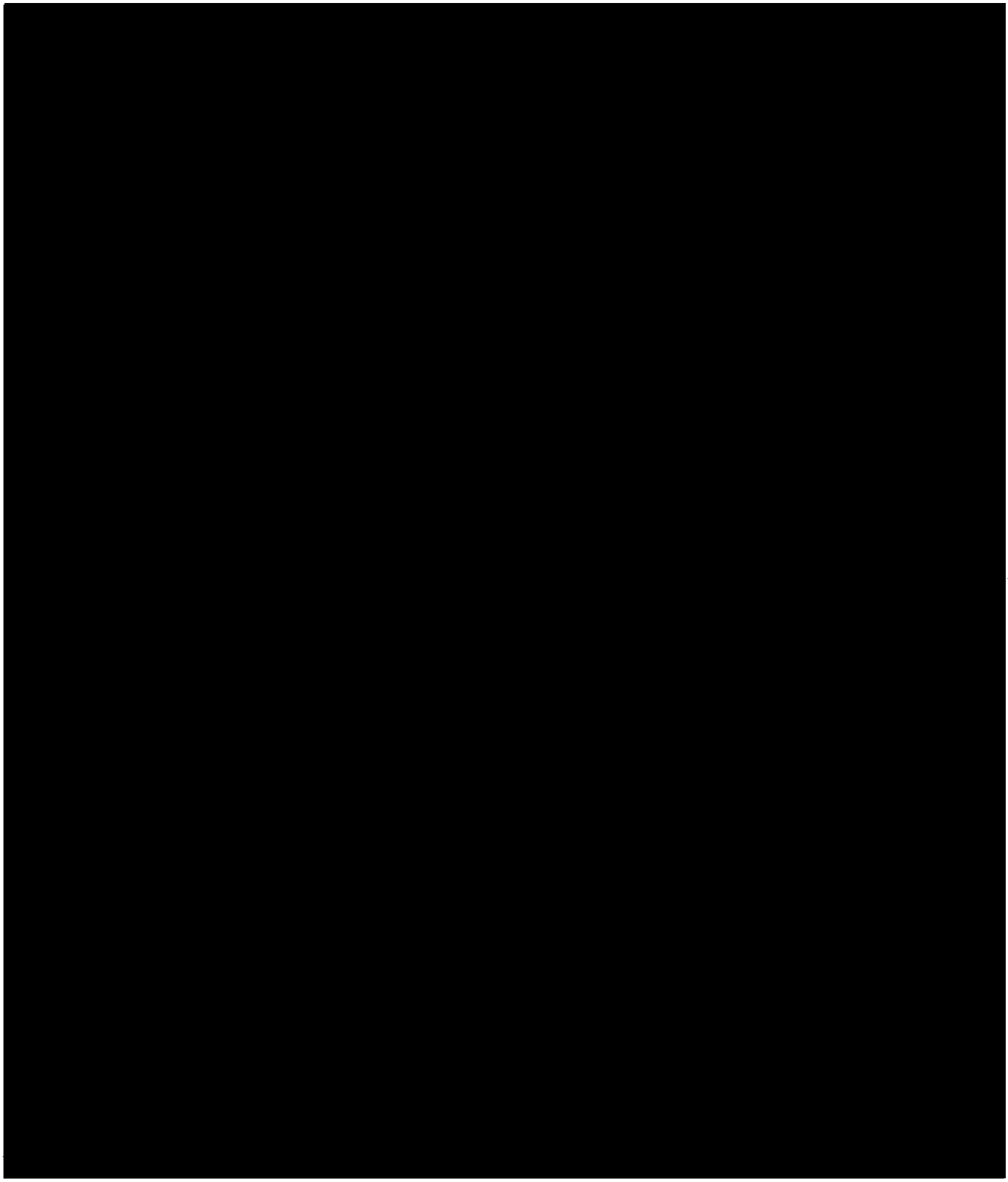
Loss of the fines from the reverse-circulation samples would probably act to reduce the amount of fine, powdery vitrinite (essentially the 'bright' component of a banded coal) within the samples. Vitrinite contributes significantly to coal's agglomerating character, and it also tends to have a lower mineral-matter content, and hence a lower ash yield during proximate analysis, then do the other components of a coal bed. Therefore it is likely that the ash yields of analysed samples of reverse-circulation drill cuttings would be higher than those which would be reported from the coal in place; conversely, the agglomerating powers of the analysed samples (as expressed by their free swelling indices) would be lower that those which would be reported from the coal in place.

The issue of sample bias in reverse-circulation cuttings samples is significant to the evaluation of the Bingay Creek coals, since virtually all of the coal-quality data available for the property is based on cuttings samples. In my opinion, the coking coal indices of the Bingay Creek coals are likely to be somewhat better (e.g. higher FSI, higher reactive maceral content) in samples taken from large-diameter diamond-drill cores, than from reverse-circulation cuttings.

14.4 GEOLOGICAL CONTROLS ON SAMPLING INTERVAL

From core descriptions reported by Anderson (1984), it appears that during the 1983 drill programme, samples were preferentially taken from coal layers within interbedded sequences of coal and rock. Given that the object of the sampling was to determine the quality of the coals, this was a reasonable choice. During the autumn 2004 and spring 2005 programmes, samples were taken of all materials which, from

the appearance of drill returns, were likely to be coal or coaly rock (S.L. Gardner, personal communications, 2004 and 2005). Again, this is a reasonable choice, since the appearance of coal as a black, fragmental, sooty to shiny material amongst drill cuttings is visually distinctive.



ITEM 15: SAMPLE PREPARATION, ANALYSIS AND SECURITY

Historic and current sampling methods at Bingay Creek have been previously discussed in **Section 14.1** of this report.

Samples from Utah Mines' 1983 drilling at Bingay Creek were analysed at Utah International's laboratory in Sunnyside, California (Anderson, 1984). Samples from Iron Creek Exploration's 1996 trenching were analysed at Loring Laboratories in Calgary, Alberta (Shenfield and Gardner, 1996). Samples from Hillsborough Resources' 2004 drilling were (and the 2005 samples are presently being) analysed by Elk Valley Environmental Services.

Because coal is a relatively low-value commodity (in comparison with, say, diamonds or gold), in coal-exploration practice it is not common to take special security precautions with samples taken during coal exploration. The author is unaware of any specific security measures which might have been taken during sampling and analysis of the Bingay Creek coals.

ITEM 16: DATA VERIFICATION

Data used in the preparation of this report were either:

1) derived from the author's interpretation of downhole geophysical logs, or

2) directly collected by the author in the course of her diamond-drill core examinations and geological fieldwork at Bingay Creek, or

3) (in the case of analytical results), prepared by laboratory staff from reputable firms.

There appears to be no reason to suspect that the exploration data have been tampered with, censored, or altered in any way. However, the author was not present on the property during the 1983 or 2004 drilling programmes, and did not participate in the borehole-sampling exercise; furthermore, she has accepted the available geophysical data on an 'as-found' basis.

ITEM 17: ADJACENT PROPERTIES

Provincial coal titles reference maps 082G.016 and 082G.026 cover the Bingay Creek area; information presented below is drawn from the author's examination of copies of these maps, updated to September 16, 2004.

Adjoining the Bingay Creek property to the south and west are vacant Crown mineral lands, within which neither coal licences nor coal leases are currently present. To the north, the Bingay Creek property is adjoined by a coal licence application made by Hillsborough Resources Limited; a coal licence has not yet been granted by the provincial authorities.

To the east of the Bingay Creek property, a coal lease (tenure number 389312) is held by Elk Valley Coal Corporation, covering the western slopes of the Greenhills Range. Yet further to the east are fee simple coal lands, also understood by the author to be controlled by Elk Valley Coal Corporation. These coal properties are shown on **Figure 2**, presented in **Section 6** of this report.

17.1 EXPLORATION DATA FROM ADJOINING PROPERTIES

Borehole records from nearby properties are contained in the coal assessment report files, and the petroleum and natural gas well files, held by the B.C. Ministry of Energy and Mines in Victoria, B.C. Records of the EV- series coal exploration boreholes are contained within a coal assessment report by Taplin (1974). Records of the coalbed gas exploration wells are filed by the Ministry under their well authorisation (WA) numbers, as listed below in **Table 52**.

Table 52: Cross-references for coalbed gas exploration wells near Bingay Creek

Well authorisation (WA) number	Wellsite designation	Well name and number	KB elevation (metres)	Total depth (metres)
WA 13080	unknown	AECOG Greenhills d-93-L/82-J-2	unknown	unknown
WA 13081	unknown	AECOG Greenhills d-82-L/82-J-2	unknown	unknown
WA 13082	MC5	AECOG Mosquito a-85-L/82-J-2	1861.75	920.40
WA 13083	MC3	AECOG Mosquito d-96-L/82-J-2	1445.25	455.0
WA 13085	MC2	AECOG Mosquito d-16-D/82-J-7	1457.9	238.99
WA 13087	GH4	AECOG Greenhills b-81-L/82-J-2	1845.7	920.0
WA 13220	GH2	AECOG Greenhills d-73-L/82-J-2	1874.6	1054.0
WA 13294	GH5	AECOG Greenhills c-62-L/82-J-2	1837.57	694.0
WA 13536	unknown	AECOG Mosquito d-34-D/82-J-7	unknown	unknown

Notes: 'KB' denotes 'Kelly bushing', which is the industry-standard vertical reference point for oil and gas well records; 'unknown' denotes information not presently known by the author; all other data have been obtained from the well files of the Ministry of Energy and Mines.

The author has been unable to verify the accuracy and precision of records concerning adjoining properties, and the information contained therein is not necessarily indicative of the thickness, structural configuration and quality of coal beds within the Bingay Creek property.

ITEM 18: MINERAL PROCESSING AND METALLURGICAL TESTING

18.2 ADVANCED COAL-PROCESSING TESTWORK

No advanced coal-processing testwork, such as froth flotation or pilot-plant testing, has been done on the Bingay Creek coals. Nor have advanced coking tests such as Grey-King testing, or drum and shatter tests, been done.

18.1 COALBED GAS TESTWORK

No testwork, such as coal core desorbtion tests or isotherm determinations, has done to determining the coalbed gas content or the coalbed gas desorbtion potential of the coals at Bingay Creek. Considerable work has, however, been done by EnCana Corporation (2004) on coalbed gas potential of their Elk Valley Experimental Scheme, which is being operated within the Greenhills Block to the northeast of the Bingay Creek coal property.

19.1.4 DISCUSSION

The coal-measures at Bingay Creek are considered by the author to be moderately to severely deformed, characterised by a single northeastward-plunging and northeastward-tightening syncline with a few associated minor faults.

Bedding dips of the Bingay Creek coals are steep to very steep, generally ranging from 25 degrees to slightly overturned beyond vertical. The geophysical logs of the boreholes at Bingay Creek suggest that, despite this deformation, the coal-measures generally retain their normal stratigraphic sequence. As such, the interpreted geology type of the Bingay Creek property is 'Complex,' near the midpoint of GSC Paper 88-21's range from 'Low' through 'Moderate' and 'Complex' to 'Severe'.

Other Canadian coal deposits of similar complexity might include the Smoky River and Gregg River deposits in Alberta, or the Fording River deposit in British Columbia (as suggested by Hughes and others (1989) in GSC Paper 88-21).

Coal resources of immediate interest for surface mining consist of correlatable coals with gross thickness of at least one metre, and coal:rock ratios of at least 2:1 by thickness, at incremental strip ratios not exceeding 20 cubic metres per tonne of coal. The entirety of the coal-resource area of the Bingay Creek coal property is considered by the author to be within the cut-off strip ratio.

19.1.5 POTENTIAL FOR FUTURE UNDERGROUND MINING

Despite the evidence of the historic '400 ton adit' north of Bingay Hill, the Bingay Creek coal property is not presently considered to contain any coal resources of immediate interest for underground mining. To the author's knowledge, nowhere in Canada are steep-dipping to vertical coal beds being seriously considered for underground mining.

However, it is conceivable that the technologies and economics of underground coal mining could advance in the future, such that the deep and steep coal beds of the Bingay Creek property might be of future interest for underground mining. The author has not attempted to quantify the amount of coal which might be of such future interest, as that is beyond the scope of the present study.

19.1.6 CAVEATS

a. ***Coal resources do not have demonstrated economic viability.***

b. ***In considering the coal resources at Bingay Creek, it must be borne in mind that many of the coal beds contain 'partings' of rock, coaly rock, and dirty coal.***

c. ***Some of the identified coal resources are defined by historic borehole data (the Utah 1983 boreholes), drilled within the property.***

All of the major coal beds at Bingay Creek contain partings of rock, coaly rock, and dirty coal, which would act to reduce the yield of clean coal out of run-of-mine production. The prospect of reduced clean coal yield is borne out by the results of sink-float tests performed on some of the coals, as presented previously in **Tables 40** through **47**.

Coal resources available to mining may be adversely impacted by environmental or socio-economic policy decisions made by local, provincial and federal government agencies.

ITEM 20: OTHER RELEVANT DATA AND INFORMATION

20.1 EXPLORATORY COST ANALYSIS

Historic cost data from some of the past coal-exploration programmes at Bingay Creek are summarised below:

- Utah Mines Ltd.'s 1983 diamond-drilling programme cost $212.71 per metre of drilling (Anderson, 1984); this cost includes analytical and logistics costs.
- Hillsborough Resources Limited's autumn 2004 reverse-circulation drilling programme cost approximately $180.00 per metre of drilling; this cost includes geological consulting costs (S.L. Gardner, personal communication, December 2004).
- Cost data are not yet available for Hillsborough's 2005 drilling programme at Bingay.

For purposes of comparison, coal-exploration drilling on Vancouver Island in recent years has cost from $120 to $170 per metre for air-rotary drilling with spot-coring of the coals, drilling to depths averaging 150 metres. Drilling costs have tended to rise with time, owing in part to rising fuel prices but likely mostly due to increasing demand for drilling services.

The higher unit cost of the drilling at Bingay Creek is probably due to the higher costs of road construction and drill mobilisation, exacerbated by the greater depths to which drilling has been done.

For future work at Bingay Creek, a budget planning factor of $180 per metre is here suggested.

ITEM 21: INTERPRETATION AND CONCLUSIONS

Drilling of the Mist Mountain coal-measures at Bingay Creek has disclosed the existence of coal resources (**Table 56**) of immediate interest for surface coal mining.

Historic and recent drilling has disclosed the presence of the following coal resources, as determined by the author of this report on May 2nd, 2005:

[redacted]

Possible extensions of coal resources to the west would be contained within the No.1 through No.8 coal beds, which are presently too sparsely-drilled to support their incorporation into the resource base. Ultimately, extension of the coal resources westward at Bingay will be constrained by the Moose Mountain sandstone, which represents the known lower stratigraphic limit of potentially-mineable coals in the Kootenay coal-measures. The subcrop trace of the Moose Mountain sandstone (and hence the westward boundary to coal resources within the Bingay Syncline) is unknown, owing to pervasive gravel cover; however, it is conjectured to lie near the Elk River forest service road.

Possible extensions of coal resources to the north would be contained within the Nos. 1 through 12 coal bed along the western limb of the Bingay Syncline (as sketched on **Figure 12**), inasmuch as the overlying Nos. 13 through 21 coal beds subcrop beneath Elk River to the north of the presently-explored part of the property, and the lower coals of the eastern limb likely subcrop beneath the river.

I conclude that the Bingay Creek coal property remains a property of merit, fully worthy of further exploratory work. A recommended work programme is outlined in **Section 22** of this report.

ITEM 22: RECOMMENDATIONS

Further work at Bingay Creek should focus on two points:

First, exploration should be aimed at extending the measured and indicated coal resources within the uppermost coal zones, and assessing potential for additional resources in coal zones beneath the No.9-10 zone. A Phase 1 exploration programme budgeted at $417,900 (Canadian funds) is recommended.

- Drilling should form the major part of further work at Bingay Creek, as it affords the only means by which the coals can be tested at depth. Drilling of six holes totalling 1200 metres is recommended.
- Trenching should be done, to collect additional information as to the thickness and internal structure of the coal beds. At least some of the trenching should be done on the southeastern limb of the Bingay Syncline, which is relatively underexplored.
- A modest amount of geological mapping should also be done, focussing on extending the known and inferred extent of near-surface coal-measures.

Second, additional coal-quality information needs to be collected in order to confirm the marketability of the Bingay coals. Because of the near-surface weathering of the coal, core drilling is more likely to be successful than trenching of the coals, at obtaining samples for analysis. Since the coals are sheared, large-diameter coring is suggested as a means to maximise core recovery through the coal, and hence maximise the representativeness of the samples. Costs and locations for this Phase 2 drilling should be determined once the sink-float testwork of the 2005 reverse-circulation samples is completed.

22.1 PHASE 1 DRILLING

Drilling of six additional exploratory holes is recommended. Sites of these proposed boreholes are shown on **Figure 13**, and listed in **Table 57**. Total planned length of drilling is 1200 metres. Drilling costs at $180 per metre are estimated to be $216,000 (Canadian funds).

Two of the sites are accessible from existing access trails. The other four sites will require some new trail construction. Because of soft ground in valley-bottom areas, puncheoning or corduroy road construction may be required along some parts of the new trails.

Geophysical logging of each borehole is recommended, as a means of further assessing the physical and structural properties of the rocks and their contained coal beds and establishing stratigraphic correlation between the boreholes. A geophysical suite consisting of natural gamma, focused resistivity, caliper, dipmeter and deviation survey must be run as a minimum for each borehole; desirable extras would include sonic and neutron (for geotechnical studies) logs.

Table 57: Recommended Phase 1 exploratory borehole locations

Site	UTM 83 coordinates (NAD 83)		Azimuth	Dip angle	Deepest coal	Planned length
A	644340	5563330	120°	-50°	No.19	200 m
B	644190	5563605	125°	-50°	No.8	200 m
C	644145	5563370	305°	-50°	No.6?	200 m
D	644005	5563120	290°	-50°	No.6?	200 m
E	643785	5562870	100°	-50°	No.3?	200 m
F	643930	5562580	260°	-50°	No.4?	200 m
					Total: 6 boreholes	1200 m

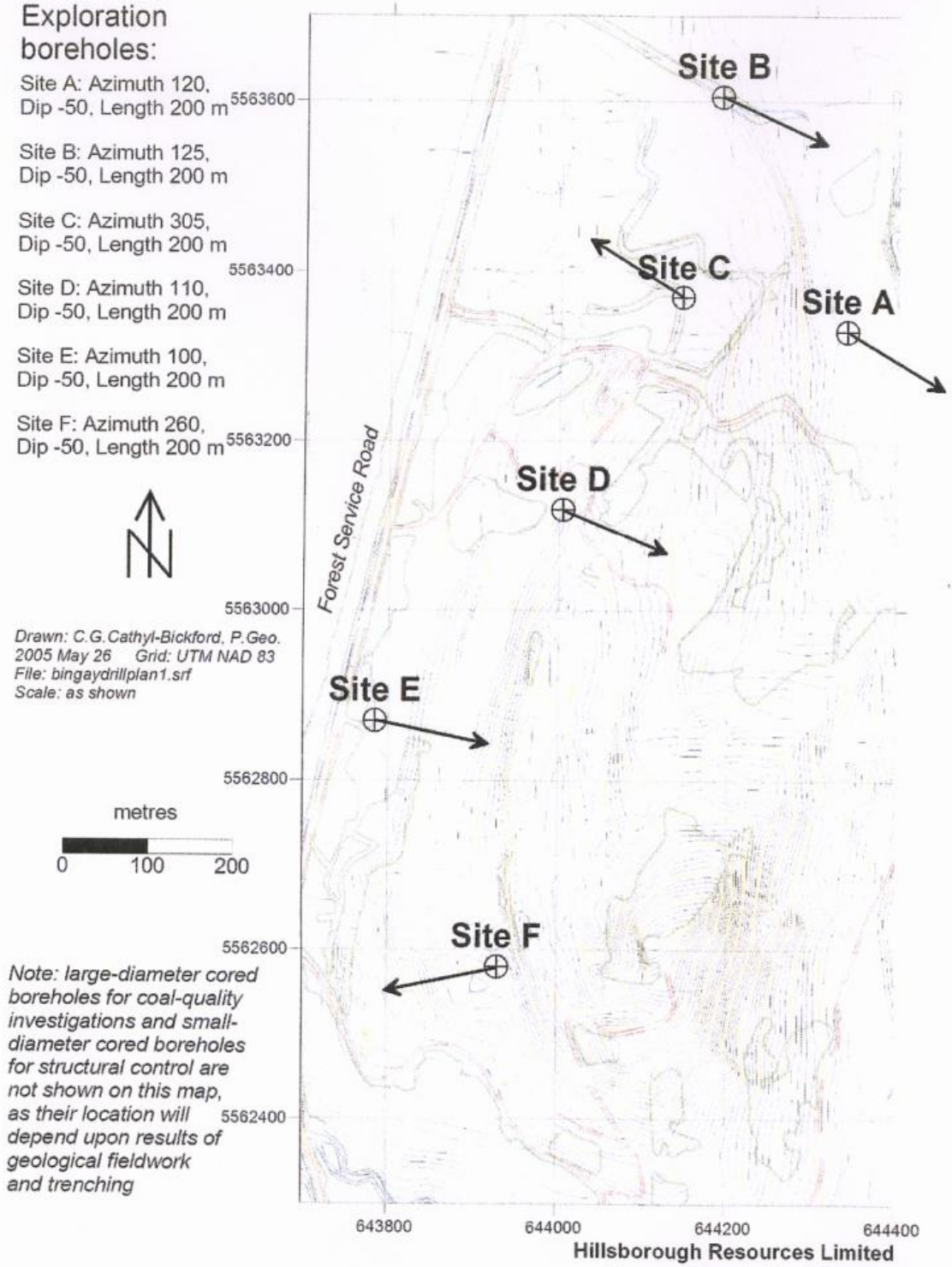


Figure 13: Recommended exploration drilling

22.2 TRENCHING

Trenching should be done along the suspected positions of the coals' subcrops, particularly along the southern nose and the eastern limb of the syncline, where geological data are less complete. The estimated cost of trenching with a track-mounted excavator is $6500. This work may be more conveniently done in conjunction with the ongoing reclamation of areas disturbed by previous exploration activities, as the mobilisation cost of the equipment will be thus shared-out amongst more than one activity.

22.3 GEOLOGICAL FIELDWORK

Existing geological mapping of the Bingay Creek area is at reconnaissance scale of 1:5,000, which is sufficient to delineate the major structural features and outcrop belts of the Bingay Hill area. Mapping remains incomplete in three areas:

- upland areas of Coal Licence 414014 and the northern end of Coal Licence 374190;
- the banks of Elk River upstream from the mouth of Bingay Creek; and
- the canyon of Bingay Creek itself.

These areas were not mapped in detail by the author during the summer of 2004, owing to difficulties of accessing their more rugged and densely-overgrown topography. A single field party, consisting of a geologist and an assistant, would suffice for this work, which is estimated to require four days of field time and two days of subsequent office time for data processing and reporting. The cost of the recommended geological fieldwork, including vehicle costs, is estimated at $3500.

22.4 ANALYTICAL WORK

As in past programmes, coal cuttings from the Phase One reverse-circulation boreholes, and the cores retrieved from the Phase Two cored boreholes should be sampled and analysed. Such work will extend the present knowledge of coal quality at Bingay Creek.

Reverse-circulation cuttings from the 2004 and 2005 drilling programmes were subjected to sink-float tests at specific gravities of 1.40, 1.60 and 1.76 gm/cm^3; these cutpoints correspond to standard practice amongst coal exploration companies in the Crowsnest Pass coalfield. In the interest of better definition of washability, an intermediate cutpoint of 1.50 should be added to future sink-float work.

Analytical work should follow applicable CSA or ASTM standards, and quality-control measures such as submission of blank samples and duplicate samples should be taken. A preliminary estimate for analytical work is $120,000, based on $20,000 per borehole.

Samples of coals and associated rock partings should be analysed for the following:

- Proximate analysis, to include total sulphur, and as-received and air-dried moisture;
- Calorific value;
- Free swelling index (FSI).

Composite samples of the coals should be assembled according to their stratigraphic position within correlatable coal beds, with due attention given to likely mining sections. An appropriate suite of analyses would include the following tests on float 1.40 gm/cm^3, float 1.50 gm/cm^3 and float 1.60 gm/cm^3 products from sink-float tests:

- Ultimate analysis.
- Sulphur forms.
- Phosphorus in the coal and within coke buttons produced from the coal.
- Free swelling index (FSI).
- Fluidity and dilatometry.

- Ash chemistry.
- Ash fusion temperate determination (at four points each, under oxidising and reducing conditions).
- Hardgrove Grindability Index.

Petrographic study, including determination of vitrinite reflectance and maceral composition should be done on those composite samples which, on the basis of the preceding tests, show good coking potential. As well, pilot-scale coking tests should be done on a representative mix of coals from the property.

Clean coal products from the sink-float testing should be analysed for fluidity and dilatometry, together with such other advanced testwork as may be required to support marketability studies for the Bingay Creek coals. AMD/ARD testwork should be done on rock refuse materials from sink-float testing.

22.5 PROPOSED EXPLORATION BUDGET FOR PHASE 1

The estimated cost of Phase 1 of the recommended exploration programme is presented in **Table 58**.

Table 58: Proposed exploration budget

Drilling (6 boreholes)	$216,000
Geological fieldwork (four field days and two office days, with vehicle costs)	$3,500
Trenching (using track-mounted excavator)	$6,500
Analytical work (at $20,000 per borehole)	$120,000
Subtotal	$346,000
Contingencies at 15%	$51,900
Total programme budget	$417,900

22.6 COMMENTS ON PHASE 2 EXPLORATION

Although in the author's opinion it is premature to select specific locations for Phase 2's cored boreholes, some general comments are appropriate.

Locations for these holes must be chosen to allow for reaching, and coring, the target coal beds at depths which are representative of the coals likely to be mined in an open-pit mine. The orientation of the holes must be balanced between the twin difficulties of getting the core barrel downhole in excessively flat boreholes and keeping the cores from jamming within the core barrel where the apparent dip of the cored material is less than 45 degrees off the axis of the borehole. Core recovery is a paramount concern, since the intention of coring will be to retrieve representative samples for coal-quality studies. Core recovery is likely to be greater in large-diameter (ca. 15 centimetres) boreholes, although this will likely come at significantly greater footage costs and lower rates of overall advance of the boreholes (owing to the difficulties of handling heavier equipment).

It may be worthwhile to twin some of the existing reverse-circulation boreholes with cored boreholes, allowing for comparison of the respective analytical results of samples taken from by methods of drilling.

In addition to the large-diameter cored boreholes for coal-quality purposes, narrower-diameter cored boreholes may be useful for structural or geotechnical studies, and for retrieving samples of the associated rocks for determination of acid generation potential.

In the case of the very steeply-dipping coals of the western limb and southern nose of the Bingay Syncline, cross-measures adits may be an effective means to access unweathered coal, by driving in eastward and up-section towards to the coal beds. Adits have the advantage of providing large and representative samples of coal, although their cost is likely to be higher than that of retrieving an equivalent quantity of coal by means of closely-spaced cored boreholes.

ITEM 23: REFERENCES

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ITEM 24: DATE

This report is dated 31 May, 2005. The author of this report has signed this report as shown on the signature page at the end of the report.

ITEM 25: ADDITIONAL REQUIREMENTS FOR TECHNICAL REPORTS ON DEVELOPMENT PROPERTIES AND PRODUCTION PROPERTIES

This item is not applicable to the Bingay Creek property at its present state of exploration.

ITEM 26: ILLUSTRATIONS

Illustrations for this report consist of figures which are placed at appropriate locations within the text of the report. A list of figures is presented at **Item 2** of this report.

CERTIFICATE OF AUTHOR

I, C. Gwyneth Cathyl-Bickford, P.Geo. do hereby certify that:

1. I am currently employed as Principal Geologist by:
   Westwater Mining Ltd.
   88 Glamis Gardens SW
   Calgary, Alberta, T3E 6S4 Canada
2. I graduated with a B.Sc. degree in geological science from the University of British Columbia in 1978. In addition, I have earned a M.Sc. degree in geological science, specialising in coal geology, from the University of British Columbia in 1993.
3. I am a member of the Association of Professional Engineers and Geoscientists of British Columbia, the Coal Division of the Canadian Institute of Mining and Metallurgy (CIM), and the Society for Mining, Metallurgy and Exploration (SME), and I am licensed as a geologist in the State of Washington, USA.
4. I have worked as a geologist for 27 years since my graduation from university.
5. I have read the definition of "qualified person" set out in *National Instrument 43-101* ("*NI 43-101*") and certify that by reason of my education, affiliation with a professional association (as defined in *NI 43-101*) and past relevant work experience, I fulfil the requirements to be a "qualified person" for the purposes of *NI 43-101*.
6. I am the sole author of this report, concerning the Bingay Creek property.
7. I have had prior involvement with the Bingay Creek property, which is the subject of this report. During the summer of 2004, I visited the property and made a geological reconnaissance of its stratigraphy, structure and coal exposures. I also logged portions of the borehole cores from Utah's 1983 drilling programme, which were at the time stored on Wm. Shenfield's property in Fernie, British Columbia. During the spring of 2005 I again visited the property and made further geological observations.
8. I am not aware of any material fact or material change with respect to the subject matter of this report, which is not reflected within this report, the omission to disclose which makes this report misleading.
9. I am independent of the issuer, applying all of the tests in section 1.5 of *National Instrument 43-101*.
10. I have read *National Instrument 43-101* and *Form 43-101 F1*, and this report has been prepared in compliance with that instrument and form.
11. I consent to the filing of this report with any stock exchange and other regulatory authority, and any publication by them including electronic publication in the public company files on their websites accessible by the public, of this report.

Dated this 31st day of May, 2005.

C. Gwyneth Cathyl-Bickford, P.Geo.

TRANSMITTAL

This report has been prepared for Hillsborough Resources Limited's use in accordance with *National Instrument 43-101*. Every effort has been made to follow the provisions of *Form 43-101 F1* as closely as practicable. Herewith our report No. 207-12, effective 31 May 2005.

Respectfully submitted: original copy signed and sealed 31 May 2005
Westwater Mining Ltd.

C. Gwyneth Cathyl-Bickford, P.Geo.
Principal Geologist

88 Glamis Gardens SW
Calgary Alberta T3E 6S4
(403) 701-3456

APPENDIX II
SURFACE MAPPING & CORELOG DATA

CORELOG

Descriptions

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
		KOOTENAY FORMATION (MIST MOUNTAIN MEMBER)	Top of Box 1			
----- 1.52/1.52 ----- 1.25/1.22	Point bar?	Sandstone - medium-grained, light grey, rippled, with frequent silty carbonaceous streaks; rare thin dark shaly intraclasts; gradational base.	DD 10 1.52 DD 15 0.85			22° at top; 30° to 45° below
----- 1.47/1.52 ----- 3.09/3.05 ----- 0.50/0.60	Fluvial channel	Sandstone - medium- to coarse-grained, light to medium grey, coarsely-laminated, with alternating clean and silty, carbonaceous phases; medium-scale festoon beds; occasional coalified logs; abrupt base.	0.24 Box 1/2 0.06 DD 19 1.47 DD 24 1.08 Box 2/3 2.01 DD 34 0.30			
----- 1.28/0.91	Channel-bottom lag (Utah log describes in part as "deformed rock"	Sandstone - coarse-grained, medium to dark grey, with very abundant large and small silty intraclasts; essentially a sedimentary breccia; abundant bright coal bands (coarse plant trash) at top; calcite-coated joints at base; erosional base.	0.20 DD 36 Box 3/4 0.37			28° to 40°
	Slack-water suspension	Siltstone - dark grey, slightly sandy, massive; abrupt, scoured base.	0.37			27°
		Sandstone - fine- to medium-grained; calcite-filled joint in middle; erosional base.	0.34			
----- 0.17/0.30	Channel lag	Intraclastic breccia - as above, very sparse sandy matrix; no coal bands; erosional base.	0.10 DD 39 0.09			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
		Siltstone - dark grey, massive; abrupt, churned, burrowed base.	0.05			
----- 0.21/0.76 core lost here ----- 0.64/0.76		Sandstone - medium- to coarse-grained, light grey, burrowed at top and base; abrupt base.	0.03 DD 40 0.18			
----- 1.17/1.22		Siltstone - dark grey, sandy, locally ferruginous, dense; sparsely to moderately bioturbated; core is broken and ground; probable core loss; gradational base.	0.03 DD 42½ 0.60			
----- 1.06/1.22 ----- 2.89/1.22 (?) *note: depth block for 57 feet may be out of place*	Fluvial channel-fill	Siltstone / sandstone (80:20 at top; grading down to 50:50 at base) - thin planar interlaminae of dark grey siltstone and light to medium grey, fine- to medium-grained sandstone; moderately bioturbated at top; very sparsely bioturbated towards base; gradational base.	0.04 DD 45 0.49 Box 4/5			
		Sandstone / siltstone - medium- to coarse-grained, light grey sandstone, with abundant carbonaceous laminae and occasional ripples; with very thin interbeds of black, sandy, coaly siltstone which is not bioturbated. Core locally broken and ground; gradational base.	0.58 DD 49 1.06 DD 53			
		Sandstone - medium- to coarse-grained, light grey, sparsely rippled, plane-laminated, with one coal-rimmed silicified log; many small silty intraclasts at base; erosional base.	0.96 Box 5/6 0.24			23°
		Sandstone - fine-grained, black, coaly, plane-laminated; parts readily; gradational.	0.48			
		Sandstone - medium-grained at top; grades down to very coarse-grained at base; a few coal spars at base; light grey; occasional laminae rich in very small intraclasts of carbonaceous siltstone; erosional base.	0.21			
----- 1.47 / 3.05 (?)		Mudstone - dark grey to black, carbonaceous, locally very silty; occasional thick bright coal bands to 5 cm; coal is crushed and sheared; gradational base.	1.00 DD 57 0.72 Box 6/7 0.28			
----- 0.41/ ?		Siltstone - medium to dark grey; sparsely rooted at top, patchily bioturbated below; abrupt base.	0.47 DD 67 0.27			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRONMENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
	Lake marl	Limestone - dark grey, rusty-weathering, with white efflorescence; silty, compact; intensely bioturbated; very strongly calcareous; abrupt base.	0.10			10°
----- 1.49/?		Siltstone - dark grey to black, alternating limy and carbonaceous phases; gradational base.	0.14 DD illegible 0.59			
		Ironstone - thinly laminated; gradational base.	0.14			
	Lake marl	Limestone - as above, with occasional thin bands of dark grey siltstone; occasional coalified plant debris; abrupt base.	0.18			
		Ironstone - massive, silty; abrupt base.	0.08			
----- 1.44/1.52		Siltstone - dark grey, sandy, laminated, with occasional ironstone bands; abrupt base.	0.35 Box 7/8 0.15 DD 74 1.23			27°
----- 1.37 / 1.52		Mudstone - black, carbonaceous, finely laminated; gradational base.	0.21 DD 79 0.07			
		Siltstone - dark grey, sandy, rooty at top; grades down to very fine-grained, slightly ferruginous, silty sandstone; gradational base.	0.31			
	Lake beds?	Limestone / ironstone / siltstone (50:40:10) - thinly interbedded dark grey silty limestone, laminated silty ironstone and massive dark grey siltstone; abrupt base.	0.41			
----- 1.38/1.52		Mudstone - dark grey to black, variably silty, slightly carbonaceous, with occasional coarse coaly plant trash; occasional ironstone nodules; gradational base.	0.24 Box 8/9 0.34 DD 84 0.83			8°
	Lake bed?	Limestone - dark grey, rusty-weathering, shaly, carbonaceous, moderately bioturbated; churned in middle; very strongly calcareous; abrupt base.	0.11			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
		Mudstone - as above; sheared at top; abrupt base,	0.09			
		Limestone - as above; a single band; abrupt base.	0.01			
----- 1.40/1.52		Mudstone - dark grey to black, silty, massive; rubbly to platy-weathering, locally intensely bioturbated, more so near top; occasional thick bright coal bands in top 60 cm; gradational base.	0.34 DD 89 0.88 Box 9/10 0.45			
----- 1.42 / 1.52		Siltstone - dark grey, slightly ferruginous at top; intensely bioturbated at top; grades down to laminated ironstone at base; abrupt base.	0.07 DD 94 0.29			
		Mudstone / siltstone (70:30) - very thinly interlaminated black silty mudstone and ferruginous siltstone; abrupt base.	0.18			
----- 1.36 / 1.52 ----- 1.42 / 1.52	Lake?	Mudstone - black, slightly silty, massive, with locally-abundant ankerite-filled bedding-plane shears; slicked at slightly sheared towards base; rare rootlets; churned, abrupt base.	0.97 DD 99 0.70 Box 10/11 0.66 DD 104 0.19			
----- 1.49 / 1.52 ----- 2.98 / 3.05	Prograding lake delta?	Sandstone / siltstone (80:20 at top, grading down to 90:10 at base) - thin to medium interbeds of very fine-grained, light grey, locally ferruginous, calcareous sandstone and dark grey siltstone; sands are planar-laminated or rippled; silts are massive and locally churned; abrupt base. Note: prominent overcore marks at 0 to 12 cm above DD 109.	1.23 DD 109 0.51 Box 11/12 0.98 DD 114 0.61			7°
		Mudstone - black and carbonaceous at top; grades down to dark brownish-grey and ferruginous at base; abundant fine plant debris throughout; abrupt base.	0.27			
	Lake marl?	Siltstone - dark grey, light tan-weathering, marly, moderately calcareous; rooty at top; abrupt base. *Possibly some core missing here (sampled?).*	0.64 Box 12/13 0.19			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
----- 1.44 / ? ----- 1.54 / ?		Siltstone / sandstone (100:0 at top, grading down to 85:15 at base) - dark grey, patchily calcareous, locally ferruginous siltstone with occasional very thin plane-laminated interbeds of very fine-grained ferruginous sandstone; platy to rubbly-weathering; abrupt base.	1.27 DD 124 1.32 Box 13/14 0.12 DD illegible 1.42			
----- 1.32 ----- 1.19 / ? ----- 1.63 / ? ----- 1.47 / 1.52 ----- 1.55 / 1.52 ----- 1.59 / 1.52		Sandstone / siltstone (50:50 at top; 80:20 at base) - thin to very thin interbeds of light grey, generally silty sandstone and dark grey sandy siltstone; abundant ferruginous bands, particularly near top; towards base the sandstones are often rippled; occasional calcite-filled bedding plane shears near top; the thicker sandstone beds contain a few oblique slips with calcite; abrupt base.	0.12 DD 134 1.08 Box 14/15 0.24 DD 139 1.19 DD illegible 1.16 Box 15/16 0.57 DD 149 1.47 DD 154 0.54 Box 16/17 1.01 DD 159 1.36			9°
----- 1.52 / ? ----- 1.54 / ?		Siltstone / sandstone (95:5 at top, grading down to 100:0 at base) - dark brownish-grey, slightly ferruginous, very thin-bedded, weakly calcareous siltstone with occasional very thin interbeds of very fine- to fine-grained sandstone; scattered very finely-broken plant debris along bedding surfaces; rare thick bright coal bands; abrupt base.	0.23 DD 164 0.12 Box 17/18 1.40 DD illegible 1.45			6°

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
----- 1.54/1.52 ----- 1.15 / ?		(continued...)	Box 18/19 0.09 DD 174 1.54 DD 179 0.65			
		Mudstone - dark grey, silty, with occasional very thin bright coal bands; very thin irregular beds; abrupt base.	0.20			
		Mudstone - black, carbonaceous, planar-laminated.	0.16 Box 19/20 0.14			15°
----- Core missing here		**----- Roof of Bingay No.12 coal bed -----**				
		(Core missing -- probably sampled down to at least DD 220 -- most of boxes 20 and 22; all of Box 21).	Box 20/21 Box 21/22			
		----- Floor of Bingay No.12 coal bed -----				
----- 1.64 / ?	Lake beds?	Mudstone - black, carbonaceous, slightly silty, with abundant thin and thick bright coal bands; no rootlets; very thin-bedded, platy to rubbly-weathering, slightly sheared.	In bottom part of Box 22: 0.58 Box 22/23			
		Coal - bright, possibly an isolated log; abrupt base.	0.02			
	Ash band	Mudstone - medium brown, silty, kaolinitic, moderately soft, compact, with occasional thin bright coal laminae; moderately bioturbated at top; abrupt base.	0.13			10°
		Mudstone - black, coaly; compact.	0.01			
		Coal - dull banded, stony, blocky, broken; possible core loss.	0.06			
	Lake beds?	Mudstone - black, silty, slightly carbonaceous, with occasional lenses of bright coal (coarse plant trash); no rootlets; slightly ferruginous at base; abrupt base. Core is jumbled in middle of this unit.	0.72			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
----- 1.25 / 1.52		Coal - dull and bright, slightly sheared; core broken and jumbled; abrupt base.	0.12 DD 226 0.06			
		Ironstone - an isolated rusty band which appears to consist of two ellipsoidal 'biscuits' or boudins; hard and dense; abrupt base.	0.05			
		Coal - bright banded; broken at base.	0.02			
		Coal - dull; solid.	0.14			
		Coal - dull banded; badly broken.	0.12			
		Mudstone - black, carbonaceous, waxy lustre; no rootlets; compact; gradational base.	0.41			
----- 0.84/1.52 (core missing at base of this run; probably sampled)		Mudstone - dark grey, silty, very finely laminated, rubbly to splintery-weathering; abrupt base.	0.45 DD 230 0.19 Box 23/24 0.51			
		Mudstone - black, carbonaceous, waxy lustre, as above; occasional discontinuous thick bright coal bands.	0.14			15°
		----- **Roof of Bingay No.11 coal bed** -----				
----- 0.29 / 1.22 (core missing at top of this run; probably sampled)		(Core missing - sampled?) (Core missing - sampled?)	DD 235			
		----- **Floor of Bingay No.11 coal bed** -----				
		Mudstone - black, carbonaceous, rooty at top; abrupt base.	0.15			23°
		Siltstone - dark grey, sparsely bioturbated at top; grades down to very fine-grained, intensely bioturbated sandstone; abrupt base.	0.13 Box 24/25			
----- 1.16 / 3.05		Siltstone / sandstone (65:35) - thin to medium interbeds of siltstone and very fine sandstone as above; rubbly-weathering at top; sheared base.	0.01 DD 239 0.71			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
		----- *Fault, probable* -----				
		Mudstone - dark grey, brownish grey-weathering, slightly ferruginous; beds are rubbly and overturned at top; probably significant core loss in this zone; gradational base.	0.37			
----- 1.58 / 1.52 ----- 1.50 / 1.52 ----- 1.44 / 1.52		Sandstone / siltstone (65:35 at top, grading down to 50:50 at base) - thin to medium interbeds of dark grey siltstone and light to medium grey, rippled sandstone; not bioturbated.	0.08 DD 249 Box 24/25 0.88 Box 25/26 0.70 DD 254 1.50 DD 259 0.20			
		(log continues on next page)				

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
	Code 324	Siltstone - dark grey, sandy, massive; gradational base.	0.22 Box 26/27 0.21			
		Mudstone - dark grey, silty, sheared near base; one large ironstone nodule in middle; occasional thick bright coal bands near base.	0.60			26°
----- 1.57/1.52		Sandstone/siltstone (60:40 grading down to 90:10) - very thin to thin interbeds of very fine- to fine-grained sandstone and medium to dark grey, locally ferruginous siltstone; some distinct ironstone nodules; sheared and slicked at top; gradational base.	0.21 DD 264 1.41 Box 27/28 0.09			
----- 3.01/2.05		Sandstone - fine- to medium-grained, medium grey, silty, thin low-angle crossbeds, locally rippled; abrupt base,	0.07 DD 269 0.59			
	Code 082	Ironstone - orange-weathering, with sandy streaks.	0.06			32°
		Sandstone - fine- to coarse-grained, medium grey, churned, with ferruginous silty streaks; very thin irregular beds; abrupt base.	1.16			
		Ironstone - orange-weathering, laminated; abrupt base.	0.05			
----- 1.53/1.52		Sandstone - medium-grained, light grey, rippled, cross-bedded; ripples are outlined by very finely broken plant debris; abrupt base.	0.58 Box 28/29 0.57 DD 279 1.15			
----- 1.50/1.52		Sandstone - fine- to medium-grained, medium grey, plane-laminated; abrupt base.	0.38 DD 284 0.68 Box 29/30 0.07			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
----- 3.00/3.05	Multistorey sandstone?	Sandstone - medium-grained, light to medium grey, massive, clean; abrupt base.	0.75 DD 289 1.32			
		Sandstone - very fine-grained, dark brownish-grey, silty, slightly ferruginous; gradational base.	0.05			
----- 1.34/1.52		Sandstone - medium-grained, light to medium grey, with occasional fine plant trash in top half, otherwise clean; abrupt base.	0.52 Box 30/31 1.11 DD 299 0.75			
	Channel-base lag	Sandstone - medium-grained, as above, with contorted large silty intraclasts which are more abundant at top; an intraformational conglomerate zone.	0.42			
----- 1.47/1.52 ----- 1.54/1.52 ----- 1.51/1.52 ----- 1.52/1.52 ----- 1.42/1.52		Sandstone - medium- to coarse-grained, light to medium grey, clean, massive, very hard; vague very thick high-angle crossbeds in top third of unit; abrupt base.	0.17 DD 304 Box 31/32 1.47 DD 309 1.27 Box 32/33 0.27 DD 314 1.51 DD 319 0.98 Box 33/34 0.54 DD 324 1.21			
		Sandstone - fine-grained, silty, slightly ferruginous, rippled; gradational base.	0.08			30°

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
----- 1.54/1.52 ----- 1.53/1.52		Sandstone - medium- to coarse-grained, clean, massive, very hard, with occasional large and small silty intraclasts in basal 70 cm; abrupt base.	0.13 DD 329 0.74 Box 34/35 0.80 DD 334 0.93			
		Siltstone - dark grey, sandy, with two large ironstone nodules; intraclastic band?	0.27			
----- 1.43/1.52		Sandstone - medium- to coarse-grained, with scattered large and small silty intraclasts which are more abundant at base; otherwise clean; gradational base.	0.33 DD 339 0.37 Box 35/36 0.06			
----- 1.51/1.52		Sandstone - medium-grained, medium grey, clean; abrupt base.	1.00 DD 344			
		Sandstone - medium-grained, with abundant large and small tabular and rounded intraclasts of ferruginous siltstone, the abundance of which increases upward within this unit; erosional base.	0.87			
----- 1.42/1.52		Sandstone - fine- to medium-grained, fine low-angle cross-lamination, with very thin silty carbonaceous streaks; gradational base.	0.64 DD 349 Box 36/37 0.04			
	Basal lag	Sandstone - medium-grained, silty; occasional contorted coal spars; erosional base.	0.39			
----- 1.02/1.52 (substantial loss here?) ----- 1.18 / 1.52		Sandstone - fine- to medium-grained, low-angle crossbeds, with frequent carbonaceous laminae; abundant coarse plant trash at base; abrupt base.	0.99 DD 354 0.70 Box 37/38 0.32 DD 359 0.52			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
----- 0.45 / 0.61 ----- 0.78 / 0.91		Sandstone - coarse-grained, medium grey, very thin-bedded, with abundant silty carbonaceous laminae; core locally broken and ground; abrupt base.	0.66 DD 364 0.45 DD 366 Box 38/39 0.53			30°
----- 0.75 / 1.52 ----- 2.86 / 3.05	Bank-collapse breccia?	Sandstone - coarse- to very coarse-grained, clean, brecciated, with slightly finer matrix of silty sandstone; probably a bank-collapse breccia; abrupt base.	0.25 DD 369 0.75 DD 374 0.19			
		Sandstone - coarse-grained, medium grey; abundant silty carbonaceous laminae; abrupt base.	0.12			
		Siltstone / sandstone (70:30) - very thinly interbedded dark grey siltstone and very fine- to medium-grained rippled sandstone; abrupt base.	0.28			15°
----- 3.46 / 3.05		Sandstone - medium- to coarse-grained, light to medium grey, thin to medium low-angle crossbeds, broken by frequent steep-dipping, rusty joints; abundant bright coal spars and ferruginous bands in basal 1.25 m; abrupt base.	0.25 Box 39/40 2.02 DD 384 0.69 Box 40/41 0.08			
		Siltstone - dark grey, locally slightly ferruginous; rubbly-weathering; gradational base.	1.59			12°
----- 1.55 / 1.52		Mudstone - dark grey, silty, rubbly; becomes harder and locally ferruginous towards base; sheared towards top; abrupt base.	1.10 DD 394 Box 41/42 0.81			
----- 1.55 / 1.52		Mudstone - dark grey, slightly silty, rubbly to fine blocky-weathering; slightly ferruginous at base; gradational base.	0.74 DD 399 0.69			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
		Ironstone - dark grey, orange-red-weathering, massive; abrupt base.	0.36			
----- 1.51 / 1.52		Mudstone - dark grey, slightly silty, massive, with subconchoidal fracture; occasional coarse plant trash surrounded by yellow sulphate bloom; abrupt base.	0.18 Box 42/43 0.32 DD 404 0.67			
		Siltstone - dark grey, muddy, rubbly-weathering, intensely bioturbated; gradational base.	0.40			
		Siltstone - medium grey, very sandy, locally finely rippled and laminated; churned at top; abrupt base.	0.34			8°
----- 0.96 / 0.76 -----		Mudstone - dark grey, silty, less-so towards base; massive, with rubbly to subconchoidal fracture; occasional coarse coaly plant trash; abrupt base.	0.10 DD 409 0.96 Box 43/44 DD 411.5			
0.58 / 0.76		Ironstone - rusty orange-red weathering, with mosaic texture.	0.21			30°
----- 1.44 / 1.52		Mudstone - black, slightly carbonaceous, with occasional thick bright coal bands; abrupt base.	0.37 DD 414 1.20			
		Ironstone - orange-weathering, nodular; abrupt base.	0.08			
----- 0.37 / 0.61 -----		Mudstone - black, carbonaceous, with abundant thick bright coal bands.	0.16 DD 419 0.37 DD 421			
>1.33 / 4.57 (*see notes*)		Coal - dull, platy, low density; slightly sheared.	0.07 Box 44/45			
		Core in Box 45 is jumbled and intensely weathered rubble of black, silty and carbonaceous mudstone with one 5 cm nodule of dark orange-red-weathering ironstone. Core has perhaps been dumped and reboxed at some time in the past.	*Cannot assess length of recovered core*			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
----- 1.32 / 1.52 ----- 1.64 / ?		Siltstone / sandstone (75:25) - thin to medium interbeds of dark grey siltstone and very fine-grained, locally-ferruginous sandstone. Sandstones are mostly plane-laminated, with some rippled zones. Some finer muddy zones in siltstones, with abundant plant trash; abrupt base.	Box 45/46 1.26 DD 434 1.32 DD 439 0.19 Box 46/47 0.28			24°
		Sandstone - fine-grained, rippled, with carbonaceous laminae; abrupt base.	0.13			
		Siltstone - dark grey, very sandy, ferruginous; planar-laminated; abrupt base.	0.41			12°
		Sandstone - medium-grained, medium grey, rippled, with thick coarsely-crystalline calcite-filled fractures perpendicular to bedding (tension fractures?); abrupt base.	0.18			
	Slump?	Siltstone - dark grey, sandy, very thin-bedded, contorted lamination; slump deposit?; abundant thin carbonaceous streaks; occasional ankerite veinlets; abrupt base.	0.36			
----- 1.71 / ?		Siltstone - dark grey, thin-bedded, rubbly-weathering, locally ferruginous; abrupt base marked by ankeritic bedding-plane shear.	0.09 DD illegible 0.58			
		Mudstone - black, slightly silty, slightly carbonaceous, waxy lustre; gradational base.	0.22			
----- 1.45 / 1.52		Siltstone - dark grey, sandy, with occasional ferruginous bands which are more frequent at top; abrupt base.	0.62 Box 47/48 0.29 DD 449 0.09			
----- 1.48 / 1.52 ----- 1.08 / 1.52	Code 322 RIP	Siltstone / sandstone (80:20) - very thin to medium interbeds of dark grey, locally ferruginous siltstone and fine-grained, light grey rippled sandstone; occasional oblique calcite-filled fractures towards top; abrupt base.	1.36 DD 454 1.04 Box 48/49 0.44 DD 459 1.08			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
----- 1.50 / 1.52		(continued...)	DD 464 0.42			
		Mudstone - black, silty, slightly carbonaceous, with occasional fine plant debris; abrupt base.	0.23 Box 49/50 0.06			10°
	Lake marl	Siltstone - medium to dark grey, yellowish-weathering, calcareous; abrupt base.	0.63			
----- 1.51 / 1.52		Ironstone - silty, strongly calcareous; abrupt base.	0.12 DD 469 0.19			
----- 1.56 / 1.52 ----- 1.49 / 1.52		Siltstone, grading down to mudstone - downward-fining passage from sandy siltstone with abundant very thin flaseroid sandstone laminae, to dark grey plane-laminated mudstone with 15% thin ironstone bands; abrupt base.	1.32 DD 474 0.29 Box 50/51 1.27 DD 479 1.00			
		Mudstone - black, canneloid, conchoidal fracture, massive; abrupt base.	0.23 Box 51/52 0.03			
		Ironstone - nodular; abrupt base.	0.12			
----- 3.32 / 3.05		Siltstone - dark grey, dense, compact; abrupt base.	0.11 DD 484 0.17			
		Sandstone / siltstone (80:20) - interlaminated, slumped, very fine, ferruginous locally-rippled sandstone and dark grey siltstone; core broken and ground at top; abrupt base.	0.36			
----- 1.51 / 1.52		Siltstone / sandstone (80:20) - dark grey siltstone with occasional thin rippled interbeds of fine-grained sandstone; locally slightly ferruginous; numerous oblique calcite-filled fractures.	1.89 Box 52/53 0.90 DD 494 1.39			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
----- 1.52 / 1.52	Lake marl	Limestone - dark grey, silty, strongly calcareous; very hard.	0.12 DD 499 Box 53/54 0.90			
		Siltstone - dark grey, very sandy, hard, brittle; angular blocky fracture; thin ferruginous bands at top; abrupt base.	0.58			
----- 1.62 / 1.52		Sandstone / siltstone (90:10) - fine- to medium-grained, light grey, rippled sandstone with occasional very thin interbeds of locally-ferruginous, dark grey siltstone.	0.04 DD 504 1.22 Box 54/55 0.09			
----- 1.52 / 1.52 ----- 1.01 / 1.52		Siltstone - dark grey to black, with occasional very thin ferruginous bands; sparse plant debris (leaf and twig imprints); thin-bedded, platy to blocky-weathering; abrupt base.	0.31 DD 509 1.52 DD 514 0.70 Box 55/56 0.28			10°
----- 1.88 / 1.52		Mudstone - black, carbonaceous, with abundant thick bright coal bands; sheared at base; abrupt base.	0.03 DD 519 0.18			
		Coal - dull; abrupt base.	0.05			
		Mudstone - black, canneloid.	0.01			
		Coal - dull banded; subconchoidal fracture, may be canneloid coal.	0.21			
		Siltstone - black, slightly carbonaceous; sparsely rooted at top; gradational base.	0.60			
		Siltstone - dark grey, orange-weathering, ferruginous; a concretion?; gradational base.	0.14			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
----- 0.72 / 1.52 (core has been sampled at base of this run)		Siltstone - black, as above; slightly sheared, with occasional thick bright coal bands; abrupt base. *Note: Box 57 was found laid out with the boxes from borehole 83-3, and it was moved to its correct position with this borehole.*	0.69 DD 524 0.35 Box 56/57 0.06			
		Siltstone / sandstone (80:20) - very thinly interbedded dark grey siltstone and fine-grained rippled sandstone; abrupt base.	0.26			
		Mudstone - dark grey, silty; hackly fracture. **----- Roof of Bingay No.10 coal bed -----**	0.05			20°
-----		(Core missing - sampled)	DD 529			
		(Core missing - sampled)	Box 57/58			
-----		(Core missing - sampled) -- wooden block marked "Seam 10"	DD 534			
-----		(Core missing - sampled)	DD 539			
		(Core missing - sampled)	Box 58/59			
-----		(Core missing - sampled)	DD 544			
-----		(Core missing - sampled)	DD 549			
		(Core missing - sampled)	Box 59/60			
-----		(Core missing - sampled)	DD 554			
-----		(Core missing - sampled)	DD 559			
		(Core missing - sampled)	Box 60/61			
		(Core missing - sampled) **----- Floor of Bingay No.10 coal bed -----**				

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
-----	Iron-rich tufa?	Ironstone - massive, with cavernous-weathering plant trash; porous, moderately calcareous.	0.15 DD 564 / 0.10			26°
0.97 / 1.52 (core has been sampled at base of this run)		Mudstone - dark grey, silty, splintery, very thin-bedded; gradational base.	0.75			10°
-----		Mudstone - black, carbonaceous, laminated, with abundant fine plant debris. ----- **Roof of Bingay No.9 coal bed** -----	0.12			
-----		(Core missing - sampled?) (Core missing - sampled?) (Core missing - sampled?) (Core missing - sampled?) ----- **Floor of Bingay No.9 coal bed** -----	DD 569 Box 61/62 DD 574			
0.64 / 1.52 (core has been sampled at top of this run)		Siltstone - dark grey, sandy, carbonaceous, sparsely rooted; abrupt base.	0.10			11°
		Siltstone / sandstone (90:10 at top, grading down to 20:80 at base) - very thinly interbedded to interlaminated dark grey sandy siltstone and very fine-grained sandstone; slumped at base (load structure?); abrupt base.	0.23			
		Mudstone - black, silty, carbonaceous; abrupt base.	0.25			
-----	Crevasse splay?	Sandstone - very fine-grained, orange-weathering, silty, rooty, rippled, with abundant thick bright coal bands; abrupt base.	0.06 Box 62/63 DD 579 / 0.04			13°
1.39 / 1.52		Coal - bright banded; may be an isolated log; abrupt base.	0.04			
		Siltstone - dark grey, sandy; occasional thin and thick bright coal bands; abrupt base.	1.23			
-----		Sandstone / siltstone (85:15) - very thinly interbedded very fine-grained silty rippled sandstone and dark grey siltstone; gradational base.	0.08 DD 584 0.49			
		Siltstone - dark grey, sandy, with occasional thick bright coal bands; base of Box 63.	0.91			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
		Note: Boxes 64-92 have not been relogged - see Utah's log of this interval	Top of Box 93			
----- 1.64 / 1.52		Sandstone / siltstone (70:30) - thin to medium interbeds of very fine- to fine-grained rippled sandstone and dark grey sandy siltstone; the whole sequence is slightly churned and slumped. One oblique sinistral strike-slip shear; gradational base.	0.12 DD 844 0.50			
----- 1.84 / ?		Siltstone - dark grey, sandy, moderately to intensely bioturbated; slumped near base; abrupt base.	1.14 DD 849 0.46			
		Sandstone / siltstone (85:15) - interlaminated very fine- to fine-grained, medium grey, silty, sparsely bioturbated sandstone and dark grey sandy siltstone.	0.22 Box 93/94			12°
		Mudstone - dark grey to black, silty, rubbly, with 15% red-weathering ironstone nodules; abrupt base.	0.95			
----- 1.45 / ?		Mudstone - black, slightly silty, massive, rubbly-weathering, waxy lustre, with locally abundant fine plant debris; abrupt base.	0.21 DD illegible 1.31			11°
----- > 0.73 / 4.57 (core is missing in this interval)		Mudstone - black, carbonaceous, very thin-bedded, with occasional thin bright coal bands; abundant fine plant debris; platy to fissile.	0.14 DD 859 0.14			14°
		Note: Box 95 is missing. ----- **Roof of Bingay No.2 Rider coal bed** -----	Box 94/95 Box 95/96			
		(Core missing at top of box - sampled?) ----- **Floor of Bingay No.2 Rider coal bed** -----				
		Mudstone - black, carbonaceous; intensely sheared, cornflakes.	0.25			
		Mudstone - black, carbonaceous, blocky; *core is jumbled in box.*	0.10			
		Coal - dull lustrous, broken.	0.04			
		Mudstone - black, carbonaceous, laminated.	0.08			12°

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
-----		Coal - dull, stony, laminated.	0.12 DD 874			
1.67 / ?		Mudstone - black, carbonaceous, a few rootlets; slightly sheared; gradational base.	0.09			
		Siltstone / mudstone (90:10) - dark grey to black, brown-weathering, slightly ferruginous siltstone with laminae or black carbonaceous mudstone; gradational base.	0.54			
		Mudstone - black, silty, massive, rubbly-weathering; abrupt base.	0.42			
		Mudstone - black, carbonaceous, rooty, slicked and jumbled; probably a seatearth; gradational base.	0.40			
		Mudstone - black, slightly carbonaceous, silty, massive; gradational base.	0.10			
-----		Siltstone - black, slightly carbonaceous, dense, with occasional thick bright coal bands; abrupt base.	0.12 DD illegible 0.04			
0.34 / ?		Siltstone - black, slightly finer than above; rubbly-weathering; abrupt base.	0.10			
(core has been sampled at base of this run)		Mudstone - dark grey, silty, rubbly-weathering; ferruginous at top. **----- Roof of Bingay No.2 coal bed -----**	0.20 Box 96/97			
-----		(Core missing - sampled?)	DD 879			
-----		(Core missing - sampled?)	DD 884			
		(Core missing - sampled?)	Box 97/98			
-----		(Core missing - sampled?)	DD 889			
-----		(Core missing - sampled?)	DD 894			
3.02/3.05		**----- Floor of Bingay No.2 coal bed -----**				
		Mudstone - black, carbonaceous at top, becoming silty at base; rooty throughout; gradational base.	0.32			16°

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
		Siltstone - dark grey to black, sandy, churned, with occasional rootlets at top; sheared at base; abrupt base.	0.85 Box 98/99 0.07			
----- 1.51 / 1.52 ----- 1.59 / 1.52 ----- 3.02 / 3.05	Code 322 RIP	Sandstone / siltstone (70:30 at top, grading down to 20:80 at base) - thinly interbedded light brown-weathering fine-grained rippled sandstone and dark grey sandy siltstone; sands have rare thin zones of convolute-lamination; weakly calcareous; core is broken by frequent calcite-filled fractures at apparent dip of 70 to 75 degrees, sub-perpendicular to bedding; abrupt base.	1.78 DD 904 0.70 Box 99/100 0.81 DD 909 1.59 DD 914 0.05			13°
		Siltstone / mudstone (100:0 at top, grading down to 40:60 at base) - very thinly interbedded to interlaminated dark brownish-grey siltstone and black mudstone; silts show vague mottling (bioturbation?) and are blocky-weathering; muds are platy-weathering; abrupt base.	0.22 Box 100/101 0.39			14°
	Lake bed?	Mudstone - black, silty, massive, vaguely parallel-laminated, with occasional thin bright coal bands towards base; abrupt base.	0.56			
	Paleosol	Siltstone - dark grey, medium brown-weathering, rooty, rubbly; a seatearth; gradational base.	0.71			
	Ash band?	Mudstone - light brownish-grey (Munsell colour code 5YR6/1), silty, kaolinitic, mottled (pedogenic churning?); abrupt base.	0.07			
	Paleosol	Siltstone - dark grey, as above; abrupt base. ----- **Roof of Bingay No.1 Rider coal bed** -----	0.10			
	Floating bog?	Coal - dull, laminated, clean, slightly sheared; abrupt base.	0.37			
	Lake bed?	----- **Floor of Bingay No.1 Rider coal bed** ----- Mudstone - dark grey to black, carbonaceous, laminated, with occasional thin and thick bright coal bands; no rootlets; slightly sheared at top; abrupt base.	0.53			10°

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----- 2.02 / 1.52		Siltstone - dark grey, sandy, thick planar laminae; isolated 2 cm ironstone nodule in middle; abrupt base.	0.12 Box 101/102 DD 924 0.51			
		Siltstone / sandstone (95:5) - thickly interlaminated flaseroid, moderately bioturbated and churned dark grey sandy siltstone and very fine-grained rippled sandstone; abrupt base.	0.40			
		Siltstone / sandstone (50:50 at top, grading down to 80:20 at base) - interlaminated siltstone and sandstone as above; churned base.	0.51			
----- 1.37 / 1.52 ----- 1.56 / 1.52 ----- 1.62 / 1.52	Lagoon?	Siltstone / sandstone (20:80 at top, grading down to 98:2 at base) - interlaminated siltstone and sandstone as above; sparsely to moderately bioturbated at top, very sparsely bioturbated at base; abrupt base.	0.60 DD 929 1.17 Box 102/103 0.20 DD 934 1.56 DD 939 0.70			
		Mudstone - black, coaly, sheared. ----- **Roof of Bingay No.1 coal bed** -----	0.02			
		Coal - bright banded, intensely sheared; abrupt base.	0.10			
		Mudstone - black, coaly, slightly sheared, harder; abrupt base.	0.02			
		Coal - dull and bright, sheared; abrupt base.	0.08			
		Coal - dull, slightly sheared; abrupt base.	0.37			
		Coal - dull banded; intensely sheared and pulverised.	0.21			
----- 1.52 / 1.52		Coal - dull banded, sheared.	0.12 DD 944			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
		Coal - bright banded, sheared; slicked basal contact.	0.12			
		----- *Fault, probable* -----				
		----- Floor of Bingay No.1 coal bed (may not be immediate floor, due to faulting) -----				
		MORRISEY FORMATION (MOOSE MOUNTAIN MEMBER)				
----- 1.46 / ?		Sandstone - coarse-grained, light to medium grey, quartz-lithic, with distinct 'salt-and-pepper' appearance; clean and hard. A few rootlets at top, but no sign of a coaly or carbonaceous paleosol zone -- thus the top of this sandstone may have been faulted out; top contact is a polished slip marked by a film of pulverised coaly mudstone (fault gouge?) at apparent dip of 48 degrees; gradational base.	1.40 DD 949 0.31 Box 104/105 1.10			23°
----- 1.41 / ? ----- 1.51 / ?		Sandstone coarse-grained at top, fining down to medium-grained below; medium grey, rusty-weathering; trace of pyrite, otherwise clean; abrupt base.	0.05 DD illegible 1.41 DD illegible Box 105/106 0.85			
----- 1.49 / 1.52 -----		Sandstone - medium-grained, rusty-weathering, with locally abundant laminae of black coaly siltstone; medium to thick planar beds, with trace of pyrite; base of recovered core.	0.66 DD 964 1.15 Box 106/107 0.34 DD 969 End of hole			12°

HOLE NUMBER :	**Bingay Creek 83-01**
CO-ORDINATES :	**5562388 N. - 644219 E.**
ELEVATION (metres):	**1495 m.**
SLANT ANGLE:	**50 DEGREES**
SLANT ANGLE BEARING:	**130 DEGREES**
DATE DRILLED:	**Nov. 24 - Dec. 1, 1983**
DRILLER:	**Tonto Drilling Ltd.**

DEPTH (m)		THICKNESS	DEPTH (FT.)		THICKNESS	DESCRIPTION
From	To	(metres)	From	To	(feet)	
0.00	3.03	3.03	0.00	9.94	9.94	Casing
3.03	5.00	1.97	9.94	16.40	6.46	Grey Sandstone with shale streaks
5.00	10.77	5.77	16.40	35.33	18.93	Grey Sandstone, Cross-bedded
10.77	10.97	0.20	35.33	35.99	0.66	Grey Sandstone with coal bands
10.97	12.19	1.22	35.99	39.99	4.00	Undifferentiated deformed rock; Fault; frct 0 to CA; CaCO3
12.19	12.40	0.21	39.99	40.68	0.69	Grey Sandstone with shale streaks
12.40	14.60	2.20	40.68	47.90	7.22	Dark Grey Shale with Sandstone Streaks
14.60	17.35	2.75	47.90	56.92	9.02	Grey Sandstone with coal bands; RIP
17.35	21.60	4.25	56.92	70.87	13.94	Black shale, with coal streaks;
21.60	24.65	3.05	70.87	80.87	10.01	Dark grey interbedded ss and sh; RIP; w\ coal spars; BDG 85 to
24.65	26.45	1.80	80.87	86.78	5.91	Black shale, with coal streaks;
26.45	29.15	2.70	86.78	95.64	8.86	Black Shale with sandstone streaks; bedding 85 deg to CA;
29.15	31.98	2.83	95.64	104.92	9.28	Massive black shale; Fault breccia @ 31.1 m; PY + CaCO3
31.98	33.35	1.37	104.92	109.42	4.49	Black shale, with sandstone streaks;
33.35	34.60	1.25	109.42	113.52	4.10	Grey Sandstone with shale streaks
34.60	35.33	0.73	113.52	115.91	2.40	Massive dark grey sandy shale; w/plant deb.; BDG 85 to CA
35.33	35.55	0.22	115.91	116.63	0.72	Massive black shale; w\plant deb. + PY
35.55	36.90	1.35	116.63	121.06	4.43	Massive dark grey sandy shale; limy
36.90	40.72	3.82	121.06	133.60	12.53	Massive dark grey sandy shale; w/plant deb.
40.72	49.77	9.05	133.60	163.29	29.69	Dark grey interbedded ss and sh; RIP; BDG 80 to CA
49.77	55.48	5.71	163.29	182.02	18.73	Massive dark grey sandy shale; w/coal streaks & spars at base
55.48	55.66	0.18	182.02	182.61	0.59	Massive black shale; w\plant deb. + PY
55.66	57.25	1.59	182.61	187.83	5.22	Common banded coal; SAMPLE 1 ; Seam No. 12
57.25	57.36	0.11	187.83	188.19	0.36	Bone; layered with shale; SAMPLE 1
57.36	67.00	9.64	188.19	219.82	31.63	Common banded coal; SAMPLE 1
67.00	68.42	1.42	219.82	224.48	4.66	Massive black shale; w\coal spar
68.42	69.13	0.71	224.48	226.80	2.33	Common banded coal;
69.13	69.20	0.07	226.80	227.03	0.23	Bone; layered with shale;
69.20	69.40	0.20	227.03	227.69	0.66	Common banded coal;

83-01 (Continued...)

DEPTH (m)		THICKNESS	DEPTH (FT.)		THICKNESS	DESCRIPTION
From	To	(metres)	From	To	(feet)	
69.40	70.84	1.44	227.69	232.41	4.72	Massive black shale;
70.84	73.43	2.59	232.41	240.91	8.50	Common banded coal; SAMPLE 2; split 0.29m.; Seam No. 11
73.43	76.38	2.95	240.91	250.59	9.68	Massive dark grey sandy shale;
76.38	77.51	1.13	250.59	254.30	3.71	Grey Sandstone with shale streaks
77.51	79.13	1.62	254.30	259.61	5.31	Dark grey interbedded ss and sh; RIP;
79.13	80.30	1.17	259.61	263.45	3.84	Massive dark grey sandy shale;
80.30	81.90	1.60	263.45	268.70	5.25	Churned grey sandstone;
81.90	82.55	0.65	268.70	270.83	2.13	Grey Sandstone, Cross-bedded
82.55	83.05	0.50	270.83	272.47	1.64	Churned grey sandstone;
83.05	87.20	4.15	272.47	286.09	13.62	Grey Sandstone, Cross-bedded
87.20	91.85	4.65	286.09	301.35	15.26	Massive hard sandstone
91.85	92.50	0.65	301.35	303.48	2.13	Grey shale conglomerate
92.50	102.11	9.61	303.48	335.01	31.53	Massive hard sandstone
102.11	102.73	0.62	335.01	337.04	2.03	Grey shale conglomerate
102.73	103.01	0.28	337.04	337.96	0.92	Massive dark grey sandy shale;
103.01	103.33	0.32	337.96	339.01	1.05	Grey shale conglomerate
103.33	103.45	0.12	339.01	339.40	0.39	Grey sandstone with shale streaks
103.45	103.80	0.35	339.40	340.55	1.15	Grey shale conglomerate
103.80	104.85	1.05	340.55	344.00	3.44	Massive hard sandstone
104.85	105.76	0.91	344.00	346.98	2.99	Grey shale conglomerate
105.76	106.43	0.67	346.98	349.18	2.20	Grey Sandstone, Cross-bedded
106.43	106.90	0.47	349.18	350.72	1.54	Grey Sandstone with coal spars
106.90	109.42	2.52	350.72	358.99	8.27	Grey Sandstone, Cross-bedded
109.42	114.46	5.04	358.99	375.52	16.54	Grey Sandstone with coal spars
114.46	114.77	0.31	375.52	376.54	1.02	Dark grey interbedded ss and sh; RIP;
114.77	117.68	2.91	376.54	386.09	9.55	Grey Sandstone with coal spars
117.68	128.32	10.64	386.09	421.00	34.91	Dark grey shale with coal streaks
128.32	128.74	0.42	421.00	422.38	1.38	Coal; with pyrite streaks
128.74	129.80	1.06	422.38	425.85	3.48	Black Shale with coal streaks
129.80	129.92	0.12	425.85	426.25	0.39	Common banded coal;
129.92	130.58	0.66	426.25	428.41	2.17	Black Shale with coal streaks
130.58	130.64	0.06	428.41	428.61	0.20	Coal; layered with bone
130.64	131.08	0.44	428.61	430.05	1.44	Black Shale with coal streaks
131.08	131.36	0.28	430.05	430.97	0.92	Massive dark grey sandy shale; w/plant deb.;
131.36	132.20	0.84	430.97	433.73	2.76	Dark grey interbedded ss and sh; RIP;
132.20	132.28	0.08	433.73	433.99	0.26	Massive black shale;

83-01 (Continued...)

DEPTH (m)		THICKNESS	DEPTH (FT.)		THICKNESS	DESCRIPTION
From	To	(metres)	From	To	(feet)	
132.28	132.71	0.43	433.99	435.40	1.41	Dull or cannel coal;
132.71	132.81	0.10	435.40	435.73	0.33	Massive black shale;
132.81	132.86	0.05	435.73	435.89	0.16	Dull or cannel coal; BDG 80 to CA
132.86	133.35	0.49	435.89	437.50	1.61	Massive dark grey sandy shale; w/plant deb.;
133.35	134.70	1.35	437.50	441.93	4.43	Dark grey interbedded ss and sh; RIP;
134.70	134.85	0.15	441.93	442.42	0.49	Undifferentiated deformed rock; Fault;
134.85	135.27	0.42	442.42	443.80	1.38	Sandy shale mudflow
135.27	135.84	0.57	443.80	445.67	1.87	Massive black shale; w\plant deb.
135.84	136.39	0.55	445.67	447.47	1.80	Massive dark grey sandy shale; w/plant deb.;
136.39	144.20	7.81	447.47	473.10	25.62	Dark grey interbedded ss and sh; RIP;
144.20	147.52	3.32	473.10	483.99	10.89	Black Shale with coal streaks
147.52	149.05	1.53	483.99	489.01	5.02	Dark grey interbedded ss and sh; RIP; CaCO3-Frac @ 20 to CA
149.05	149.91	0.86	489.01	491.83	2.82	Black Shale with coal streaks
149.91	151.63	1.72	491.83	497.47	5.64	Dark grey interbedded ss and sh; RIP;
151.63	151.95	0.32	497.47	498.52	1.05	Massive black shale;
151.95	153.70	1.75	498.52	504.27	5.74	Massive dark grey sandy shale;
153.70	154.82	1.12	504.27	507.94	3.67	Dark grey interbedded ss and sh; RIP;
154.82	158.14	3.32	507.94	518.83	10.89	Black Shale with coal streaks
158.14	158.40	0.26	518.83	519.69	0.85	Bone; layered with coal
158.40	160.69	2.29	519.69	527.20	7.51	Black Shale with coal streaks
160.69	167.11	6.42	527.20	548.26	21.06	Common banded coal; SAMPLE 3; Seam 10
167.11	167.14	0.03	548.26	548.36	0.10	Grey Sandstone with coal spars; SAMPLE 3; Seam 10
167.14	171.77	4.63	548.36	563.55	15.19	Common banded coal; SAMPLE 3; Seam 10
171.77	172.80	1.03	563.55	566.93	3.38	Black Shale with sandstone streaks
172.80	175.85	3.05	566.93	576.94	10.01	Common banded coal; SAMPLE 4; Seam 9
175.85	176.51	0.66	576.94	579.10	2.17	Dark grey interbedded ss and sh; RIP;
176.51	176.53	0.02	579.10	579.17	0.07	Common banded coal;
176.53	177.69	1.16	579.17	582.97	3.81	Black Shale with sandstone streaks
177.69	178.67	0.98	582.97	586.19	3.22	Dark grey interbedded ss and sh; RIP;
178.67	179.40	0.73	586.19	588.58	2.40	Black Shale with sandstone streaks
179.40	180.16	0.76	588.58	591.08	2.49	Dark grey interbedded ss and sh; RIP;
180.16	180.75	0.59	591.08	593.01	1.94	Massive dark grey sandy shale; w/plant deb.;
180.75	181.08	0.33	593.01	594.09	1.08	Black Shale with coal streaks
181.08	182.12	1.04	594.09	597.51	3.41	Massive dark grey sandy shale;
182.12	182.27	0.15	597.51	598.00	0.49	Common banded coal;
182.27	185.25	2.98	598.00	607.78	9.78	Dark grey interbedded ss and sh; RIP;
185.25	185.39	0.14	607.78	608.23	0.46	Dull or cannel coal;
185.39	186.69	1.30	608.23	612.50	4.27	Massive dark grey sandy shale;

83-01 (Continued...)

DEPTH (m)		THICKNESS	DEPTH (FT.)		THICKNESS	DESCRIPTION
From	To	(metres)	From	To	(feet)	
186.69	187.60	0.91	612.50	615.49	2.99	Dark grey interbedded ss and sh; RIP;
187.60	188.98	1.38	615.49	620.01	4.53	Black Shale with sandstone streaks
188.98	191.56	2.58	620.01	628.48	8.46	Dark grey interbedded ss and sh; RIP;
191.56	193.18	1.62	628.48	633.79	5.31	Dark Grey Shale with Sandstone Streaks
193.18	195.98	2.80	633.79	642.98	9.19	Massive dark grey sandy shale;
195.98	198.12	2.14	642.98	650.00	7.02	Common banded coal; SAMPLE 5; Seam 8
198.12	199.34	1.22	650.00	654.00	4.00	Black Shale with coal streaks
199.34	199.54	0.20	654.00	654.66	0.66	Common banded coal;
199.54	202.38	2.84	654.66	663.98	9.32	Black Shale with coal streaks
202.38	203.97	1.59	663.98	669.19	5.22	Common banded coal; SAMPLE 6; Seam 7
203.97	204.74	0.77	669.19	671.72	2.53	Black Shale with coal streaks
204.74	204.97	0.23	671.72	672.47	0.75	Common banded coal;
204.97	205.43	0.46	672.47	673.98	1.51	Dark grey sandy fireclay
205.43	206.40	0.97	673.98	677.17	3.18	Massive dark grey shale;
206.40	206.81	0.41	677.17	678.51	1.35	Common banded coal;
206.81	207.44	0.63	678.51	680.58	2.07	Black Shale with sandstone streaks
207.44	208.18	0.74	680.58	683.01	2.43	Dark grey interbedded ss and sh; RIP;
208.18	209.39	1.21	683.01	686.98	3.97	Common banded coal; SAMPLE 7; Seam 6
209.39	212.11	2.72	686.98	695.90	8.92	Black Shale with sandstone streaks
212.11	212.27	0.16	695.90	696.42	0.52	Bone; layered with shale;
212.27	213.36	1.09	696.42	700.00	3.58	Dark grey interbedded ss and sh; RIP;
213.36	214.24	0.88	700.00	702.89	2.89	Massive dark grey shale;
214.24	215.16	0.92	702.89	705.91	3.02	Common banded coal; Seam 5
215.16	216.38	1.22	705.91	709.91	4.00	Massive dark grey sandy shale; w\coal streaks & spars
216.38	218.94	2.56	709.91	718.31	8.40	Dark grey interbedded ss and sh; RIP; BDG 75 to CA
218.94	224.13	5.19	718.31	735.33	17.03	Massive dk gry sandy shale; Breccia zone @ 219.3m w\CaCO3\PY
224.13	227.30	3.17	735.33	745.73	10.40	Common banded coal; SAMPLE 8; Seam 4; .05m split @ 224.94 m
227.30	227.84	0.54	745.73	747.51	1.77	Massive dark grey sandy shale;
227.84	229.82	1.98	747.51	754.00	6.50	Dark grey interbedded ss and sh; RIP; FRCT clv @ 15 to CA
229.82	230.27	0.45	754.00	755.48	1.48	Massive dark grey sandy shale;
230.27	231.65	1.38	755.48	760.01	4.53	Black Shale with coal streaks
231.65	234.24	2.59	760.01	768.50	8.50	Dk gry interbedded ss and sh; RIP; Coal Sp.FRCT clv @ 15 to CA
234.24	235.30	1.06	768.50	771.98	3.48	Dark grey fireclay
235.30	235.60	0.30	771.98	772.97	0.98	Partly churned dark grey sandy shale
235.60	237.13	1.53	772.97	777.99	5.02	Dark grey fireclay
237.13	240.21	3.08	777.99	788.09	10.10	Dark grey interbedded ss and sh; RIP;

83-01 (Continued...)

DEPTH (m)		THICKNESS	DEPTH (FT.)		THICKNESS	DESCRIPTION
From	To	(metres)	From	To	(feet)	
240.21	240.48	0.27	788.09	788.98	0.89	Common banded coal;
240.48	240.64	0.16	788.98	789.50	0.52	Black Shale with coal streaks
240.64	242.31	1.67	789.50	794.98	5.48	Common banded coal; SAMPLE 9; Seam 3;
242.31	243.60	1.29	794.98	799.21	4.23	Black Shale with sandstone streaks
243.60	245.28	1.68	799.21	804.72	5.51	Dark grey interbedded ss and sh; RIP;
245.28	245.44	0.16	804.72	805.25	0.52	Common banded coal;
245.44	248.46	3.02	805.25	815.16	9.91	Dark grey fireclay
248.46	253.48	5.02	815.16	831.63	16.47	Massive dark grey sandy shale;
253.48	254.50	1.02	831.63	834.97	3.35	Dark grey interbedded ss and sh; RIP;
254.50	255.26	0.76	834.97	837.47	2.49	Massive dark grey sandy shale;
255.26	256.19	0.93	837.47	840.52	3.05	Dark grey interbedded ss and sh; RIP;
256.19	259.70	3.51	840.52	852.03	11.52	Massive dark grey sandy shale;
259.70	265.17	5.47	852.03	869.98	17.95	Black Shale with coal streaks
265.17	265.42	0.25	869.98	870.80	0.82	COAL; with shale layers
265.42	266.97	1.55	870.80	875.89	5.09	Black Shale with coal streaks
266.97	271.27	4.30	875.89	889.99	14.11	Common banded coal; SAMPLE 10A, Seam 3;
271.27	272.49	1.22	889.99	894.00	4.00	COAL; with shale layers SAMPLE 10B
272.49	274.22	1.73	894.00	899.67	5.68	Dark grey fireclay
274.22	279.03	4.81	899.67	915.45	15.78	Dk gry interbedded ss and sh; RIP; FRCT clv w\CaCO3 @ 15 to
279.03	279.68	0.65	915.45	917.59	2.13	Black Shale with coal streaks
279.68	280.64	0.96	917.59	920.73	3.15	Black Fireclay
280.64	280.99	0.35	920.73	921.88	1.15	Common banded coal;
280.99	281.64	0.65	921.88	924.02	2.13	Black Shale with coal streaks
281.64	286.92	5.28	924.02	941.34	17.32	Dark grey interbedded ss and sh; RIP;
286.92	287.99	1.07	941.34	944.85	3.51	Common banded coal;
287.99	295.35	7.36	944.85	969.00	24.15	Cross-bedded grey sandstone; MORRISEY FM-MOOSE MTN MBR
						END OF HOLE

CORE PHOTOS

B3-01

BINGAY
83-01

BINGAY
83-01

BINGAY
83-01

BINGAY
83-01

284
289
294
BINGAY
83-01
314
319

BINGAY
83-01
284
289
294

BINGAY
83-01

BINGAY
83-01

BINGHAM
83-01
369
374
384

BINGHAM
83-01
369
374
384

BINGAY
83-01

BINGAY
83-01

BINGAY
83-01

BINGAY
83-01

479
484
494
504

479
BINGAY
83-01

BINGAY
83-01

494
497
BINGAY
83-01

SEAM 10 83-01 ↑ PARTING ↑ SEAM 9
BINGAY
83-01

BINGAY
83-01
SEAM 10 83-01 ↑ PARTING ↑ SEAM 9

BINGAY
83-01

SEAM 10 83-02 ↑ PARTING
BINGAY
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719
738
BINGAY
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704
BINGAY
83-01
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728

BINGAY
83-01

BINGAY
83-01

BINGAY
83-01

83-01 BOX 93
839
BINGAY
83-01
83-01 BOX 93
849
849

BINGAY
83-01
904

BINGAY
83-01
884
904

BINGAY
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704
BINGAY
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964
BINGAY
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969
BINGAY
83-01
EOH

CORE PHOTOS
83-02

HOLE NUMBER :	**Bingay Creek 83-02**
CO-ORDINATES :	**5562384 N. - 644221 E.**
ELEVATION (metres):	**1495.0**
SLANT ANGLE:	**80 DEGREES**
SLANT ANGLE BEARING:	**175 DEGREES**
DATE DRILLED:	**December 2, 3, 4, 5, & 6, 1983**
DRILLER:	**Tonto Drilling Ltd**

DEPTH (m)		THICKNESS	DEPTH (ft.)		THICKNESS	DESCRIPTION
From	To	(metres)	From	To	(feet)	
0.00	3.05	3.05	0.00	10.01	10.01	Casing
3.05	8.59	5.54	10.01	28.18	18.17	Black Shale with sandstone streaks
8.59	9.81	1.22	28.18	32.19	4.00	Grey Sandstone with coal spars
9.81	10.65	0.84	32.19	34.94	2.76	Massive dark grey sandy shale
10.65	11.28	0.63	34.94	37.01	2.07	Dark grey interbedded sandstone, shale, RIP
11.28	14.76	3.48	37.01	48.43	11.42	Massive dark grey sandy shale
14.76	16.15	1.39	48.43	52.99	4.56	Dark grey interbedded ss and sh; 50 deg to CA; X-beds? RIP
16.15	16.42	0.27	52.99	53.87	0.89	Hard shale pebble conglomerate
16.42	17.14	0.72	53.87	56.23	2.36	Dark grey interbedded ss, sh; 50 deg to CA; X-beds?; Carb debris RIP
17.14	17.93	0.79	56.23	58.83	2.59	Grey Sandstone with coal spars
17.93	18.27	0.34	58.83	59.94	1.12	Hard shale pebble conglomerate
18.27	19.21	0.94	59.94	63.02	3.08	Grey Sandstone with coal bands
19.21	19.52	0.31	63.02	64.04	1.02	Hard shale pebble conglomerate
19.52	25.61	6.09	64.04	84.02	19.98	Black Shale with coal streaks
25.61	26.18	0.57	84.02	85.89	1.87	Black Shale with sandstone streaks
26.18	26.80	0.62	85.89	87.93	2.03	Black Shale with coal streaks
26.80	27.67	0.87	87.93	90.78	2.85	Black Shale with sandstone streaks
27.67	32.70	5.03	90.78	107.28	16.50	Black Shale with coal streaks
32.70	35.93	3.23	107.28	117.88	10.60	Black Shale with sandstone streaks
35.93	37.08	1.15	117.88	121.65	3.77	Dark grey fireclay
37.08	38.22	1.14	121.65	125.39	3.74	Dark grey shale with sandstone streaks
38.22	39.94	1.72	125.39	131.04	5.64	Dark grey interbedded sandstone and shale; FAULT
39.94	40.25	0.31	131.04	132.05	1.02	Black Shale with coal streaks
40.25	44.75	4.50	132.05	146.82	14.76	Massive dark grey sandy shale
44.75	45.62	0.87	146.82	149.67	2.85	Dark grey interbedded ss and sh; RIP
45.62	53.23	7.61	149.67	174.64	24.97	Massive dark grey sandy shale, highly broken
53.23	55.78	2.55	174.64	183.01	8.37	Dark grey interbedded ss and sh; RIP
55.78	56.99	1.21	183.01	186.98	3.97	Massive dark grey sandy shale
56.99	58.43	1.44	186.98	191.70	4.72	Dark grey interbedded ss and sh; RIP

83-02 (Continued...)

DEPTH (m)		THICKNESS	DEPTH (ft.)		THICKNESS	DESCRIPTION
From	To	(metres)	From	To	(feet)	
58.43	59.35	0.92	191.70	194.72	3.02	Massive dark grey sandy shale
59.35	59.82	0.47	194.72	196.26	1.54	Dark grey interbedded ss and sh; RIP
59.82	62.23	2.41	196.26	204.17	7.91	Massive dark grey sandy shale; 50 deg. To CA; X-beds
62.23	65.23	3.00	204.17	214.01	9.84	Common banded coal; SAMPLE 11
65.23	65.31	0.08	214.01	214.27	0.26	Black Shale with coal streaks; SAMPLE 11
65.31	68.26	2.95	214.27	223.95	9.68	Common banded coal;SAMPLE 11
68.26	68.36	0.10	223.95	224.28	0.33	Black Shale with coal streaks; SAMPLE 11
68.36	70.12	1.76	224.28	230.05	5.77	Common banded coal; SAMPLE 11
70.12	70.21	0.09	230.05	230.35	0.30	Black Shale with coal streaks; SAMPLE 11
70.21	72.23	2.02	230.35	236.98	6.63	Common banded coal; SAMPLE 11
72.23	74.67	2.44	236.98	244.98	8.01	Dark grey fireclay
74.67	76.20	1.53	244.98	250.00	5.02	Black Shale with coal streaks
76.20	77.28	1.08	250.00	253.54	3.54	Massive dark grey shale
77.28	78.62	1.34	253.54	257.94	4.40	Common banded coal; SAMPLE 12
78.62	78.94	0.32	257.94	258.99	1.05	Black Shale with coal streaks
78.94	79.69	0.75	258.99	261.45	2.46	Common banded coal; SAMPLE 12
79.69	80.61	0.92	261.45	264.47	3.02	Massive dark grey sandy shale
80.61	92.27	11.66	264.47	302.72	38.25	Massive dark grey sandy shale; welded with CaCO3, 85.64 to 85.9 m.
92.27	99.77	7.50	302.72	327.33	24.61	Cross-bedded grey sandstone; carby deb on X-beds.
99.77	102.23	2.46	327.33	335.40	8.07	Massive grey sandstone
102.23	102.70	0.47	335.40	336.94	1.54	Grey sandstone with coal bands
102.70	107.13	4.43	336.94	351.48	14.53	Massive grey sandstone
107.13	107.75	0.62	351.48	353.51	2.03	Grey sandstone with coal spars
107.75	109.91	2.16	353.51	360.60	7.09	Massive grey sandstone
109.91	110.96	1.05	360.60	364.04	3.44	Hard shale pebble conglomerate
110.96	112.16	1.20	364.04	367.98	3.94	Massive grey sandstone
112.16	113.08	0.92	367.98	371.00	3.02	Hard shale pebble conglomerate
113.08	114.69	1.61	371.00	376.28	5.28	Cross-bedded grey sandstone
114.69	118.20	3.51	376.28	387.80	11.52	Grey sandstone with coal spars
118.20	119.25	1.05	387.80	391.24	3.44	Massive dark grey sandy shale
119.25	119.85	0.60	391.24	393.21	1.97	Sandy shale mudflow
119.85	120.72	0.87	393.21	396.06	2.85	Hard shale pebble conglomerate
120.72	122.90	2.18	396.06	403.22	7.15	Massive grey sandstone
122.90	124.02	1.12	403.22	406.89	3.67	Massive grey sandy shale
124.02	124.69	0.67	406.89	409.09	2.20	Dark grey interbedded ss and sh; RIP
124.69	128.11	3.42	409.09	420.31	11.22	Massive dark grey sandy shale
128.11	131.28	3.17	420.31	430.71	10.40	Dark grey interbedded ss and sh; RIP

83-02 (Continued...)

DEPTH (m)		THICKNESS	DEPTH (ft.)		THICKNESS	DESCRIPTION
From	To	(metres)	From	To	(feet)	
131.28	134.42	3.14	430.71	441.01	10.30	Massive dark grey sandy shale
134.42	144.21	9.79	441.01	473.13	32.12	Black Shale with coal streaks
144.21	144.91	0.70	473.13	475.43	2.30	Massive dark grey sandy shale
144.91	145.93	1.02	475.43	478.77	3.35	Dark grey shale with sandy streaks
145.93	148.44	2.51	478.77	487.01	8.23	Dark grey interbedded ss and sh; RIP
148.44	149.23	0.79	487.01	489.60	2.59	Massive dark grey sandy shale
149.23	151.10	1.87	489.60	495.73	6.14	Dark grey interbedded ss and sh
151.10	151.71	0.61	495.73	497.74	2.00	Grey sandstone with coal spars
151.71	153.31	1.60	497.74	502.99	5.25	Undifferentiated deformed rock; FAULT; CaCO3 as fracture fill
153.31	155.61	2.30	502.99	510.53	7.55	Massive black shale; extremely shattered
155.61	157.07	1.46	510.53	515.32	4.79	Dark grey interbedded ss and sh; RIP
157.07	164.29	7.22	515.32	539.01	23.69	Massive dark grey sandy shale; plant debris
164.29	166.15	1.86	539.01	545.11	6.10	Dark grey interbedded ss and sh; RIP
166.15	168.25	2.10	545.11	552.00	6.89	Massive dark grey sandy shale
168.25	169.39	1.14	552.00	555.74	3.74	Dark grey interbedded ss and sh; RIP
169.39	171.30	1.91	555.74	562.01	6.27	Massive dark grey sandy shale; bedding 65 deg to CA
171.30	172.52	1.22	562.01	566.01	4.00	Black Shale with coal streaks
172.52	175.41	2.89	566.01	575.49	9.48	Massive dark grey sandy shale; bedding 70 deg to CA
175.41	175.50	0.09	575.49	575.79	0.30	Black Shale with coal streaks
175.50	175.81	0.31	575.79	576.80	1.02	Common banded coal; SAMPLE 13
175.81	175.88	0.07	576.80	577.03	0.23	Coal with shale layers; SAMPLE 13
175.88	178.68	2.80	577.03	586.22	9.19	Common banded coal; SAMPLE 13
178.68	178.78	0.10	586.22	586.55	0.33	Impure coal; SAMPLE 13
178.78	181.22	2.44	586.55	594.55	8.01	Common banded coal; SAMPLE 13
181.22	181.27	0.05	594.55	594.72	0.16	Bone; SAMPLE 13, with FeCO3 nodules
181.27	183.36	2.09	594.72	601.57	6.86	Common banded coal; SAMPLE 13
183.36	183.78	0.42	601.57	602.95	1.38	Bone; layered with coal; SAMPLE 13
183.78	187.15	3.37	602.95	614.01	11.06	Common banded coal; SAMPLE 13
187.15	187.42	0.27	614.01	614.90	0.89	Dark grey shale with coal streaks
187.42	188.39	0.97	614.90	618.08	3.18	Dark grey fireclay
188.39	188.98	0.59	618.08	620.01	1.94	Coal; layered with bone; SAMPLE 14
188.98	189.18	0.20	620.01	620.67	0.66	Impure coal; FeCO3 nodules in coal; SAMPLE 14
189.18	191.21	2.03	620.67	627.33	6.66	Coal; layered with bone; SAMPLE 14
191.21	192.56	1.35	627.33	631.76	4.43	Coal; with shale layers; SAMPLE 15
192.56	193.47	0.91	631.76	634.74	2.99	Dark grey fireclay
193.47	193.70	0.23	634.74	635.50	0.75	Common banded coal;
193.70	194.74	1.04	635.50	638.91	3.41	Black Shale with coal streaks
194.74	195.37	0.63	638.91	640.98	2.07	Dark grey interbedded ss and sh; RIP
195.37	195.68	0.31	640.98	641.99	1.02	Massive black shale;
195.68	195.77	0.09	641.99	642.29	0.30	Common banded coal;
195.77	196.10	0.33	642.29	643.37	1.08	Black Shale with coal streaks
196.10	196.82	0.72	643.37	645.73	2.36	Massive dark grey sandy shale
196.82	199.95	3.13	645.73	656.00	10.27	Dark grey interbedded ss and sh; RIP
	199.95					**END OF HOLE**

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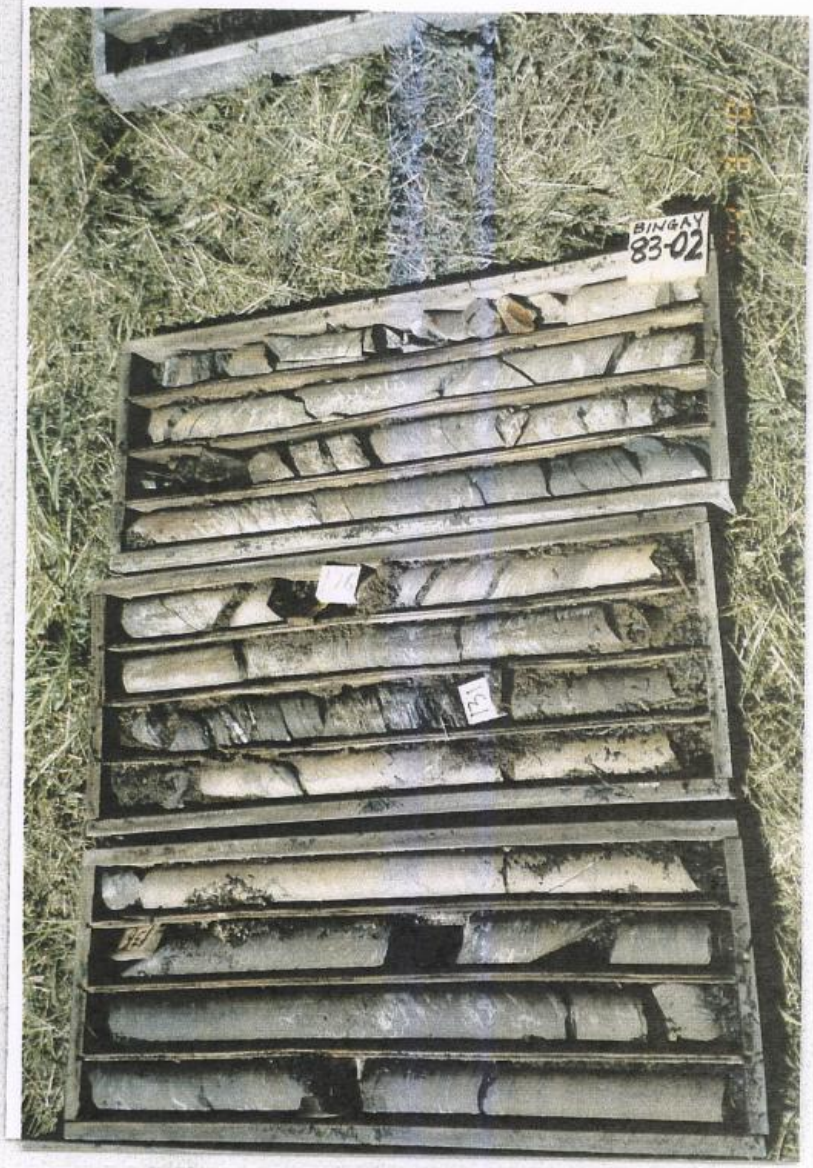
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83-02

CORELOG
DESCRIPTIONS
83-03

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
		KOOTENAY FORMATION (MIST MOUNTAIN MEMBER)	Top of Box 1			
		Siltstone - dark grey, with thin fining-upward laminae; rare finely-broken plant debris; platy-weathering.	0.51			70°
----- 0.88 / 0.91		Siltstone - dark grey, orange-weathering, ferruginous, slumped in basal part; very thick graded laminae of sandy siltstone passing into muddy siltstone; these graded laminae indicate that bedding is overturned in this unit; gradational base.	0.14 DD 23 0.39			50°
----- 0.48 / 0.61		Mudstone - dark grey to black, carbonaceous, with abundant fine plant debris; platy to rubbly at top, blocky below; abrupt base.	0.49 DD 26 0.05			
		Siltstone - dark grey, orange-weathering, sandy; core is ground at top (possible overbore of 10 cm).	0.22			50°
		Siltstone / mudstone (90:10) - thin graded interbeds of dark grey siltstone and black carbonaceous mudstone; beds are overturned.	0.15			40° to 80°
----- 1.37 / 1.52		Mudstone - dark grey to black, carbonaceous; blocky at top, platy to rubbly below. **----- Overturned floor of Bingay No. 21 Lower coal bed ----**	0.06 DD 28 0.32 Box 1/2 0.57			60° to 80°
----- 1.00 / 0.91		Coal - dull banded, stony; platy at top; sheared and pulverised below. **----- Overturned roof of Bingay No. 21 Lower coal bed ----**	0.48 DD 33			
		Mudstone - black, canneloid, low density; almost a stony coal.	0.31			30°
----- 0.87 / 0.91		Siltstone - dark grey, sandy, massive; rubbly; hackly fracture and a few rootlets at base.	0.69 DD 36 0.15			65°
----- 1.71 / 1.52		Siltstone / sandstone (85:15) - dark grey to black siltstone with thick graded laminae of sandstone; thick white calcite veinlets at 30° to bedding in middle; platy to blocky; probable core-stretching in this unit.	0.41 Box 2/3 0.31 DD 39			45° to 90°

HILLSBOROUGH RESOURCES LIMITED

CORE DESCRIPTION FOR BOREHOLE **BINGAY 83-3**

BY: C.G. Cathyl-Bickford, P.Geo. DATE:

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
----- 0.74 / ?		(continued...)	1.71 DD 44 0.27			
		Siltstone - dark grey, sandy, blocky, with occasional bright coal spars.	0.28			25°
		Mudstone - black, canneloid; blocky.	0.05 Box 3/4 0.10			35°
-----		Coal - dull, stony, slightly sheared.	0.04 DD illegible			
0.59 / ?		Siltstone - black, carbonaceous, with occasional thick bright coal bands.	0.32			
		Coal - dull and bright; core broken and ground.	0.08			
----- 1.26 / 1.52 ----- 1.44 / 1.83	'Needle' siltstone	Siltstone - dark grey, sandy, slumped in top half; occasional ferruginous bands; a few algal 'needles' at base; slumped base.	0.19 DD 54 1.26 DD 59 0.05			
		Siltstone / sandstone (60:40) - very thin to thin graded interbeds of dark grey siltstone and medium to dark grey very fine- to fine-grained sandstone; sparsely bioturbated; rippled, locally slumped; ankerite veinlets; abrupt base.	0.11 Box 4/5 0.37			45° to 70°
		Siltstone - dark grey to black, moderately bioturbated, slightly carbonaceous; beds are overturned; abrupt base with isolated sand-filled burrows.	0.39			50° to 65°
		Sandstone / siltstone (70:30) - interbedded, as above; sparsely bioturbated, rippled, burrowed at top; rusty-weathering and rooty at base; beds are overturned. ----- **Overturned floor of Bingay No.21 coal bed** -----	0.52			
-----		(Core missing - sampled?)	'Top 63.27' DD 65 Box 5/6			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
-----		(Core missing - sampled?)	DD 90			
		(Core missing - sampled?)	Box 6/7			
-----		(Core missing - sampled?)	DD 99			
		(Core missing - sampled?)	Box 7/8			
-----		(Core missing - sampled?)	DD 104			
		(Core missing - sampled?)	Box 8/9			
-----		(Core missing - sampled?)	DD 114			
-----		(Core missing - sampled?)	DD 118			
		(Core missing - sampled?)	Box 9/10			
-----		(Core missing - sampled?)	DD 127			
		(Core missing - sampled?)	Box 10/11			
-----		(Core missing - sampled?) ----- **Overturned roof of Bingay No.21 coal bed** -----	'BTM 130.47'			
	Ash band?	Mudstone - medium grey, bentonitic, pulverised, with occasional thick bright coal bands and fine plant debris including sedges and conifer fronds at top; may be reworked ash band.	0.58			
-----		Siltstone / mudstone (60:40) - thin to thick graded laminae of dark grey siltstone and slightly carbonaceous mudstone; abundant fine plant debris; occasional rootlets; beds are overturned.	1.67 DD 139.5(?) 0.31 Box 11/12 0.47			50° to 85°
1.34 / 0.91						

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
----- 1.45 / 1.52	Paleosol	Mudstone - dark grey, slightly ferruginous at top; more so towards base; silty and hard; rooty in basal 70 cm; beds are overturned.	0.56 DD 142.5 1.34			75° to 90°
----- 1.45 / 1.52	Swamp	Mudstone - dark grey to black, carbonaceous, with abundant fine plant debris; platy to blocky.	0.11 DD 147.5 Box 12/13 0.16			75°
		Siltstone - dark grey, massive, with occasional well-preserved fossil ferns.	0.47			
		Siltstone - dark grey, sandy, dense, locally ferruginous; blocky, with hackly fracture at base.	0.64			65°
----- 1.37 / 1.52 ----- 1.61 / 1.52 ----- 0.94 / 1.52		Siltstone - dark grey, sandy, thin to medium-bedded at top, massive below, with increasing frequency of bedding-plane calcite veinlets below DD 157.5; core is locally badly broken by fracturing parallel to and perpendicular to bedding; abrupt, churned base. *Note: apparent axial zone of Bingay Syncline at 66 cm below top of Box 14.*	0.18 DD 152.5 0.66 Box 13/14 0.71 DD 157.5 1.61 DD 162.5 0.18			80° at top 90° at 66 cm below top of Box 14 45° at DD 162.5
	Ash band	Sandstone - fine- to medium-grained, composed of kaolinite grains; intensely bioturbated and churned into underlying mudstone bed.	0.01			5°
		Mudstone - dark grey, with very thin and delicate graded silty laminae; tops up; moderately bioturbated, with hackly fracture; core broken at base; gradational base.	0.09 Box 14/15 0.33			20°
----- 1.47 / 1.52 ----- 0.27 / ?		Siltstone - dark grey, locally slightly ferruginous; frequent bedding-plane calcite veinlets; thin to medium-bedded, locally sparsely bioturbated, with small mud-filled burrows; sandy and slumped at base.	0.33 DD 167.5 1.47 DD 172.5 Box 15/16			45°

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
----- 1.24 / ?		Mudstone - dark grey, silty, hard; gradational base.	0.27 DD illegible 0.14			25° to 40°
----- 1.90 / ?		Siltstone - dark grey, sandy, grading down to very fine- to fine-grained, medium grey, silty sandstone; occasional veinlets of calcite and ankerite perpendicular to bedding; some convolute-lamination near base; small load casts at base; abrupt base.	1.10 DD illegible 0.69 Box 16/17			
-----		Siltstone - dark grey, sandy, with occasional hairline calcite-ankerite veinlets parallel to bedding; thin-bedded, locally slightly ferruginous; abrupt base.	1.21 DD 184 0.45			35°
		Mudstone - dark grey, platy to rubbly-weathering, silty, with occasional thick bright coal bands; abrupt base.	0.30			
		Mudstone - dark brown to black, carbonaceous, with occasional thick bright coal bands; core is pulverised.	0.18			
		Mudstone - black, carbonaceous; sheared and slicked, with jarosite bloom at base. ----- **Roof of Bingay No. 21 coal bed** -----	0.37 Box 17/18			
-----		(Core missing - sampled?) (Core missing - sampled?) (Core missing - sampled?) (Core missing - sampled?) (Core missing - sampled?) ----- **Floor of Bingay No. 21 coal bed** -----	Box 18/19 Box 19/20 Box 20/21 Box 21/22 '#21 BTM 241.40' DD 242			
1.68 / 1.52	Paleosol	Mudstone - dark grey to black, rooty; carbonaceous at top; locally slicked; a seatearth; core badly broken at base; abrupt base. ----- **Roof of Bingay No. 21 Lower coal bed** ----	0.65			
		Coal - dull and bright; pulverised.	0.41			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
		Coal - dull banded; slightly sheared.	0.12			
		Coal - dull, stony, slightly sheared. ----- **Floor of Bingay No. 21 Lower coal bed** -----	0.15			
	Paleosol	Mudstone - black, slightly carbonaceous, rooty, with vague ferruginous mottling; a seatearth; gradational base.	0.07			
		Siltstone - dark grey, sandy, locally with flaseroid sandy ripples; occasional thick bright coal bands; abrupt base.	0.27			
----- 2.65 / 2.74		Mudstone - black, slightly silty, slightly carbonaceous, with frequent laminae rich in fine plant debris; abrupt base.	0.01 DD 249 0.16 Box 22/23 0.10			5°
	Basal 10cm geochem	Sandstone - fine-grained, medium brownish-grey, ferruginous, rooty, hard, with angular fractures; basal 10 cm taken for geochemical sample.	0.07 (+0.10)			
	Paleosol overlying crevasse splay?	Sandstone / siltstone (90:10 at top, grading down to 50:50 at base) - thin to medium interbeds of very fine- to fine-grained sandstone and dark grey siltstone; sandstones are rippled and locally convolute-laminated; beds are orange-weathering, ferruginous and rooty in top half; core is locally cut by hairline veinlets of ankerite; abrupt, slicked base.	1.24			20° to 45°
		Coal - dull and bright, broken, slightly sheared.	0.39			
		Mudstone - black, coaly, rooty, badly broken.	0.07			
		Siltstone - black, coaly, rooty, waxy lustre, hard.	0.05			45°
----- 1.24 / ?	Swamp	Mudstone - black, carbonaceous, with 20% thick bright coal bands; occasional rootlets; core is disked and jumbled; coal bands are sheared and pulverised; gradational base.	0.47 Box 23/24 DD 258 0.21			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
		Siltstone - dark grey, sandy, slightly ferruginous, thin-bedded, locally slicked; abrupt.	0.68			
		Mudstone - dark grey, silty, splintery.	0.08			
		Coal - dull banded, broken.	0.09			
----- 1.18 / ?		Mudstone - dark grey, becoming very silty at base; locally sheared and slicked; occasional ferruginous concretions; core is locally jumbled; abrupt base.	0.18 DD illegible 0.91			15° at top; 55° at base
----- 1.48 / ? ----- 2.76 / 3.03		Siltstone - dark grey, locally sandy, locally sheared, fractured and broken; abrupt base.	0.03 Box 24/25 0.24 DD illegible 1.48 DD 273 0.50 Box 25/26 0.44			15°
		Mudstone - dark grey, silty, massive; abrupt base.	0.20			
		Mudstone - black, carbonaceous, with thin bright coal bands; broken.	0.07			
		Mudstone - black, coaly, sheared and broken.	0.11			
		Mudstone - black, carbonaceous, hard.	0.08			
	Paleosol	Siltstone - dark grey to black, carbonaceous, rooty; gradational base.	0.64			
		Siltstone - dark grey, sandy, massive; abrupt base.	0.52			
----- 1.21 / 1.54		Mudstone - dark brownish-grey to black, yellowish jarositic bloom; slightly carbonaceous, with occasional thin bright coal bands; laminated; abrupt base.	0.20 DD 282.93			
		Coal - dull and bright; badly broken at base.	0.24 Box 26/67 0.09			45°

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
----- 0.76 / 1.52	Code 113	Mudstone - black, slightly silty, carbonaceous, with occasional thin bright coal bands; locally sheared and broken.	0.88 DD 288 0.61			10° to 15°
-----		Coal - dull, stony, platy to blocky, broken.	0.15 DD 293			
1.57 / 1.52	Code 127 Paleosol	Mudstone - dark grey, silty, rooty, sheared at top; grades down to very sandy, sparsely-rooted siltstone at base; abrupt base.	0.44 Box 27/28 0.65			
----- 1.63 / 1.52 ----- 1.49 / 1.52 ----- 2.89 / 3.05	Code 224	Siltstone - dark grey, with locally abundant plant debris; occasional sheared, slicked zones but on the whole this unit appears to be massive; gradational base.	0.48 DD 298 1.49 Box 28/29 0.14 DD 303 1.49 DD 308 0.58			
	Code 322 RIP	Sandstone / siltstone (80:20) - very thinly interbedded, fining-upward, very fine- to fine-grained light grey, orange-weathering sandstone and dark grey, slightly carbonaceous siltstone; sandstones are rippled (and sparsely bioturbated at top of unit); slumped in middle; abrupt base.	0.08 Box 29/30 0.45			
-----	Code 313	Siltstone / sandstone (50:50 at top, grading down to 80:20 below) - thin to very thin fining-upward interbeds of dark grey siltstone and medium grey, very fine-grained sandstone, with locally-abundant fine plant trash; abrupt base.	1.76 DD 318 0.07			
		Siltstone - dark grey, slightly carbonaceous, with abundant fine plant debris including long twigs and conifer needles. ----- **Roof of Bingay No. 20 coal bed** -----	0.16 Box 30/31			
		(Core missing - coal chips in box; probably sampled) ----- **Floor of Bingay No. 20 coal bed** -----	Box 31/32			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
	Code 113 Lake bed?	Mudstone - black, carbonaceous, waxy lustre, with occasional thick bright coal bands; abrupt base.	0.92			
		Mudstone - black, coaly, pulverised; abrupt base.	0.08			
----- 5.27 / 4.69 (?)		Mudstone - black, silty, massive; abrupt base.	0.33 DD 333.6 0.62			
		Siltstone - dark grey, sandy, slightly ferruginous; hackly fracture; gradational base.	0.65			
	Code 323	Siltstone / sandstone (60:40) - thinly-interbedded dark grey sandy siltstone and very fine-grained, medium grey, brown-weathering sandstone; abrupt, sheared base.	0.06 Box 32/33 0.36			25° to 45°
	Code 324	Siltstone - dark grey, sandy, massive; abrupt base.	0.70			
	Code 322 RIP	Sandstone / mudstone (80:20) - very thin flaseroid interbeds of very fine- to fine-grained, rippled sandstone and dark grey carbonaceous mudstone; abrupt base.	0.11			
		Mudstone - dark grey, with occasional thick bright coal bands; rubbly to pulverised; abrupt base.	0.67			
		Siltstone - dark grey, sandy, with vague ferruginous mottling; occasional rootlets; abrupt base.	0.38			
		Mudstone - black, coaly, with thick bright coal bands; platy to rubbly; abrupt base.	0.31			
		Siltstone / mudstone (85:15) - siltstone as above (but sandier and harder) with thin to medium interbeds of black coaly mudstone; occasional thick bright coal bands; occasional rooty zones; abrupt base.	0.30 Box 33/34 0.80			
----- 1.55 / 1.52 ----- 3.17 / 3.05	Code 563 RIP	Sandstone - fine-grained, medium grey, orange-weathering, hard, with occasional thin laminae of dark grey siltstone; alternating rippled and massive zones; abrupt base.	0.31 DD 349 1.41 Box 34/35 0.14 DD 354 0.25			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
	Code 324	Siltstone - dark grey to black, with occasional ferruginous bands; abrupt base.	2.28 Box 35/36 0.10			
		Sandstone / siltstone (80:20) - thinly interbedded, rippled, sparsely bioturbated, orange-weathering very fine-grained sandstone and dark grey, slightly ferruginous siltstone; abrupt base.	0.40			
----- 1.65 / ?	Sheltered bay	Siltstone - dark grey, patchily ferruginous, moderately to intensely bioturbated, abrupt.	0.14 DD 364 0.34			
	Code 328 Bay	Sandstone / siltstone (70:30) - as above, but thin to medium bedded, not rippled, moderately to intensely bioturbated; sheared at base, with calcite veinlet parallel to bedding; abrupt base.	0.85			
----- 1.43 / ? ----- 1.45 / ?	Code 324 Foreshore	Siltstone / sandstone (85:15) - dark grey, sandy, massive siltstone with very thin, rippled, flaseroid bands of fine-grained sandstone; locally splintery and badly broken; abrupt base.	0.36 DD illegible 0.40 Box 36/37 1.03 DD 374 0.17			15° to 45°
		Siltstone - dark grey, sandy, moderately to intensely bioturbated; slumped at base; abrupt base.	0.33			
		Siltstone - dark grey to black, slightly carbonaceous, massive, slumped and slicked at base.	0.27			
		Mudstone - dark grey, silty, splintery; abrupt base.	0.62			
----- 1.44 / ?		Siltstone - dark grey, massive, locally with abundant finely broken plant debris; moderately to intensely bioturbated.	0.06 DD illegible Box 37/38 1.40			
-----		Mudstone - black, carbonaceous, slightly silty; very thin bright coal bands at base. ----- **Roof of Bingay No. 19 coal bed** -----	0.04 DD 384 0.16			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
-----		(Core missing - coal chips in box) (Core missing - coal chips in box) *Note: Box 39 is missing* (Core missing - coal chips in box) (Core missing - coal chips in box) ----- **Floor of Bingay No. 19 coal bed** -----	DD 388.5 Box 38/39 Box 39/40 DD 400			
----- > 2.09 / 2.74	Code 323	Siltstone / sandstone (70:30) - thinly interbedded dark grey siltstone and medium grey, locally orange-weathering very fine- to fine-grained sandstone; sparsely rooty at top; occasional thick bright coal bands in top half; basal half is locally sparsely bioturbated; gradational base.	1.39 Box 40/41 0.70 DD 409 0.39			15°
----- 2.84 / 3.05		Siltstone / sandstone (30:70 at top, grading down to 80:20 at base) - very thin fining-upward flaseroid interbeds of sandstone and sparsely-bioturbated siltstone; abrupt base.	0.18			
	Tidal flat?	Siltstone / sandstone (85:15 at top; grading down to 95:5 at base) - dark grey, locally carbonaceous siltstone, with very thin sharp-based, fining-upward, flaseroid sandstone bands; moderately bioturbated at top; abrupt base.	1.36 Box 41/42 0.16			
----- 2.80 / 3.05		Mudstone - dark grey, silty, with occasional thin bright coal bands; gradational base.	0.75 DD 419 0.08			
	Code 322 RIP	Sandstone / siltstone (10:90 at top, grading down to 90:10 at base) - very thickly interlaminated, flaseroid, very fine- to fine-grained orange-weathering sandstone and dark grey siltstone; occasional ripples; load casts at base; abrupt base.	0.79			
----- 1.41 / 1.52		Siltstone / sandstone (80:20 at top, grading down to 100:0 at base) - dark grey siltstone with occasional very thin flaseroid sandstone bands; rare thin bright coal bands; abrupt base.	0.64 Box 42/43 1.29 DD 429			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
		Coal - dull banded, stony.	0.18			5°
----- 0.83 / 1.52		Siltstone - dark grey, very sandy, with scattered finely broken plant debris; blocky to splintery; a few rootlets at top; grades down to very fine-grained silty sandstone at base; abrupt base.	1/17 Box 43/44 0.06 DD 434 0.58			15°
----- 2.13 / 2.14		Sandstone / siltstone (85:15) - very thin fining-upward planar-laminated to flaseroid interbeds of fine-grained, orange-weathering sandstone and dark grey siltstone; rippled at top; abrupt base.	0.25 DD 439 0.73			
	Code 323	Siltstone - dark grey; very thin planar beds, with occasional very thin sandy laminae; abrupt base.	0.52			15°
		Sandstone / siltstone)80:20 at top, grading down to 30:70 at base) - thin fining-upward beds; churned and moderately bioturbated at top; abrupt base.	0.20 Box 44/45 0.47			
----- 0.63 / 0.91		Siltstone / dark grey, planar-laminated, ferruginous at base; abrupt base. ----- **Roof of Bingay No. 18 coal bed** -----	0.41 DD 446			
		Coal / mudstone (60:40) - thinly interbedded dull and bright, locally jarositic coal and black carbonaceous mudstone; core is broken and ground at top; probable core loss.	0.38			
	Paleosol	Mudstone - black, rooty, carbonaceous; occasional thick bright coal bands; a seatearth; abrupt base.	0.20			
----- 0.74 / 1.22		Coal - dull banded, slightly sheared; broken and ground.	0.05 DD 449 0.33			
	Paleosol	Mudstone - dark grey, ferruginous, rooty.	0.03			
		Coal - dull and bright, blocky, broken.	0.17			
	Pond	Mudstone - black, carbonaceous, waxy lustre.	0.07			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
----- 0.96 / 0.91		Coal - dull; sheared and pulverised; probable core loss. ----- **Floor of Bingay No. 18 coal bed** -----	0.14 DD 453			
----- 1.40 / ? ----- 3.50 / 3.96	Paleosol / overbank	Mudstone - dark grey, silty, with abundant orange-weathering ferruginous layers at top, declining to a few at base; rooty at top; gradational base.	0.24 Box 45/46 0.72 DD 456 1.40 DD illegible 0.46			
----- 1.42 / 1.52 ----- 1.47 / 1.52	Code 113 Slump?	Siltstone - dark grey, locally sandy, with rare ferruginous bands; blocky to rubbly, occasional slicked zones; abrupt base.	0.10 Box 46/47 2.62 Box 47/48 0.32 DD 469 1.42 DD 474 0.63			20° at top 45° 50° to 75°
		Coal - bright, sheared; possibly an isolated log; 2 cm true thickness.	[0.02]			
	Code 113	Siltstone - dark grey, as above; abrupt base.	Box 48/49 0.76			70° to 75°
----- 1.57 / 1.52	Code 323	Siltstone / sandstone (50:50) - thin interbeds of dark grey siltstone and very fine-grained sandstone; sparsely to moderately bioturbated; abrupt base.	0.06 DD 479 1.00			8° at base
----- 1.48 / 1.52	Code 324	Siltstone - dark grey, sandy towards base; sparsely to moderately bioturbated; overall churned appearance; occasional vague ferruginous bands; gradational base.	0.57 DD 484 0.19 Box 49/50			10° at base

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
----- 1.62 / 1.52 ----- 1.48 / 1.52		(continued...)	1.29 DD 489 1.39 Box 50/51 0.23 DD 494 1.01			13°
----- 1.50 / 1.52 ----- 1.48 / 1.52	Code 323	Siltstone / sandstone (80:20 at top, grading down to 90:10 at base) - dark grey siltstone with thin fining-upward, locally rippled bands of very fine- to fine-grained sandstone; occasional very thin laminae of black coaly mudstone; abrupt base.	0.47 DD 499 0.97 Box 51/52 0.53 DD 504 0.26			10° to 30°
	Code 322 RIP	Sandstone / siltstone (60:40) - thin to very thin flaseroid interbeds of light grey, very fine- to fine-grained rippled sandstone and dark grey silty mudstone; abrupt base.	0.43			20°
----- 1.46 / 1.52	Code 324	Siltstone - dark grey, sandy, very thin-bedded, vague ferruginous banding; occasional coal spars towards base; abrupt base	0.79 DD 509 0.65 Box 52/53 0.67			
----- >0.64 / 1.52 (sampled at base of run)		Mudstone - black, carbonaceous, laminated, with well-preserved small fern fronds; abrupt base. ----- **Roof of Bingay No. 17 Rider coal bed** -----	0.14 DD 514 0.25			11°
		Coal - dull, platy; sheared and slicked at top.	0.07			
		Mudstone - black, coaly, rooty; slicked at top.	0.03			
		Mudstone - dark grey, carbonaceous, fissile; core broken and ground.	0.03			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
		Coal - dull and bright; core broken at top and base. ----- **Floor of Bingay No. 17 Rider coal bed** -----	0.06			
	Paleosol	Mudstone - black, carbonaceous, rooty; sheared at top. ----- **Roof of Bingay No. 17 coal bed** -----	0.20			
----- ----- 1.73 / 1.52 ?		(Core missing - coal chips in box) (Core missing - coal chips in box) (Core missing - coal chips in box) (Core missing - coal chips in box) ----- **Floor of Bingay No. 17 coal bed** -----	DD 519 Box 53/54 DD 524(?)			
		Mudstone - black, coaly, slicked; gradational base.	0.01			22°
		Siltstone - dark grey; black and carbonaceous at immediate top; platy to rubbly-weathering; gradational base.	0.28			
		Siltstone / sandstone (60:40) - very thinly interbedded dark grey siltstone and medium grey, very fine-grained sandstone; beds are shattered perpendicular to bedding and infilled with closely-spaced hairline calcite veinlets; slightly sheared towards base.	0.27 Box 54/55			20°
		(Core missing -- no coal chips in box; may have been lost. Apparent length is 1.17 m)				
		Siltstone - dark grey, splintery to hackly fracture, a few rootlets; core is badly broken.	0.33			
		Siltstone - dark grey to black, splintery, as above; abrupt base.	0.22			
		Ironstone - dark brownish-grey, red-weathering; a nodule; abrupt base.	0.17			
		Siltstone / sandstone (60:40) - very thinly-interbedded dark grey, locally ferruginous siltstone and very fine- to fine-grained sandstone; rooty at top; abrupt base.	0.31			24°
-----		Mudstone - black, carbonaceous, laminated, fissile; abrupt base.	0.14 DD 529			
		Siltstone - dark grey, splintery; abrupt base.	0.52			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
		Mudstone - black, silty, carbonaceous.	0.03 Base of Box 55			
		Note: Boxes 56 through 99 have not been relogged - see Utah's 1983 log for these.				
			Top of Box 100			
----- > 4.09 / 4.57 (core sampled at base)	Code 323	Siltstone / sandstone (40:60, grading down to 70:30 at base) - thin to very thin interbeds of dark grey massive siltstone and very fine- to fine-grained, medium grey, rippled sandstone; locally sparsely bioturbated; gradational base.	DD 949 1.84			15°
	Code 324	Siltstone / sandstone (85:15) - as above, but fewer and thinner sandstone bands; abrupt base.	0.63			
		Siltstone - dark grey, very thin-bedded, with vague colour banding (more or less muddy?); abrupt base.	0.19 Box 100/101 0.91			20°
	Code 113	Mudstone - black, carbonaceous, with occasional thin bright coal bands; sheared at base.	0.18			
		Siltstone - dark grey, sandy, intensely bioturbated at top.	0.32			12° to 15°
		Mudstone - black, carbonaceous, platy. ----- **Roof of Bingay No.12 Rider coal bed** -----	0.02			
----- >0.63 / 1.52 (core sampled at top)		(Core missing - coal chips in box) (Core missing - coal chips in box) (Core missing - coal chips in box) ----- **Floor of Bingay No.12 Rider coal bed** -----	DD 964 Box 101/102			
	Paleosol	Mudstone - black, carbonaceous, silty, rooty; gradational base,	0.05			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
	Code 324	Siltstone - dark grey, sandy; abrupt base.	0.29			15°
		Mudstone - black, coaly, with yellow jarosite bloom; core broken.	0.05			
		Coal - dull, stony, slightly sheared.	0.14			
		Mudstone - black, silty, carbonaceous.	0.04			18°
-----		Coal - dull; sheared and broken.	0.06 DD 969			
1.27 / 1.52		Coal - dull, stony.	0.17			
	Paleosol	Mudstone - black, carbonaceous, slightly silty, with abundant fine plant debris; sparsely rooted; a few thin bright coal bands.	0.40			15° to 20°
		Coal / mudstone (80:20) - slightly sheared dull banded coal with thin and thick lenses of black coaly mudstone; may be a drift accumulation of plant debris.	0.20			
	Code 113	Mudstone - black, carbonaceous, grading down to silty mudstone at base; occasional thick bright coal bands.	0.38			
		Mudstone - black, coaly; intensely sheared, powdery.	0.05			
-----		Coal - dull, stony, sheared; rubbly to blocky.	0.07 DD 974			
>0.26 / 1.22 (core sampled at base)		Mudstone - black, coaly, platy to flaky, intensely sheared and slicked.	0.03			
	Paleosol	Mudstone - dark grey to black, carbonaceous, with occasional thin bright coal bands; rooty at top; broken and ground at top, probable core loss here. ----- **Roof of Bingay No. 12 coal bed** -----	0.23			18°
-----		(Core missing - coal and mudstone chips in box) (Core missing - coal chips in box)	Box 102/103 DD 978			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
----- ----- > 0.90 / 1.52 (core sampled at top of run)		(Core missing - coal chips in box) (Core missing - coal chips in box) (Core missing - coal chips in box) (Core missing - coal chips in box)	DD 983 Box 103/104 DD 988			
		Coal - dull, stony, blocky and laminated. ----- **Floor of Bingay No. 12 coal bed** -----	0.02			
		Mudstone - black, carbonaceous, slightly silty, numerous rootlets, occasional thin bright coal bands; gradational base. Probable core loss here.	0.39			
	Code 324 WCS	Siltstone - dark grey, sandy, slightly ferruginous, with occasional coal spars; abrupt base.	0.16			
		Coal - dull banded, sheared and broken; grades down to black coaly mudstone.	0.10			
----- 1.57 / 1.83		Mudstone - black, carbonaceous; very thin to thin-bedded, with some bedding-plane slips; occasional jarosite-bloomed thick bright coal bands; occasional rootlets; abrupt base.	0.23 DD 993 Box 104/105 0.74			15°
		Coal - dull banded; sheared and broken at base.	0.27			
	Ash band	Siltstone - black, carbonaceous, sandy, with vague granular texture; light grey to white-weathering, kaolinitic.	0.02			15°
		Coal - dull banded, locally sheared and broken.	0.22			
	Paleosol	Mudstone - black, coaly; rooty at top; intensely sheared and broken at base.	0.26			
----- > 0.72 / 1.52		Mudstone - dark grey, silty, carbonaceous, rooty; slightly sheared; core locally broken and ground: probable core loss here; gradational base.	0.06 DD 999 0.34			25° at top

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
(core sampled at base of run)		Siltstone - dark grey, sandy, massive; abrupt base.	0.22			
		Mudstone - black, carbonaceous, yellow jarosite bloom; intensely sheared and broken at base. ----- **Roof of Bingay No. 11 coal bed** -----	0.16			
-----		(Core missing - coal chips in box)	Box 105/106			
		(Core missing - coal chips in box)	DD 1004			
-----		(Core missing - coal chips in box)	DD 1009			
3.04 / 3.05		(Core missing - coal chips in box) ----- **Floor of Bingay No. 11 coal bed** -----				
		Siltstone - dark grey, sandy, rooty and moderately bioturbated at top; abrupt base.	0.30			14°
	Code 322 RIP	Sandstone / siltstone (70:30) - very thinly-interbedded, fining-upward, rippled, light grey, very fine- to fine-grained sandstone and dark grey siltstone; sparsely bioturbated; abrupt base.	0.41 Box 106/107 0.32			
		Siltstone - dark brown to black, carbonaceous; churned base.	0.14			
		Sandstone / siltstone (60:40) - interbedded, as before; abrupt base.	0.46			
	Code 323 Plt Deb	Siltstone / sandstone (90:10) - very thin to thin interbeds of moderately bioturbated dark grey siltstone and disrupted lenses of very fine-grained, medium grey sandstone with scattered plant debris; ferruginous in middle; gradational base.	0.79			
-----	Code 322 RIP	Sandstone / siltstone (60:40) - very thin to thin fining-upward interbeds as above; sandstones are locally rippled; beds are wavy and irregular; abrupt base.	0.62 DD 1019 0.46 Box 107/108 0.43			5° to 15°
1.55 / 1.52						

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
		Siltstone / sandstone (80:20) - very thin fining-upward interbeds as above; gradational base.	0.24			
----- 1.54 / 1.52	Geochem sample in middle?	Siltstone / sandstone (90:10 at top, grading down to 100:0 at base) - dark grey to black, sandy, carbonaceous siltstone, with abundant fine plant debris on bedding; with very thin bands of very fine-grained sandstone; 9 cm of core missing in middle.	0.42 DD 1024 1.34			
----- 1.45 / 1.52		Mudstone - black, silty, carbonaceous, with abundant thin and thick bright coal bands; abrupt base.	0.20 DD 1029 Box 108/109 0.13			15°
	Code 323	Siltstone / sandstone (95:5) - dark grey sandy siltstone with occasional thin bands of very fine-grained sandstone; ferruginous at base and microfaulted with calcite-ankerite veinlets; moderately bioturbated in top half; abrupt base.	0.79			
-----	Code 113	Mudstone - black, carbonaceous, slightly silty, with occasional thin and thick bright coal bands; abrupt base.	0.53 DD 1034 0.01			
	Code 323	Siltstone - dark grey to black, sandy, slightly carbonaceous, with occasional very thin bright coal bands; abrupt base.	0.26			
	Code 113	Mudstone - black, as above; abrupt base. **----- Roof of Bingay No. 11 Lower coal bed -----**	0.67			13°
	Code 039	Coal - dull; abrupt base.	0.11			
		Mudstone - black, coaly; abrupt base.	0.03			
		Coal - dull.	0.01			
		Coal - dull banded. **----- Floor of Bingay No.11 Lower coal bed ----**	0.12 Box 109/110			
		Note: Box 110 is missing.				

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
----- 1.59 / 1.52	Code 323	Siltstone / sandstone (95:5) - dark grey sandy siltstone with occasional very thin churned interbeds of very fine- to fine-grained sandstone; occasional bright coal spars; abrupt base.	Box 110.111 0.49 DD 1049 0.14			
	Code 322 RIP	Sandstone / siltstone (80:20 at top, grading down to 50:50 at base) - thinly interbedded, locally intensely bioturbated medium grey rippled sandstone and dark grey siltstone; occasional laminae rich in finely-broken plant debris.	0.47			
		Siltstone - dark grey, sandy, ferruginous, dense; abrupt base.	0.31			
		Mudstone - black, carbonaceous, fissile, with occasional thin bright coal bands; broken at base.	0.08			
		Siltstone - dark grey, sandy, ferruginous in middle; occasional fine plant debris; abrupt base.	0.58			
----- 1.52 / 1.52	Code 113	Mudstone - black, carbonaceous, with occasional thin bright coal bands; abrupt base.	0.01 DD 1054 0.11			
	Code 322	Siltstone - dark grey to black, sandy, slightly carbonaceous, moderately bioturbated in middle; abrupt base.	0.32			
	Code 113	Mudstone - black, carbonaceous, with abundant thick bright coal bands; grades down to dark grey silty mudstone at base.	0.08 Box 111/112 0.05			
		Mudstone - dark grey, orange-weathering, silty, ferruginous, grading down to dark grey, sandy siltstone; gradational base.	0.75			
----- 1.68 / 1.52		Siltstone / sandstone (60:40) - very thin fining-upward interbeds of sparsely bioturbated siltstone and fine-grained, locally rippled sandstone; abrupt base.	0.21 DD 1059 0.58			
----- 1.45 / ?	4 cm geochem sample	Siltstone / sandstone (70:30 at top, grading down to 100:0 at base) - thin fining-upward interbeds with occasional ferruginous bands to 2 cm in basal half; occasional fine plant debris; splintery to rubbly in middle; abrupt base.	1.10 DD 1064 Box 112/113 0.03			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
----- 1.58 / 1.52		Sandstone / siltstone (65:35) - very thin, rippled, fining-upward interbeds of very fine- to fine-grained medium grey sandstone and dark grey, slightly carbonaceous siltstone; patchy sparse bioturbation; abrupt base.	1.42 DD 1083 (may be misplaced?)			16°
	Slump / synsedi-mentary fault zone	Sandstone / siltstone (95:5) - light grey, locally ferruginous, rippled, fine-grained sandstone with very thin interbeds to interlaminae of black carbonaceous siltstone; slumped in top 26 cm with apparent dips locally to 75°; slump shows some brittle fracturing with calcite gash veinlets; sand here is slightly ferruginous -- possible early cementation; may be sequence boundary atop this unit.	0.92			
----- 1.54 / 1.52	Code 324	Siltstone - dark grey, burrowed at immediate top; sandy, thin-bedded, with abundant plant debris on bedding; becomes massive towards base; gradational base.	0.30 Box 113/114 0.36 DD 1074 1.17			22°
----- 2.86 / 3.05	Code 323	Siltstone / sandstone (90:10 at top, grading down to 100:0 at base) - thinly interbedded, dark grey, moderately bioturbated sandy siltstone and very fine-grained sandstone; occasional thick bright coal bands; abrupt base.	0.37 DD 1079 0.41			
		Siltstone / sandstone (60:40 at top, grading down to 95:5 at base) - interbedded, as above; moderately bioturbated at base; abrupt base.	0.40			
		Siltstone / sandstone (50:50 at top, grading down to 85:15 at base) - interbedded, as above; moderately to intensely bioturbated at base; gradational base.	0.01 Box 114/115 1.09			
----- 1.49 / 1.52		Siltstone - dark grey to black, sandy, massive, intensely bioturbated; abrupt base.	0.95 DD 1089 0.06			
		Siltstone - dark grey to black, sandy, sparsely to moderately bioturbated; occasional ironstone bands; abrupt base.	0.65 Box 115/116 0.10			17°
	Code 323	Siltstone / sandstone (85:15) - very thinly interbedded, dark grey, sparsely to moderately bioturbated; abrupt base.	0.31			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
	Code 113 geochem sample	Mudstone - black, carbonaceous, with abundant fine plant debris; 7 cm of core is missing at base of this unit -- probable geochem sample. ----- **Roof of Bingay No. 10 Rider coal bed** -----	0.09			
----- 1.39 / 1.52		Coal - dull banded, slightly sheared; core is ground at top and badly broken at base; probable core loss in this unit.	0.27 DD 1094 0.03			
		Mudstone - black, coaly, with a few thick bright coal bands.	0.36			
		Coal - dull and bright; intensely sheared and broken.	0.11			
	Code 113	Mudstone - black, carbonaceous; sheared at base.	0.42			12°
		Coal - dull banded; sheared and broken.	0.05			
		Mudstone - black, carbonaceous; sheared at top.	0.04			
		Mudstone - black, coaly; intensely sheared.	0.06			
----- 1.64 / 1.52		Mudstone - black, carbonaceous, with occasional thick bright coal bands.	0.32 DD 1099 0.07			
		Mudstone - black, carbonaceous; core broken and jumbled.	0.14			
		Coal - dull, intensely sheared; platy.	0.08 Box 116/117			
		Coal - dull, slightly sheared; platy to blocky.	0.34			
		Coal - dull and bright; sheared and broken. ----- **Floor of Bingay No. 10 Rider coal bed** -----	0.17			
		Mudstone - black, carbonaceous, with occasional thin bright coal bands.	0.19			
		Coal - bright, intensely sheared, powdery.	0.04			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
	Paleosol	Mudstone - black, sphaerosideritic, rooty at top; gradational base.	0.27			
----- 1.41 / 1.52	Code 113 Paleosol	Mudstone - light grey and bleached at top, becoming black and carbonaceous below, with occasional thin bright coal bands; thin to medium bedded, locally slicked and sheared.	0.34 DD 1104 0.52			
	Ash band?	Mudstone - light grey, very silty, flinty.	0.02			
----- 1.55 / 1.52		Mudstone - black, carbonaceous, as above; abrupt base.	0.78 Box 117/118 0.09 DD 1109 0.80			13°
		Coal - dull, laminated/	0.07			
		Coal - dull lustrous, conchoidal fracture; probably canneloid.	0.07			
----- 1.38 / 1.52		Siltstone / sandstone (85:15) - very thinly interbedded dark grey siltstone and medium grey very fine-grained sandstone; intensely bioturbated at top; ferruginous bands toward base; gradational base.	0.61 DD 1114 0.87 Box 118/119			14°
	Code 322 RIP	Sandstone / siltstone (85:15) - thin to very thin fining-upward interbeds of medium grey, fine-grained, rippled sandstone and dark grey, slightly carbonaceous siltstone; intensely bioturbated at top; gradational base.	0.35			
----- 1/55 / ?	Code 324	Siltstone - dark grey, sandy, massive, slightly ferruginous at top; abrupt base.	0.16 DD 1119 0.78			
	Code 323	Siltstone / sandstone (50:50, grading down to 100:0) - thin fining-upward interbeds of siltstone and very fine-grained rippled sandstone as above; patchy sparse bioturbation; ferruginous in middle; abrupt base.	0.69			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
----- 1.47 / ?		Mudstone - dark grey, very silty, rubbly to splintery, very ferruginous at top, declining below; abrupt base.	0.08 DD illegible 0.63 Box 119/120 0.24			
		Mudstone - black, slightly carbonaceous, finely laminated, microblocky to rubbly; gradational base.	0.12			
		Siltstone - dark grey, finely-laminated, microblocky to rubbly-weathering; abrupt base.	0.29			
----- 1.62 / 1.52	Lake marl	Marlstone - dark grey, orange-weathering, slightly silty, with calcite-filled gash veinlets perpendicular to bedding; top 14 cm has laminae rich in angular rip-up clasts of ironstone; abrupt base.	0.19 DD 1129 0.62			
		Mudstone - dark grey, silty, finely laminated, microblocky; gradational base.	0.61			
		Siltstone - dark grey, thin-bedded, with ferruginous layers (concretions?); abrupt base.	0.35			
----- 1.62 / 1.52	Code 322	Siltstone - dark grey, thin-bedded, sandy towards base; occasional ferruginous bands.	0.04 DD 1134 0.26 Box 120/121 1.36 DD 1139 0.28			
----- 1.55 / 1.52						
	Code 113	Mudstone - black, carbonaceous, fissile at top, with a few silt-filled burrows; abundant thin bright coal bands; broken at base.	0.18			
	Code 113	Mudstone - black, silty, with occasional thick bright coal lenses; gradational base.	0.17			
----- 3.06 / 3.05		Sandstone - fine- to medium-grained, light grey, with very thin silty coaly laminae; thin festoon beds with large ripple-drift cross-laminae; churned and intensely bioturbated at top; ferruginous at immediate top (subaerial exposure?); abrupt base.	0.71 Box 121/122 0.21 DD 1144 0.29			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
	Slump?	Siltstone - dark grey, thin-bedded, platy, sandy; dip steepens in basal 15 cm to 30° -- may be slump; abrupt base.	1.72			13° at top 30° above base 12° at base
	Code 543	Sandstone - fine-grained, light grey, cherty, with silty laminae; ripple-drift cross-laminated at top; low-angle crossbeds below; gradational base.	0.34			
----- 1.44 / 1.52	Code 322 FLT	Sandstone / siltstone (85:15) - very thin fining-upward planar interlaminae of dark grey, slightly carbonaceous siltstone and light grey, very fine- to fine-grained sandstone; siltstone bed tops are marked by very finely-broken plant debris ('coffee grounds'); rippled at base; abrupt base.	0.20 Box 122/123 0.51 DD 1154 0.02			14°
		Siltstone / sandstone (90:10 at top, grading down to 20:80 at base) - thin to medium fining-upward interbeds of dark grey siltstone and very fine- to fine-grained, rippled, sparsely-bioturbated sandstone; abrupt base.	0.78			
----- 1.52 / 1.52		Siltstone / mudstone (70;30) - thin to medium fining-upward interbeds of dark grey siltstone and black, slightly silty mudstone with ferruginous nodules; abrupt base.	0.64 DD 1159 0.21			
----- 1.74 / 1.52		Siltstone / sandstone (70:30 at top, grading down to 40:60 at base) - thin to medium fining-upward interbeds of dark grey to black, massive, locally-sandy siltstone and very fine- to fine-grained, light grey, rippled sandstone. Occasional laminae of black coaly siltstone within sandstone beds. Occasional ferruginous concretions, one showing brittle cross-fracturing. Sandstones show oblique, rough fractures with calcite and possible bitumen (or drilling oil?) stain; abrupt base.	0.42 Box 123/124 0.89 DD 1164 1.41 (overbore mark at top)			
----- 1.64 / 1.52		Siltstone / sandstone (95:5) - dark grey siltstone with few vague flaseroid streaks of very fine-grained sandstone; gradational base.	0.33 Box 124/125 DD 1169 0.25			
		Sandstone - fine-grained, light grey; erosional base.	0.02			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
----- 1.62 / 1.52 (?)		Siltstone / sandstone (98:2) - dark grey to black, very sandy siltstone, with occasional flaseroid streaks of rippled sandstone; churned base.	1.37 DD 1174 0.71			14°
	Ash band	Mudstone - light grey, silty, flinty, burrowed; abrupt base.	0.01			10°
		Siltstone - dark grey to black, as above; sheared at base; gradational base.	0.13			
		Sandstone - very fine-grained, medium grey, rippled, with silty laminae; an isolated band; abrupt base.	0.02			
		Siltstone - as above; sheared at base.	0.22 Box 125/126			
		Sandstone - very fine-grained, as above; abrupt base.	0.03			
----- 1.49 / 1.52 (?)	Code 324	Siltstone - medium grey, sandy, very thin-bedded, moderately bioturbated, hackly fracture; abrupt base.	0.50 DD 1179 (?) 0.17			
	Code 322 RIP Point bar?	Sandstone / siltstone (70:30) - very thinly-interbedded, wavy-bedded very fine- to fine-grained sandstone and dark grey siltstone; sandstones are rippled at top and plane-laminated below; occasional rootlets; gradational base.	0.23			
	Code 541	Sandstone - fine- to medium-grained, cherty, silty at top, with locally abundant small rounded intraclasts in middle; abrupt base.	0.48			
----- 1.59 / 1.52 ----- 1.46 / 1.52		Siltstone - dark grey to black, slightly sandy, thin-bedded, otherwise massive; occasional (ca. 10%) vague flaseroid sandy laminae near top; abrupt base.	0.61 DD 1184 0.63 Box 126/127 0.96 DD 1189 0.10			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
	Code 322 FLT	Siltstone / sandstone (55:45) - thin to thick fining-upward interlaminae of dark grey siltstone and fine-grained sandstone; as above; abrupt base.	0.30			
----- 1.57 / 1.52	Code 313	Siltstone - dark grey, sandy, with vague very thin bedding, locally hackly fracture is suggestive of bioturbation; otherwise massive-appearing; abrupt base.	1.06 DD 1194 0.25			
		Sandstone / siltstone (15:85 at top, grading down to 100:0 at base) - very thin to medium fining-upward interbeds of rippled, wavy-bedded fine- to medium-grained cherty sandstone and dark grey, slightly carbonaceous siltstone; a few angular silty intraclasts near base.	0.13 Box 127/128 0.49			
----- 1.44 / 1.52 ----- > 2.62 / 4.57 (core sampled at base of run)		Siltstone / mudstone (70:30) - thin to medium interbeds of dark grey sandy siltstone and dark grey to black, slightly carbonaceous silty mudstone; sparsely to moderately bioturbated in basal half; occasional coarse plant debris in siltstones; abrupt base.	0.70 DD 1199 1.44 DD 1204 Box 128/129 0.01			
		Siltstone / sandstone (75:25) - dark grey, slightly carbonaceous, intensely bioturbated siltstone with interbeds of sandstone; one stylolite in middle; distinctive hackly fracture; abrupt base.	0.34			
	Code 543 RIP	Sandstone / siltstone (75:25) - thin to medium, fining-upward interbeds of light grey, fine- to medium-grained, cherty, rippled sandstone and dark grey, locally carbonaceous siltstone; tops of sandstone beds are sparsely bioturbated; abrupt base.	1.04			
	Geochem sample	Siltstone - dark grey, sandy at top, becoming black and carbonaceous towards base; a few coal spars near base; some core is missing in middle of this unit, including a geochemical sample at 47 to 50 cm above base. ----- **Roof of Bingay No. 10 coal bed** -----	1.23 Box 129/130			12°
----- -----		(Core missing -- marked "Sample 10" -- coal chips in box) (Core missing -- coal chips in box) (Core missing -- coal chips in box)	DD 1219 Box 130/131 DD 1224			

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
-----		(Core missing -- coal chips in box)				
		(Core missing -- coal chips in box)	DD 1229			
		(Core missing -- coal chips in box)	Box 131/132			
-----		(Core missing -- coal chips in box)	DD 1234			
		(Core missing -- coal chips in box)	Box 132/133			
-----		(Core missing -- coal chips in box)	DD 1239			
> 0.35 / 1.52 (core sampled at top of run)		**----- Floor of Bingay No. 10 coal bed -----**				
	Swamp	Mudstone - black, coaly; gradational base.	0.08			5°
		Mudstone - black, carbonaceous; gradational base.	0.10			
-----	Paleosol	Mudstone - dark grey to black, silty, carbonaceous, rooty, with fine plant debris; abrupt base.	0.17 DD 1244 0.03			
1.26 / 1.52		Mudstone - dark grey, silty, slightly carbonaceous, grading down to dark grey sandy siltstone; bedding-plane shears near top; slightly ferruginous at base; abrupt base.	0.20 Box 133/134 0.77			23° at top 13° at base
		Mudstone - black, carbonaceous, slightly sheared; abrupt, rolly base.	0.06			
		Siltstone - dark grey, orange brown-weathering, rooty at top, ferruginous; polished basal contact with coaly film. **----- Roof of Bingay No. 9 coal bed -----**	0.20			20° at base
-----		(Core missing -- marked "83-03 Seam 9" -- coal chips in box)	DD 1249 Box 134/135			
> 0.68 / 1.52 (core sampled at top of run)	Code 113	Mudstone - black, carbonaceous, with one thick bright coal band.	0.16			14° at top

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY – GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
		Coal - dull, laminated, blocky, broken.	0.02			
		Mudstone - black, carbonaceous, massive.	0.12			
		Coal - dull, slightly sheared; broken and ground.	0.06			
		Mudstone - black, canneloid; abrupt base.	0.05			
		Coal - bright banded, broken at base.	0.02			
		Coal - dull and bright, with two oblique slips.	0.19			
-----		Mudstone - black, coaly, massive.	0.06 DD 1254			
0.60 / 1.52		Coal - intensely sheared and broken.	0.06			
		Coal - dull and bright; abrupt base. ----- **Floor of Bingay No.9 coal bed** -----	0.02			
	Code 323	Siltstone - dark grey, sandy, rooty at top; very sandy at base.	0.22			15°
		Coal - bright, powdery.	0.02			
-----		Siltstone - dark grey, very sandy, as above; gradational base.	0.28 DD 1259 0.11			
1.49 / 1.52						
-----		Sandstone / siltstone (50:50) - thin to medium interbeds of medium grey, very fine- to fine-grained cherty sandstone and dark grey, locally-carbonaceous siltstone; sands are locally rippled; silts are locally moderately to intensely bioturbated; gradational base.	0.98 Box 135/136 0.40 DD 1264 (overbore in top 6 cm) 2.27 Box 136/137 0.07			
3.06 / 3.05						

TOTAL RECOVERED LENGTH / CORE RUNS	SAMPLES / FACIES / ENVIRON-MENT / FERM CODE	CORE DESCRIPTION: LITHOLOGY - GRAIN-SIZE, COLOUR, MODIFIERS, MINOR CONSTITUENTS, SEDIMENTOLOGY, PALAEONTOLOGY, TECTONIC FEATURES, PHYSICAL CONDITION, BASAL CONTACT	RECOVERY (METRES) CORE BOXES, AND MARKER BLOCKS	THICKNESS (METRES, AS INTERPRETED FROM GEOPHYSICS)	DEPTH TO BASE (METRES, AS INTERPRETED FROM GEOPHYSICS)	APPARENT DIP OF BEDDING
----- 1.62 / 1.52	Distal lake delta?	Siltstone / sandstone (95:5) - dark grey to black sandy siltstone with frequent very thin laminae of very fine-grained sandstone; occasional plant debris; sparsely bioturbated; abrupt base.	0.72 DD 1274 0.55			
----- 1.43 / 1.52	Proximal lake delta?	Sandstone / siltstone (65:35) - thin to very thin, sparsely to moderately bioturbated, very fine- to fine-grained quartz-lithic sandstone and dark grey sandy siltstone; rare intraclastic layers in sandstone; occasional coalified logs with yellow jarositic bloom; this zone is distinctly more bioturbated than overlying beds; abrupt, churned base.	1.07 DD 1279 0.24 Box 137/138 1.05			
----- 2.96 / 3.04	Point bar?	Sandstone / siltstone (90:10) - fine- to medium-grained, quartz-lithic, rippled sandstone with very thin interlaminae of dark grey, very sandy siltstone; patchy moderate bioturbation in top 90 cm; this upper zone also has frequent siderite-cemented bands; abrupt base.	0.14 DD 1284 1.43 Box 138/139 DD 1289 0.71			
	Bay?	Siltstone - medium to dark grey, very sandy, moderately bioturbated; gradational base.	0.64			
	Bay mouth bar?	Sandstone / siltstone (95:5) - rippled, very thin-bedded, fine-grained quartz-lithic sandstone with disrupted laminae of dark grey siltstone; intensely bioturbated; with occasional coarse plant trash.	0.18 Base of Box 139			
			End of hole			

HOLE NUMBER :	Bingay Creek 83-03
CO-ORDINATES :	5562970 N. - 644430 E.
ELEVATION (metres):	1388 m.
SLANT ANGLE :	45 DEGREES
SLANT ANGLE BEARING:	135 DEGREES
DATE DRILLED:	Dec. 7 - 16, 1983
DRILLER:	Tonto Drilling Ltd.

DEPTH (m)		Thickness	Core Box	DEPTH (ft)			
From	To	(metres)	Number	From	To	(feet)	DESCRIPTION
0.00	6.10	3.05		0.00	20.01	20.01	Casing
6.10	7.28	1.18		20.01	23.88	3.87	Black Shale with sandstone streaks
7.28	9.23	1.95		23.88	30.28	6.40	Black Shale with coal streaks
9.23	10.06	0.83		30.28	33.01	2.72	Common banded coal;
10.06	10.26	0.20		33.01	33.66	0.66	Dull or cannel coal;
10.26	11.13	0.87		33.66	36.52	2.85	Massive dark grey sandy shale; 25 deg. To CA;
11.13	13.72	2.59		36.52	45.01	8.50	Black Shale with sandstone streaks
13.72	17.98	4.26		45.01	58.99	13.98	Massive dark grey sandy shale
17.98	18.53	0.55		58.99	60.79	1.80	Dark grey interbedded ss and sh; RIP
18.53	18.83	0.30		60.79	61.78	0.98	Massive dark grey sandy shale
18.83	19.29	0.46		61.78	63.29	1.51	Dark grey interbedded ss and sh; RIP
19.29	19.33	0.04		63.29	63.42	0.13	Common banded coal;
19.33	19.50	0.17		63.42	63.98	0.56	Dark grey sandy fireclay
19.50	26.29	6.79		63.98	86.25	22.28	Common banded coal; SAMPLE 16
26.29	26.51	0.22		86.25	86.98	0.72	Black shale, with coal streaks; SAMPLE 16
26.51	39.78	13.27		86.98	130.51	43.54	Common banded coal; SAMPLE 16
39.78	40.29	0.51		130.51	132.19	1.67	Dark grey fireclay
40.29	44.92	4.63		132.19	147.38	15.19	Black Shale with coal streaks; bedding 15 deg to CA;
44.92	56.38	11.46		147.38	184.97	37.60	Massive dark grey sandy shale; fract. 25 deg to CA; CaCO3
56.38	57.30	0.92		184.97	187.99	3.02	Black Shale with coal streaks; bedding 35 deg to CA;
57.30	62.07	4.77		187.99	203.64	15.65	Common banded coal; SAMPLE 17
62.07	62.18	0.11		203.64	204.00	0.36	Black shale, with coal streaks; SAMPLE 17
62.18	73.60	11.42		204.00	241.47	37.47	Common banded coal; SAMPLE 17
73.60	74.48	0.88		241.47	244.36	2.89	Dark grey fireclay
74.48	75.37	0.89		244.36	247.28	2.92	Common banded coal;
75.37	76.17	0.80		247.28	249.90	2.62	Black Shale with coal streaks
76.17	76.64	0.47		249.90	251.44	1.54	Rooted grey sandstone

83-03 (Continued...)

DEPTH (m)		THICKNESS (metres)	Core Box Number	DEPTH (ft)		THICKNESS (feet)	DESCRIPTION
From	To			From	To		
76.64	77.41	0.77		251.44	253.97	2.53	Churned dark grey sandy shale
77.41	78.63	1.22		253.97	257.97	4.00	Black shale, with coal streaks;
78.63	84.08	5.45		257.97	275.85	17.88	Massive dark grey sandy shale; 75 deg. To CA;
84.08	84.31	0.23		275.85	276.61	0.75	Massive black shale
84.31	84.65	0.34		276.61	277.72	1.12	Impure coal;
84.65	85.18	0.53		277.72	279.46	1.74	Dark grey fireclay
85.18	86.07	0.89		279.46	282.38	2.92	Massive dark grey sandy shale;
86.07	86.26	0.19		282.38	283.01	0.62	Black shale, with coal streaks;
86.26	86.64	0.38		283.01	284.25	1.25	Common banded coal;
86.64	89.16	2.52		284.25	292.52	8.27	Black shale, with coal streaks;
89.16	89.31	0.15		292.52	293.01	0.49	Impure coal;
89.31	90.38	1.07		293.01	296.52	3.51	Dark grey fireclay
90.38	94.62	4.24		296.52	310.43	13.91	Massive dark grey sandy shale; with plant debris
94.62	95.17	0.55		310.43	312.24	1.80	Dark grey interbedded ss and sh; RIP
95.17	97.85	2.68		312.24	321.03	8.79	Black Shale with sandstone streaks
97.85	98.30	0.45		321.03	322.51	1.48	Common banded coal; SAMPLE 18
98.30	98.40	0.10		322.51	322.83	0.33	Dark grey fireclay; SAMPLE 18
98.40	100.21	1.81		322.83	328.77	5.94	Common banded coal; SAMPLE 18
100.21	102.14	1.93		328.77	335.10	6.33	Black Shale with coal streaks; bedding 80 deg to CA;
102.14	102.62	0.48		335.10	336.68	1.57	Massive dark grey sandy shale;
102.62	103.02	0.40		336.68	337.99	1.31	Dark grey shale with sandy streaks
103.02	103.75	0.73		337.99	340.39	2.40	Massive dark grey sandy shale;
103.75	103.87	0.12		340.39	340.78	0.39	Dark grey interbedded ss and sh; RIP
103.87	105.67	1.80		340.78	346.69	5.91	Black Shale with coal streaks
105.67	108.15	2.48		346.69	354.82	8.14	Hard sandstone with shale streaks; RIP
108.15	110.42	2.27		354.82	362.27	7.45	Massive dark grey sandy shale;
110.42	112.27	1.85		362.27	368.34	6.07	Burrowed dark grey sandy shale
112.27	114.19	1.92		368.34	374.64	6.30	Massive dark grey sandy shale;
114.19	114.50	0.31		374.64	375.66	1.02	Burrowed dark grey sandy shale
114.50	117.19	2.69		375.66	384.48	8.83	Massive dark grey sandy shale;
117.19	117.69	0.50		384.48	386.12	1.64	Impure coal; SAMPLE 19
117.69	121.62	3.93		386.12	399.02	12.89	Common banded coal; SAMPLE 19
121.62	122.47	0.85		399.02	401.80	2.79	Dark grey fireclay; SAMPLE 19
122.47	122.64	0.17		401.80	402.36	0.56	Common banded coal; SAMPLE 19
122.64	125.04	2.40		402.36	410.24	7.87	Dark grey shale with sandy streaks; coal spars

83-03 (Continued...)

DEPTH (m)		THICKNESS (metres)	Core Box Number	DEPTH (ft)		THICKNESS (feet)	DESCRIPTION
From	To			From	To		
125.04	125.42	0.38		410.24	411.48	1.25	Dark grey interbedded ss and sh; RIP
125.42	127.23	1.81		411.48	417.42	5.94	Dark grey shale w\ sandstone streaks w\ coal streaks
127.23	127.71	0.48		417.42	419.00	1.57	Black shale w\ coal streaks
127.71	128.65	0.94		419.00	422.08	3.08	Dark grey interbedded ss and sh; RIP
128.65	130.75	2.10		422.08	428.97	6.89	Massive dark grey sandy shale; w\ plant debris
130.75	130.96	0.21		428.97	429.66	0.69	Bone; streaked with coal
130.96	132.75	1.79		429.66	435.53	5.87	Massive dark grey sandy shale; w\ plant debris
132.75	134.05	1.30		435.53	439.80	4.27	Dark grey interbedded ss and sh; RIP
134.05	135.70	1.65		439.80	445.21	5.41	Dark grey shale with sandy streaks;
135.70	135.96	0.26		445.21	446.06	0.85	Black shale w\ coal streaks
135.96	136.62	0.66		446.06	448.23	2.17	Coal; with shale layers; Core loss apparent.
136.62	136.85	0.23		448.23	448.98	0.75	Dark grey fireclay
136.85	137.90	1.05		448.98	452.43	3.44	Coal; with shale layers;
137.90	138.07	0.17		452.43	452.99	0.56	Black shale w\ coal streaks
138.07	145.93	7.86		452.99	478.77	25.79	Massive dk gr sndy shale; Fract. 20 deg to CA; 0.02 m coal @144.97m
145.93	147.01	1.08		478.77	482.32	3.54	Dark grey shale with sandy streaks;
147.01	151.62	4.61		482.32	497.44	15.12	Massive dark grey sandy shale;
151.62	153.89	2.27		497.44	504.89	7.45	Dark grey shale with sandy streaks;
153.89	156.47	2.58		504.89	513.35	8.46	Massive dark grey sandy shale;
156.47	157.02	0.55		513.35	515.16	1.80	Black shale w\ coal streaks
157.02	157.10	0.08		515.16	515.42	0.26	Common banded coal; appears ground
157.10	157.30	0.20		515.42	516.08	0.66	Black shale w\ coal streaks
157.30	159.48	2.18		516.08	523.23	7.15	Common banded coal; SAMPLE 20
159.48	159.76	0.28		523.23	524.15	0.92	Black shale w\ coal streaks
159.76	160.19	0.43		524.15	525.56	1.41	Massive dark grey sandy shale;
160.19	160.40	0.21		525.56	526.25	0.69	Massive dark grey interbedded sandst. & shale; Fault 70 deg. To CA
160.40	161.48	1.08		526.25	529.79	3.54	Black shale w\ coal streaks
161.48	161.59	0.11		529.79	530.15	0.36	Impure coal;
161.59	161.75	0.16		530.15	530.68	0.52	Black shale w\ coal streaks
161.75	171.04	9.29		530.68	561.15	30.48	Dark grey interbedded ss and sh; RIP
171.04	171.75	0.71		561.15	563.48	2.33	Burrowed dark grey sandy shale
171.75	174.84	3.09		563.48	573.62	10.14	Dark grey interbedded ss and sh; RIP
174.84	177.37	2.53		573.62	581.92	8.30	Dark grey interbedded ss and sh; RIP
177.37	179.62	2.25		581.92	589.30	7.38	Dark grey interbedded ss and sh; RIP
179.62	181.59	1.97		589.30	595.77	6.46	Dark grey shale with sandy streaks;
181.59	184.54	2.95		595.77	605.45	9.68	Dark grey interbedded ss and sh; RIP
184.54	185.62	1.08		605.45	608.99	3.54	Dark grey shale; bedding 70 deg. To C/A.
185.62	186.34	0.72		608.99	611.35	2.36	Massive dark grey sandy shale;

83-03 (Continued...)

DEPTH (m)		THICKNESS	Core Box	DEPTH (ft)		THICKNESS	DESCRIPTION
From	To	(metres)	Number	From	To	(feet)	
186.34	187.15	0.81		611.35	614.01	2.66	Black shale w\ coal streaks
187.15	189.96	2.81		614.01	623.23	9.22	Common banded coal; 0.15 m split SAMPLE 21
189.96	190.43	0.47		623.23	624.77	1.54	Dark grey interbedded ss and sh; RIP; with coal spars
190.43	191.68	1.25		624.77	628.87	4.10	Dark grey shale with sandy streaks; w\ coal spar
191.68	192.80	1.12		628.87	632.55	3.67	Dark grey interbedded ss and sh; RIP; with coal spars
192.80	193.59	0.79		632.55	635.14	2.59	Massive dark grey sandy shale;
193.59	194.11	0.52		635.14	636.84	1.71	Black shale w\ coal streaks
194.11	195.23	1.12		636.84	640.52	3.67	Common banded coal; SAMPLE 22
195.23	195.37	0.14		640.52	640.98	0.46	Black shale, with coal streaks; SAMPLE 22
195.37	197.58	2.21		640.98	648.23	7.25	Common banded coal; SAMPLE 22
197.58	198.34	0.76		648.23	650.72	2.49	Black shale w\ coal streaks
198.34	200.10	1.76		650.72	656.50	5.77	Common banded coal; SAMPLE 23; highly broken
200.10	200.40	0.30		656.50	657.48	0.98	Dark grey fireclay
200.40	203.39	2.99		657.48	667.29	9.81	Massive dark grey sandy shale;
203.39	204.63	1.24		667.29	671.36	4.07	Dark grey interbedded ss and sh; RIP;
204.63	206.11	1.48		671.36	676.21	4.86	Massive dark grey sandy shale;
206.11	207.62	1.51		676.21	681.17	4.95	Sandy shale; mudflow
207.62	215.35	7.73		681.17	706.53	25.36	Massive dark grey sandy shale; bedding 75 degrees to CA
215.35	219.79	4.44		706.53	721.10	14.57	Common banded coal; 3 splits total 0.28 m.; SAMPLE 24
219.79	221.44	1.65		721.10	726.51	5.41	Massive dark grey sandy shale; with coal spars
221.44	222.81	1.37		726.51	731.00	4.49	Dark grey interbedded ss and sh; RIP;
222.81	223.49	0.68		731.00	733.23	2.23	Massive dark grey sandy shale;
223.49	224.46	0.97		733.23	736.42	3.18	Dark grey shale with sandy streaks;
224.46	224.58	0.12		736.42	736.81	0.39	Grey sandstone with shale streaks; RIP;
224.58	225.13	0.55		736.81	738.62	1.80	Dark grey shale with sandy streaks;
225.13	225.47	0.34		738.62	739.73	1.12	Dark grey interbedded ss and sh; RIP;
225.47	227.77	2.30		739.73	747.28	7.55	Massive dark grey sandy shale;
227.77	227.87	0.10		747.28	747.61	0.33	Impure coal;
227.87	227.97	0.10		747.61	747.93	0.33	Black shale w\ coal streaks
227.97	228.59	0.62		747.93	749.97	2.03	Dark grey shale with sandy streaks; w\ plant debris
228.59	228.74	0.15		749.97	750.46	0.49	Dark grey interbedded ss and sh; RIP;
228.74	229.45	0.71		750.46	752.79	2.33	Grey sandstone with shale streaks; RIP;
229.45	230.05	0.60		752.79	754.76	1.97	Dark grey interbedded ss and sh; RIP;
230.05	231.29	1.24		754.76	758.83	4.07	Massive dark grey sandy shale;
231.29	231.43	0.14		758.83	759.28	0.46	Black shale w\ coal streaks
231.43	232.13	0.70		759.28	761.58	2.30	Dark grey shale with sandy streaks;
232.13	232.82	0.69		761.58	763.85	2.26	Common banded coal;
232.82	233.24	0.42		763.85	765.22	1.38	Black shale w\ coal streaks

83-03 (Continued...)

DEPTH (m)		THICKNESS	Core Box	DEPTH (ft)		THICKNESS	DESCRIPTION
From	To	(metres)	Number	From	To	(feet)	
233.24	233.50	0.26		765.22	766.08	0.85	Dark grey shale with sandy streaks;
233.50	235.69	2.19		766.08	773.26	7.19	Black shale w\ coal streaks
235.69	236.07	0.38		773.26	774.51	1.25	Dark grey shale with sandy streaks;
236.07	237.60	1.53		774.51	779.53	5.02	Black shale w\ coal streaks
237.60	237.93	0.33		779.53	780.61	1.08	Massive dark grey sandy shale;
237.93	245.24	7.31		780.61	804.59	23.98	Black shale w\ coal streaks
245.24	245.56	0.32		804.59	805.64	1.05	Dark grey shale with sandy streaks;
245.56	246.88	1.32		805.64	809.97	4.33	Black shale w\ coal streaks
246.88	247.70	0.82		809.97	812.66	2.69	Coal with shale layers
247.70	249.83	2.13		812.66	819.65	6.99	Black shale w\ coal streaks
249.83	250.83	1.00		819.65	822.93	3.28	Dark grey shale with sandy streaks;
250.83	251.29	0.46		822.93	824.44	1.51	Dark grey interbedded ss and sh; RIP;
251.29	251.55	0.26		824.44	825.30	0.85	Dark grey shale with sandy streaks;
251.55	252.25	0.70		825.30	827.59	2.30	Massive dark grey sandy shale;
252.25	252.98	0.73		827.59	829.99	2.40	Massive black shale
252.98	256.85	3.87		829.99	842.68	12.70	Massive dark grey sandy shale; plant debris; coal spars
256.85	256.97	0.12		842.68	843.08	0.39	Common banded coal;
256.97	257.37	0.40		843.08	844.39	1.31	Massive dark grey sandy shale; with coal spars
257.37	257.43	0.06		844.39	844.59	0.20	Impure coal;
257.43	257.84	0.41		844.59	845.93	1.35	Massive dark grey sandy shale;
257.84	258.26	0.42		845.93	847.31	1.38	Black shale w\ coal streaks
258.26	263.05	4.79		847.31	863.02	15.72	Massive dark grey sandy shale; plant debris; coal spars
263.05	263.46	0.41		863.02	864.37	1.35	Dark grey shale with sandy streaks;
263.46	264.36	0.90		864.37	867.32	2.95	Dark grey interbedded ss and sh; Fault;
264.36	264.87	0.51		867.32	869.00	1.67	Black shale w\ coal streaks
264.87	265.69	0.82		869.00	871.69	2.69	Dark grey interbedded ss and sh; RIP;
265.69	267.95	2.26		871.69	879.10	7.41	Massive dark grey sandy shale;
267.95	271.47	3.52		879.10	890.65	11.55	Dark grey interbedded ss and sh; RIP;
271.47	272.02	0.55		890.65	892.45	1.80	Massive dark grey sandy shale;
272.02	272.23	0.21		892.45	893.14	0.69	Dark grey interbedded ss and sh; RIP;
272.23	275.43	3.20		893.14	903.64	10.50	Massive dark grey sandy shale;
275.43	275.64	0.21		903.64	904.33	0.69	Black shale w\ coal streaks
275.64	275.82	0.18		904.33	904.92	0.59	Massive dark grey sandy shale;
275.82	277.49	1.67		904.92	910.40	5.48	Dark grey interbedded ss and sh; RIP;
277.49	278.32	0.83		910.40	913.12	2.72	Massive dark grey sandy shale;
278.32	279.36	1.04		913.12	916.54	3.41	Dark grey shale with sandy streaks;
279.36	282.87	3.51		916.54	928.05	11.52	Massive dark grey sandy shale;
282.87	284.20	1.33		928.05	932.41	4.36	Dark grey interbedded ss and sh; RIP;

83-03 (Continued...)

DEPTH (m)		THICKNESS	Core Box	DEPTH (ft)		THICKNESS	DESCRIPTION
From	To	(metres)	Number	From	To	(feet)	
284.20	285.80	1.60		932.41	937.66	5.25	Massive dark grey sandy shale;
285.80	285.95	0.15		937.66	938.16	0.49	Black shale w\ coal streaks
285.95	286.50	0.55		938.16	939.96	1.80	Massive dark grey sandy shale;
286.50	291.03	4.53		939.96	954.82	14.86	Dark grey interbedded ss and sh; RIP;
291.03	291.58	0.55		954.82	956.63	1.80	Dark grey shale with sandy streaks;
291.58	292.75	1.17		956.63	960.47	3.84	Massive dark grey sandy shale;
292.75	292.95	0.20		960.47	961.12	0.66	Black shale w\ coal streaks
292.95	293.24	0.29		961.12	962.07	0.95	Massive dark grey sandy shale; bedding 78 degrees to CA
293.24	294.75	1.51		962.07	967.03	4.95	Common banded coal; SAMPLE 25
294.75	295.10	0.35		967.03	968.18	1.15	Massive dark grey sandy shale;
295.10	297.07	1.97		968.18	974.64	6.46	Black shale w\ coal streaks
297.07	301.75	4.68		974.64	989.99	15.35	Common banded coal; SAMPLE 26,
301.75	302.25	0.50		989.99	991.63	1.64	Black shale w\ coal streaks
302.25	302.41	0.16		991.63	992.16	0.52	Massive dark grey sandy shale; with coal spars
302.41	302.51	0.10		992.16	992.49	0.33	Common banded coal;
302.51	303.51	1.00		992.49	995.77	3.28	Black shale w\ coal streaks
303.51	304.21	0.70		995.77	998.06	2.30	Common banded coal;
304.21	304.54	0.33		998.06	999.15	1.08	Black shale w\ coal streaks
304.54	304.79	0.25		999.15	999.97	0.82	Massive dark grey sandy shale;
304.79	304.92	0.13		999.97	1000.39	0.43	Black shale w\ coal streaks
304.92	307.54	2.62		1000.39	1008.99	8.60	Common banded coal; SAMPLE 27,
307.54	308.16	0.62		1008.99	1011.02	2.03	Dark grey shale with sandy streaks;
308.16	309.17	1.01		1011.02	1014.34	3.31	Dark grey interbedded ss and sh; RIP;
309.17	309.97	0.80		1014.34	1016.96	2.62	Dark grey shale with sandy streaks; w\ plant debris
309.97	311.74	1.77		1016.96	1022.77	5.81	Dark grey interbedded ss and sh; RIP;
311.74	313.42	1.68		1022.77	1028.28	5.51	Dark grey shale with sandy streaks; w\ plant debris
313.42	313.78	0.36		1028.28	1029.46	1.18	Black shale w\ coal streaks
313.78	314.57	0.79		1029.46	1032.05	2.59	Dark grey shale with sandy streaks;
314.57	315.16	0.59		1032.05	1033.99	1.94	Black shale w\ coal streaks
315.16	315.42	0.26		1033.99	1034.84	0.85	Dark grey shale with sandy streaks;
315.42	316.05	0.63		1034.84	1036.91	2.07	Black Shale with coal streaks
316.05	316.20	0.15		1036.91	1037.40	0.49	Impure coal;
316.20	316.54	0.34		1037.40	1038.52	1.12	Common banded coal;
316.54	316.69	0.15		1038.52	1039.01	0.49	Black Shale with coal streaks
316.69	318.16	1.47		1039.01	1043.83	4.82	Dark grey shale with sandy streaks; w\ coal spar
318.16	318.72	0.56		1043.83	1045.67	1.84	Dark grey interbedded ss and sh; RIP;
318.72	319.26	0.54		1045.67	1047.44	1.77	Dark grey shale with sandy streaks; w\ coal spar
319.26	320.40	1.14		1047.44	1051.18	3.74	Dark grey interbedded ss and sh; RIP;

83-03 (Continued...)

DEPTH (m)		THICKNESS	Core Box	DEPTH (ft)		THICKNESS	DESCRIPTION
From	To	(metres)	Number	From	To	(feet)	
320.40	320.62	0.22		1051.18	1051.90	0.72	Dark grey shale with sandy streaks;
320.62	320.69	0.07		1051.90	1052.13	0.23	Black Shale with coal streaks
320.69	321.26	0.57		1052.13	1054.00	1.87	Dark grey shale with sandy streaks; w\ plant debris
321.26	321.36	0.10		1054.00	1054.33	0.33	Black Shale with coal streaks
321.36	321.69	0.33		1054.33	1055.41	1.08	Dark grey shale with sandy streaks; w\ plant debris
321.69	321.80	0.11		1055.41	1055.77	0.36	Black Shale with coal streaks
321.80	322.71	0.91		1055.77	1058.76	2.99	Dark grey shale with sandy streaks;
322.71	323.51	0.80		1058.76	1061.38	2.62	Dark grey interbedded ss and sh; RIP;
323.51	324.43	0.92		1061.38	1064.40	3.02	Massive dark grey sandy shale; with plant debris
324.43	326.83	2.40		1064.40	1072.28	7.87	Dark grey interbedded ss and sh; RIP; CaCO3 fracture zone
326.83	328.52	1.69		1072.28	1077.82	5.54	Massive dark grey sandy shale
328.52	329.84	1.32		1077.82	1082.15	4.33	Dark grey shale with sandy streaks;
329.84	332.35	2.51		1082.15	1090.39	8.23	Massive dark grey sandy shale
332.35	333.05	0.70		1090.39	1092.68	2.30	Dark grey shale with sandy streaks;
333.05	333.22	0.17		1092.68	1093.24	0.56	Black Shale with coal streaks
333.22	333.48	0.26		1093.24	1094.09	0.85	Common banded coal;
333.48	335.09	1.61		1094.09	1099.38	5.28	Black Shale with coal streaks
335.09	335.69	0.60		1099.38	1101.35	1.97	Common banded coal;
335.69	338.79	3.10		1101.35	1111.52	10.17	Black Shale with coal streaks
338.79	338.96	0.17		1111.52	1112.07	0.56	Dull or cannel coal;
338.96	340.55	1.59		1112.07	1117.29	5.22	Dark grey shale with sandy streaks;
340.55	341.07	0.52		1117.29	1119.00	1.71	Dark grey interbedded ss and sh; RIP;
341.07	343.90	2.83		1119.00	1128.28	9.28	Massive dark grey sandy shale
343.90	344.73	0.83		1128.28	1131.00	2.72	Massive hard sandstone
344.73	347.46	2.73		1131.00	1139.96	8.96	Massive dark grey sandy shale
347.46	347.85	0.39		1139.96	1141.24	1.28	Black Shale with coal streaks
347.85	349.00	1.15		1141.24	1145.01	3.77	Grey sandstone with shale streaks; RIP;
349.00	350.73	1.73		1145.01	1150.69	5.68	Massive black shale;
350.73	351.00	0.27		1150.69	1151.57	0.89	Grey sandstone with shale streaks; RIP;
351.00	351.74	0.74		1151.57	1154.00	2.43	Dark grey interbedded ss and sh; Fault; bdg 78 to CA

83-03 (Continued...)

DEPTH (m)		THICKNESS	Core Box	DEPTH (ft)		THICKNESS	DESCRIPTION
From	To	(metres)	Number	From	To	(feet)	
351.74	352.65	0.91		1154.00	1156.99	2.99	Dark grey interbedded ss and sh; RIP;
352.65	353.72	1.07		1156.99	1160.50	3.51	Massive dark grey sandy shale
353.72	354.24	0.52		1160.50	1162.20	1.71	Dark grey shale with sandy streaks;
354.24	358.60	4.36		1162.20	1176.51	14.30	Black shale w\ ss streaks
358.60	358.69	0.09		1176.51	1176.80	0.30	Dark grey interbedded ss and sh; RIP;
358.69	359.00	0.31		1176.80	1177.82	1.02	Cross-bedded grey sandstone; minor rip-up clasts
359.00	359.55	0.55		1177.82	1179.63	1.80	Grey sandstone with shale streaks; RIP;
359.55	362.50	2.95		1179.63	1189.30	9.68	Massive dark grey sandy shale
362.50	362.83	0.33		1189.30	1190.39	1.08	Dark grey interbedded ss and sh; Fault;
362.83	364.15	1.32		1190.39	1194.72	4.33	Black shale w\ ss streaks
364.15	364.39	0.24		1194.72	1195.51	0.79	Grey sandstone with shale streaks; RIP;
364.39	364.69	0.30		1195.51	1196.49	0.98	Cross-bedded grey sandstone;
364.39	365.04	0.65		1195.51	1197.64	2.13	Dark grey shale with sandy streaks;
365.04	367.33	2.29		1197.64	1205.15	7.51	Massive dark grey sandy shale
367.33	368.30	0.97		1205.15	1208.33	3.18	Grey sandstone with shale streaks; RIP;
368.30	369.24	0.94		1208.33	1211.42	3.08	Massive dark grey sandy shale
369.24	369.54	0.30		1211.42	1212.40	0.98	Black Shale with coal streaks
369.54	378.83	9.29		1212.40	1242.88	30.48	Common banded coal; SAMPLE 28; split 372.31 to 372.36
378.83	380.51	1.68		1242.88	1248.39	5.51	Dark grey shale with sandy streaks;
380.51	382.22	1.71		1248.39	1254.00	5.61	Common banded coal; SAMPLE 29;
382.22	383.23	1.01		1254.00	1257.32	3.31	Black Shale with coal streaks
383.23	389.99	6.76		1257.32	1279.49	22.18	Dark grey shale with sandy streaks;
389.99	392.06	2.07		1279.49	1286.29	6.79	Dark grey interbedded ss and sh; RIP;
392.06	392.88	0.82		1286.29	1288.98	2.69	Grey sandstone with shale streaks; RIP;
392.88	393.60	0.72		1288.98	1291.34	2.36	Dark grey interbedded ss and sh; RIP;
393.60	394.41	0.81		1291.34	1294.00	2.66	Dark grey shale w\ ss streaks; **END OF HOLE**

CORE PHOTOS
83-03

BINGAY
TOP

BINGAY
83-03
TOP
TOP
TOP
44'
54'
65'

BTM
130477

BINGAY
BTM
130477

184

3-18

BINGAY
83-03

BINGAY
83-03

BINGAY
83-03
364

BINGAY
83-03
338

BINGAY
83-03
419'

BINGAY
83-03
364
374'
388.5
COAL
SEAM 19

BINGAY
83-03

BINGAY
83-03

BINGAY
83-03

BINGAY
83-03

FINGAY
83-03

BINGAY
82-03
SEAM 5
OP Box 69

BINGAY
82-03
SEAM 5
634

BINGAY
83-03
SEAM
83-03 TOP
74
24
634

BINGAY
BOX 88
TOP Box 89

BINGAY
83-03

BINGAY
83-03

BINGAY
83-03

BINGAY
83-03

FINGAY
83-03
808
839

FINGAY

859
864
BINGAY
83-03
869

834
839
BINGAY
83-03

889
904
BINGAY
83-03
924

889
BINGAY
83-03
889
904

FINSAY
83-03

FINSAY
83-03

999
1004
1009
FINSAY
83-03

FINSAY
83-03
999
1004
1009

BINGAY
83-03
1094
1114

BINGAY
83-03
1054
1059

BINGAY
83-03
1154

BINGAY
83-03

FINGAY
83-03

FINGAY
83-03

1219
SEAM 10
11.8.83.

KINGSAY
83-03
SEAM 11
1219

BINSAY
83-03
1244
SEAM 10 83-03 ↑ PARTING ↑ SEAM 9
1254
1259
1264

SEAM 10 83-03 ↑ PARTING ↑ SEAM 9
1244

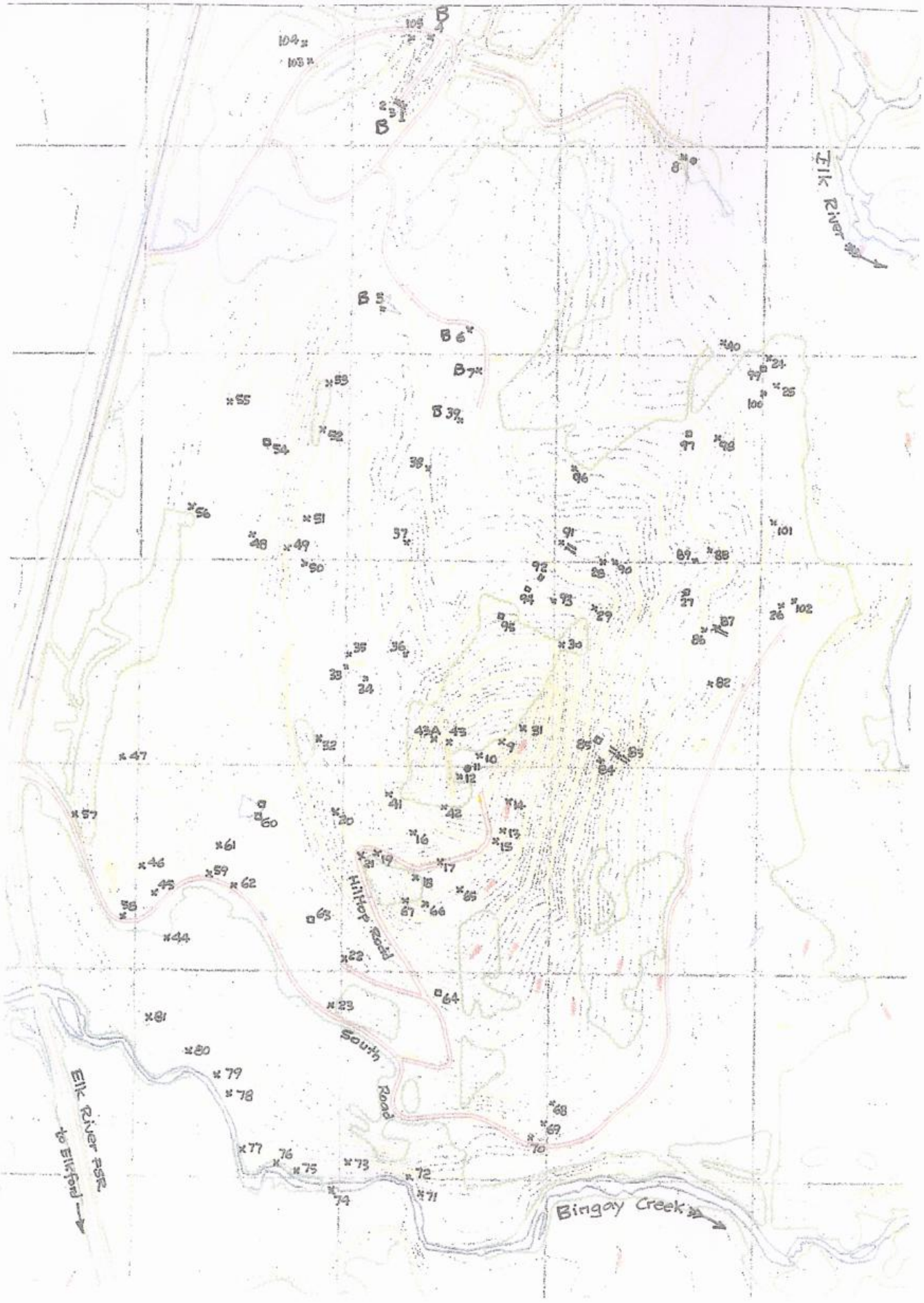
BINGAY
83-03
1279
1284

1284
1289
1294
END
83-03

1279
BINGAY
83-03
1284
1289
1294
END
83-03

SEAM 10 83-03 ↑ PARTING ↑
1254
1259
1264
1279
BINGAY
83-03
1284

SURFACE MAPPING


Elk River
Hilltop Road
South Road
Elk River PSR
to Elkford
Bingay Creek

Field Notes - Surface Geological Mapping at Bingay

July 29, 2004: (accompanied by Steve Gardner and Bill Shenfield)

B-1/2/3	Section measured across southern end of 10-Seam North Pit, at point where coal bench is exposed across pit. Roof of coal bed is on east side of pit:		
21	Sandstone - medium-grained, light to medium grey, thin-bedded, with flame structures and load casts at base; sparsely bioturbated; abrupt base with overturned flame structures projecting downward into underlying bed. Apparent paleoflow is to southeast. Attitude: 030/80 SE.		
20	Siltstone - dark grey, rubbly; thickness varies from 3 to 13 cm.	0.08	
19	Mudstone -black, coaly, intensely sheared, with ironstone nodules at base; a cloddy bed.	0.23	
	----- Roof of Bingay No.10 coal bed -----		
18	Coal - dull and bright, sheared, platy to rubbly, slicked; some pulverised bands.	3.77	9.76
17	Coal - dull banded, sheared, platy to rubbly, slicked.	2.40	5.99
16	Ironstone - sheared at top and base.	0.06	3.59
15	Coal - dull lustrous, distinct silvery lustre, platy, slicked, low-density.	0.47	3.53
14	Mudstone - black, coaly, sheared and slicked, platy to rubbly.	0.13	3.06
13	Coal - dull banded, intensely sheared and pulverised.	0.45	2.93
12	Coal - dull and bright, intensely sheared and pulverised.	0.52	2.48
11	Ironstone - shattered; pinches and swells from nil to 2 cm.	0.01	1.96
10	Coal - dull banded, sheared, platy.	0.70	1.95
9	Coal - dull and bright, intensely sheared and pulverised.	0.58	1.25
8	Tonstein? - siltstone, carbonaceous, kaolinitic, white-weathering; probable ash band; thickness varies from 1 to 2 cm.	0.02	0.67
7	Coal - dull and bright, rubbly to pulverised, intensely sheared.	0.03	0.65
6	Mudstone - black, coaly, sheared, rubbly to flaky.	0.07	0.62
5	Coal - bright banded; intensely sheared and pulverised.	0.55	0.55
	----- Floor of Bingay No.10 coal bed -----		
4	Mudstone - black, coaly, intensely sheared.	0.15	
3	Sandstone - fine-grained, orange-weathering, rooty; rolly-bedded.	0.12	

2	Siltstone/sandstone (50:50) - thinly-interbedded fining-upward dark grey siltstone and very fine-grained sandstone; rooty.	0.20	
1	Sandstone - fine-grained, medium grey, grey-weathering, thin to medium irregular beds; occasional rootlets; moderately bioturbated (sand-filled burrows and trails).	>0.40	

B-4 Measured section across No.9 seam on south side of North Road:

11	Siltstone - dark grey, orange-weathering, sandy, very thin-bedded, rubbly-weathering; abrupt base. Attitude: 042/85 (overturned) NW.	>0.29	
10	Mudstone - dark brownish-grey, silty, slightly carbonaceous, rubbly; abrupt base.	0.20	
9	Coal - bright.	0.02	
8	Siltstone - medium brown, ferruginous, hard, splintery to fissile.	0.01	
7	Mudstone - dark brown, carbonaceous, intensely sheared.	0.16	
	----- Roof of Bingay No.9 coal bed -----		
6	Coal - dull banded, dirty, intensely sheared, rubbly.	0.35	1.11
5	Mudstone - black, coaly, intensely sheared and pulverised.	0.12	0.76
4	Coal - dull banded, sheared, rubbly.	0.31	0.64
3	Coal - dull and bright, intensely sheared and pulverised; compact.	0.33	0.33
	----- Floor of Bingay No.9 coal bed -----		
2	Mudstone - black, coaly, platy, sheared; gradational base.	0.05	
1	Mudstone - dark grey to black, carbonaceous, platy, rooty, slightly sheared.	>0.25	

B-5 Measured section across No.11/12 seam trench at north end of Daisy Road; section was started this day, and extended by hand-trenching to floor on September 11, 2004. Beds dip steeply to the southeast here, and stratigraphic tops are to the northeast.

82	Siltstone - dark grey, orange-weathering, grading downwards to very fine-grained sandstone; very thin-bedded throughout; platy to rubbly-weathering; abrupt, rolly base.	>0.45
81	Mudstone - dark grey, silty, splintery to blocky-weathering, thickly-laminated; abrupt base. Thickness varies from 10 to 12 cm. Attitude: 028/73 SE.	0.11
80	Mudstone - medium grey, orange-weathering, ferruginous; hard and blocky-weathering; abrupt base.	0.01
79	Mudstone - black, coaly, intensely sheared, rubbly-weathering; abrupt base.	0.12

	----- Roof of Bingay No.12 Rider coal bed -----		
78	Coal - dull banded, intensely sheared, weathered, very soft and powdery; abrupt base.	0.44	13.97
77	Coal - dull and bright, sheared, weathered, soft, rubbly to powdery; abrupt base.	0.70	13.53
76	Mudstone - dark grey, orange-weathering, silty, rooty, fine-blocky weathering; abrupt base; attitude: 016/82 SE.	0.02	12.83
75	Coal - dull, with minor bright bands; platy; abrupt base.	0.04	12.81
74	Mudstone - dark grey, orange-weathering, slightly silty, fine-blocky; abrupt base.	0.03	12.77
73	Coal - dull banded, sheared, weathered, rubbly to platy, soft; abrupt base.	0.09	12.74
72	Mudstone - dark grey to black, carbonaceous; abrupt base; thickness varies from nil to 1 cm.	0.01	12.65
71	Coal - dull banded, weathered, soft; abrupt base.	0.05	12.64
70	Mudstone - dark grey, rooty, brittle, broken by overlapping upward-verging small out-of-syncline thrust faults; abrupt base.	0.02	12.59
69	Coal - dull banded, intensely sheared, weathered, platy to pulverised; abrupt base.	0.38	12.57
68	Coal - dull and bright, sheared into sigmoidal plates; sigmoids rise downdip; abrupt base.	0.12	12.19
67	Mudstone - dark brown, orange-weathering, silty, slightly carbonaceous, rooty; large ironstone concretions; sheared at top, platy to rubbly; abrupt base; thickness varies from 12 to 16 cm.	0.14	12.07
66	Coal - dull banded, sheared, platy to rubbly; abrupt base.	0.07	11.93
65	Mudstone - dark grey, carbonaceous, rooty; rubbly; abrupt base; thickness varies from 1 to 3 cm.	0.02	11.86
64	Coal - dull, dirty, intensely sheared, rubbly; abrupt base.	0.12	11.84
63	Mudstone - dark grey, silty, rooty; blocky; abrupt base.	0.03	11.72
62	Coal - dull and bright, sheared, weathered, soft; abrupt base.	0.31	11.69
	----- Floor of Bingay No.12 Rider coal bed -----		
61	Mudstone - black, coaly; intensely sheared cornflakes; abrupt base.	0.06	11.38
60	Mudstone - dark grey to black, carbonaceous, laminated, rooty, with occasional thin discontinuous ironstone streaks; rubbly; abrupt base.	0.37	11.32
59	Mudstone - black, coaly, with abundant thick bright coal bands; sheared; abrupt base.	0.20	10.95

58	Mudstone - dark grey, silty, slightly carbonaceous, with abundant finely broken plant debris; platy to rubbly; abrupt base.	0.18	10.75
57	Siltstone - medium brown, orange-weathering, sandy; rooty at top; occasional thick bright coal lenses; scoured base; thickness varies from nil to 16 cm.	0.08	10.57
56	Siltstone - dark grey, rooty at top, with abundant fine plant debris; abrupt base; thickness varies from 14 to 32 cm.	0.23	10.49
55	Siltstone - dark grey, orange-weathering, with occasional thick bright coal bands; platy to splintery, hard; abrupt base; thickness varies from nil to 4 cm. Attitude: 022/85 SE.	0.02	10.26
54	Mudstone - black, carbonaceous, rooty at top, with occasional thick bright coal bands; laminated, platy to rubbly; abrupt base.	0.25	10.24
53	Mudstone - black, coaly, fissile, flaky, with patchy yellow jarosite; abrupt base.	0.05	9.99
	----- Roof of Bingay No.12 coal bed -----		
52	Coal - dull, platy, weathered, soft; abrupt base.	0.24	9.94
51	Mudstone - black, coaly, laminated, weathered, soft; abrupt base.	0.13	9.70
50	Coal - bright, powdery; abrupt base; probably an isolated coalified log.	0.05	9.57
49	Mudstone - black, silty, carbonaceous; abrupt rolly base; thickness varies from 16 to 24 cm.	0.20	9.52
48	Coal and shale - interlaminated, sheared and weathered bright coal and black coaly mudstone; abrupt base; thickness varies from 20 to 28 cm.	0.24	9.32
47	Coal - weathered; intensely sheared and pulverised; abrupt base.	0.72	9.08
	----- Floor of Bingay No.12 coal bed -----		
46	Mudstone - black, silty, carbonaceous, rooty, weathered; weathering is quite a bit deeper from here west along the trench; abrupt base; attitude: 017/74? SE.	0.42	8.36
45	Mudstone - black, coaly, sheared; abrupt base.	0.20	7.94
44	Coal - dull and bright; sheared; abrupt base.	0.04	7.74
43	Mudstone - black, coaly, intensely sheared; abrupt base.	0.04	7.70
42	Coal - dull and bright, weathered; abrupt base.	0.17	7.66
41	Mudstone - black, coaly, intensely sheared; abrupt base.	0.13	7.49
40	Coal - dull and bright, slightly sheared, weathered; abrupt base.	0.35	7.36
39	Mudstone - black, coaly, intensely sheared; abrupt base.	0.30	7.01

38	Coal - dull banded, dirty, weathered; abrupt base.	0.36	6.71
37	Siltstone - orange-weathering, ferruginous, hard; abrupt base; thickness varies from nil to 2 cm, as a series of flattened ellipsoidal lenses, possibly concretions.	0.01	6.35
	----- Roof of Bingay No.11 Rider coal bed -----		
36	Coal - dull, stony, weathered; abrupt base.	0.08	6.34
35	Coal - dull banded, weathered; abrupt base.	0.31	6.26
34	Mudstone - black, coaly, intensely sheared and pulverised; abrupt base.	0.11	5.95
33	Coal - dull and bright, weathered; abrupt, polished base.	0.22	5.84
32	Coal - dull banded, sheared and slicked into lenticular plates; probable bedding-plane shear zone; abrupt, polished base.	0.21	5.62
31	Coal - dull banded, dirty, slightly sheared; abrupt base.	0.26	5.41
30	Mudstone - black, carbonaceous, rooty, soft; abrupt base.	0.08	5.15
29	Coal - dull, weathered, soft, slightly sheared; abrupt base.	0.07	5.07
28	Coal - dull banded, lustrous, very hard; sheared and top and base; abrupt base.	0.05	5.00
27	Coal - dull with minor bright bands (but not so many as to be classed as 'dull banded'); slightly sheared, intensely weathered; abrupt base.	0.32	4.95
26	Tonstein? - mudstone, dark brown, silty, slightly carbonaceous, kaolinitic, sheared; probably an impure ash band; abrupt base.	0.04	4.63
25	Coal - dull banded, weathered; abrupt base.	0.22	4.59
	----- Floor of Bingay No.11 Rider coal bed -----		
24	Mudstone - dark brownish-grey, silty, rooty at top; platy to rubbly-weathering; abrupt base.	0.21	4.37
23	Mudstone - black, carbonaceous, fissile, with abundant thin bright coal bands; abrupt base.	0.14	4.16
22	Mudstone / Siltstone (50:50) - thinly interbedded, interlensing dark grey carbonaceous mudstone and medium grey to brownish-grey, slightly ferruginous siltstone; sheared and broken throughout; abrupt base.	0.71	4.02
21	Mudstone - black, coaly, intensely sheared and pulverised; abrupt base.	0.24	3.31
20	Coal - dull banded, platy, weathered; abrupt base.	0.07	3.07
19	Mudstone - black, carbonaceous, intensely sheared; abrupt base.	0.12	3.00
18	Mudstone - black, coaly, laminated, platy; abrupt base.	0.28	2.88
17	Mudstone - black, carbonaceous; intensely sheared and pulverised; abrupt base.	0.13	2.60
16	Siltstone - dark grey, rooty at top, platy, hard; abrupt base.	0.19	2.47

15	Mudstone - black, coaly, sooty, fusainous, powdery, very soft; probably a fire band; abrupt base.	0.02	2.28
14	Mudstone - medium grey, silty, rooty, hard; abrupt base.	0.17	2.26
	----- Roof of Bingay No.11 coal bed -----		
13	Coal - dull banded, weathered; abrupt base.	0.30	2.09
12	Coal - dull and bright, weathered; abrupt base.	0.19	1.79
11	Mudstone - black, coaly; intensely sheared, very soft; abrupt base.	0.25	1.60
10	Coal - dull lustrous, slightly sheared, platy; might be a sheared cannel bed; abrupt base.	0.41	1.35
9	Coal - dull banded, intensely sheared; abrupt base.	0.31	0.94
8	Mudstone - black, coaly, rooty, compact, soft; looks like compacted topsoil; abrupt base.	0.20	0.63
7	Coal - dull, stony, sheared and broken; may be fault breccia along bedding-plane fault; water is flowing from trench face at this point, and overlying glacial till has notched down into this bed; abrupt base.	0.25	0.43
6	Coal - dull, platy, moderately hard; abrupt base.	0.18	0.18
	----- Floor of Bingay No.11 coal bed -----		
5	Mudstone - brown, silty, rooty, plastic, very soft; gradational base.	0.03	
4	Mudstone - brownish-grey, silty, rooty, harder; gradational base.	0.21	
3	Siltstone - brownish-grey, sandy, dense; abrupt base.	0.26	
2	Sandstone - very fine-grained, silty, blocky, very hard; abrupt base; attitude: 187/90 E (good).	0.95	
1	Siltstone - sandy, medium grey, finely laminated, with abundant plant imprints at top, including conifer fronds.	>0.15	

B-6 In south side ditch of Daisy Road:

Coal and shale, maybe 14/15-Seams; might be glacially shoved but looks to be about 6 metres thick; attitude: 020/64 SW (overturned)? Section was briefly observed this day, and was dug out and measured in detail on 28 March, 2005. Trench line bears 120°.

42	--	Siltstone - dark grey, very sandy, very thin irregular beds, platy-weathering, erosional base; attitude: 014/53 NW (overturned).	3.35	17.25
41		Mudstone - dark grey, silty, slightly carbonaceous, with abundant thick bright coal bands; gradational base.	0.15	13.90
40		Sandstone - very fine-grained, medium to dark grey, very silty, thin irregular beds; abrupt base.	0.27	13.75

39	Siltstone- dark grey, brown-weathering, sandy, very thin-bedded, brittle; abrupt base; attitude: 016/45 W (overturned).	0.97	13.48
38	Ironstone - bright orange, silty, very hard; abrupt base.	0.07	12.51
37	Siltstone - dark grey, as above; thickly-laminated, less sandy, with occasional fine plant trash; platy to flaky-weathering; gradational base.	0.30	12.44
36	Mudstone - dark grey, silty, massive, blocky; abrupt base.	0.17	12.14
	----- Roof of Bingay No.16 coal bed -----		
35	Coal - dull and bright, weathered.	0.32	11.97
34	Coal - bright banded, weathered.	0.41	11.65
33	Mudstone - silty, orange-weathering, ferruginous.	0.03	11.24
32	Mudstone - black, carbonaceous, with abundant thick bright coal bands; weathered.	0.23	11.21
31	Coal - bright banded, weathered.	0.58	10.98
30	Coal - dull banded, weathered.	0.16	10.40
29	Siltstone - dark brown to black, patchy rusty-weathering, carbonaceous, very thin irregular beds, with occasional coalified logs; sandy at base; possible crevasse splay; abrupt base.	0.40	10.24
28	Mudstone - black, coaly, delicately laminated, fissile.	0.18	9.84
27	Mudstone - black, carbonaceous, very thin-bedded, with occasional very thin bright coal bands; abrupt base.	0.37	9.66
26	Coal - dull banded, intensely weathered.	0.40	9.29
25	Coal - bright banded, weathered; appears clean.	0.52	8.89
	----- Floor of Bingay No.16 coal bed -----		
24	Mudstone - dark grey to black, silty; rooty at top, with occasional coalified logs and twigs; abrupt base.	0.19	8.37
23	Mudstone - black, coaly, with abundant discoidal limy concretions up to 5 cm thick.	0.15	8.18
22	Mudstone - black, carbonaceous, fissile, delicately laminated, with abundant very thin and occasional thick bright coal bands; abrupt base.	0.85	8.03
21	Mudstone - black, coaly, slightly sheared, weathered.	0.17	7.18
20	Mudstone - black, carbonaceous, silty, thin irregular beds, abrupt scoured base.	0.15	7.01
19	Mudstone - black, coaly, fissile, yellowish-weathering; abrupt base.	0.17	6.86
	----- Roof of Bingay No.15 coal bed -----		
18	Coal - dull banded, weathered.	0.15	6.69
17	Ironstone - silty, red- to orange-weathering, hard, with abundant fine plant debris; thickness varies from 1 to 3 cm.	0.02	6.54

16	Coal - dull and bright, slightly sheared, weathered.	0.24	6.52
15	Mudstone - black, carbonaceous, sheared, flaky/	0.06	6.28
14	Coal - dull and bright, slightly sheared, intensely weathered.	0.37	6.22
13	Coal/Shale (50:50) - interlaminated dull and bright coal with carbonaceous mudstone; intensely weathered.	0.29	5.85
	----- Floor of Bingay No.15 coal bed -----		
12	Mudstone - black, coaly, yellowish-orange-weathering, sheared.	0.16	5.56
11	Coal - dull and bright, weathered; abrupt base.	0.09	5.40
10	Sandstone - very fine-grained, silty, golden-weathering, planar-laminated, well-indurated, limy?; a lake bed?	0.14	5.31
9	Mudstone - dark brownish-grey, silty, with occasional thick bright coal bands; abrupt base; attitude: 021/77 W (overturned; good).	0.33	5.17
8	Sandstone - very fine- to fine-grained / Siltstone (60:40) - very thin platy interbeds to interlaminae, rippled at top; probably a proximal crevasse-splay.	1.91	4.84
7	Mudstone - dark brownish-grey, silty, limy, slightly sheared and slicked, with subconchoidal fracture.	0.30	2.93
6	Mudstone - dark grey, silty, rubbly-weathering, with occasional fine plant trash.	1.63	2.63
5	Mudstone - black, carbonaceous, with abundant thin bright coal bands; platy-weathering; abrupt base.	0.74	1.10
4	Mudstone - black, canneloid, low density; a 'bone' band.	0.03	0.36
	----- Roof of Bingay No.14 coal bed -----		
3	Coal - dull banded, intensely weathered.	0.33	0.33
	----- Floor of Bingay No.14 coal bed -----		
2	Mudstone - black, carbonaceous, sparsely rooted at top; abundant very fine coaly laminae; weathered.	0.55	0.00
1	Sandstone - fine-grained, medium grey, silty, very hard; attitude: 018/85 E (good); base not seen.	0.46	

B-7 On west side of Daisy Road, south of B-6:
Sandstone / siltstone - rippled, with tops up to east; attitude: 010/74 to 85 E.

B-8 Here took photos looking east at Utah borehole 83-3, and looking west to overturned sandstone and shale (might be floor of 21-Seam) on the west side of the drill pad. Attitude here: 010/75 W (overturned). Further west is sandstone - platy, rippled, with tops to east; stratigraphically above it, and to the east, is mudstone - silty, medium grey, very thin-bedded, splintery. Between the base of the slope and the drill site, is coal bloom on the surface of the drill pad.

B-9 At east end of ridge top:
Sandstone - fine-grained, medium grey, slightly orange-weathering, clean, quartzose, very thin irregular wavy beds; attitude: 052/68 NW (good).

B-10 Here at crest of hill, opposite the end of Hilltop Road:
Sandstone - medium-grained, orange-weathering, hummocky-bedded; attitude: 065/59 NW (fair).

B-11 Here is cairn with borehole casing; casing runs -45 towards (roughly) 130.

B-12 Sandstone - medium- to coarse-grained, light grey, clean, thick-bedded, with wavy cross-lamination; some hummocky cross-beds; sparsely bioturbated; widely-spaced gently-curving joints at 010/35 to 40 E; attitude: 085/65 N (fair).

B-13 Here in the wall of an old dozer road, at end of trail which comes in from the swale on the Hilltop Road:
Sandstone / siltstone - thinly interbedded; attitude: 050/62 NW. Probably here is the floor of 12-Seam.

B-14 Here coal spoil in old trench; maybe 12-Seam?

B-15 Now out along the dozer road; on high side is:
Sandstone - buff-weathering, wavy to festoon-bedded; attitude: 070/46 NW.

B-16 Here on NE face of gulch, ca. 100 metres W from Hilltop Road, are badger holes in coal and carbonaceous shale, overlain by weathered, grey, orange-weathering siltstone; below here is an old spoil pile; probably a collapsed adit running into the hillside at 020. Coal in the spoil pile is platy to blocky, dull and bright, slightly sheared.

B-17 Here on Hilltop Road at ridge crest, and probably below the 12-Seam, is:
Sandstone / siltstone - very thinly interbedded, wavy-bedded, fine-grained rippled sandstone and dark grey siltstone; attitude: 072/47 NW.

B-18 Here possible axial-plane shears in:
Sandstone - medium-grained, grey-weathering; shears with minor dextral slip, at 045/62 NW. On either side, ca. 4 metres apart, are possible synclinal limbs at 092/53 N (good) and 136/25 NE (fair).

B-19 Sandstone - fine-grained, grey-weathering, with sinistral bedding-plane shear dipping ca. 20 to NE; attitude here: 100/58 NE.

B-20 Here on ridge ca. 35 metres NW of Hilltop Road:
Sandstone - fine-grained, festoon-bedded to massive; attitude: 153/74 NE (fair).

B-21 Inside the hairpin bend on Hilltop Road:
Sandstone - fine- to medium-grained, light grey, with steep crossbeds, otherwise as before; attitude: 145/70 NE. There is probably another kink-fold at the hairpin bend.

B-22 Here one of Bill Shenfield's old trenches, backfilled with coal spoil. Trench runs for ca. 50 metres at 040 from this point.

B-23 Siltstone/sandstone - thin-bedded siltstone with minor very thin sandstone bands; attitude: 123/65 NE.

September 10, 2004: (accompanied by Sean Ennis)

B-24 Here in ditch on west side of South Road, is compact weathered sheared coal (note that this was a temporary exposure which was buried during road-building).

B-25 On east side of road, just NW of old test pit is a knob with 1.5 metres of: Sandstone / Siltstone - interbedded, moderately calcareous; might be a crevasse splay? Attitude: 028/70 NW (good).

B-26 Sandstone - medium-grained, light grey, rippled, thin shallow crossbeds; moderately bioturbated, clean, with load casts at base; maybe a river channel? Possibly roof of 12-Seam. Attitude: 050/55 NW (fair). To east of here is terrace of cobbly gravel.

B-27 Sandstone - very fine- to fine-grained, grey-weathering, irregular-bedded, platy, silty; forms roof of test pit; attitude: 030/46 NW. Dump of test pit shows sheared coaly rooty siltstone, carbonaceous mudstone, and fine-blocky dull and bright coal.

B-28 Here is a 2 metre wide patch of coal spoil. Immediately to west is poor exposure: Siltstone - sandy, platy; attitude: 115/38 NE? (poor).

B-29 Sandstone - orange-weathering, thin planar beds, overlain at ridge top by brown-weathering rubbly siltstone; attitude: 043/47 NW.

B-30 Here an old trench running in at about 255° shows 40 cm of flaggy silty sandstone overlying at least 60 cm of black, fissile to platy, carbonaceous mudstone; probably the roof of a coal bed, as the large dump here shows spoil of bright, clean, fine coal.

B-31 Sandstone - medium-grained, thin-bedded, platy, rippled, at top of a thick sandstone band; attitude: 047/57 NW.

B-32 Sandstone - fine- to medium-grained, quartz-lithic, grey-weathering, clean; thin, platy-weathering irregular beds and small-scale low-angle crossbeds; attitude: 168/78 to 85 NE.

B-33 Here in ditch at SW corner of drill pad is weathered coal and coaly shale (12-Seam?), which appears to have been glacially shoved eastward out over the subcrop edge of its roof. Attitude in roof: 173/90 E.

B-34 Here at centre of south side of drill pad, opposite the west side of the access road, is ca. 30 to 50 cm of weathered coal overlain to the west by platy brown siltstone and underlain to the east by light grey, distinctly rippled sandstone with interbeds of siltstone. Beds appear to be overturned here. Attitude: 180 /75 (overturned) SW.

B-35 On NW corner of drill pad:
Siltstone - sandy, grey, brown-weathering; attitude: 175/77 NE (fair).

B-36 Sandstone - medium- to coarse-grained, light grey- to white-weathering, quartzose; large-scale low-angle crossbeds; attitude: 180/85 (overturned?) SW.

B-37 Siltstone - dark grey, orange-brown-weathering, quartzose, non-calcareous, very hard; attitude: 006/80 (overturned?) W.

B-38 On west side of Daisy Road:
Sandstone - very fine- to fine-grained, brown-weathering, silty, flaggy, with occasional plant debris; attitude: 017/73 (overturned) NW (good).

B-39 On west side of Daisy Road:

1.5 to 2 metres of sheared coal and shale with occasional brown-weathering bands of ?ironstone. Section taken here by hand-trenching on September 12th follows:

36	Mudstone - dark grey, silty, platy; abrupt base; attitude: 013/79 SE.	0.17	
35	Mudstone - black, carbonaceous, fissile; abrupt base.	0.06	
	----- Roof of Bingay No.15 Rider coal bed -----		
34	Coal - dull banded, intensely weathered; abrupt base.	0.54	5.63
33	Coal - dull and bright, weathered; abrupt base.	0.44	5.09
	----- Floor of Bingay No.15 Rider coal bed -----		
32	Sandstone - fine-grained, distinctive rusty-weathering with coalified stump projecting up through its entire thickness; abrupt base.	0.24	4.65
31	Mudstone - black, coaly, sheared, gradational base.	0.04	4.41
30	Mudstone - medium grey, silty, rooty, with abundant thin bright coal bands, abrupt base.	0.14	4.37
29	Siltstone - medium grey, sandy; abrupt base.	0.02	4.23
28	Mudstone - black, carbonaceous, fissile; abrupt base.	0.14	4.21
27	Coal - bright, sheared, possibly an isolated coalified log; abrupt base.	0.05	4.07
26	Mudstone - black, coaly, platy; abrupt base.	0.13	4.02
25	Coal - dull, dirty; abrupt base.	0.08	3.89
24	Siltstone - dark grey, sandy, rooty, platy, with occasional thick bright coal bands; abrupt base.	0.21	3.81
	----- Roof of Bingay No.15 coal bed -----		
23	Coal - dull and bright, sheared, weathered; abrupt base.	0.23	3.60
22	Mudstone - black, coaly, intensely sheared and pulverised; abrupt base.	0.13	3.37
21	Coal - bright banded, weathered, appears to be clean; abrupt base.	0.32	3.24
20	Coal - dull and bright, intensely sheared; abrupt base.	0.05	2.92
	----- Floor of Bingay No.15 coal bed -----		
19	Mudstone / Siltstone (60:40) - very thinly interbedded black carbonaceous mudstone and dark grey, blocky siltstone; gradational base.	0.35	2.87
18	Mudstone / Siltstone (85:15) - very thinly interbedded black carbonaceous mudstone and dark grey, blocky siltstone; abrupt base.	0.30	2.52
17	Mudstone - black, coaly, platy, hard; conspicuously laminated; abrupt base.	0.24	2.22
	----- Roof of Bingay No.14 coal bed -----		
16	Coal - dull, weathered, dirty; abrupt base.	0.27	1.98

15	Mudstone - dark grey, silty, rooty, very thin-bedded, rubbly; abrupt base; attitude: 015/86 SE.	0.24	1.71
14	Coal - dull and bright, weathered; abrupt base.	0.35	1.47
13	Mudstone - black, coaly, weathered; gradational base.	0.17	1.12
12	Mudstone - black, carbonaceous, weathered; abrupt base.	0.07	0.95
11	Coal - dull, stony, weathered; abrupt base.	0.08	0.88
10	Mudstone - black, coaly; abrupt base.	0.08	0.80
9	Coal - bright banded, weathered; abrupt base.	0.35	0.72
8	Mudstone - black, coaly, weathered; abrupt base.	0.16	0.37
7	Coal - dull and bright, weathered; abrupt base.	0.21	0.21
	----- Floor of Bingay No.14 coal bed -----		
6	Mudstone - dark grey, silty, carbonaceous, rooty, weathered; abrupt base.	0.19	
5	Siltstone - medium brown, soft, kaolinitic, rooty, delicately laminated; gradational base.	0.14	
4	Siltstone - medium brown, sandy, rooty, blocky, hard; abrupt base.	0.13	
3	Mudstone / Siltstone (50:50) - interbedded carbonaceous mudstone and siltstone; rooty; abrupt base.	0.23	
2	Mudstone - dark brown, slightly carbonaceous, soft; abrupt base.	0.19	
1	Siltstone - dark grey, sandy, platy, with abundant well-preserved plant debris.	>0.05	

B-40 Here an old adit, now caved to ground surface, which runs into hill along strike of a coal bed. A large (300 to 400 tonnes?) pile of fine weathered coal lies at the mouth of the adit. Section here is taken at brow of collapsed area, showing at least 6 metres of: Sandstone - clean, planar-bedded, blocky-weathering; some planar crossbeds at 065/75 NW; attitude: 047/56 NW.

September 11, 2004 (accompanied by Steve Gardner)

B-41 Here on hill above 12-Seam gully:
Limestone - fine-grained, silty, orange-weathering, platy, hard; strongly calcareous; attitude: 125/65 NE.

B-42 Sandstone - very fine-grained, silty, orange-weathering, platy, hard; attitude: 087/57 N.

B-43 Sandstone - medium-grained, thin irregular platy rippled beds; indicated paleoflow is northward; well-developed joints at 055/23 NW, with no sign of movement along joints; attitude: 080/60 N (good).

B-43A At base of cliff:
Sandstone - coarse-grained, orange-red-weathering, thick swaly crossbeds; occasional small irregular concretions; attitude: 107/57 NE.

September 12, 2004 (accompanied by Steve Gardner)

B-44 Sandstone - medium- to coarse-grained, medium grey, brown-weathering, quartz-chert, quartzitic, thick planar beds, very hard; ca. 5 metres thick; attitude: 150/62 NE (good). Possibly the Moose Mountain sandstone.

B-45 Sandstone - medium- to coarse-grained, light to medium grey, medium to thick planar beds, large-scale low-angle cross-lamination, thick swash lamination; tops to NE; attitude: 159/90 NE.

B-46 Here possibly a small kame, composed of coarse, rounded, cobbly gravel.

B-47 Here finer pebble- to cobble-gravel overlies silty stony till.

B-48 Siltstone / Mudstone - platy sandy siltstone overlies interbedded grey siltstone and black carbonaceous mudstone; roof of 10-Seam?; attitude: 005/74 E (fair).

B-49 Sandstone - medium- to coarse-grained, medium grey, red-weathering, clean, flaggy; attitude: 008/76 E (good).

B-50 Sandstone - medium- to coarse-grained, light grey, clean, small-scale low-angle cross-lamination; occasional rippled zones; probably the sandstone beneath the floor of 11-Seam; attitude: 007/76 E (good).

B-51 Sandstone - medium-grained, clean, wavy-bedded, platy; attitude: 179/73 E (good).

B-52 Sandstone - medium- to coarse-grained, light grey, clean, medium to thick-bedded, antidune crossbeds; attitude: 012/72 E (good).

B-53 At north end of ledge, closely-spaced (30 cm) cross-joints at 115/80 SW in:
Sandstone - medium- to coarse-grained, large-scale low-angle cross-lamination; flaggy-weathering; attitude: 005/73 E (good).

B-54 Test pit in coal; dump shows sheared coal with minor platy siltstone. Maybe on 10-Seam?

B-55 Sandstone - fine-grained, silty, platy, thin irregular beds; forms low ridge; attitude: 012/90.

B-56 Mudstone - grey, silty, platy, weathered; overlies powdery weathered coal; might be one of the Lower Coals; attitude: 177/80 E (fair).

B-57 Sandstone - very fine- to fine-grained, brown-weathering, feldspathic, soft; thin wavy beds; might be basal Weary Ridge Member of the Morrisey Formation; attitude: 153/54 NE.

B-58 Sandstone - medium- to coarse-grained, brown-weathering, quartz-chert, hard; maybe the Moose Mountain sandstone; attitude: 152/76 NE.

B-59 Here on north side of road, bank shows cobbly gravel.

B-60 Old test pit into sheared coal; ca. 12 m to NE is another old pit with sheared coal on its dump.

B-61 Gritty cobbly pebble-gravel, probably another kame.

B-62 Sandstone / Siltstone - very thinly-interbedded platy very fine-grained sandstone and dark grey siltstone with occasional bright coal lenses; attitude: 169/80 NE.

10 m further along road to E the attitude is 150/80 NE.

B-63 Here is recent test pit in clean, platy, slightly sheared coal, partly covered by loggers' pile of wood chunks.

B-64 Here ca. 5 m deep test pit with large tree growing out of it; dump shows bright blocky coal and sheared coaly siltstone.

B-65 Sandstone - medium- to coarse-grained, light grey, thin wavy beds, some rill marks; attitude: 075/53 NW (good).

B-66 Sandstone - medium-grained, thin irregular platy beds; attitude 068/67 NW.

B-67 Sandstone - medium-grained, as before; here thin irregular beds overlie flaggy, broadly trough cross-bedded sandstone; attitude: 082/53 NW.

B-68 Sandstone - medium-grained, grey-weathering, very clean, quartzitic to cherty, thick planar beds, locally with swaly cross-lamination; very hard; might be Moose Mountain sandstone; attitude: 070/48 NW (good).

B-69 Sandstone - medium-grained, orange-weathering, quartz-chert-lithic, very clean; thick irregular large-scale low-angle cross-laminated beds; probably Moose Mountain sandstone; attitude: 068/46 NW (good).

B-70 Here on high side of South Road, possibly Weary Ridge sandstone:
Sandstone - fine-grained, silty, quartz-feldspar, steep planar cross-bedded; attitude: 070/48 NW (good).

B-71 On north side of Bingay Creek, possibly basal Weary Ridge sandstone:
Sandstone - fine-grained, quartz-feldspar, drab-weathering, medium-bedded, hummocky cross-bedded; attitude: 063/27 NW (good).

B-72 On north side of creek at sharp bend:
Sandstone - fine- to medium-grained, drab, quartz-feldspar, parallel-laminated, soft; attitude: 072/43 NW.

B-73 Sandstone - fine-grained, dull red-weathering, quartz-chert, swash-laminated, moderately hard; probably Moose Mountain; attitude: 107/54 NE (good).

B-74 Here on south side of creek, but viewed from north, as creek was running high:
Sandstone - medium to thick-bedded, broad swaly to shallow trough cross-sets; attitude perhaps 087/12 S?; could be an anticlinal buckle along Bingay Creek.

B-75 On north side of creek, probably basal Moose Mountain sandstone:
Sandstone - fine- to medium-grained, grey-weathering, large-scale trough cross-bedded, moderately hard; attitude: 110/32 NE (good).

B-76 Sandstone - fine-grained, grey-weathering, quartz-feldspar-chert, thin to medium planar beds, with closely-spaced joints (axial-plane joints?) at 034/83 NW; maybe basal Moose Mountain; attitude: 108/58 NE (good).

B-77 Sandstone - medium to thick planar beds, drab-weathering; possibly Weary Ridge; attitude: 126/60 NE.

B-78 On north bank of Bingay Creek:
Sandstone - fine- to medium-grained, flaggy; attitude: 124/62 NE.

B-79 Sandstone - medium-grained, medium to thick-bedded, hard, probably Moose Mountain; attitude: 115/38 NE.

B-80 Here a spectacular cliff-forming outcrop on north bank of the creek:
Sandstone - thick-bedded, wavy-bedded, quartz-lithic, moderately hard; probably the basal Moose Mountain; forms a prominent wall along the creek; along the south side of the wall are less-resistant thin-bedded sandstones with rare wavy siltstone laminae and occasional *Ophiomorpha* burrows; probably the uppermost Weary Ridge; strongly jointed (30 to 90 cm spacing) at 052/45 to 65 SE; attitude: 148/85 NE. Note: these are probably the 'Passage Beds' mentioned by Utah's geologists.

B-81 Sandstone - very fine- to fine-grained, brown-weathering, platy; attitude: 159/65 NE.

September 13, 2004 (accompanied by Steve Gardner)

B-82 Sandstone - medium-grained, light buff-weathering, very thin wavy rippled beds; clean; attitude: 038/50 NW (fair).

B-83 Here a trench runs 120° down hill, exposing ca. 4 m of weathered carbonaceous shale and coal, possibly overlain by platy sandy siltstone; cannot get attitude here.

B-84 Here to southwest of, and probably overlying the coal, is:
Sandstone - very fine-grained, medium grey, very silty, platy to blocky-weathering, with ironstone lenses; attitude: 057/52 NW (good).

B-85 Old test pit; dump shows fine weathered coal with pieces of wavy, buff-weathering, sparsely-rooted sandstone atop the coal.

B-86 Sandstone - very fine-grained, orange-weathering, very thin wavy rippled beds; attitude: 048/57 NW (good).

B-87 Here a deep water-filled trench running 120° for 30 metres out from the base of the sandstone ledge; trench spoil is mostly platy sandstone and siltstone, with minor grey mudstone.

B-88 Sandstone - very fine- to fine-grained, red- and grey-weathering, ripple-drifted; some discontinuous silty streaks; indicated paleoflow to NE; attitude: 050/72 NW.

B-89 Slightly upsection:
Sandstone - very fine-grained, ripple-drifted at base, overlain by linguoid ripples; very thin silty laminae; attitude: 058/55 NE (good).

B-90 Here a small pit with 50 cm of sheared weathered coal and carbonaceous, rooty siltstone; attitude: 094/43 N (good).

B-91 Here is 30 metre long cat trench at 125°, with coal spoil in middle. At west end is: Siltstone - very thin-bedded, wavy-bedded, sandy; attitude: 055/57 NW (fair).

B-92 Test pit with spoil of coal, with chunks of rooty sandstone atop the pile.

B-93 Sandstone - very fine- to fine-grained, festoon-laminated, platy to blocky; attitude: 072/38 NW (fair).

B-94 Small hand trench into weathered coal and carbonaceous siltstone.

B-95 Old test pit with fine coal and carbonaceous mudstone in dump.

B-96 Siltstone, sandy, rubbly to platy; attitude: 096/55? N (poor); 15 m to SE of here is coal spoil; may be an old cat trench.

B-97 Old test pit; dump shows carbonaceous shale and coal.

B-98 Sandstone - fine-grained, orange-red-weathering, clean; thin rippled beds; attitude: 070/54 NW.

B-99 Old test pit with fine, weathered, sheared coal on dump.

B-100 Sandstone - fine- to very fine-grained, very thin-bedded, silty, rubbly, with flaseroid silty streaks; attitude: 050/80 NW (fair).

B-101 Sandstone - fine-grained, very thin irregular beds; platy-weathering; attitude: 033/62 NW (fair).

B-102 Sandstone - medium- to coarse-grained, light grey, patchy red-weathering, trough cross-bedded, with wood imprints; attitude: 053/57 NE (good).

B-103 On North Road:
Weathered coal in west side ditch.

B-104 Sandstone - fine- to medium-grained, grey-weathering, thin swaly beds; attitude: 030/78 (overturned) NW.

B-105 Siltstone / Mudstone - thickly interlaminated, with abundant plant debris; overlain to east by platy to blocky fine-grained sandstone; attitude: 045/82 NE.

March 24, 2005 (with Steve Gardner, project manager, and Robb Racz, geophysical engineer)

Ran geophysical logs.

March 25, 2005 (accompanied by Steve Gardner and Robb Racz)

Ran geophysical logs in boreholes 7V and 8A. Borehole 7V has water at about 2.5 metres depth; bubbling gas in small amounts, which increased after the passage of the geophysical sondes. Log shows coal near surface here. From field prints of logs, borehole 7V got coals from No.13 through No.20. Borehole 8A got coals from No.11 through No.19.

B-106 Here in drill sump, located 11 paces north of collar of borehole 8A, is weathered coal; cannot get solid enough material to measure attitude here. Suspect that this is the subcrop edge of the Bingay No.20 coal bed.

March 26, 2005 (accompanied by Steve Gardner and Robb Racz)

Today running geophysical logs.

B-107 [T-3] Here a trench (surveyed as Trench 3, with control point at roof of coal bed) on south side of the Witness Tree Road:

19	Siltstone - dark grey, brown-weathering, sandy, rooty. Thin irregular beds; gradational base.	0.87	8.00
18	Sandstone - very fine-grained, brown-to rusty-weathering, very silty, thin irregular beds; abrupt base.	0.78	7.13
17	Sandstone / Siltstone (60:40) - interlaminated, thin-bedded very fine-grained sandstone and siltstone; dark grey, rusty-weathering, flaggy to blocky; abrupt base.	0.44	6.35
16	Siltstone - dark grey, brown-weathering, thin-bedded, blocky, hard; abrupt base.	0.62	5.91
15	Siltstone / Mudstone (50:50) - interlaminated, dark grey, brown-weathering, very thin platy beds; abrupt base; attitude: 055/58 NW.	0.94	5.29
14	Siltstone - dark grey, brown-weathering, platy, with occasional thin bright coal bands; gradational base.	0.69	4.35
13	Mudstone - dark brown, carbonaceous, platy, slightly sheared; abrupt base; attitude: 051/53 NW.	0.49	3.86
	----- Roof of Bingay No.16 coal bed -----		
12	Coal - dull and bright, sheared, weathered; abrupt base.	0.66	3.37
11	Coal - dull, platy; abrupt base.	0.07	2.71
10	Mudstone - black, coaly, platy, hard; abrupt base.	0.07	2.64
9	Coal - dull banded, slightly sheared; abrupt base.	0.14	2.57
8	Mudstone - dark brown to black, carbonaceous, rooty; abrupt base; attitude: 029/51 W.	0.05	2.43
7	Coal - dull banded, dirty; abrupt base.	0.09	2.38
6	Coal - dull and bright, sheared, weathered; abrupt base.	1.13	2.29
5	Coal - dull banded, dirty, weathered; abrupt base.	0.24	1.06
4	Mudstone - black, coaly, orange-weathering, rooty, sheared; gradational base.	0.08	0.82
3	Mudstone - dark brown, carbonaceous, rooty; abrupt base.	0.15	0.74
2	Coal - dull and bright, sheared, weathered; abrupt base; attitude: 023/54 W.	0.59	0.59
	----- Floor of Bingay No.16 coal bed -----		
1	Mudstone - black, coaly, rooty, weathered; probable floor of coal; base not seen. Here 2 m of gravel cover, and rockhead dives steeply down to east; probable meltwater channel. Subcrop of Nos. 15 and 14 coals is likely beneath the gravel.	>0.15	0.00

B-108 **[T-17]** Here on east side of the Witness Tree Road, coal is exposed in a trench (surveyed at roof of the coal bed, as Trench No.17; roof contact of the coal is 1.9 metres below ground level). Soil is 90 to 120 cm of stony colluvium. Section here is:

17	Siltstone - dark grey, brown-weathering, sandy, very thin parallel beds, platy-weathering; abrupt base; attitude: 075/54 NW.	1.23	4.83
16	Oil shale? - dark brown to black, very carbonaceous, delicately laminated; very low density; abrupt base.	0.13	3.60
15	Mudstone - medium brown, golden-weathering, rooty, very soft; abrupt base.	0.17	3.47
14	Mudstone - dark grey, silty, slightly carbonaceous, fissile, with abundant plant trash, possibly a pond bed; slightly sheared; abrupt base.	0.53	3.30
13	Mudstone - black, carbonaceous, with abundant thick bright coal bands; platy-weathering, slightly sheared; abrupt base.	0.24	2.77
	----- Roof of Bingay No.17 coal bed -----		
12	Coal - dull, stony, with yellow jarosite along cleat; abrupt base.	0.01	2.53
11	Coal - bright banded, weathered.	0.39	2.52
10	Coal - dull and bright, weathered.	0.63	2.13
9	Coal - bright banded, weathered.	0.18	1.50
8	Coal - dull banded, weathered.	0.19	1.32
7	Coal - dull and bright, weathered.	0.12	1.13
6	Coal - bright banded, weathered; abrupt base.	0.29	1.01
5	Coal - dull lustrous, with distinctive grey submetallic lustre (maybe a durain band?); blocky-weathering; undulating, possibly erosional base.	0.03	0.72
4	Coal - dull and bright, weathered; not sheared; abrupt base.	0.51	0.69
3	Coal - bright banded, sheared; abrupt base.	0.18	0.18
	----- Floor of Bingay No.17 coal bed -----		
2	Mudstone - black, coaly, intensely sheared.	0.08	0.00
1	Siltstone - dark grey, rusty-weathering, sandy, delicately laminated, platy, hard and brittle, sparsely rooted at top; abundant fine plant trash including *Metasequoia*? fronds and possible *Pinus* needles; occasional fine sandy flasers, probably a lake bed; base not seen; attitude: 070/41 NW.	>0.34	

B-109 Here on south side of access road to boreholes 11 and 12, 13 paces at 308° from the collar of borehole 12, dug pit through 2.7 metres of gravel to the following:

2	Coal - dull banded, sheared, weathered.	>0.75	>0.75
	----- Floor of Bingay No.14 coal bed? -----		
1	Siltstone - dark grey, sandy, platy-weathering, with plant debris; attitude: 047/50? NW.		0.00

Overall surficial section here is 90 cm of bouldery colluvium over 3 metres of compact cobbly gravel.

B-110 Here at right-angle bend in Witness Tree Road, southeast of the tree, coal is exposed on the inside (northwest) corner of the bend, with dip rapidly swinging from northwest around to north in a local anticlinal buckle. Top of coal at west side of road was surveyed as Bent Trench; section here is:

17	Siltstone - dark grey, platy, with occasional thin flaseroid sandy laminae; abundant fine plant debris; abrupt base.	>0.15	4.28
16	Mudstone - dark grey, brown-weathering, slightly silty, delicately laminated, platy, with abundant angiosperm leaves and occasional conifer needles at base, some well-preserved small fern fronds; gradational base; attitude: 076/60 NW.	0.35	4.13
15	Mudstone - dark grey, carbonaceous, with abundant plant trash, platy to rubbly-weathering, slightly sheared.	0.16	3.78
	----- Roof of Bingay No.16 coal bed -----		
14	Coal - dull, dirty, sheared and weathered; abrupt base.	0.15	3.62
13	Coal - dull and bright, sheared, weathered; abrupt base.	0.19	3.47
12	Coal - bright banded, slightly sheared, weathered; abrupt base.	0.87	3.28
11	Mudstone - black, coaly, intensely sheared; cornflakes.	0.17	2.41
10	Coal - dull and bright, sheared and weathered; abrupt base.	0.73	2.24
9	Mudstone - black, coaly; abrupt base.	0.13	1.51
8	Coal - dull and bright, slightly sheared, weathered.	0.38	1.38
7	Coal - bright banded.	0.10	1.00
6	Coal - dull banded, weathered.	0.25	0.90
5	Mudstone - black, coaly, with abundant thick bright coal bands; slightly sheared.	0.17	0.65
4	Coal - dull and bright, slightly sheared; weathered.	0.48	0.48
	----- Floor of Bingay No.16 coal bed -----		
3	Mudstone - dark brown, carbonaceous, rooty, sheared and weathered; attitude: 050/58 NW?	0.12	0.00
2	Siltstone - golden brown-weathering, sandy, sparsely rooted, weathered and soft; gradational base.	0.10	
1	Siltstone - dark grey, brown-weathering, sandy, platy, thin-bedded, with abundant fine and coarse plant trash; base not seen.	>0.47	

B-111 Here at junction of Daisy Road and Witness Tree Road, coal is exposed as subcrop within ditch-line. Dug trench at 138° across the Daisy Road, approximately on line of cross-section B-B'. Trench is 23.5 metres (at 204°) of the fork of the roads. Floor of No.16 coal bed is 1.35 metres below ground surface at point of measurement. Floor of No.14 coal bed is beneath west edge of Daisy Road. Section as follows:

21	Mudstone - black, carbonaceous, intensely weathered; top concealed by gravel; probable roof of coal bed.	>0.50	11.05
	----- Roof of Bingay No.16 coal bed -----		
20	Coal - dull banded, intensely weathered, very soft.	1.17	10.55
19	Mudstone - dark brown to black, carbonaceous, platy, with occasional plant trash; slightly sheared.	0.56	9.38
18	Coal - dull banded, intensely weathered, locally sheared.	3.08	8.82
	----- Floor of Bingay No.16 coal bed -----		
17	Mudstone - black, carbonaceous, sheared, weathered.	0.22	5.74
	----- Roof of Bingay No.15 coal bed -----		
16	Coal - bright banded, sheared and contorted, weathered.	0.50	5.52
15	Coal - dull banded, sheared and contorted, locally overturned, weathered.	0.63	5.02
	----- Floor of Bingay No.15 coal bed -----		
14	Mudstone - dark brownish-grey, silty, slightly carbonaceous, with abundant plant trash; abrupt base.	0.40	4.39
13	Mudstone - black, coaly, intensely sheared and weathered; abrupt base.	0.12	3.99
12	Mudstone - brownish-grey, slightly silty, with occasional rootlets; abundant plant debris; thin irregular beds.	2.36	3.87
11	Mudstone - dark brown, carbonaceous, with large coalified wood fragments; abrupt base.	0.08	1.51
10	Marlstone? - light brown, silty, ferruginous, with abundant conifer needles; hackly fracture, low density; abrupt base.	0.03	1.43
	----- Roof of Bingay No.14 coal bed? -----		
9	Coal - dull and bright, weathered.	0.24	1.40
8	Mudstone - black, coaly, sheared.	0.08	1.16
7	Coal - dull, dirty, sheared; intensely weathered.	0.61	1.08
6	Coal / Shale (55:45) - interbedded dull and bright coal with black coaly mudstone.	0.47	0.47
	----- Floor of Bingay No.14 coal bed? -----		
5	Mudstone - black, coaly, rooty, with abundant thick bright coal bands, platy, hard; gradational base.	0.43	0.00
4	Mudstone - dark brownish-grey, slightly carbonaceous, with occasional thick bright coal bands.	0.40	
3	Mudstone - dark brown to black, carbonaceous, sheared and weathered; abrupt base.	0.60	
2	Sandstone / Siltstone (50:50) - thinly-interbedded, dark grey, brown-weathering very fine-grained sandstone and siltstone; platy-weathering; gradational base.	1.14	
1	Sandstone - fine-grained, brown-weathering, cherty, thin- to medium-bedded, with occasional angiosperm leaves. Base not seen. Attitude: 008/68 E.	>0.67	

March 27, 2005 (accompanied by Steve Gardner and Robb Racz)

Running geophysical logs.

March 28, 2005 (accompanied by Steve Gardner and Robb Racz)

Today running geophysical logs of borehole 9A, with light snow falling.

B-6 (revisited) See earlier entry for this station; here dug out the Bingay Nos.14/15/16 coal beds along a trench line bearing 120°, in the south side ditch of the Daisy Road.

B-112 Here bedrock is exposed on the south side of the spur road, 26 metres easterly (098°) from the collar of borehole 10A: Siltstone / Sandstone (80:20) - very thin-bedded, dark grey, brown-weathering, platy siltstone with very thin low-angle cross-beds of very fine-grained, rippled, silty sandstone; ripples and cross-bedding show stratigraphic tops to east; attitude: 013/80 W (overturned; good).

B-113 Here 8 paces further to east, on south side of road, thin graded interbeds of sandy siltstone and silty sandstone; attitude: 011/66 W, with stratigraphic tops to west; evidently the core of the syncline is very tight here.

B-114 Dug a trench across the swale on the south side of spur road to boreholes 9A and 10A; found only cobbly gravel, at least 3 metres thick, with a few blocks of coaly mudstone near its base. Suspect that the subcrop of the east limb of the No.18 coal bed is located here, about 45 metres east of borehole 10A. An old hand-trench, now overgrown by trees, parallels the road on its south side.

B-115 Dug a pit into the southeast corner of drill pad for boreholes 9A and 10A; found wet gravel and cobbles with gassy water at 1.8 metres depth; also rubble of black coaly mudstone; may be the subcrop of the west limb on the No.18 coal bed here. Pit is located 20 metres east of the collar of borehole 10A

B-116 Dug a pit on south side of Witness Tree Road, 24 paces east of first bend in road, and got the following section:

2	Colluvium - platy to blocky rubble of sandstone and siltstone; abrupt base.	0.4 m
1	Gravel - slight sandy, rounded to well-rounded pebbly cobbly gravel, dry, no water flow; may be an old meltwater channel fill.	>2.5 m

B-117 Here at south side of Witness Tree Road at first bend, is good exposure in ditch-line, of steep east-dipping platy- to blocky-weathering very fine-grained silty sandstone overlying brown-weathering, very thin-bedded, platy- to blocky-weathering silty mudstone with occasional coalified logs; stratigraphic tops are to east; attitude: 172/80 E (excellent).

APPENDIX III
GEOPHYSICAL LOGS

RUN	BOREHOLE RECORD			CASING RECORD		
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM TO
1	193.70MM	154.02M	72	191.00MM	21.32KG/M	SURFACE 5.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
990 /015	990 /015			

REMARKS

DIPMETER ANALYSIS

NORTHERN EXPLORER

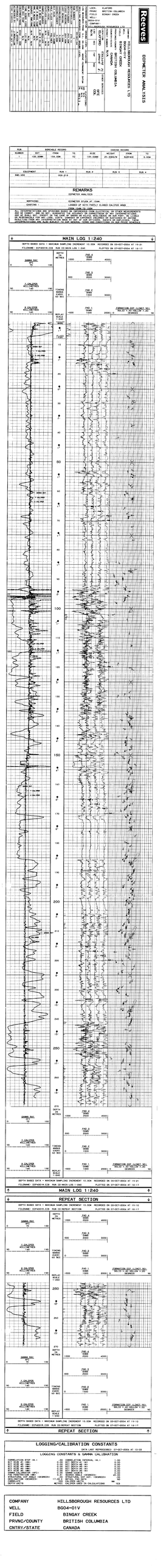
DIPMETER STUCK AT 154M.
LOGGED UP WITH PARTLY CLOSED CALIPER ARMS

ALL INTERPRETATIONS AND OPINIONS BASED ON INFERENCE FROM ELECTRICAL OR OTHER MEASUREMENTS ARE OF NECESSITY OPINIONS ONLY. WE CANNOT AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS OR EMPLOYEES OR AGENTS. ANY INTERPRETATIONS WE MAKE SHALL BE DONE AND ACCEPTED AT YOUR AND YOUR CLIENT'S RISK AND NEITHER WE NOR ANY OF OUR EMPLOYEES ARE TO BE LIABLE FOR ANY LOSS OR DAMAGE WHICH MAY BE SUFFERED BY YOU OR YOUR CLIENT AS A CONSEQUENCE OF ANY SUCH INTERPRETATION.

MAIN LOG 1:240

DEPTH BASED DATA + MAXDAM SAMPLING INCREMENT 10.00M RECORDED ON 09-OCT-2004 AT 19:21

FILENAME: DIP4001A.DIR RUN 03 MAIN LOG 1:240 PLOTTED ON 07-OCT-2004 AT 19:17



REPEAT SECTION

DEPTH BASED DATA + MAXDAM SAMPLING INCREMENT 10.00M RECORDED ON 09-OCT-2004 AT 19:10

FILENAME: DIP4001R.DIR RUN 03 REPEAT SECTION PLOTTED ON 07-OCT-2004 AT 19:17

LOGGING/CALIBRATION CONSTANTS

LOGGING CONSTANTS + GAMMA CALIBRATION

CORRELATION STEP (M.)	0.02	CORRELATION INTERVAL (M.)	1.00
SEARCH ANGLE	30.00	SEARCH AZIMUTH	0.00
BIAS FOR PAD 1 (MM)	0.00	BIAS FOR PAD 2 (MM)	0.00
BIAS FOR PAD 3 (MM)	0.00	BIAS FOR PAD 4 (MM)	0.00
BIAS FOR PAD 5 (MM)	0.00	BIAS FOR PAD 6 (MM)	0.00
LOGGING SPEED (M/HR)	1800		
PAD ORIENTATION (MM)	0.0	WORKING AZIMUTH (DEGREES)	45.00
MAGNETIC DECLINATION (DEGREES)	17.00	GRID CORRECTION (DEGREES)	0.00
CONVERGENCE CORRECTION	NO	CALIPER SHIFTS	NO
DEPTH UNITS	METRES	CALIPER USED IN CALCULATIONS	YES

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	B004-01V
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

Reeves

VERTICALITY ANALYSIS

LOCN.	ELKFORD
PRVNC	BRITISH COLUMBIA
FIELD	BINGAY CREEK
WELL:	BG04-01V
COMPANY:	HILLSBOROUGH RESOURCES LTD

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG04-01V
FIELD	BINGAY CREEK
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA
PERMIT NUMBER	N/A
LOCATION	ELKFORD 5562698 N. 644015 E.
LSD / SEC / TWP / RGE	N/A
OTHER SERVICES	SFE CDL

PERMANENT DATUM GROUND LEVEL ,ELEVATION
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS: KB N/A DF N/A GL 1452.3 m.

DATE	05-OCT-04
RUN NUMBER	1
DEPTH-DRILLER	270.10
DEPTH-LOGGER	269.90M
FIRST READING	269.40M
LAST READING	3.00M
CASING-DRILLER	3.00M
CASING-LOGGER	3.00M
BIT SIZE	133.35MM
HOLE FLUID TYPE	POLYMER
DENS./VISC.	1000 N/A
PH/FLUID LOSS	N/A N/A
SAMPLE SOURCE	DRILLER
RM @ MEAS TEMP	2.00 @ 20.0C
RMF @ MEAS TEMP	N/A
RMC @ MEAS TEMP	N/A
SOURCE: RMF/RMC	N/A N/A
RM @ BHT	N/A
TIME SINCE CIRC	110 HRS
MAX REC TEMP	N/A
EQUIPMENT/BASE	V232 RDR
RECORDED BY	A.SPASKYY
WITNESSED BY	J.MCMILLAN
CIRC STOPPED	18:00 OCT 01

VERTICALITY ANALYSIS INTERPRETATION NOTES

1. ALL PLOTTED OUTPUT IS AUTOMATICALLY SCALED TO OBTAIN THE BEST VISUAL EFFECT WITHIN THE PHYSICAL SPACE AVAILABLE. THE MAXIMUM SCALES BEING 1:50000 (METRIC) AND 1:48000 (IMPERIAL), AND THE MINIMUM 1:1.

2. THE ANALYSIS IS DERIVED BY INTEGRATING 10CM. SAMPLED DATA DOWN THE BOREHOLE. THE LISTING SUPPLIED WILL CONTAIN A MAXIMUM OF 200 POINTS IN MULTIPLES OF 1, 2, 5, 10, 20, 50 OR 100 METRES/ FEET DEPENDING ON THE TOTAL RANGE OF THE ANALYSIS. HOWEVER THE ANALYSIS IS CALCULATED FOR THE ENTIRE RANGE OF THE BOREHOLE AND THE FINAL BOREHOLE POSITION IS INCLUDED IN THE LISTING.

3. COMPUTED VERTICALITY MAY ONLY BE FULLY DERIVED IN OPEN SECTIONS OF THE BOREHOLE, AWAY FROM THE INFLUENCE OF ANY UNUSUAL MAGNETIC EFFECTS (AS THE AZIMUTH CALCULATIONS ARE DERIVED FROM THREE SOLID STATE MAGNETOMETERS). SO THE ANALYSIS WILL GENERALLY BEGIN AT THE END OF THE CASING AND ALL BOREHOLE POSITIONAL INFORMATION WILL RELATE TO THIS DEPTH.

4. UP TO TEN CROSS SECTIONS MAY BE REQUESTED FOR ANY BOREHOLE TO BE DISPLAYED AT ANY SCALE (THE DEFAULT SCALE IS THAT OF THE CROSS-SECTION FOR THE ENTIRE HOLE).

5. BOREHOLE POSITIONAL ERROR IS DERIVED ASSUMING THE FOLLOWING PARAMETERS.

	TILT(DEGREES)	AZIMUTH(DEGREES)
TYPICAL ERROR	+/- .3333	+/- 10.00
MAXIMUM ERROR	+/- .5000	+/- 15.00

6. ERROR ANALYSIS MAY BE CALCULATED AND PLOTTED FROM THE DATA LISTING AS FOLLOWS:

   A) PLOT THE FOUR COORDINATES FROM THE ERROR LISTING (BASED UPON ZERO AZIMUTH ERROR) ON A TARGET PLOT. ORIGIN AT THE START OF THE ANALYSIS.
   B) DESCRIBE ARCS OF +/- 10.00 DEGREES AND +/- 15.00 DEGREES (CENTRE AT THE ORIGIN) THROUGH THE INNER AND OUTER POINTS RESPECTIVELY.
   C) CONNECT THE RESPECTIVE ARCS TOGETHER WITH STRAIGHT LINES TO GIVE THE TYPICAL AND MAXIMUM BOREHOLE POSITIONAL ERROR.

7. GIVEN BELOW IS A FULL DESCRIPTION OF THE PARAMETERS DISPLAYED ON THE ENSUING LISTING:

LOG DEPTH	THE DEPTH RECORDED ON THE FIELD LOGS FOR THE BOREHOLE.
TRUE DEPTH	THE TRUE VERTICAL DEPTH CORESPONDING TO THE ABOVE DEPTH. CORRECTED FROM THE START OF THE ANALYSIS.
HOLE TILT AND AZIMUTH	THE SAMPLED BOREHOLE ORIENTATION.
AXIAL COORDINATES	THE COORDINATES NORTH AND EAST FROM THE TARGET ORIGIN.
POLAR COORDINATES	THE POLAR, OR RADIAL COORDINATES OF THE BOREHOLE.
ERROR COORDINATES	THE POLAR COORDINATES CORRESPONDING TO THE TYPICAL AND MAXIMUM TILT ERROR.

N.B. THE REFERENCE POINT FOR ALL BEARING ANGLES ON THIS LISTING IS GIVEN AT THE TOP OF EACH SHEET.

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

BG04-01V

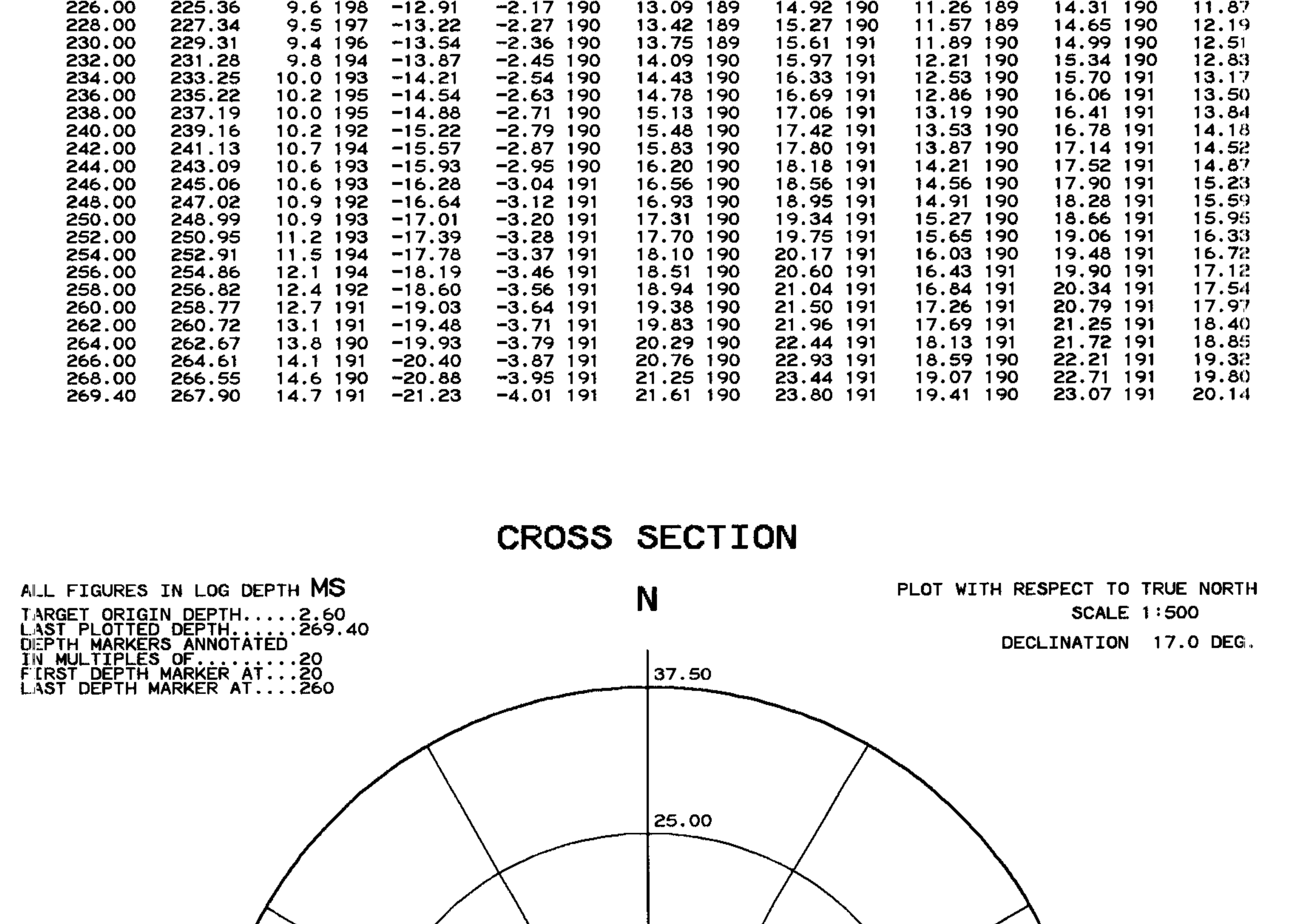
VERTICALITY DATA LISTING FOR DIP4001M.CIB — DATE PROCESSED: 7-OCT-2004
ALL CO-ORDINATES WITH RESPECT TO TRUE NORTH — DATE LOGGED: 05-OCT-2004

DEPTHS LOG	TRUE	BOREHOLE TILT	AZI	AXIAL CO-ORDS NORTH	EAST	POLAR BRG	RADIUS	POLAR ERROR CO-ORDINATES (MAXIMUM & TYPICAL) BRG	RADIUS	BRG	RADIUS	BRG	RADIUS	BRD	RADIUS
4.00	4.00	1.5	93	-0.01	0.01	114	0.01	113	0.02	116	0.01	113	0.02	115	0.01
6.00	6.00	1.0	167	-0.03	0.01	166	0.04	165	0.05	167	0.02	166	0.04	167	0.03
8.00	8.00	1.0	161	-0.08	0.02	169	0.08	169	0.11	170	0.05	169	0.10	170	0.06
10.00	10.00	1.4	183	-0.13	0.02	171	0.13	171	0.17	171	0.08	171	0.16	171	0.10
12.00	12.00	1.7	190	-0.17	0.02	172	0.17	172	0.24	172	0.11	172	0.21	172	0.13
14.00	14.00	1.0	183	-0.21	0.03	173	0.22	173	0.30	173	0.13	173	0.27	173	0.16
16.00	16.00	1.4	190	-0.26	0.02	175	0.26	175	0.36	175	0.16	175	0.32	175	0.19
18.00	18.00	1.2	183	-0.30	0.02	177	0.30	177	0.41	177	0.19	177	0.38	177	0.22
20.00	20.00	1.4	179	-0.34	0.01	178	0.34	178	0.47	178	0.21	178	0.43	178	0.25
22.00	21.99	1.2	174	-0.38	0.01	179	0.38	179	0.52	179	0.23	179	0.48	179	0.28
24.00	23.99	1.4	219	-0.41	0.00	180	0.41	180	0.58	180	0.25	180	0.52	180	0.31
26.00	25.99	1.5	208	-0.45	0.00	180	0.45	180	0.63	181	0.27	180	0.57	181	0.33
28.00	27.99	1.4	188	-0.49	-0.01	181	0.49	181	0.69	181	0.29	181	0.62	181	0.36
30.00	29.99	1.2	177	-0.53	-0.01	181	0.53	181	0.74	181	0.32	181	0.67	181	0.39
32.00	31.99	0.7	170	-0.57	-0.02	182	0.57	182	0.79	182	0.34	182	0.72	182	0.41
34.00	33.99	0.9	187	-0.61	-0.02	182	0.61	182	0.85	182	0.36	182	0.77	182	0.44
36.00	35.99	1.2	185	-0.64	-0.03	182	0.64	182	0.90	183	0.38	182	0.82	182	0.47
38.00	37.99	1.2	188	-0.68	-0.03	183	0.68	183	0.96	183	0.40	183	0.86	183	0.49
40.00	39.99	1.1	174	-0.71	-0.04	183	0.71	183	1.01	183	0.42	183	0.91	183	0.52
42.00	41.99	0.7	150	-0.75	-0.04	183	0.75	183	1.06	183	0.44	183	0.96	183	0.54
44.00	43.99	1.2	203	-0.79	-0.04	183	0.79	183	1.12	183	0.46	183	1.01	183	0.57
46.00	45.99	0.9	185	-0.83	-0.05	183	0.83	183	1.17	183	0.49	183	1.06	183	0.60
48.00	47.99	0.9	175	-0.87	-0.05	183	0.87	183	1.23	183	0.51	183	1.11	183	0.63
50.00	49.99	1.2	180	-0.92	-0.05	183	0.92	183	1.30	183	0.54	183	1.17	183	0.67
52.00	51.99	1.5	177	-0.96	-0.05	183	0.96	183	1.36	183	0.57	183	1.23	183	0.70
54.00	53.99	1.5	169	-1.01	-0.04	182	1.01	182	1.42	182	0.60	182	1.29	182	0.74
56.00	55.99	1.8	174	-1.06	-0.04	182	1.06	182	1.49	182	0.63	182	1.35	182	0.78
58.00	57.99	1.4	206	-1.11	-0.04	182	1.11	182	1.56	182	0.67	182	1.41	182	0.81
60.00	59.99	1.3	183	-1.16	-0.03	181	1.16	181	1.62	181	0.70	181	1.47	181	0.85
62.00	61.98	2.0	177	-1.21	-0.02	181	1.21	181	1.69	181	0.73	181	1.53	181	0.89
64.00	63.98	1.4	190	-1.26	-0.01	181	1.27	181	1.76	181	0.77	181	1.60	181	0.93
66.00	65.98	1.7	161	-1.32	0.00	180	1.32	180	1.83	180	0.80	180	1.66	180	0.98
68.00	67.98	1.0	172	-1.37	0.00	180	1.37	180	1.90	180	0.84	180	1.72	180	1.02
70.00	69.98	1.8	184	-1.42	0.02	179	1.42	179	1.97	179	0.88	179	1.79	179	1.06
72.00	71.98	2.2	182	-1.48	0.03	179	1.48	179	2.04	179	0.91	179	1.85	179	1.10
74.00	73.98	2.0	149	-1.53	0.04	178	1.53	179	2.11	178	0.95	178	1.92	178	1.14
76.00	75.98	1.3	147	-1.58	0.06	178	1.58	178	2.18	177	0.99	178	1.98	178	1.19
78.00	77.98	1.6	174	-1.63	0.07	177	1.64	178	2.25	177	1.02	178	2.04	177	1.23
80.00	79.98	1.5	157	-1.69	0.09	177	1.69	177	2.32	176	1.06	177	2.11	177	1.27
82.00	81.98	1.6	158	-1.74	0.11	176	1.74	177	2.39	176	1.09	176	2.17	176	1.31
84.00	83.98	1.6	151	-1.78	0.13	176	1.79	176	2.45	175	1.13	176	2.23	176	1.35
86.00	85.98	1.3	152	-1.83	0.15	175	1.84	176	2.51	175	1.16	176	2.29	175	1.38
88.00	87.98	1.6	164	-1.87	0.17	175	1.88	175	2.57	174	1.19	175	2.34	175	1.42
90.00	89.97	1.5	170	-1.91	0.18	175	1.92	175	2.63	174	1.21	175	2.39	174	1.45
92.00	91.97	1.2	156	-1.95	0.20	174	1.96	174	2.69	174	1.23	174	2.44	174	1.48
94.00	93.97	1.5	181	-1.99	0.21	174	2.00	174	2.74	174	1.26	174	2.50	174	1.51
96.00	95.97	0.9	150	-2.03	0.21	174	2.04	174	2.80	174	1.28	174	2.55	174	1.54
98.00	97.97	1.1	181	-2.06	0.22	174	2.08	174	2.85	174	1.30	174	2.59	174	1.56
100.00	99.97	1.1	192	-2.10	0.21	174	2.11	174	2.90	174	1.32	174	2.63	174	1.58
102.00	101.97	1.3	186	-2.13	0.21	174	2.14	175	2.95	174	1.33	174	2.68	174	1.60
104.00	103.97	0.9	221	-2.16	0.20	175	2.17	175	2.99	174	1.35	175	2.72	175	1.63
106.00	105.97	0.5	212	-2.20	0.18	175	2.21	175	3.04	175	1.37	175	2.76	175	1.65
108.00	107.97	0.9	209	-2.24	0.16	176	2.24	176	3.09	175	1.39	176	2.81	176	1.68
110.00	109.97	1.7	205	-2.28	0.14	177	2.28	177	3.15	176	1.42	177	2.86	176	1.71
112.00	111.97	1.3	189	-2.32	0.11	177	2.33	177	3.21	177	1.45	177	2.91	177	1.74
114.00	113.97	1.9	218	-2.37	0.08	178	2.38	178	3.27	178	1.48	178	2.97	178	1.78
116.00	115.97	2.1	209	-2.42	0.05	179	2.43	179	3.33	179	1.52	179	3.03	179	1.82
118.00	117.97	0.9	218	-2.48	0.02	180	2.48	180	3.40	180	1.56	180	3.09	180	1.86
120.00	119.96	2.2	211	-2.54	-0.02	180	2.54	180	3.48	181	1.60	180	3.17	181	1.92
122.00	121.96	2.1	223	-2.61	-0.06	181	2.61	181	3.56	182	1.66	181	3.24	182	1.97
124.00	123.96	2.6	203	-2.68	-0.10	182	2.68	182	3.65	183	1.72	182	3.33	182	2.04
126.00	125.96	2.9	206	-2.76	-0.13	183	2.77	182	3.75	184	1.78	182	3.42	183	2.11
128.00	127.96	2.9	194	-2.85	-0.17	183	2.86	183	3.86	184	1.86	183	3.52	184	2.19
130.00	129.95	3.4	210	-2.95	-0.21	184	2.95	184	3.97	185	1.94	184	3.63	185	2.28
132.00	131.95	3.6	207	-3.05	-0.26	185	3.06	184	4.09	186	2.03	184	3.75	186	2.37
134.00	133.95	3.0	191	-3.16	-0.30	185	3.17	185	4.22	187	2.13	185	3.87	186	2.48
136.00	135.94	3.6	187	-3.28	-0.33	186	3.29	185	4.36	187	2.23	185	4.00	187	2.59
138.00	137.94	3.7	196	-3.40	-0.37	186	3.42	185	4.50	188	2.34	186	4.14	187	2.70
140.00	139.94	3.6	197	-3.53	-0.40	187	3.55	186	4.65	188	2.45	186	4.28	187	2.82
142.00	141.93	4.2	197	-3.66	-0.43	187	3.68	186	4.80	188	2.57	186	4.43	188	2.94
144.00	143.93	4.1	202	-3.80	-0.46	187	3.83	186	4.96	188	2.70	186	4.58	188	3.08
146.00	145.92	4.1	188	-3.95	-0.49	187	3.98	186	5.12	188	2.83	187	4.74	188	3.21
148.00	147.91	4.5	187	-4.09	-0.52	187	4.13	186	5.29	189	2.96	187	4.90	188	3.35
150.00	149.91	5.2	178	-4.25	-0.54	187	4.28	187	5.47	189	3.10	187	5.07	188	3.49
152.00	151.90	4.6	174	-4.41	-0.54	187	4.44	186	5.64	188	3.24	187	5.24	188	3.64
154.00	153.89	4.7	177	-4.58	-0.54	187	4.61	186	5.83	188	3.39	186	5.42	187	3.80
156.00	155.89	4.8	176	-4.74	-0.53	186	4.77	186	6.01	187	3.54	186	5.59	187	3.95
158.00	157.88	4.7	179	-4.91	-0.52	186	4.94	186	6.19	187	3.68	186	5.77	187	4.10
160.00	159.87	5.1	182	-5.08	-0.51	186	5.11	185	6.38	187	3.84	185	5.96	186	4.26
162.00	161.86	5.7	173	-5.26	-0.50	185	5.29	185	6.58	186	4.00	185	6.15	186	4.43
164.00	163.85	6.1	185	-5.46	-0.50	185	5.48	185	6.78	186	4.17	185	6.35	186	4.61
166.00	165.84	6.3	183	-5.67	-0.51	185	5.69	185	7.01	186	4.37	185	6.57	185	4.81
168.00	167.83	6.4	179	-5.89	-0.51	185	5.91	185	7.25	185	4.57	185	6.81	185	5.02
170.00	169.82	6.5	176	-6.12	-0.51	185	6.14	184	7.49	185	4.78	185	7.04	185	5.23
172.00	171.81	6.6	185	-6.34	-0.52	185	6.36	184	7.74	185	4.99	184	7.28	185	5.45
174.00	173.79	6.5	185	-6.57	-0.53	185	6.59	184	7.98	185	5.20	184	7.52	185	5.66
176.00	175.78	6.1	185	-6.79	-0.55	185	6.81	184	8.22	185	5.40	184	7.75	185	5.87
178.00	177.77	5.5	191	-7.00	-0.57	185	7.02	184	8.45	185	5.59	184	7.97	185	6.07
180.00	179.76	5.8	189	-7.19	-0.61	185	7.22	185	8.66	185	5.77	185	8.18	185	6.26
182.00	181.75	5.7	195	-7.39	-0.66	185	7.41	185	8.87	185	5.95	185	8.39	185	6.44
184.00	183.74	5.9	191	-7.58	-0.70	185	7.61	185	9.09	186	6.14	185	8.60	186	6.63
186.00	185.73	5.9	193	-7.78	-0.75	185	7.81	185	9.31	186	6.32	185	8.81	186	6.82
188.00	187.72	6.2	192	-7.98	-0.78	186	8.02	185	9.53	186	6.51	185	9.03	186	7.01
190.00	189.71	6.2	196	-8.19	-0.82	186	8.23	185	9.76	186	6.70	185	9.25	186	7.21
192.00	191.70	6.6	197	-8.40	-0.87	186	8.44	186	9.99	186	6.90	186	9.48	186	7.41
194.00	193.68	6.8	194	-8.62	-0.92	186	8.67	186	10.23	187	7.10	186	9.71	186	7.63
196.00	195.67	7.2	196	-8.85	-0.98	186	8.90	186	10.48	187	7.32	186	9.96	187	7.85
198.00	197.65	7.1	198	-9.09	-1.05	187	9.15	186	10.74	187	7.55	186	10.21	187	8.08
200.00	199.64	7.1	192	-9.33	-1.11	187	9.39	186	11.01	187	7.78	187	10.47	187	8.32
202.00	201.62	7.3	190	-9.58	-1.16	187	9.65	187	11.28	187	8.01	187	10.73	187	8.56
204.00	203.61	7.2	192	-9.82	-1.22	187	9.90	187	11.55	188	8.25	187	11.00	187	8.80
206.00	205.59	7.5	196	-10.07	-1.28	187	10.15	187	11.82	188	8.49	187	11.26	188	9.04
208.00	207.57	7.8	195	-10.33	-1.35	187	10.41	187	12.09	188	8.73	187	11.53	188	9.29
210.00	209.55	7.9	197	-10.59	-1.42	188	10.68	187	12.38	188	8.98	187	11.81	188	9.55
212.00	211.53	8.3	196	-10.86	-1.49	188	10.96	187	12.68	188	9.25	188	12.11	188	9.82
214.00	213.51	8.3	192	-11.14	-1.56	188	11.25	188	12.98	189	9.52	188	12.40	188	10.09
216.00	215.49	8.6	198	-11.42	-1.65	188	11.54	188	13.29	189	9.79	188	12.70	189	10.37
218.00	217.47	8.9	201	-11.71	-1.74	188	11.83	188	13.60	189	10.07	188	13.01	189	10.66
220.00	219.44	9.1	196	-12.00	-1.84	189	12.14	188	13.92	189	10.36	188	13.32	189	10.95
222.00	221.42	8.9	199	-12.30	-1.95	189	12.45	189	14.25	190	10.65	189	13.65	189	11.25
224.00	223.39	9.3	200	-12.60	-2.06	189	12.76	189	14.58	190	10.95	189	13.97	190	11.55
226.00	225.36	9.6	198	-12.91	-2.17	190	13.09	189	14.92	190	11.26	189	14.31	190	11.87
228.00	227.34	9.5	197	-13.22	-2.27	190	13.42	189	15.27	190	11.57	189	14.65	190	12.19
230.00	229.31	9.4	196	-13.54	-2.36	190	13.75	189	15.61	191	11.89	190	14.99	190	12.51
232.00	231.28	9.8	194	-13.87	-2.45	190	14.09	190	15.97	191	12.21	190	15.34	190	12.83
234.00	233.25	10.0	193	-14.21	-2.54	190	14.43	190	16.33	191	12.53	190	15.70	191	13.17
236.00	235.22	10.2	195	-14.54	-2.63	190	14.78	190	16.69	191	12.86	190	16.06	191	13.50
238.00	237.19	10.0	195	-14.88	-2.71	190	15.13	190	17.06	191	13.19	190	16.41	191	13.84
240.00	239.16	10.2	192	-15.22	-2.79	190	15.48	190	17.42	191	13.53	190	16.78	191	14.18
242.00	241.13	10.7	194	-15.57	-2.87	190	15.83	190	17.80	191	13.87	190	17.14	191	14.52
244.00	243.09	10.6	193	-15.93	-2.95	190	16.20	190	18.18	191	14.21	190	17.52	191	14.87
246.00	245.06	10.6	193	-16.28	-3.04	191	16.56	190	18.56	191	14.56	190	17.90	191	15.23
248.00	247.02	10.9	192	-16.64	-3.12	191	16.93	190	18.95	191	14.91	190	18.28	191	15.59
250.00	248.99	10.9	193	-17.01	-3.20	191	17.31	190	19.34	191	15.27	190	18.66	191	15.95
252.00	250.95	11.2	193	-17.39	-3.28	191	17.70	190	19.75	191	15.65	190	19.06	191	16.33
254.00	252.91	11.5	194	-17.78	-3.37	191	18.10	190	20.17	191	16.03	190	19.48	191	16.72
256.00	254.86	12.1	194	-18.19	-3.46	191	18.51	190	20.60	191	16.43	191	19.90	191	17.12
258.00	256.82	12.4	192	-18.60	-3.56	191	18.94	190	21.04	191	16.84	191	20.34	191	17.54
260.00	258.77	12.7	191	-19.03	-3.64	191	19.38	190	21.50	191	17.26	191	20.79	191	17.97
262.00	260.72	13.1	191	-19.48	-3.71	191	19.83	190	21.96	191	17.69	191	21.25	191	18.40
264.00	262.67	13.8	190	-19.93	-3.79	191	20.29	190	22.44	191	18.13	191	21.72	191	18.85
266.00	264.61	14.1	191	-20.40	-3.87	191	20.76	190	22.93	191	18.59	190	22.21	191	19.32
268.00	266.55	14.6	190	-20.88	-3.95	191	21.25	190	23.44	191	19.07	190	22.71	191	19.80
269.40	267.90	14.7	191	-21.23	-4.01	191	21.61	190	23.80	191	19.41	190	23.07	191	20.14

CROSS SECTION

ALL FIGURES IN LOG DEPTH MS
TARGET ORIGIN DEPTH.....2.60
LAST PLOTTED DEPTH......269.40
DEPTH MARKERS ANNOTATED IN MULTIPLES OF....20
FIRST DEPTH MARKER AT....20
LAST DEPTH MARKER AT....260

PLOT WITH RESPECT TO TRUE NORTH
SCALE 1:500
DECLINATION 17.0 DEG.



BOREHOLE POSITIONAL ERROR

THE TWO BOXES SURROUNDING THE FINAL POSITION SHOW THE TYPICAL AND MAXIMUM ERROR AT THAT DEPTH.

FINAL BOREHOLE POSITION

THE LAST PLOTTED DEPTH IS AT 21.23 MS SOUTH, 4.01 MS WEST IE. 21.61 MS FROM THE ORIGIN, 191 DEG FROM TRUE NORTH

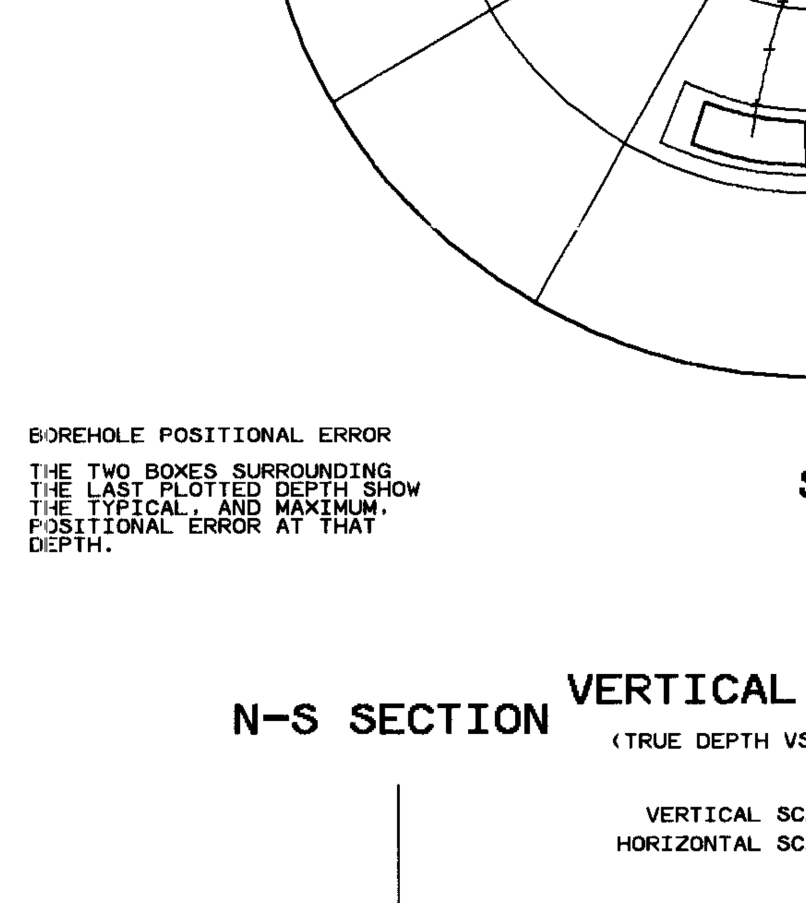
VERTICAL SECTIONS

(TRUE DEPTH VS DISPLACEMENT)

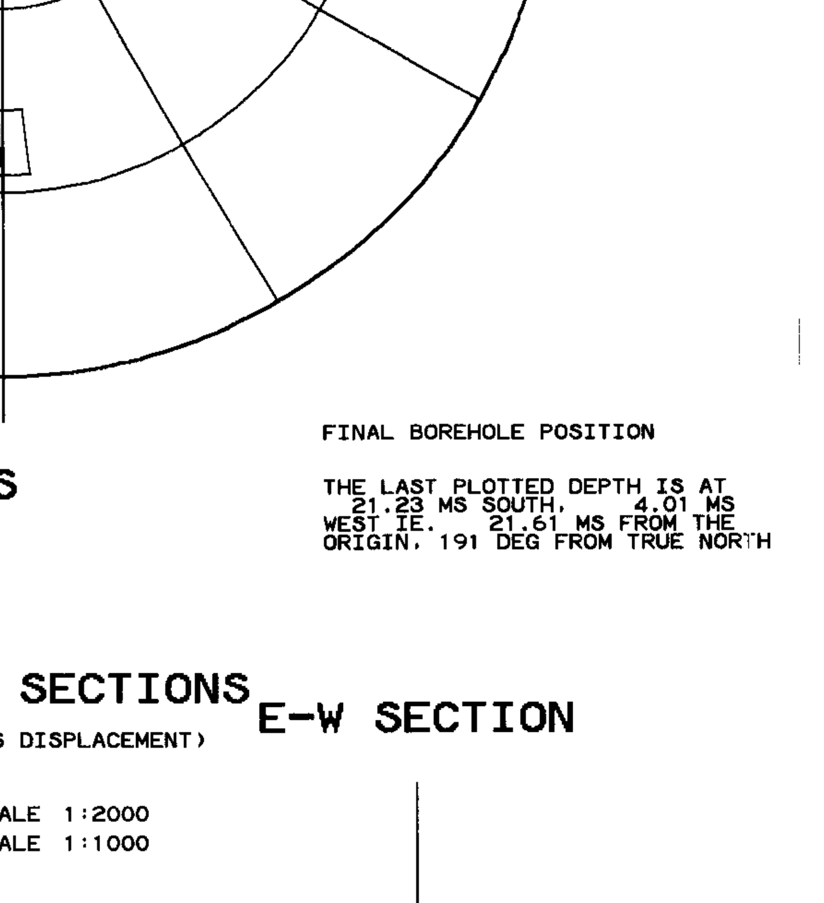
VERTICAL SCALE 1:2000
HORIZONTAL SCALE 1:2000

MARKERS ANNOTATED AS ABOVE

N-S SECTION

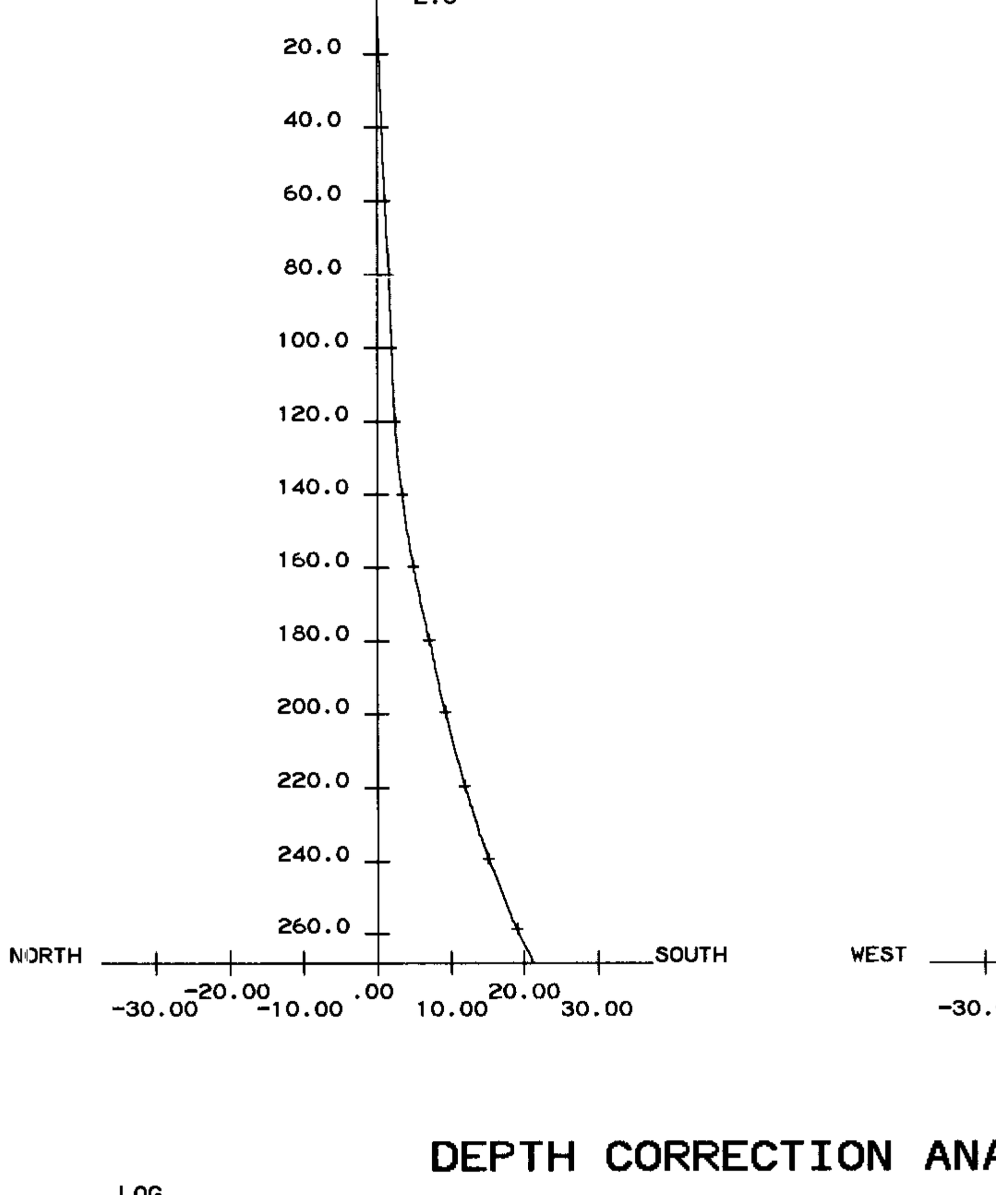


E-W SECTION



DEPTH CORRECTION ANALYSIS

VERTICAL SCALE 1:2000
HORIZONTAL SCALE 1:20



DEPTHS: LOG	TRUE	DEPTHS: LOG	TRUE
4.00	4.00	144.00	143.93
6.00	6.00	146.00	145.92
8.00	8.00	148.00	147.91
10.00	10.00	150.00	149.91
12.00	12.00	152.00	151.90
14.00	14.00	154.00	153.89
16.00	16.00	156.00	155.89
18.00	18.00	158.00	157.88
20.00	20.00	160.00	159.87
22.00	21.99	162.00	161.86
24.00	23.99	164.00	163.85
26.00	25.99	166.00	165.84
28.00	27.99	168.00	167.83
30.00	29.99	170.00	169.82
32.00	31.99	172.00	171.81
34.00	33.99	174.00	173.79
36.00	35.99	176.00	175.78
38.00	37.99	178.00	177.77
40.00	39.99	180.00	179.76
42.00	41.99	182.00	181.75
44.00	43.99	184.00	183.74
46.00	45.99	186.00	185.73
48.00	47.99	188.00	187.72
50.00	49.99	190.00	189.71
52.00	51.99	192.00	191.70
54.00	53.99	194.00	193.68
56.00	55.99	196.00	195.67
58.00	57.99	198.00	197.65
60.00	59.99	200.00	199.64
62.00	61.98	202.00	201.62
64.00	63.98	204.00	203.61
66.00	65.98	206.00	205.59
68.00	67.98	208.00	207.57
70.00	69.98	210.00	209.55
72.00	71.98	212.00	211.53
74.00	73.98	214.00	213.51
76.00	75.98	216.00	215.49
78.00	77.98	218.00	217.47
80.00	79.98	220.00	219.44
82.00	81.98	222.00	221.42
84.00	83.98	224.00	223.39
86.00	85.98	226.00	225.36
88.00	87.98	228.00	227.34
90.00	89.97	230.00	229.31
92.00	91.97	232.00	231.28
94.00	93.97	234.00	233.25
96.00	95.97	236.00	235.22
98.00	97.97	238.00	237.19
100.00	99.97	240.00	239.16
102.00	101.97	242.00	241.13
104.00	103.97	244.00	243.09
106.00	105.97	246.00	245.06
108.00	107.97	248.00	247.02
110.00	109.97	250.00	248.99
112.00	111.97	252.00	250.95
114.00	113.97	254.00	252.91
116.00	115.97	256.00	254.86
118.00	117.97	258.00	256.82
120.00	119.96	260.00	258.77
122.00	121.96	262.00	260.72
124.00	123.96	264.00	262.67
126.00	125.96	266.00	264.61
128.00	127.96	268.00	266.55
130.00	129.95	269.40	267.90
132.00	131.95		
134.00	133.95		
136.00	135.94		
138.00	137.94		
140.00	139.94		
142.00	141.93		

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG04-01V
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

Reeves

FOCUSSED ELECTRIC
GAMMA RAY
CALIPER

LOCN. ELKFORD
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG04-01V
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG04-01V
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION ELKFORD 5562698 N. 644015 E.

OTHER SERVICES
CDL
DIP/VERT

LSD	SEC	TWP	RGE
N/A			

PERMANENT DATUM GROUND LEVEL ELEVATION
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1452.3m.

DATE	7-OCT-04							
RUN NUMBER	1							
DEPTH-DRILLER	270.10M							
DEPTH-LOGGER	269.90M							
FIRST READING	269.20M							
LAST READING	8.00M							
CASING-DRILLER	3.00M							
CASING-LOGGER	3.00M							
BIT SIZE	133.35MM							
HOLE FLUID TYPE	POLYMER							
DENS./VISC.	1000	N/A						
PH/FLUID LOSS	N/A	N/A						
SAMPLE SOURCE	DRILLER							
RM @ MEAS TEMP	2.00 @ 0.0C							
RMF @ MEAS TEMP	N/A							
RMC @ MEAS TEMP	N/A							
SOURCE: RMF/RMC	N/A	N/A						
RM @ BHT	N/A							
TIME SINCE CIRC	110 HRS							
MAX REC TEMP	N/A							
EQUIPMENT/BASE	V232	RDR						
RECORDED BY	A.SPASKYY							
WITNESSED BY	J.MCMILLAN							
CIRC STOPPED	18:00 SEP 30							

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	133.35MM	154.00M	TD	159.00MM	25.30KG/M	SURFACE	3.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
SFE	102			

REMARKS

FOCUSSED ELECTRIC GAMMA RAY CALIPER

NORTHING:

EASTING :

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS IN OUR PRICE SCHEDULE

MAIN LOG 1:100

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 7-OCT-2004 AT 17:28

FILENAME: MRGE001M.CIB RUN ID:MAIN LOG 1:100 PLOTTED ON 07-OCT-2004 AT 17:49

DEPTH IN METRES

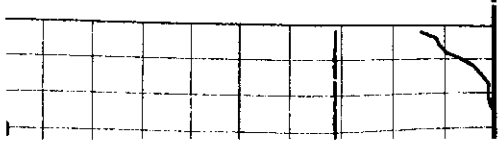
BIT SIZE
MILLIMETRES
90 140 190

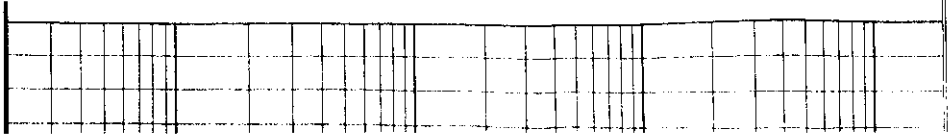
CALIPER FROM DENSITY
MILLIMETRES
90 140 190

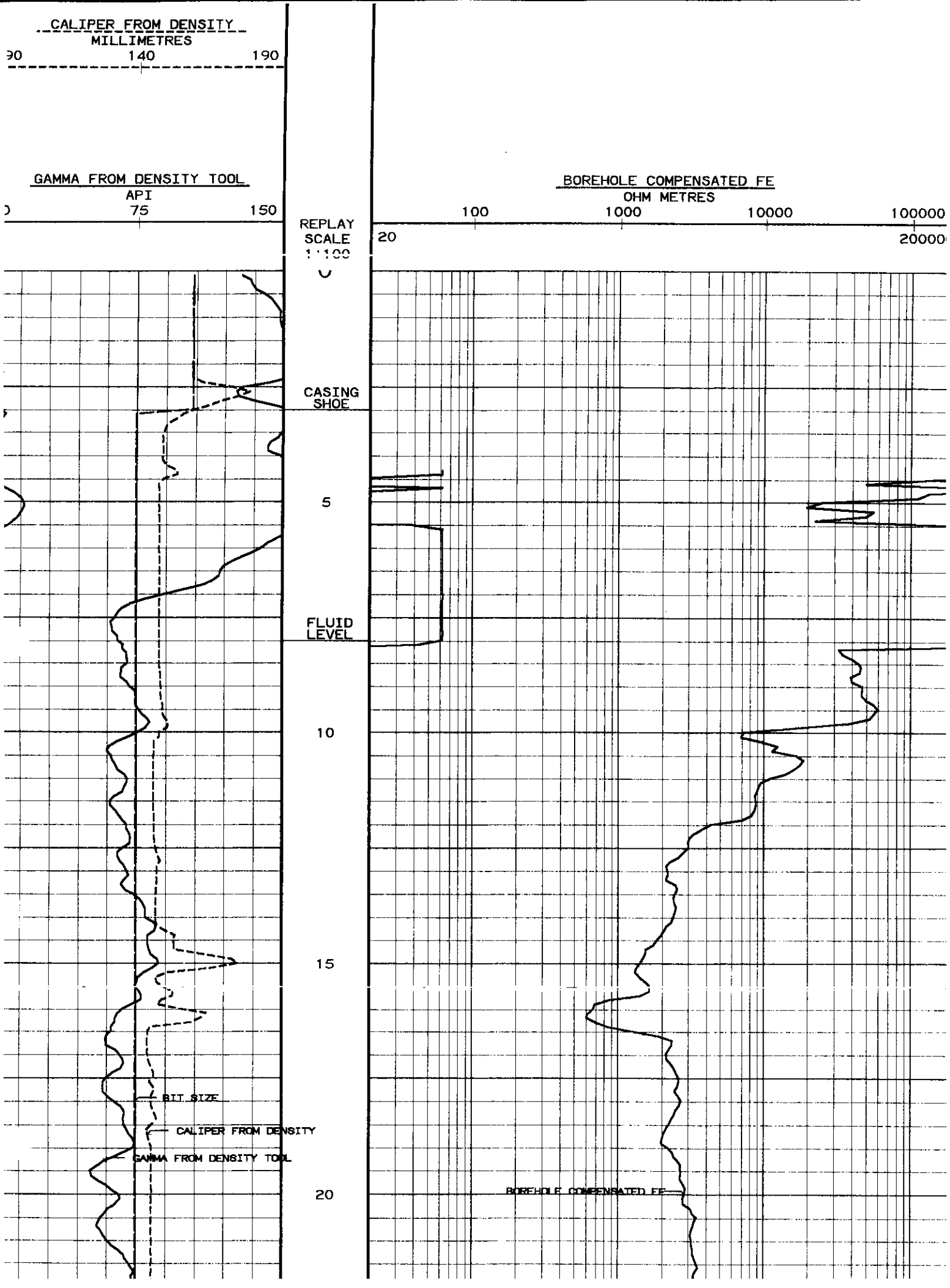
GAMMA FROM DENSITY TOOL
API
0 75 150

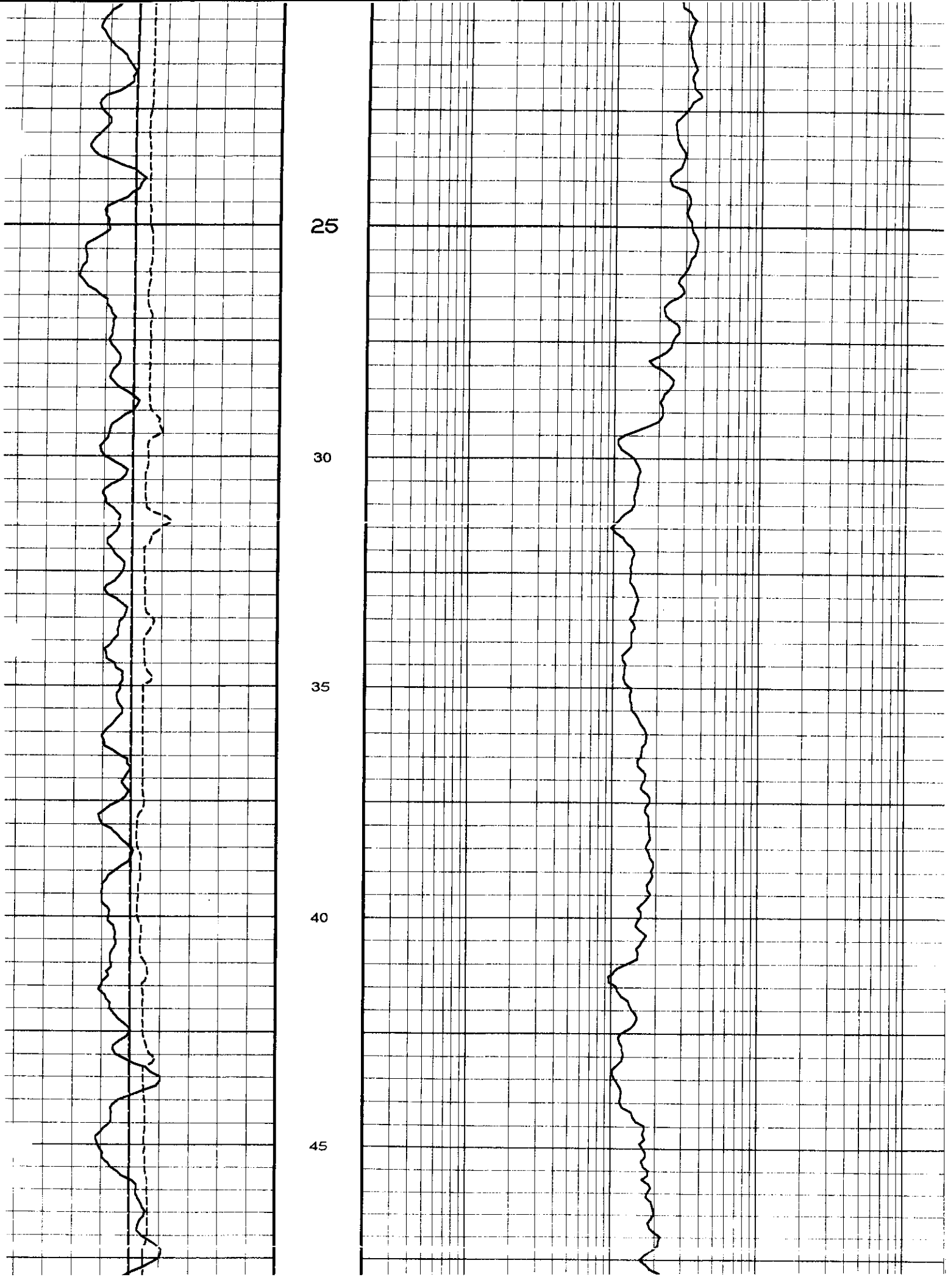
BOREHOLE COMPENSATED FE
OHM METRES
100 1000 10000 100000
20 200000

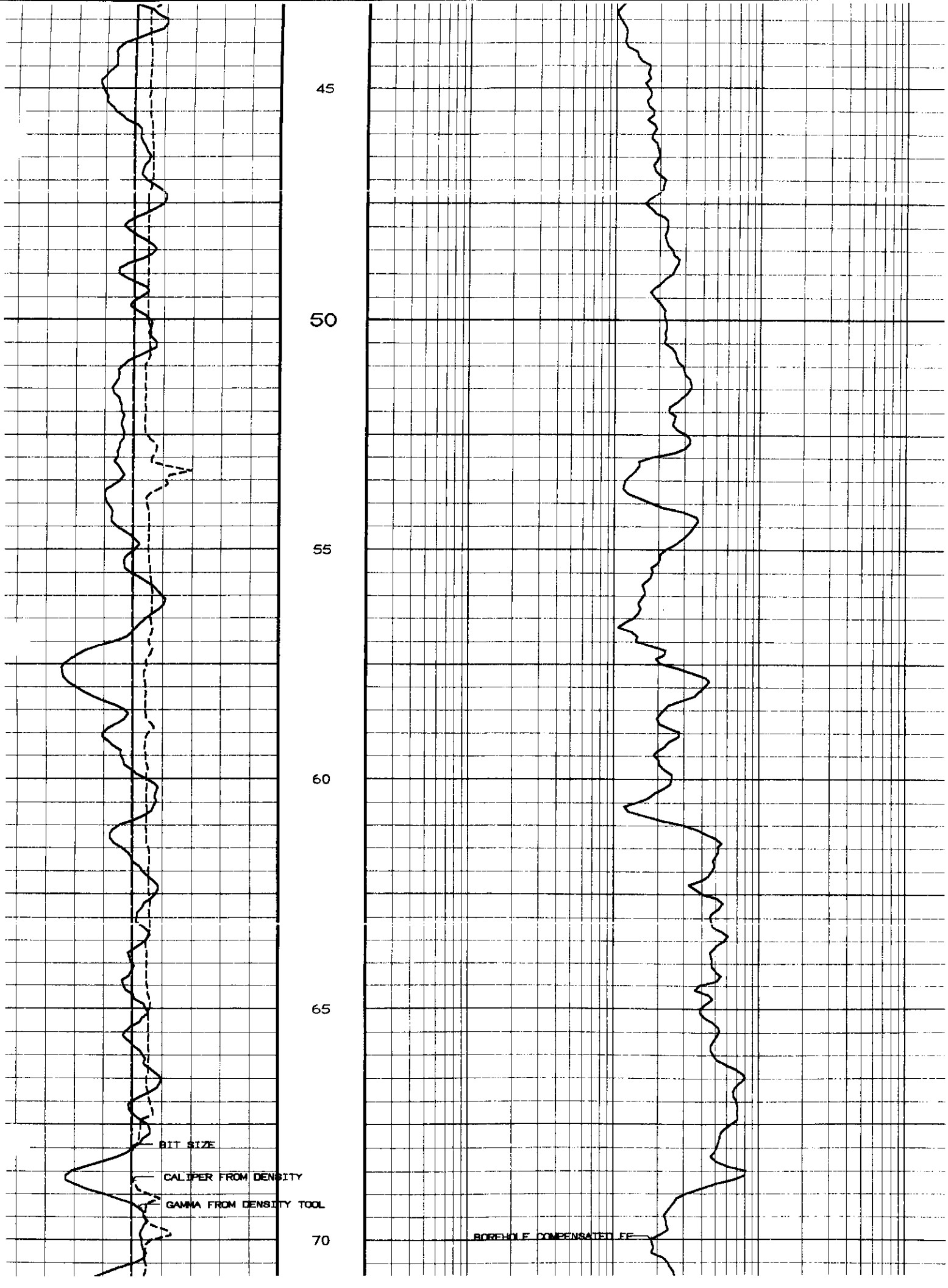
REPLAY SCALE 1:100

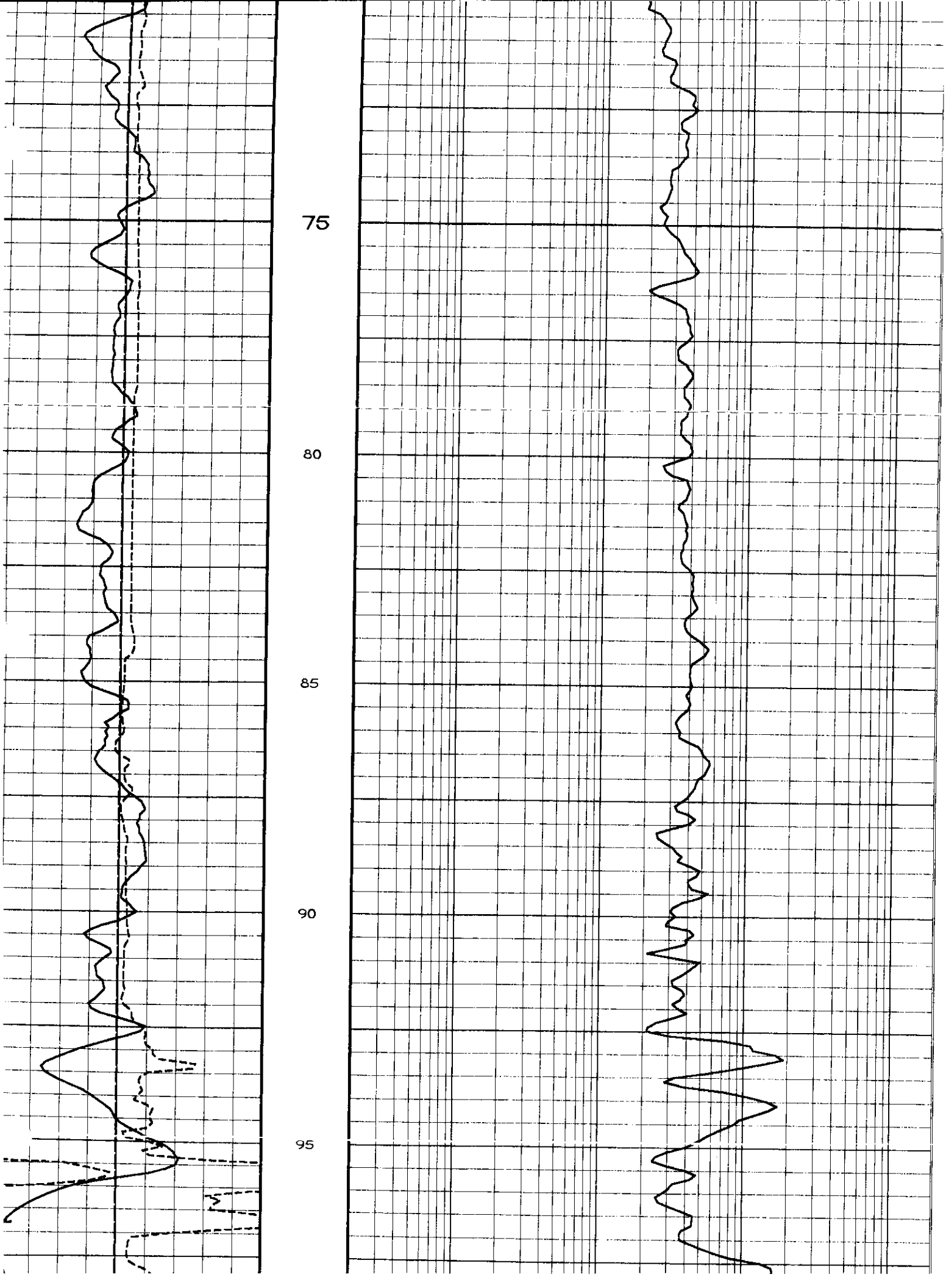


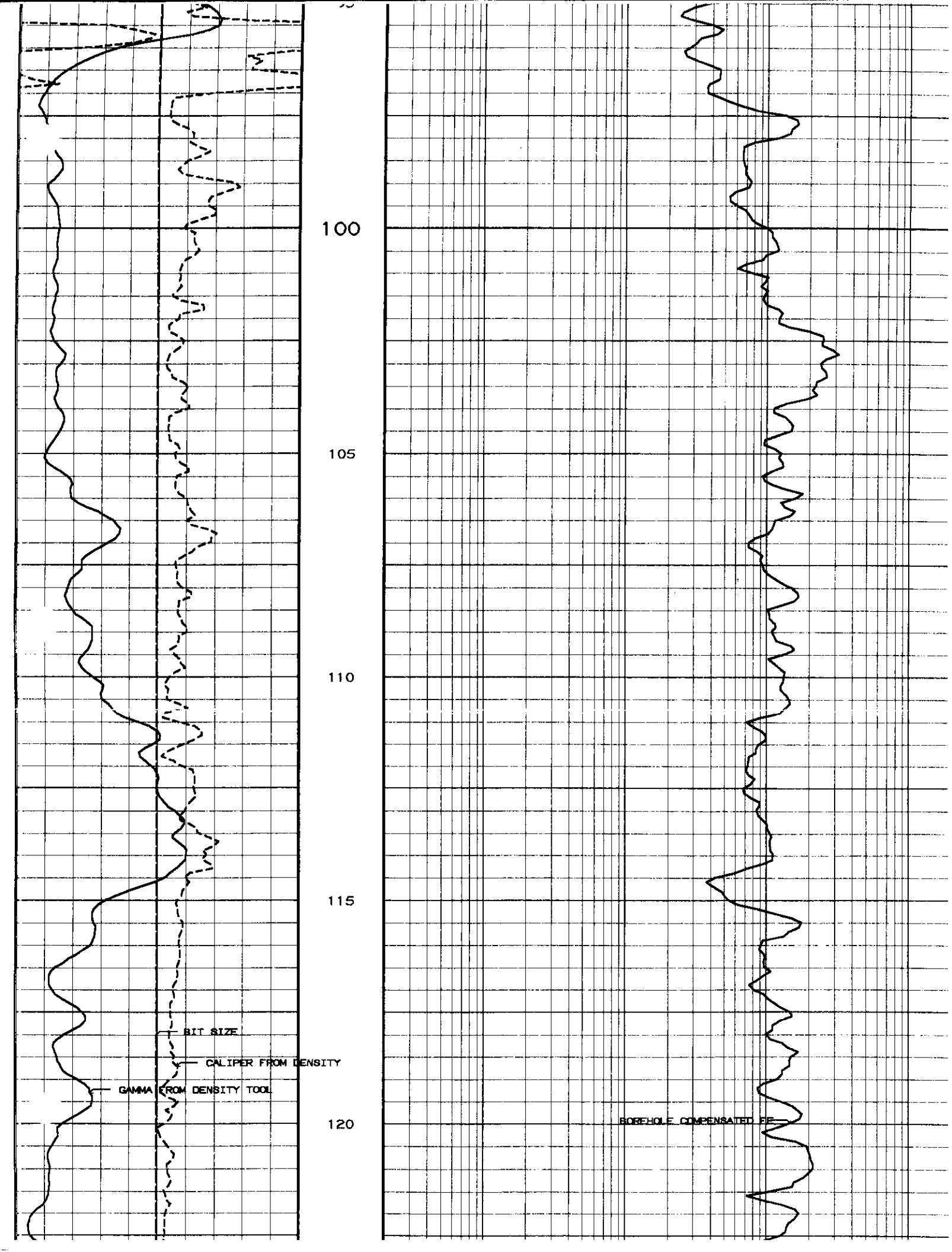


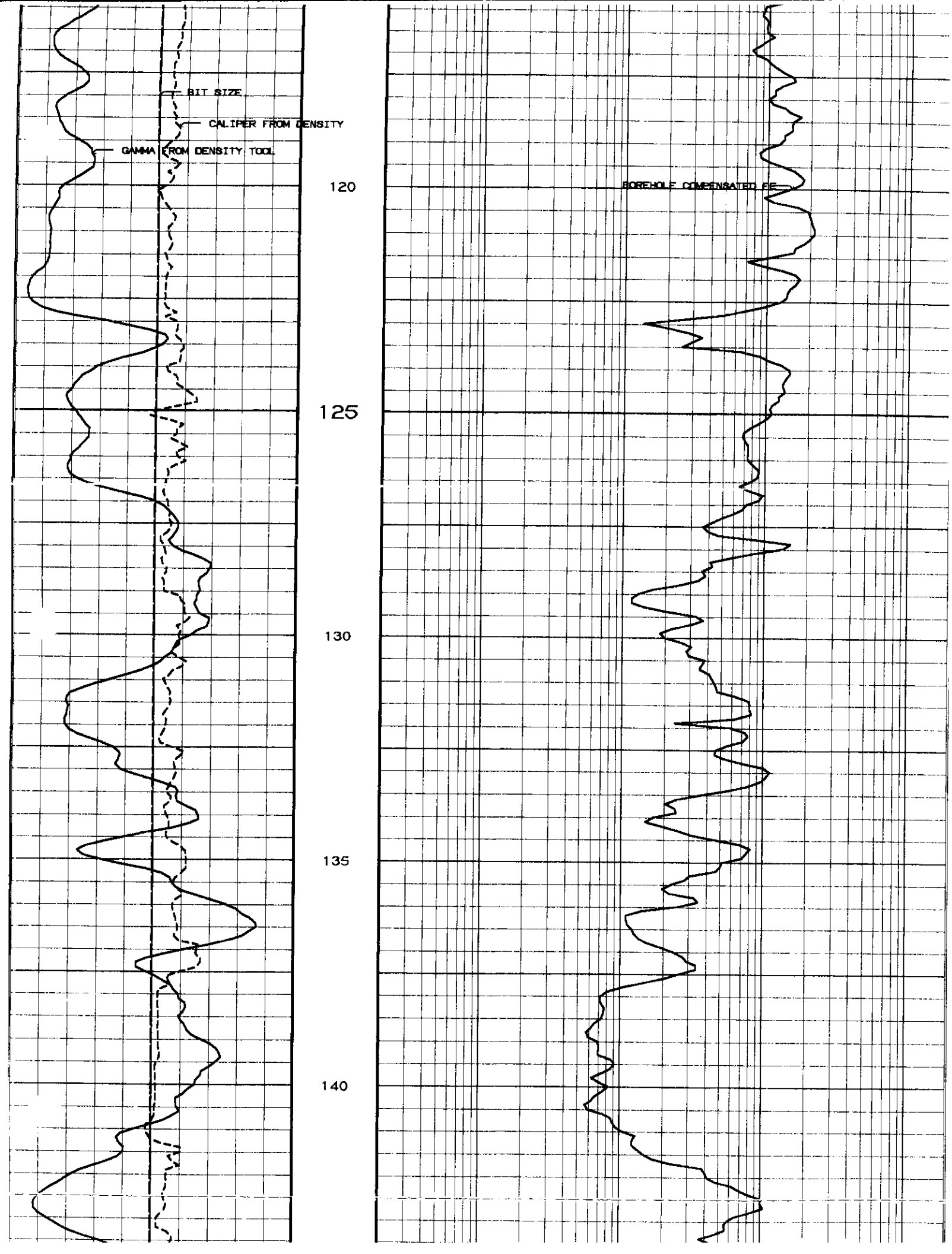

CALIPER FROM DENSITY
MILLIMETRES
90
140
190
GAMMA FROM DENSITY TOOL
API
0
75
150
REPLAY
SCALE
1:100
BOREHOLE COMPENSATED FE
OHM METRES
100
1000
10000
100000
20
20000
CASING
SHOE
FLUID
LEVEL
5
10
15
20
BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
BOREHOLE COMPENSATED FE

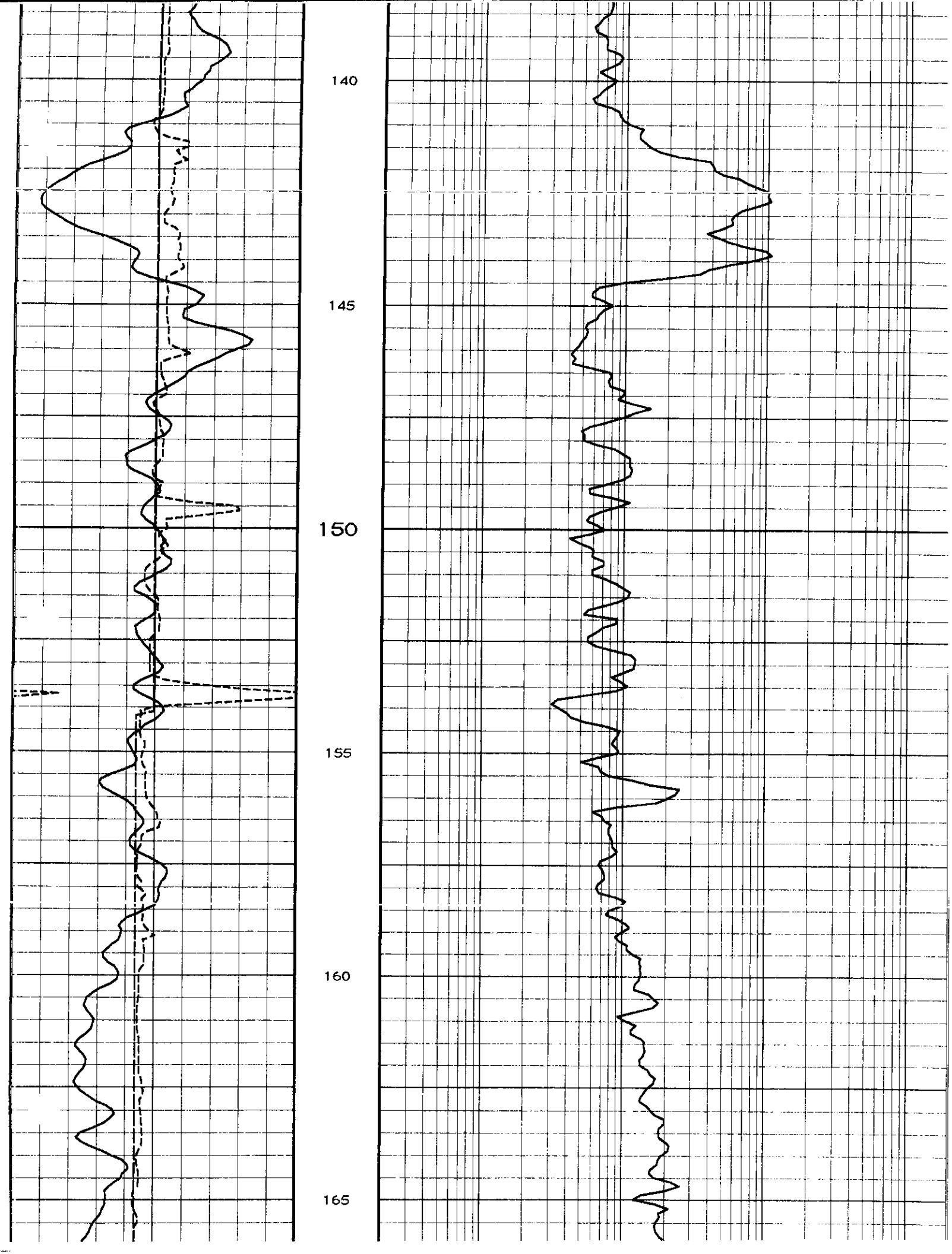

25
30
35
40
45

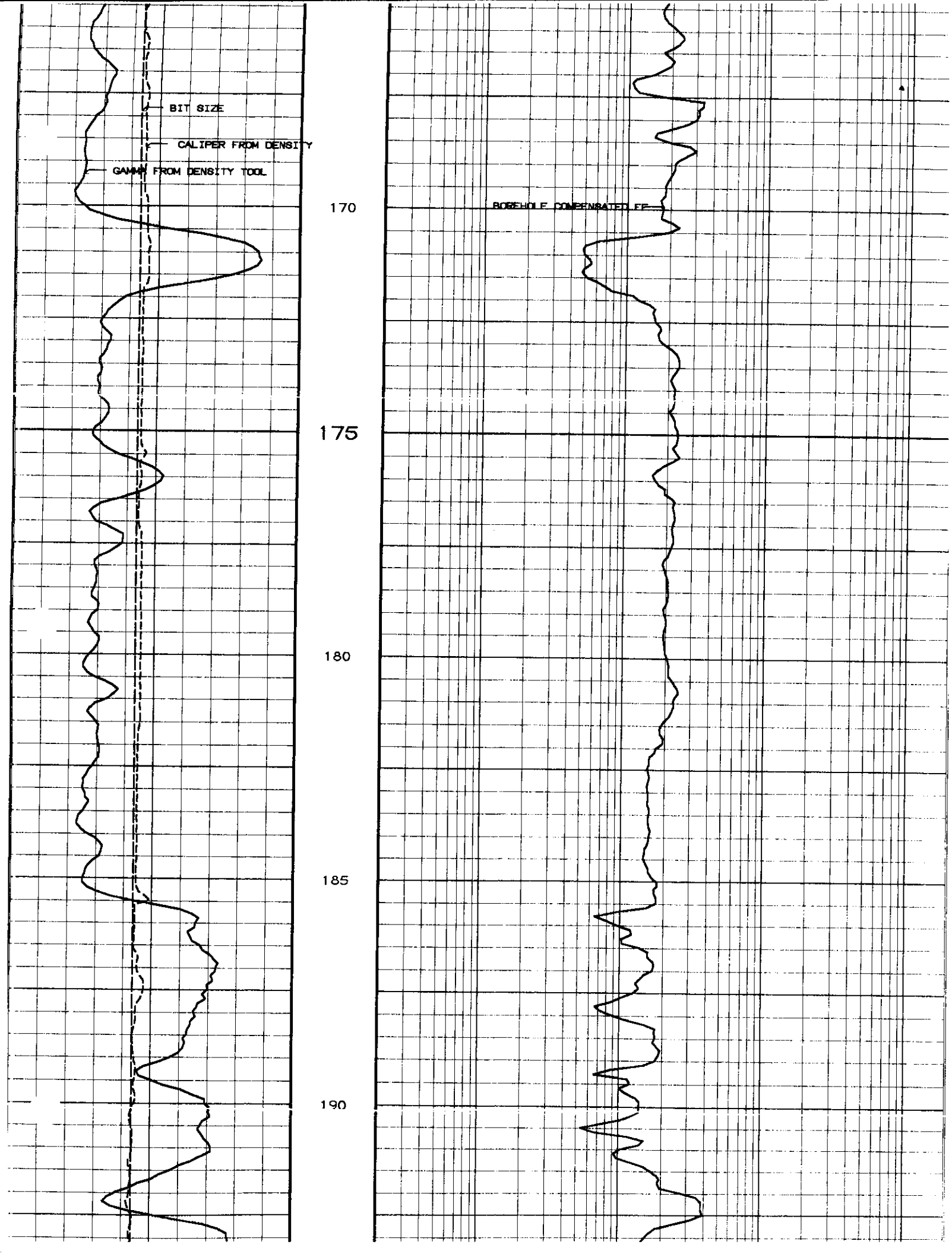

45
50
55
60
65
70
BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
BOREHOLE COMPENSATED FE

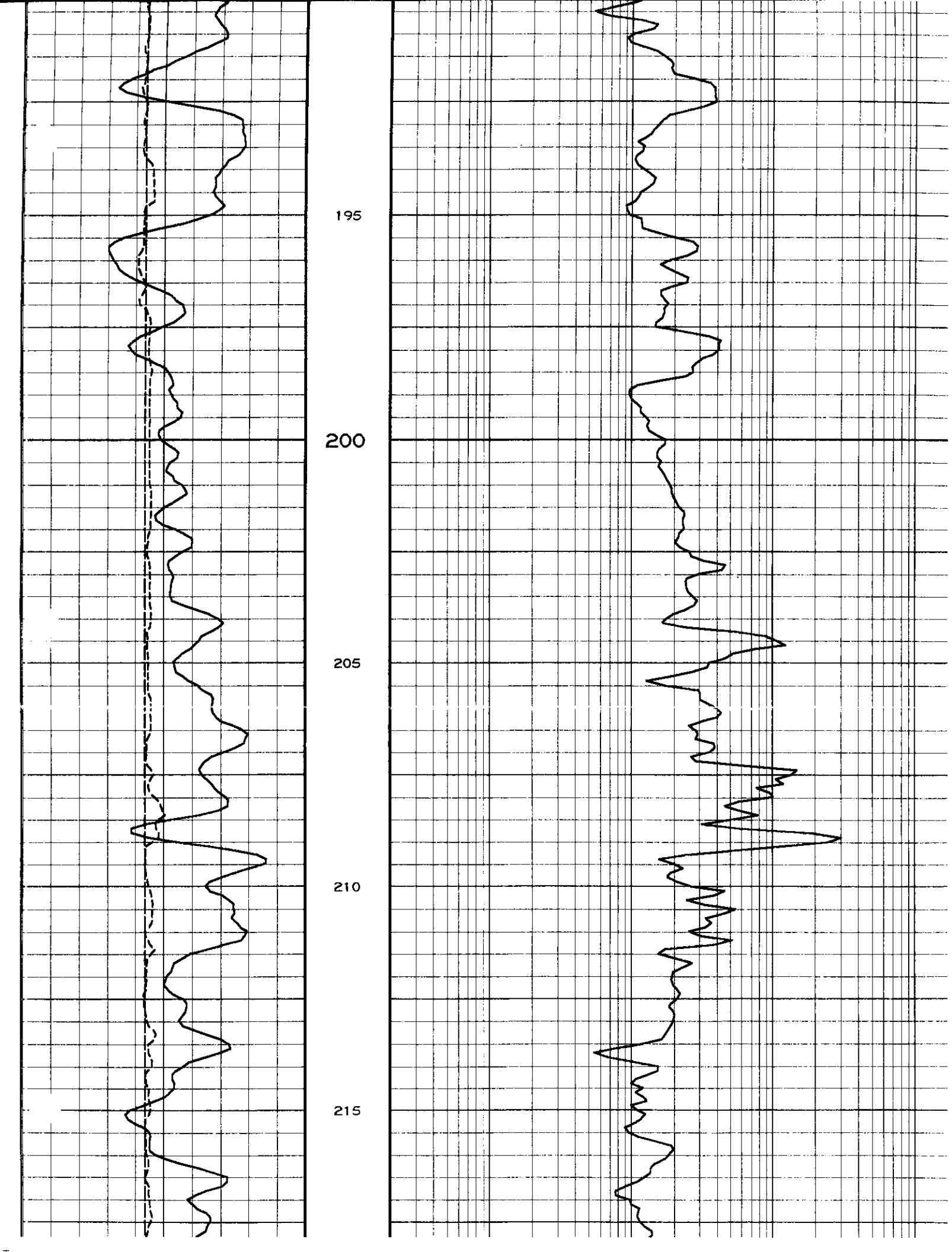

75
80
85
90
95

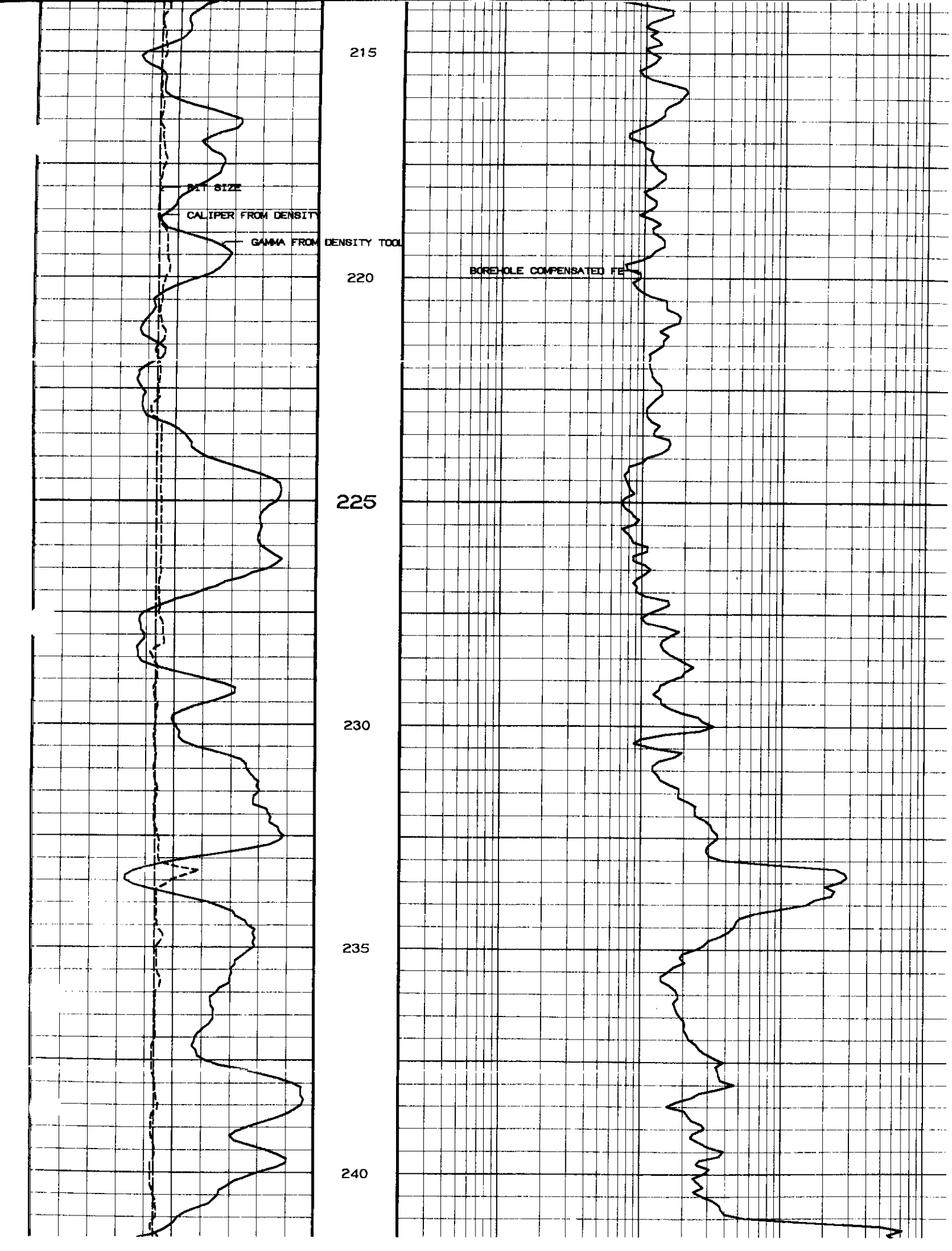

100
105
110
115
120
BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
BOREHOLE COMPENSATED FE

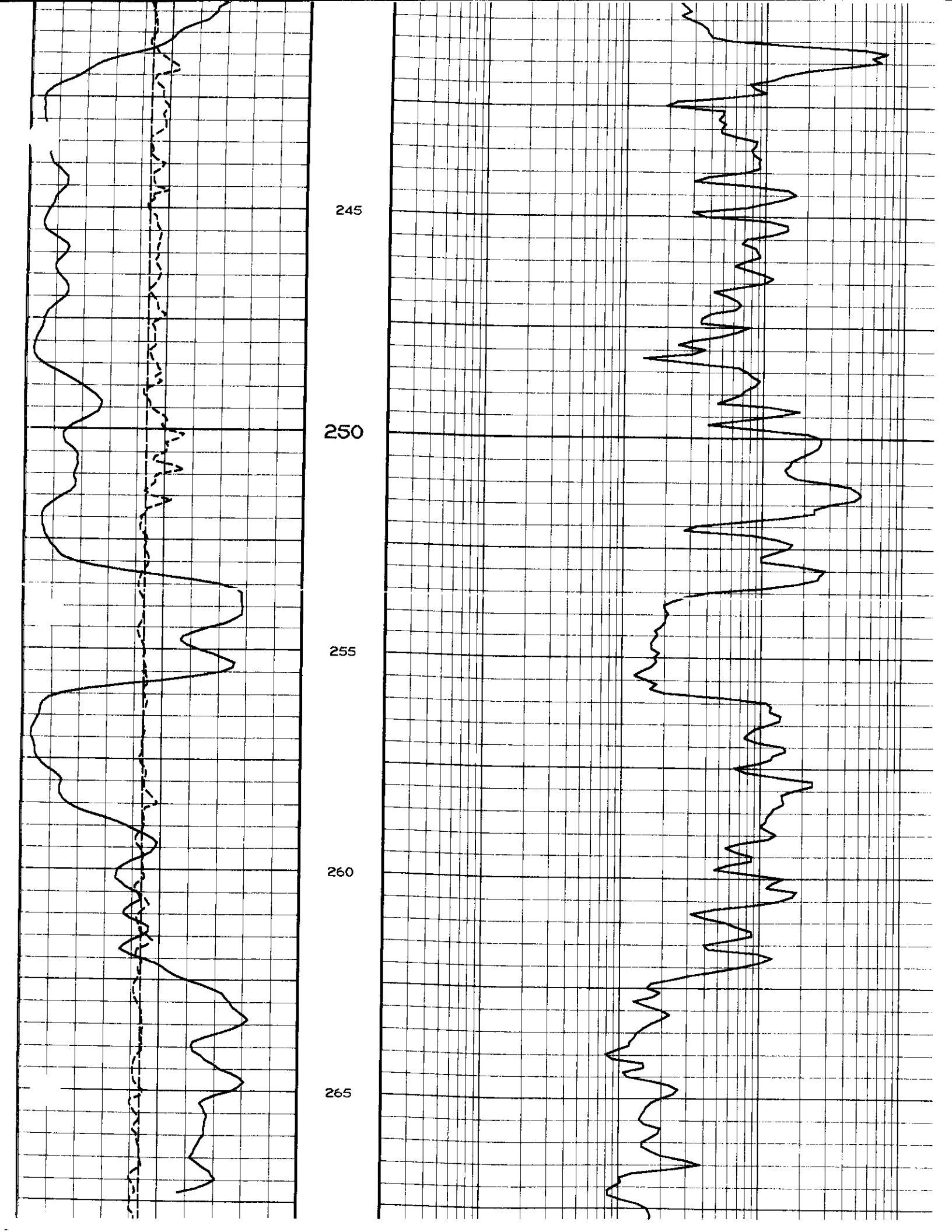

BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
120
125
130
135
140
BOREHOLE COMPENSATED PE

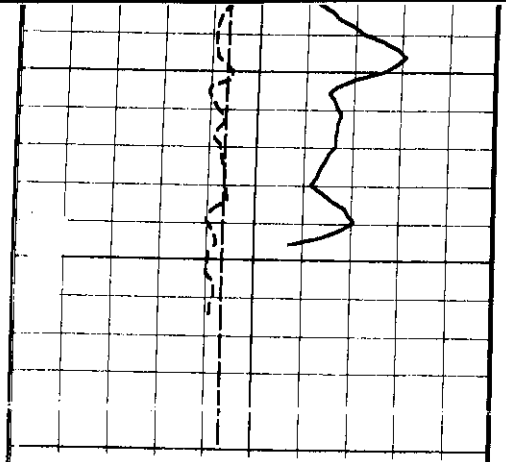

140
145
150
155
160
165


BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
BOREHOLE COMPENSATED FE
170
175
180
185
190

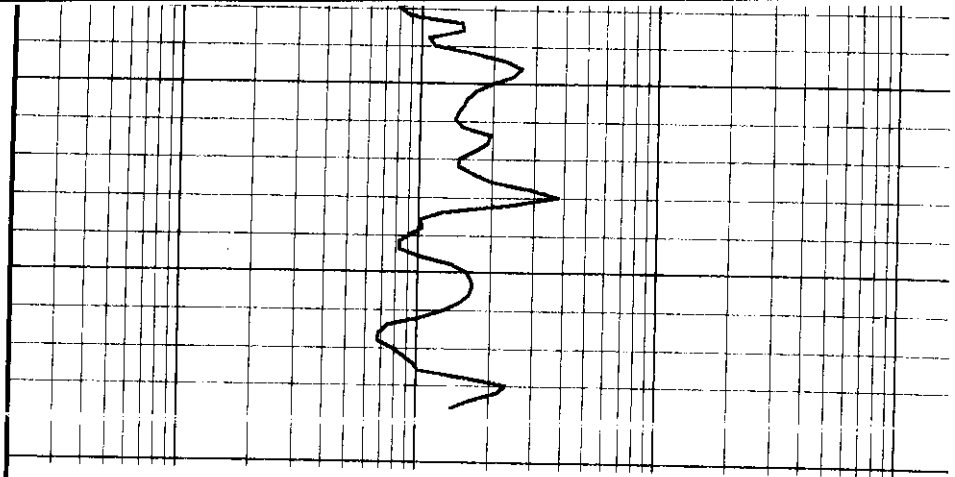

195
200
205
210
215


215
BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
220
BOREHOLE COMPENSATED FE
225
230
235
240


245
250
255
260
265



265



270

DEPTH
IN
METRES

BIT SIZE
MILLIMETRES
90 140 190

CALIPER FROM DENSITY
MILLIMETRES
90 140 190

GAMMA FROM DENSITY TOOL
API
0 75 150

REPLAY
SCALE
1:100

BOREHOLE COMPENSATED FE
OHM METRES
20 100 1000 10000 100000
200000

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 7-OCT-2004 AT 17:28

FILENAME: MRGE001M.CIB RUN ID:MAIN LOG 1:100 PLOTTED ON 07-OCT-2004 AT 17:49

MAIN LOG 1:100

REPEAT SECTION

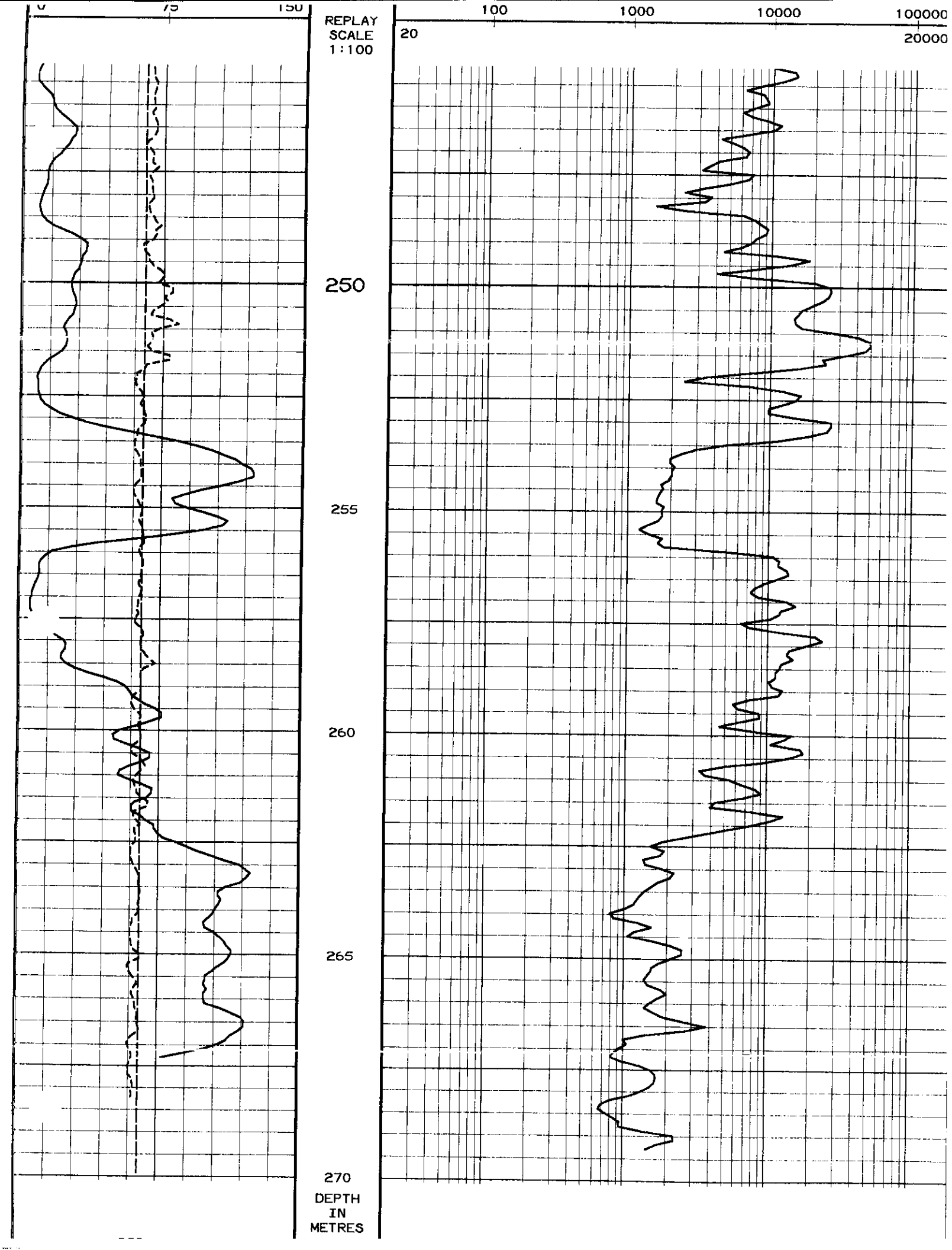
DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 7-OCT-2004 AT 17:37

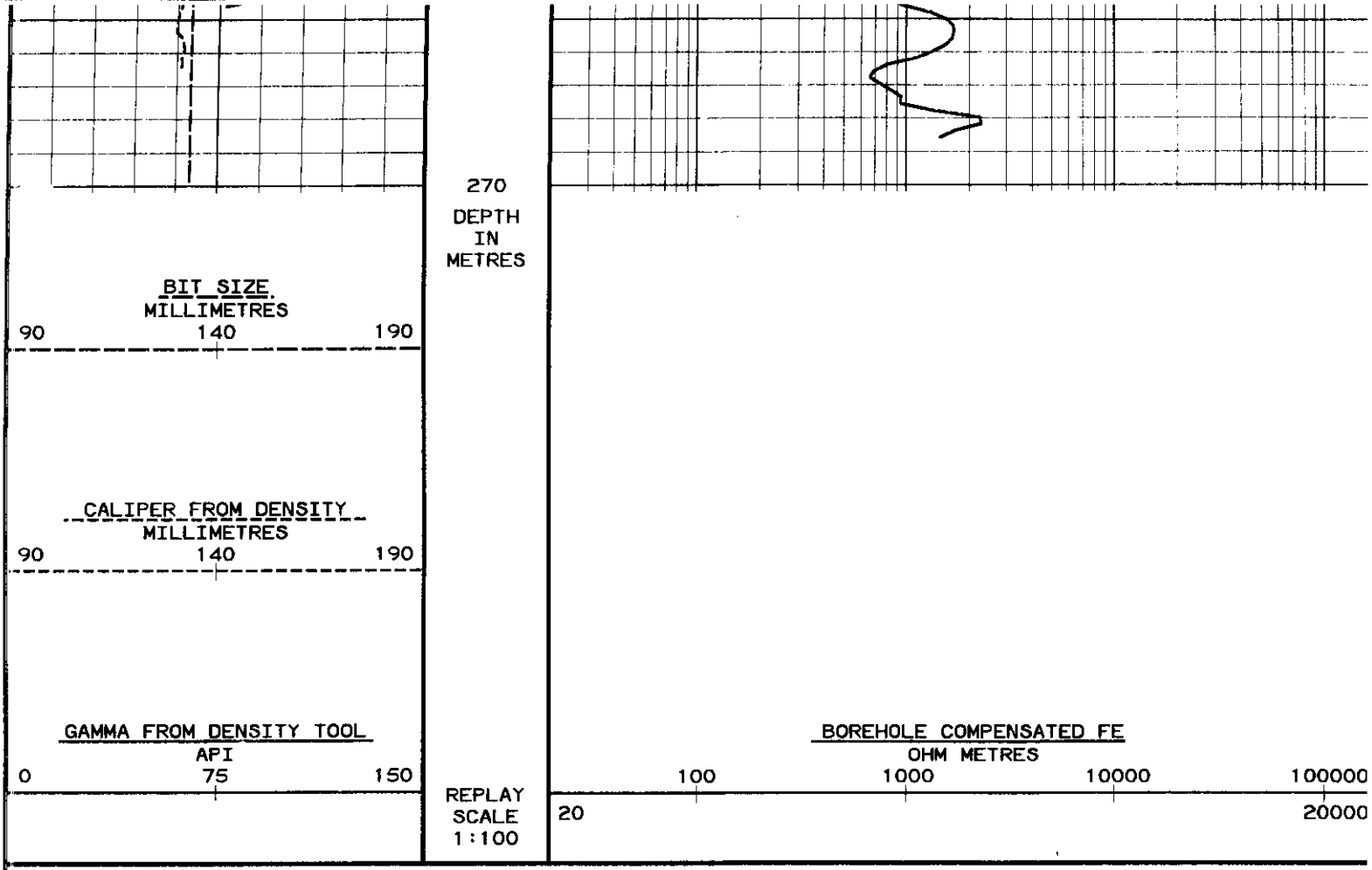
FILENAME: MRGE001R.CIB RUN ID:REPEAT SECTION PLOTTED ON 07-OCT-2004 AT 17:48

DEPTH
IN
METRES

BIT SIZE
MILLIMETRES
90 140 190

CALIPER FROM DENSITY
MILLIMETRES
90 140 190


0
75
150
REPLAY
SCALE
1:100
100
1000
10000
100000
20
20000
250
255
260
265
270
DEPTH
IN
METRES



DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 7-OCT-2004 AT 17:37

FILENAME: MRGE001R.CIB RUN ID:REPEAT SECTION PLOTTED ON 07-OCT-2004 AT 17:48

REPEAT SECTION

LOGGING/CALIBRATION CONSTANTS

CONSTANTS LAST EDITED: 07-OCT-2004 AT 15:36

LOGGING CONSTANTS AND BIT SIZE MEASUREMENTS

RESISTIVITY SONDE TYPE	SINGLE	MUD RESISTIVITY (OHM METRES)	2.000
BIT SIZE UNITS (INS/MM)	MILLIMTR	BIT DEPTH UNITS (M/FT)	METRES
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	3.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	154.00
BIT SIZS 4	0.00	FROM BIT DEPTH 4	0.00
BIT SIZE 5	0.00	FROM BIT DEPTH 5	0.00
TEMPERATURE UNITS	DEG. C		

CALIBRATION CONSTANTS

FE1C CALIBRATOR VALUE 1	2.0000	FE1C COUNT RATE 1	4502.0000
FE1C CALIBRATOR VALUE 2	2000.0000	FE1C COUNT RATE 2	2998.0000
FE2 CALIBRATOR VALUE 1	2.0000	FE2 COUNT RATE 1	0.0000
FE2 CALIBRATOR VALUE 2	2000.0000	FE2 COUNT RATE 2	0.0000
GRFE CALIBRATOR VALUE 1	490.0000	GRFE COUNT RATE 1	315.0000
SP CALIBRATOR VALUE 1	1.0000	SP COUNT RATE 1	1.0000
SP CALIBRATOR VALUE 2	0.0000	SP COUNT RATE 2	0.0000

LOGGING CONSTANTS

SONDE TYPE	DD4	
BIT SIZE AND CALIPER UNITS	MMS	
BIT DEPTH AND WATER LEVEL UNITS	METRES	
CALIPER SOURCE FOR PROCESSING	CAL	
WATER LEVEL	.00	METRES
ANNULAR VOLUME DIAMETER	133.35	MMS.

LOGGING/CALIBRATION CONSTANTS

CONSTANTS LAST EDITED: 07-OCT-2004 AT 15:36

LOGGING CONSTANTS AND BIT SIZE MEASUREMENTS

RESISTIVITY SONDE TYPE	SINGLE	MUD RESISTIVITY (OHM METRES)	2.000
BIT SIZE UNITS (INS/MM)	MILLIMTR	BIT DEPTH UNITS (M/FT)	METRES
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	3.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	154.00
BIT SIZE 4	0.00	FROM BIT DEPTH 4	0.00
BIT SIZE 5	0.00	FROM BIT DEPTH 5	0.00
TEMPERATURE UNITS	DEG. C		

CALIBRATION CONSTANTS

FE1C CALIBRATOR VALUE 1	2.0000	FE1C COUNT RATE 1	4502.0000
FE1C CALIBRATOR VALUE 2	2000.0000	FE1C COUNT RATE 2	2998.0000
FE2 CALIBRATOR VALUE 1	2.0000	FE2 COUNT RATE 1	0.0000
FE2 CALIBRATOR VALUE 2	2000.0000	FE2 COUNT RATE 2	0.0000
GRFE CALIBRATOR VALUE 1	490.0000	GRFE COUNT RATE 1	315.0000
SP CALIBRATOR VALUE 1	1.0000	SP COUNT RATE 1	1.0000
SP CALIBRATOR VALUE 2	0.0000	SP COUNT RATE 2	0.0000

LOGGING CONSTANTS

SONDE TYPE	DD4	
BIT SIZE AND CALIPER UNITS	MMS	
BIT DEPTH AND WATER LEVEL UNITS	METRES	
CALIPER SOURCE FOR PROCESSING	CAL	
WATER LEVEL	.00	METRES
ANNULAR VOLUME DIAMETER	133.35	MMS.
CALIPER ARM LENGTH FROM PIVOT	208.28	MMS.
MUD WEIGHT	1.00	GM/CC
Z/A MULTIPLIER	1.11	
MATRIX DENSITY	2.65	GM/CC
DENSITY OF MUD FILTRATE	1.00	GM/CC
GAMMA STRIP COEFFICIENT	0.44	

CALIBRATION CONSTANTS TABLE

MEASURED GAMMA VALUE	387.31	CALIBRATED GAMMA VALUE	872.00
MEASURED LSD VALUE 1	410.30	CALIBRATED LSD VALUE 1	3516.00
MEASURED LSD VALUE 2	40.03	CALIBRATED LSD VALUE 2	368.00
MEASURED BRD VALUE 1	1375.71	CALIBRATED BRD VALUE 1	10980.00
MEASURED BRD VALUE 2	718.70	CALIBRATED BRD VALUE 2	5893.00
CALIPER RING SIZE 1	76.20	COUNTS FOR RING 1	1801.00
CALIPER RING SIZE 2	101.60	COUNTS FOR RING 2	2164.00
CALIPER RING SIZE 3	127.00	COUNTS FOR RING 3	2538.00
CALIPER RING SIZE 4	152.40	COUNTS FOR RING 4	2907.00
CALIPER RING SIZE 5	203.20	COUNTS FOR RING 5	3680.00
CALIPER RING SIZE 6	254.00	COUNTS FOR RING 6	4553.00
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	3.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	154.00
BIT SIZE 4	.00	FROM BIT DEPTH 4	0.00
BIT SIZE 5	.00	FROM BIT DEPTH 5	0.00
BRD FIELD CHECK AT BASE	882.70	LSD FIELD CHECK AT BASE	259.30
BRD FIELD CHECK (CPS)	881.30	LSD FIELD CHECK (CPS)	258.90

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG04-01V
FIELD	BINGAY CREEK
PROVINCE/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

MARKED

Reeves

COMPENSATED DENSITY
GAMMA RAY
CALIPER

LOCN. ELKFORD
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG04-01V
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG04-01V
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION ELKFORD
5562698 N.
644015 E.

OTHER SERVICES
DFE
DIP/VERT

LSD	SEC	TWP	RGE
N/A			

PERMANENT DATUM GROUND LEVEL ,ELEVATION
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1452.3 m.

ATE	7-OCT-04							
UN NUMBER	1							
EPTH-DRILLER	270.10M							
EPTH-LOGGER	269.90M							
IRST READING	267.80M							
AST READING	0.00M							
ASING-DRILLER	3.00M							
ASING-LOGGER	3.00M							
IT SIZE	133.35MM							
OLE FLUID TYPE	POLYMER							
ENS./VISC.	1000	N/A						
H/FLUID LOSS	N/A	N/A						
AMPLE SOURCE	DRILLER							
M @ MEAS TEMP	2.00 @ 20.0C							
MF @ MEAS TEMP	N/A							
MC @ MEAS TEMP	N/A							
OURCE: RMF/RMC	N/A	N/A						
M @ BHT	N/A							
IME SINCE CIRC	110 HRS							
AX REC TEMP	N/A							
QUIPMENT/BASE	V232	RDR						
ECORDED BY	A.SPASKYY							
ITNESSED BY	J. MCMILLAN							
IRC STOPPED	18:00 OCT 01							

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	133.35MM	154.00M	TD	159.00MM	25.30KG/M	SURFACE	3.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
DD4	004			

REMARKS

COMPENSATED DENSITY GAMMA RAY CALIPER

NORTHING:

EASTING :

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MAIN LOG 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 7-OCT-2004 AT 17:28

FILENAME: MRGE001M.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 07-OCT-2004 AT 18:01

BIT SIZE
MILLIMETRES
90 140 190

CALIPER FROM DENSITY
MILLIMETRES
90 140 190

GAMMA FROM DENSITY TOOL
API
0 75 150

DEPTH IN METRES

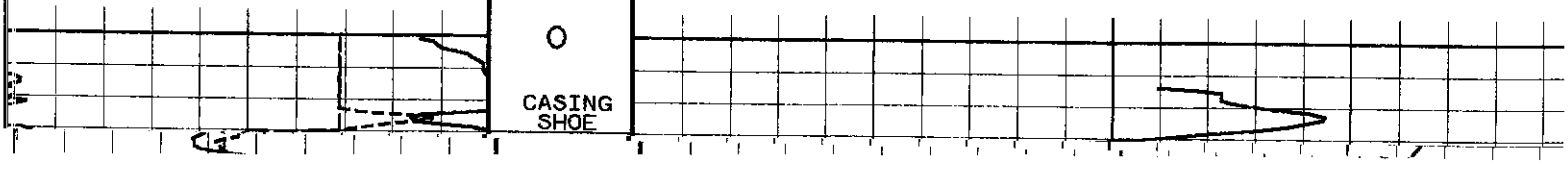
REPLAY SCALE 1:240

0

CASING SHOE

NOTE: COAL SEAMS NOT CORRECTED FOR TRUE THICKNESS.

COMPENSATED DENSITY
GM/CC
1 1.50 2 2.50



MAIN LOG 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 7-OCT-2004 AT 17:28

FILENAME: MRGE001M.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 07-OCT-2004 AT 18:01

DEPTH IN METRES

BIT SIZE
MILLIMETRES
90 140 190

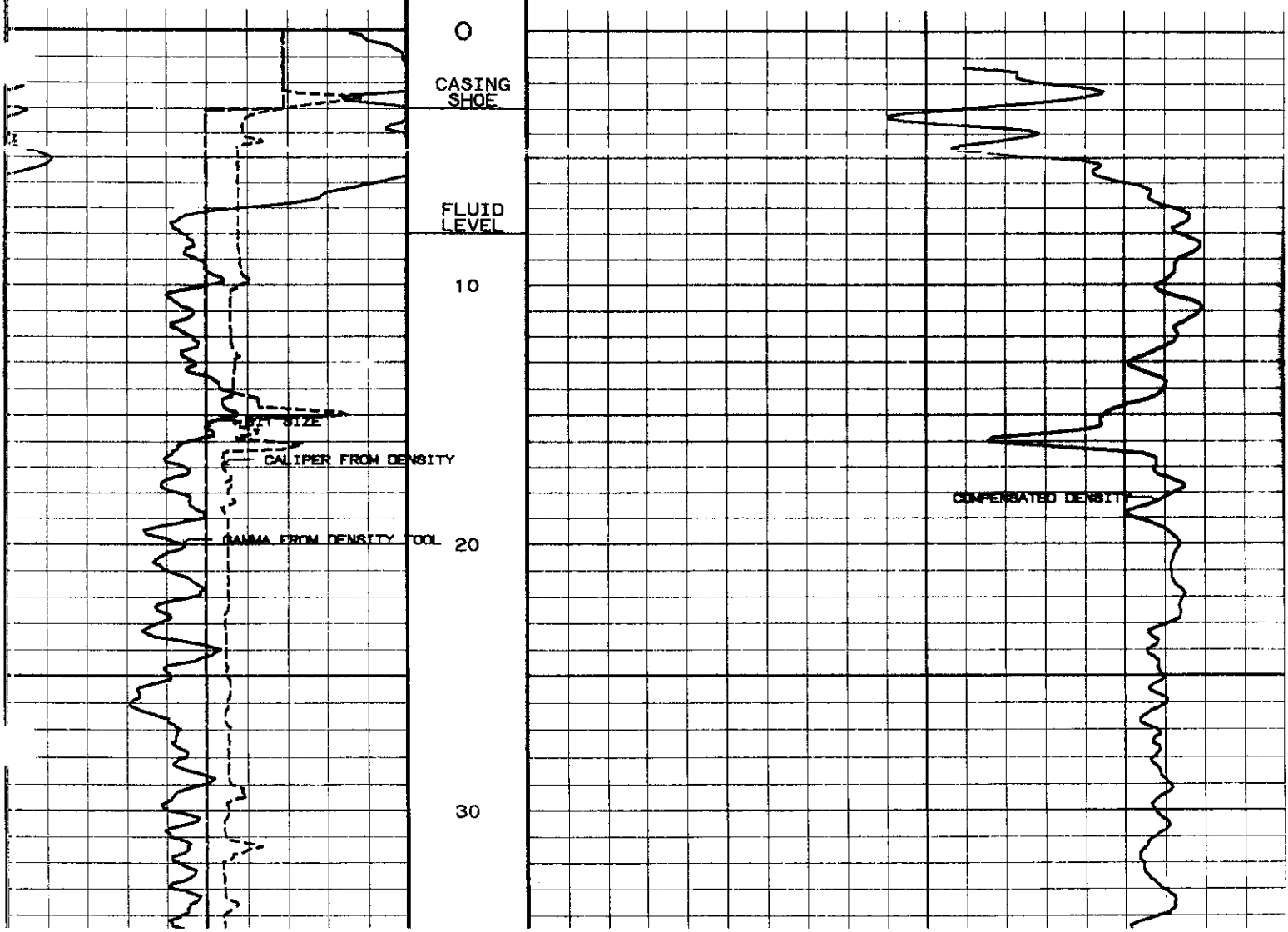
CALIPER FROM DENSITY
MILLIMETRES
90 140 190

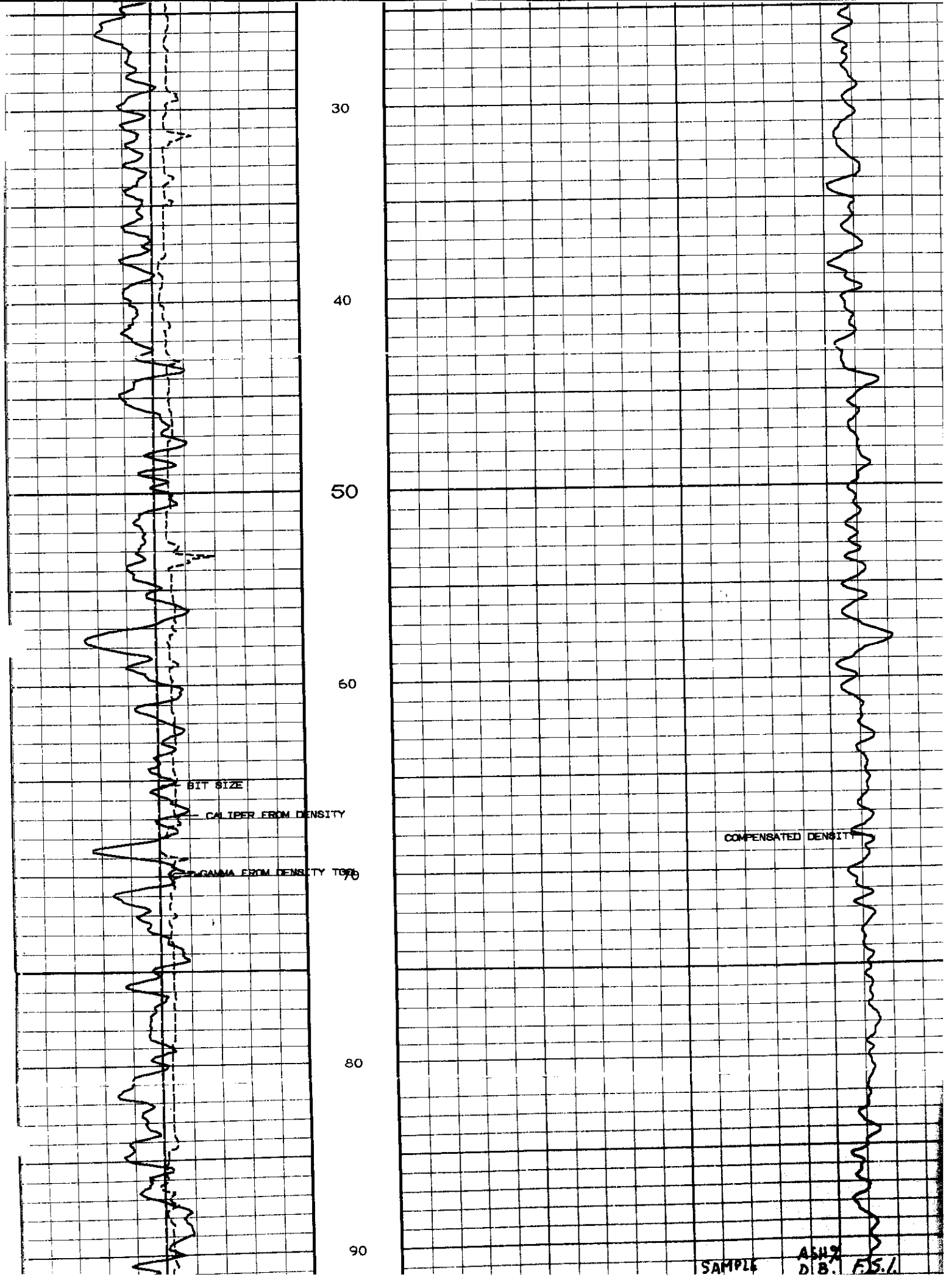
GAMMA FROM DENSITY TOOL
API
0 75 150

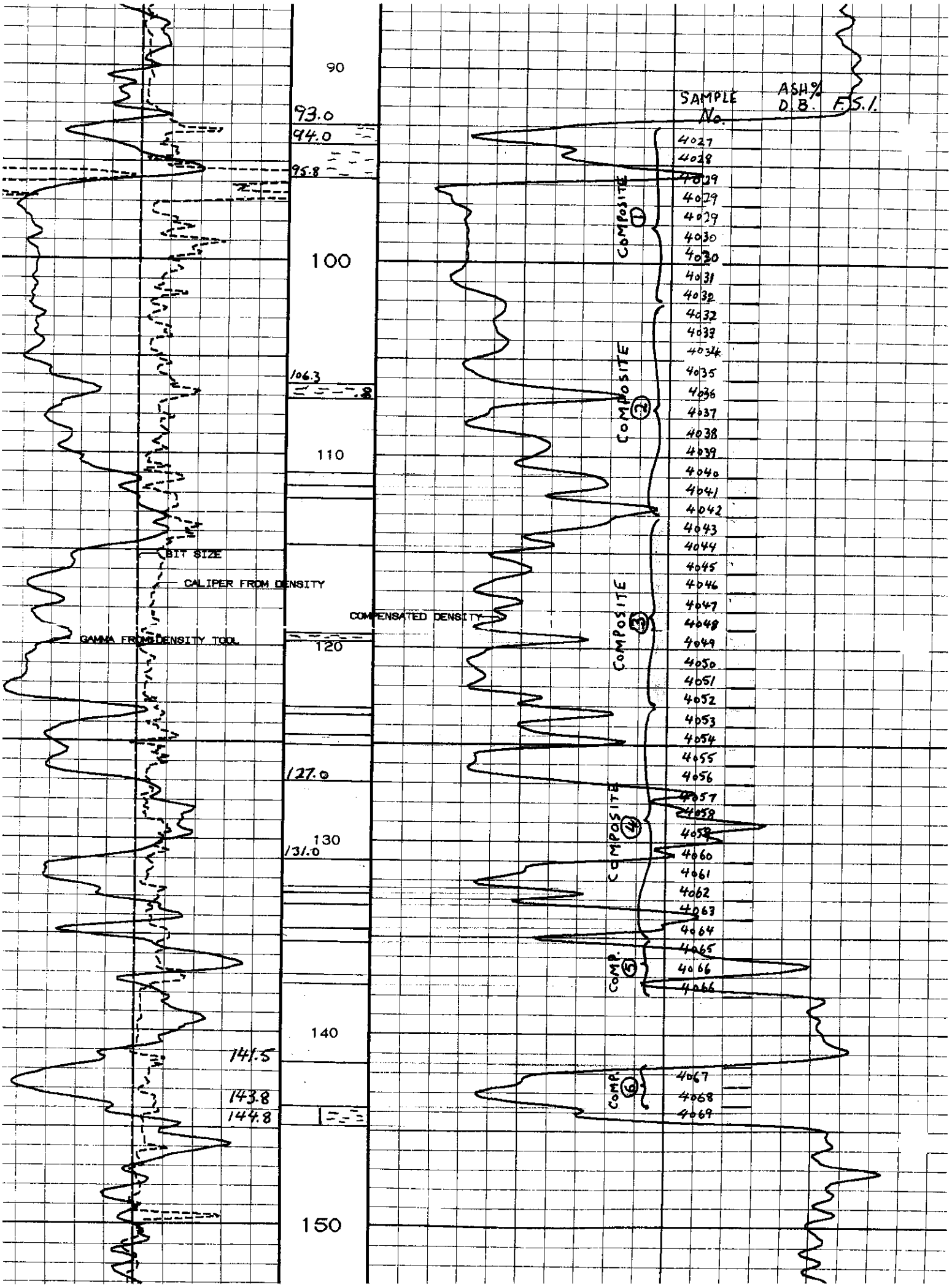
COMPENSATED DENSITY
GM/CC
1 1.50 2 2.50

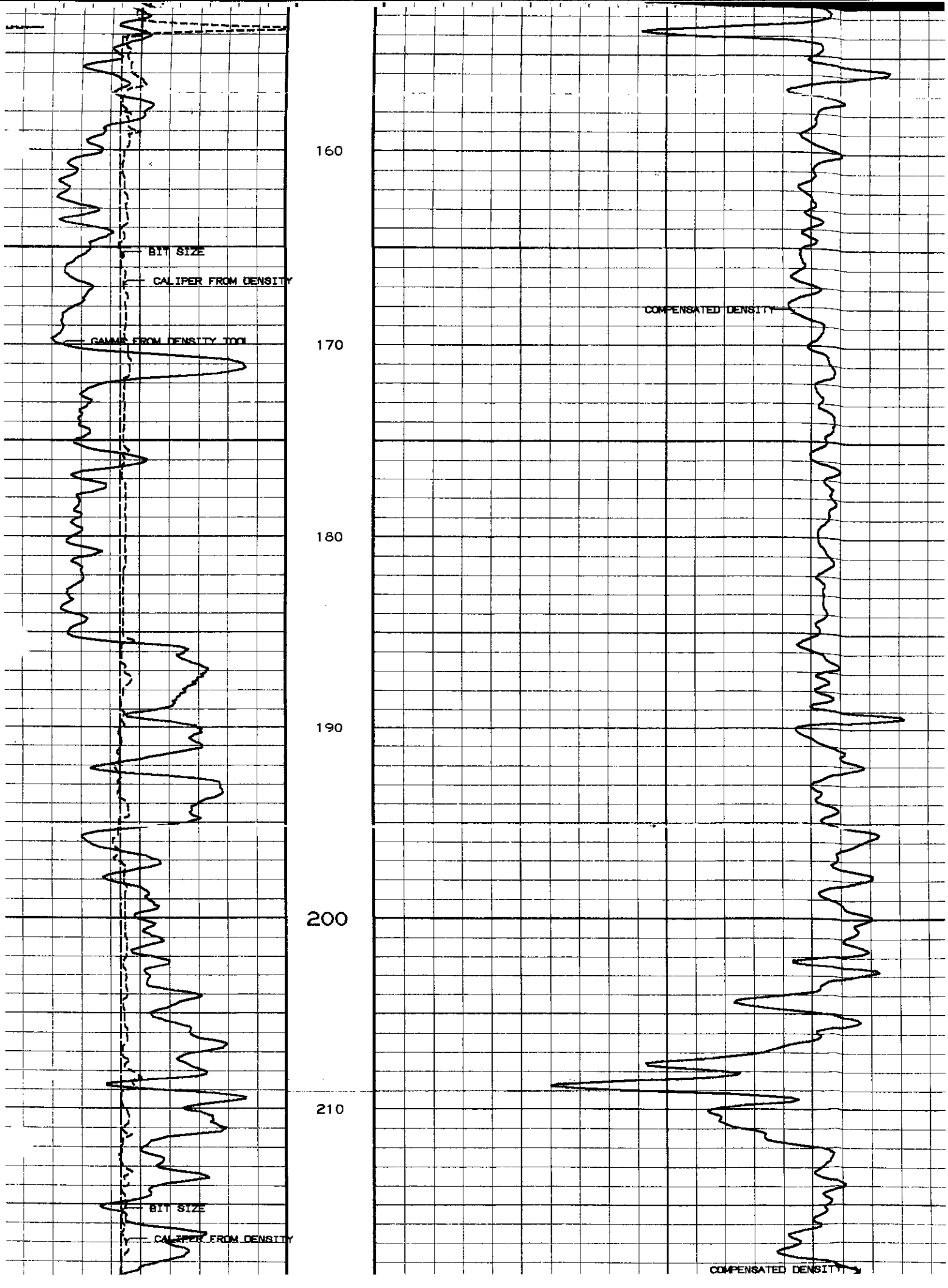
REPLAY SCALE 1:240

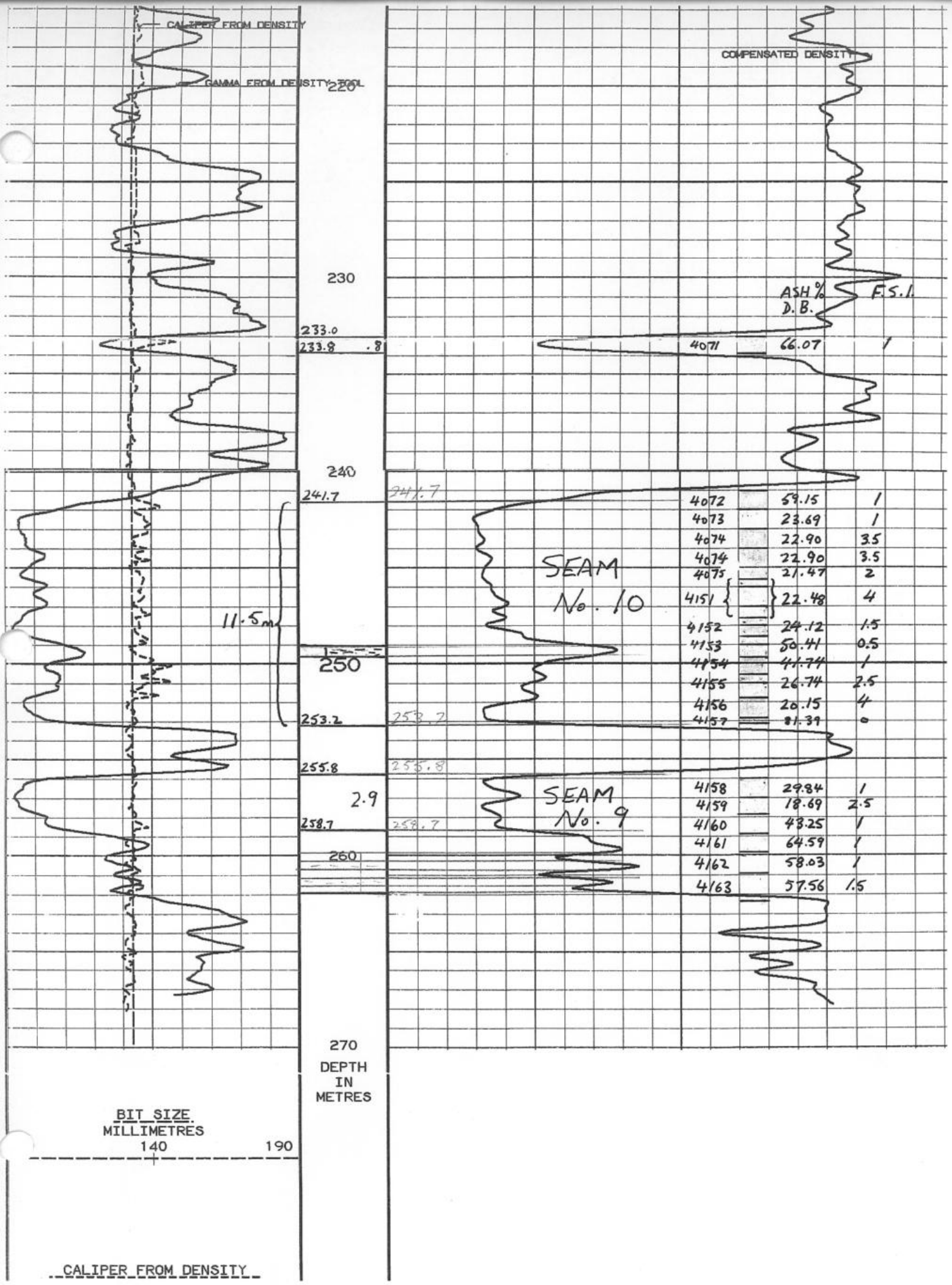
NOTE: COAL SEAMS NOT CORRECTED FOR TRUE THICKNESS.

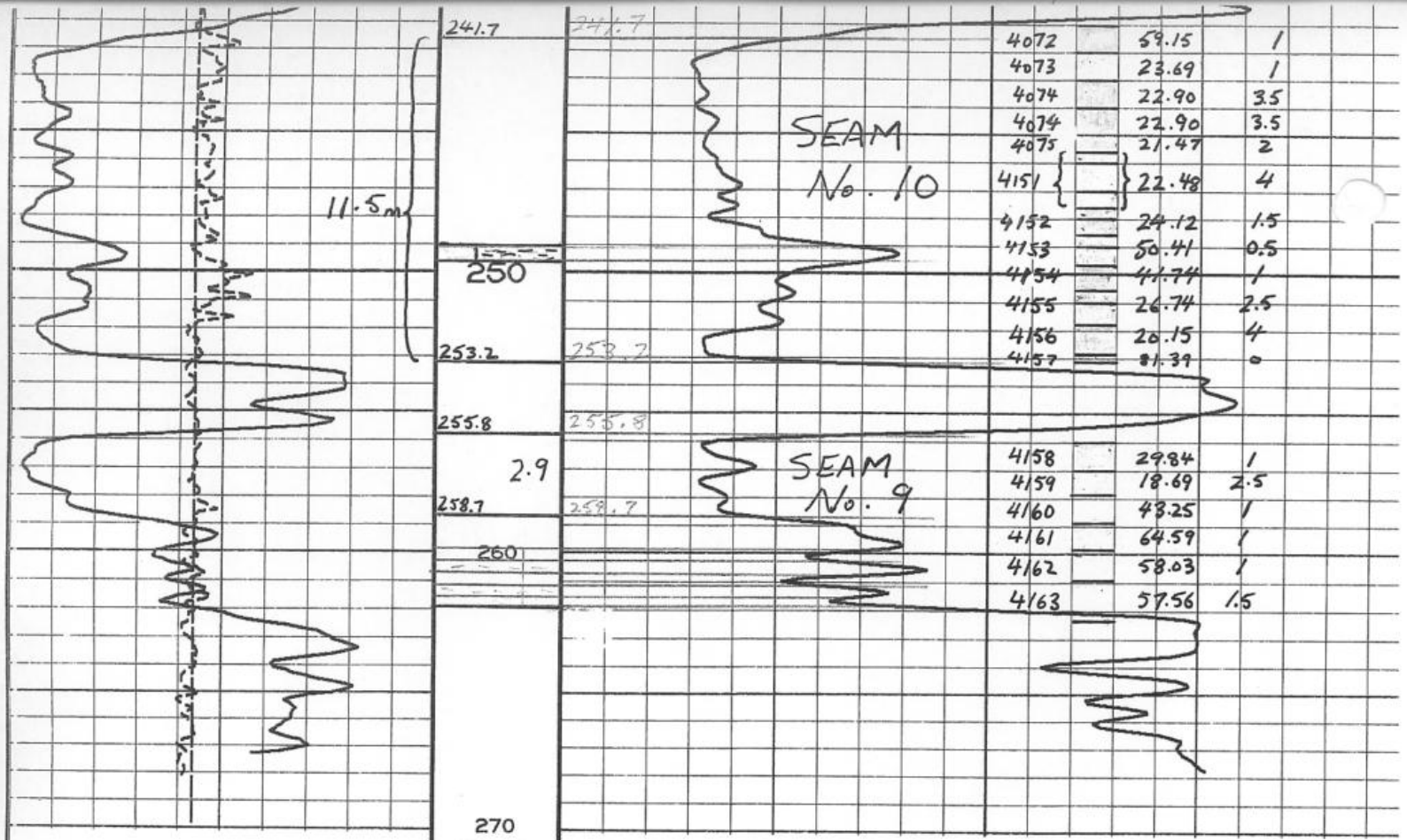



30
40
50
60
70
80
90
BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
COMPENSATED DENSITY
SAMPLE
ASH%
D.B.
F.S.L.


90
93.0
94.0
95.8
100
106.3
110
BIT SIZE
CALIPER FROM DENSITY
COMPENSATED DENSITY
GAMMA FROM DENSITY TOOL
120
127.0
130
131.0
140
141.5
143.8
144.8
150
SAMPLE No.
ASH% D.B.
F.S.I.
4027
4028
4029
4029
4029
4030
4030
4031
4032
4033
4034
4035
4036
4037
4038
4039
4040
4041
4042
4043
4044
4045
4046
4047
4048
4049
4050
4051
4052
4053
4054
4055
4056
4057
4058
4059
4060
4061
4062
4063
4064
4065
4066
4066
4067
4068
4069
COMPOSITE (1)
COMPOSITE (2)
COMPOSITE (3)
COMPOSITE (4)
COMP. (5)
COMP. (6)


160
170
180
190
200
210
BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
COMPENSATED DENSITY
BIT SIZE
CALIPER FROM DENSITY
COMPENSATED DENSITY


CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
COMPENSATED DENSITY
220
230
240
250
260
270
DEPTH IN METRES
233.0
233.8
.8
241.7
241.7
11.5m
253.2
253.2
255.8
255.8
2.9
258.7
258.7
SEAM No. 10
SEAM No. 9
ASH % D.B.
F.S.I.
4071 66.07 1
4072 59.15 1
4073 23.69 1
4074 22.90 3.5
4074 22.90 3.5
4075 21.47 2
4151 22.48 4
4152 24.12 1.5
4153 50.41 0.5
4154 41.74 1
4155 26.74 2.5
4156 20.15 4
4157 81.39 0
4158 29.84 1
4159 18.69 2.5
4160 43.25 1
4161 64.59 1
4162 58.03 1
4163 57.56 1.5
BIT SIZE MILLIMETRES
140
190
CALIPER FROM DENSITY



BIT SIZE
MILLIMETRES
90 140 190

CALIPER FROM DENSITY
MILLIMETRES
90 140 190

GAMMA FROM DENSITY TOOL
API
0 75 150

REPLAY
SCALE
1:240

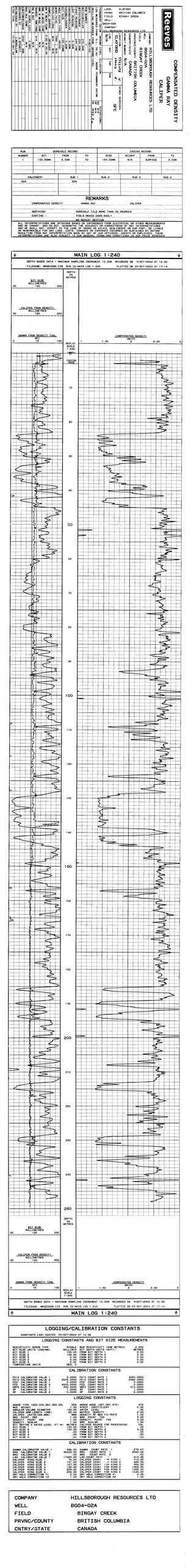
COMPENSATED DENSITY
GM/CC
1 1.50 2 2.50 3

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 7-OCT-2004 AT 17:28

FILENAME: MRGE001M.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 07-OCT-2004 AT 18:01

MAIN LOG 1:240

[redacted]



RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	139.7MM	3.00M	TD	139.00MM	N/A	SURFACE	3.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
DDS	205			

REMARKS

COMPENSATED DENSITY — GAMMA RAY — CALIPER

NORTHING: — BOREHOLE TILT MORE THAN 50 DEGREES
EASTING : — TOOLS MOVED DOWN BADLY

NO RECRAT RECEIVED

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MAIN LOG 1:240

DEPTH BASED DATA = MAXIMUM SAMPLING INCREMENT 10.00M RECORDED ON 9-OCT-2004 AT 16:50
FILENAME: MRGEOSDM.C1B RUN 23-MAIN LOG 1:240 PLOTTED ON 09-OCT-2004 AT 17:14

BIT SIZE MILLIMETRES 90 250
CALIPER FROM DENSITY MILLIMETRES 90 250
GAMMA FROM DENSITY TOOL API 0 150
DEPTH IN METRES
REPLAY 1 1:240
CASING SHOE
COMPENSATED DENSITY GM/CC 1 1.00 2 2.00 3

DEPTH BASED DATA = MAXIMUM SAMPLING INCREMENT 10.00M RECORDED ON 9-OCT-2004 AT 16:50
FILENAME: MRGEOSDM.C1B RUN 23-MAIN LOG 1:240 PLOTTED ON 09-OCT-2004 AT 17:14

MAIN LOG 1:240

LOGGING/CALIBRATION CONSTANTS

CONSTANTS LAST EDITED: 09-OCT-2004 AT 15:36

LOGGING CONSTANTS AND BIT SIZE MEASUREMENTS

RESISTIVITY BOREHOLE TYPE	BOREHOLE	MUD RESISTIVITY (OHM-METRES)	0.000
BIT SIZE 1	MILLIMETRES	BIT DEPTH LIMITS (METRES)	METRES
BIT SIZE 2	0.00	FROM BIT DEPTH 1	0.00
BIT SIZE 3	139.70	TO BIT DEPTH 1	0.00
BIT SIZE 4	0.00	FROM BIT DEPTH 2	0.00
BIT SIZE 5	0.00	TO BIT DEPTH 2	0.00
BIT SIZE 6	0.00	FROM BIT DEPTH 3	0.00
TEMPERATURE UNITS	DEGREES		

CALIBRATION CONSTANTS

FE1C CALIBRATION VALUE 2	0.0000	FE1C COUNT RATE 1	4120.0000
FE1C CALIBRATION VALUE 3	2000.0000	FE1C COUNT RATE 2	2760.0000
FE2C CALIBRATION VALUE 2	0.0000	FE2C COUNT RATE 1	0.0000
FE2C CALIBRATION VALUE 3	2000.0000	FE2C COUNT RATE 2	3170.0000
SP CALIBRATION VALUE 1	0.0000	SP COUNT RATE 1	0.0000
SP CALIBRATION VALUE 2	0.0000	SP COUNT RATE 2	0.0000

LOGGING CONSTANTS

BOOK TYPE (GDS,CDS,DCI,DDS,DDL	DDS	BOREHOLE MODE (-NEG,0=PI,+POS)	870
MUD WEIGHT	0.00	DEVICE STANDOFF(INCHES)	0.00
ANNULAR VOLUME DIAMETER	133.35	WATER LEVEL	.00
CALIPER LIMITS(LOW,HIGH)	0.00	DENSITY OF MATRIX	2.71
CALIPER LIMITS(LOW,HIGH)	MKS	DENSITY OF MUD FILTRATE	1.00
MKS POINT OR INCH	1.00	SMD POINT TO TWO	3.00
DEPTH UNITS - M OR FEET	ONE	SMD SPACING	1.52
DENSITY OF WATER LEVEL (FT.M)	1.00	SMD WINDOW FOR PROCESSING	.152
BIT SIZE 1	139.70	FROM BIT DEPTH 1	.00
BIT SIZE 2	.00	TO BIT DEPTH 1	205.00
BIT SIZE 3	.00	FROM BIT DEPTH 2	.00
BIT SIZE 4	.00	TO BIT DEPTH 2	.00
BIT SIZE 5	.00	FROM BIT DEPTH 3	.00

CALIBRATION CONSTANTS

GAMMA CALIBRATION VALUE 1	426.00	GAMMA COUNT RATE 1	272.47
SMD CALIBRATION VALUE 2	36643.00	SMD COUNT RATE 2	2040.58
LSD CALIBRATION VALUE 1	.00	LSD COUNT RATE 1	.00
LSD CALIBRATION VALUE 2	7465.00	LSD COUNT RATE 2	819.48
CALIPER RING SIZE 1	31.00	CALIPER COUNT 1 IN RING 1	733.00
CALIPER RING SIZE 2	139.70	CALIPER COUNT 2 IN RING 1	1210.00
CALIPER RING SIZE 3	147.00	CALIPER COUNT 1 FOR RING 2	765.00
CALIPER RING SIZE 4	.00	CALIPER COUNT 2 FOR RING 2	1262.00
CALIPER RING SIZE 5	203.00	CALIPER COUNT FOR RING 3	1332.00
CALIPER RING SIZE 6	254.00	CALIPER COUNT FOR RING 4	1447.00
DRY HOLE CORRECTION IN	1.00	DRY HOLE CORRECTION IN1	1.00
DRY HOLE CORRECTION IN2	1.00	DRY HOLE CORRECTION M2	1.00

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG04-02A
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

FOCUSSED ELECTRIC GAMMA RAY CALIPER

Reeves

LOCN. ELKFORD
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG04-02A
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG04-02A
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION ELKFORD 5562698 N. 644012 E.

OTHER SERVICES CDL

LSD	SEC	TWP	RGE
N/A			

PERMANENT DATUM GROUND LEVEL ,ELEVATION
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1452.2 m.

DATE	9-OCT-04			
RUN NUMBER	1			
DEPTH-DRILLER	276.00M			
DEPTH-LOGGER	258.00M			
FIRST READING	252.00M			
LAST READING	3.00M			
CASING-DRILLER	3.00M			
CASING-LOGGER	3.00M			
BIT SIZE	133.35MM			
HOLE FLUID TYPE	WATER			
DENS./VISC.	1000 N/A			
PH/FLUID LOSS	N/A N/A			
SAMPLE SOURCE	DRILLER			
RM @ MEAS TEMP	2.00 @ 20.0C			
RMF @ MEAS TEMP	N/A			
RMC @ MEAS TEMP	N/A			
SOURCE: RMF/RMC	N/A N/A			
RM @ BHT	N/A			
TIME SINCE CIRC	2 HRS			
MAX REC TEMP	N/A			
EQUIPMENT/BASE	V232 RDR			
RECORDED BY	A.SPASKYY			
WITNESSED BY	J.MCMILLAN			
CIRC STOP	12:00 OKT 04			

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	133.35MM	3.00M	TD	159.00MM	N/A	SURFACE	3.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
SFE	104			

REMARKS

FOCUSSED ELECTRIC GAMMA RAY CALIPER

NORTHING: BOREHOLE TILD MORE THAN 50 DEGREES

EASTING : TOOLS MOVED DOWN BADLY

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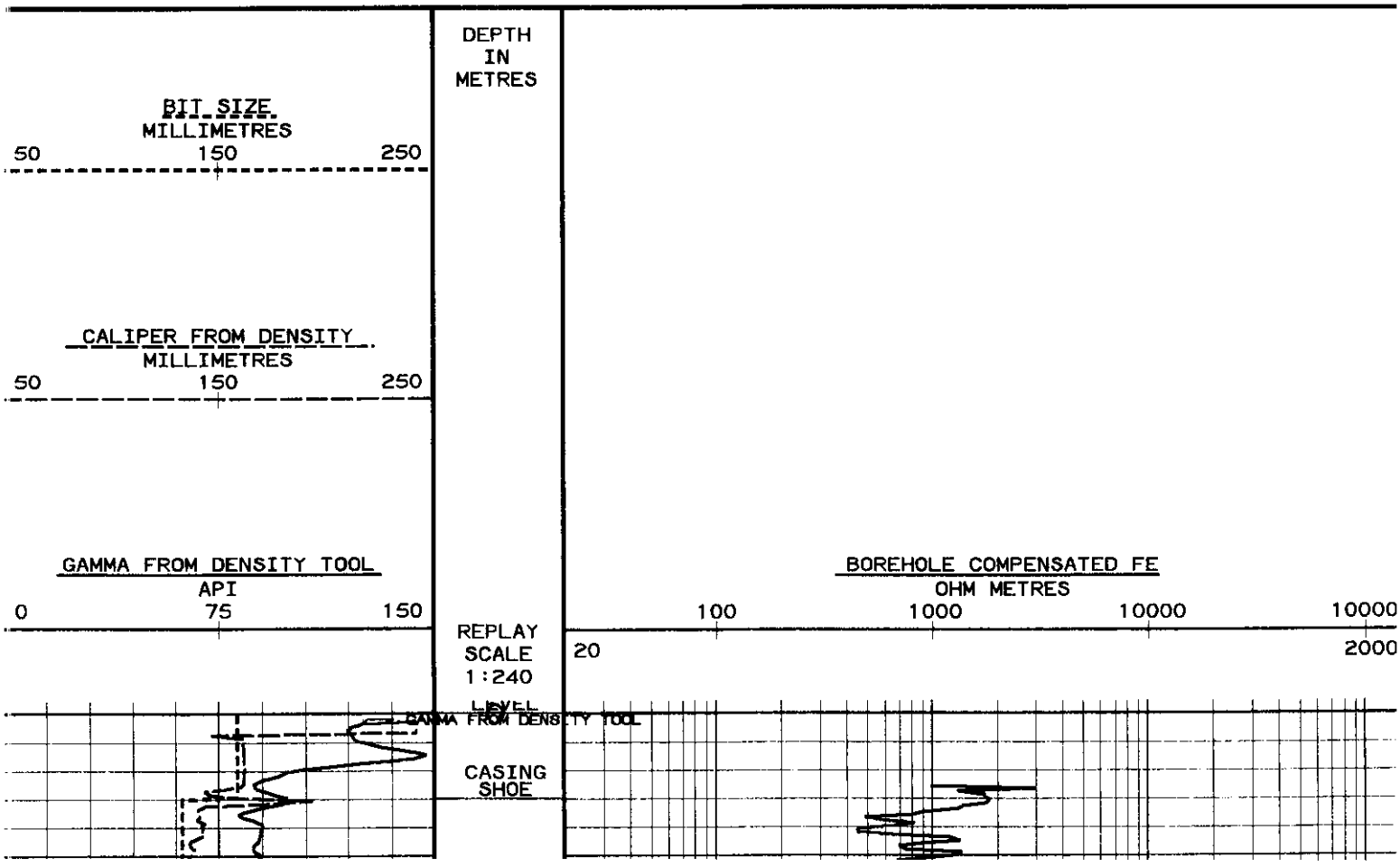
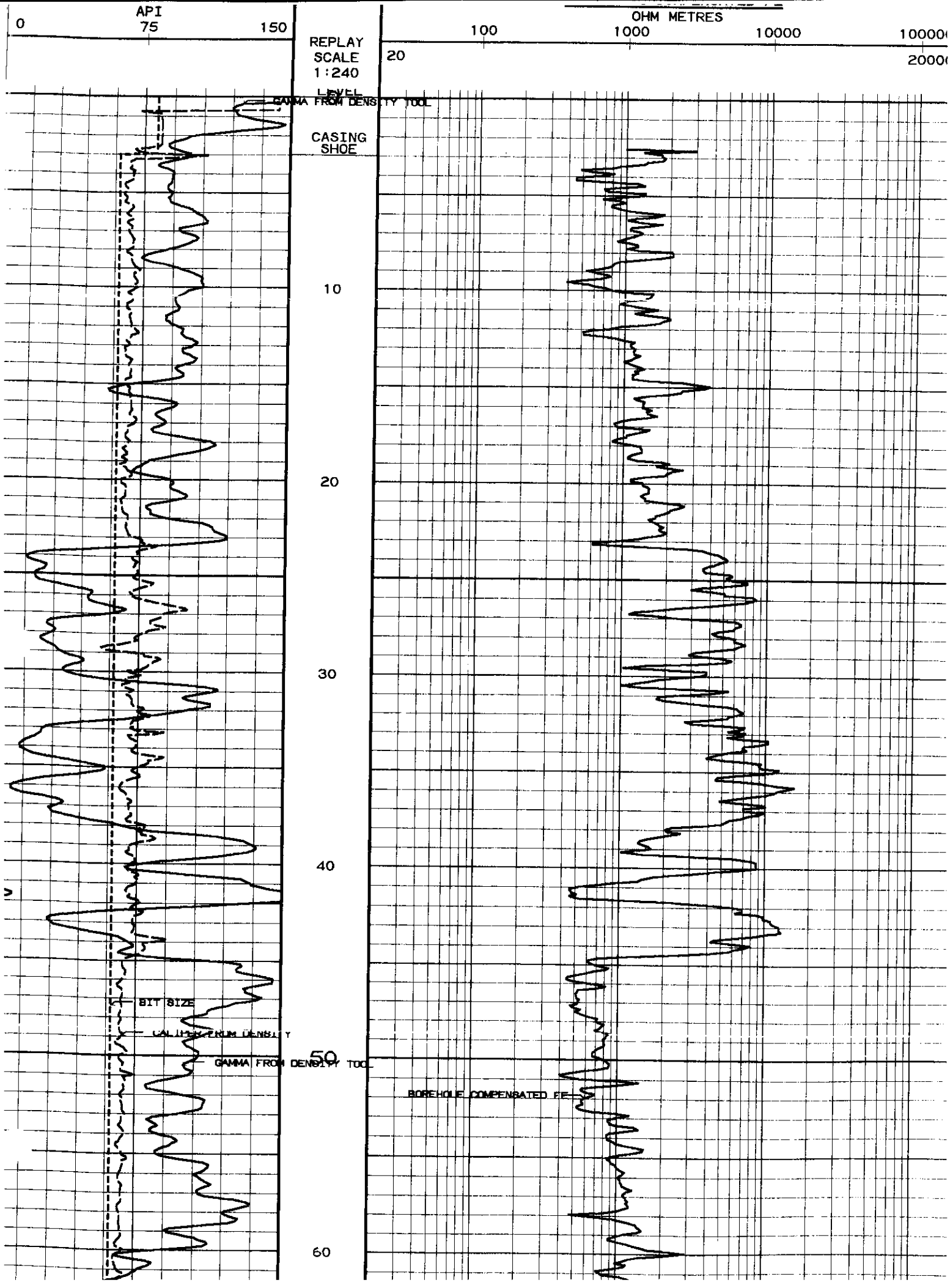
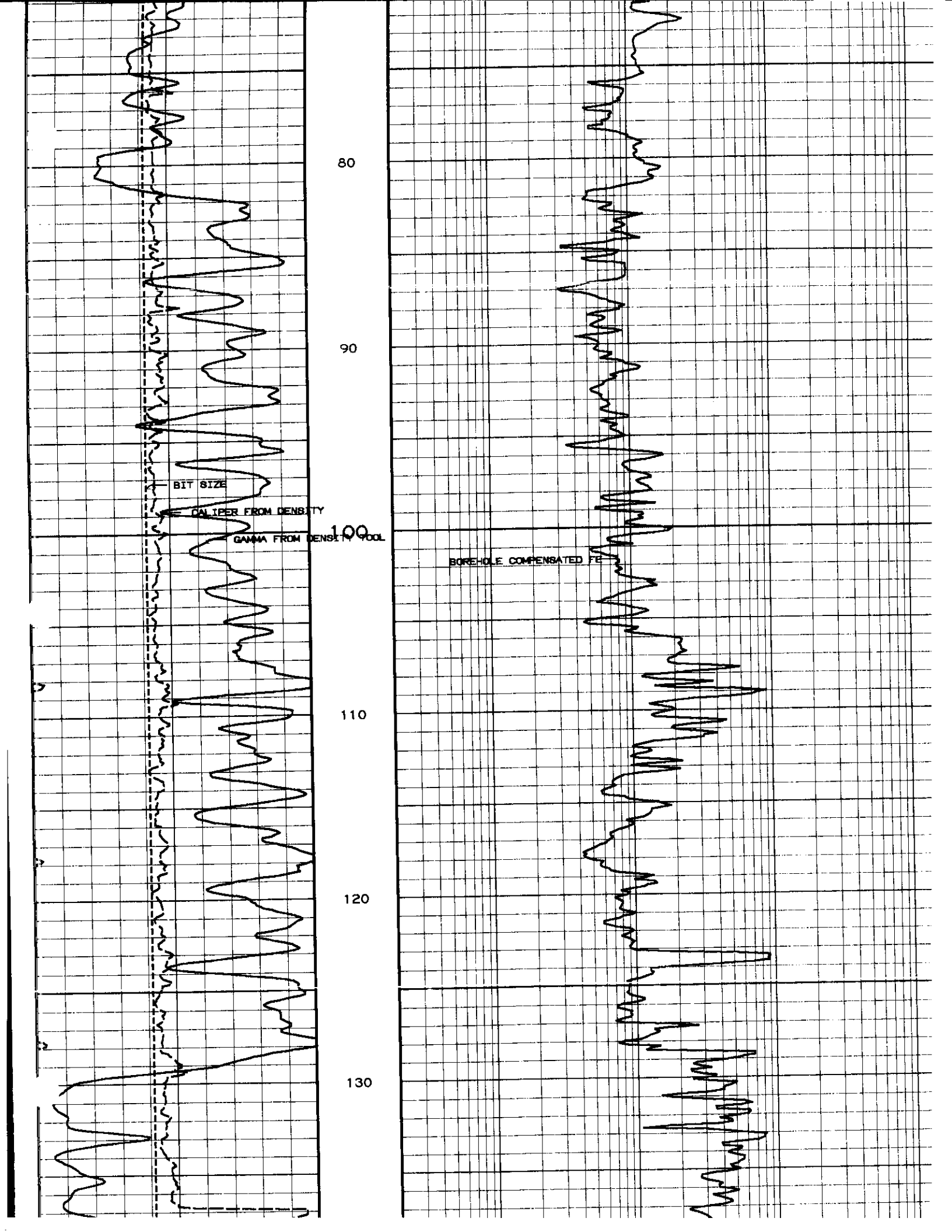
MAIN LOG 1:240

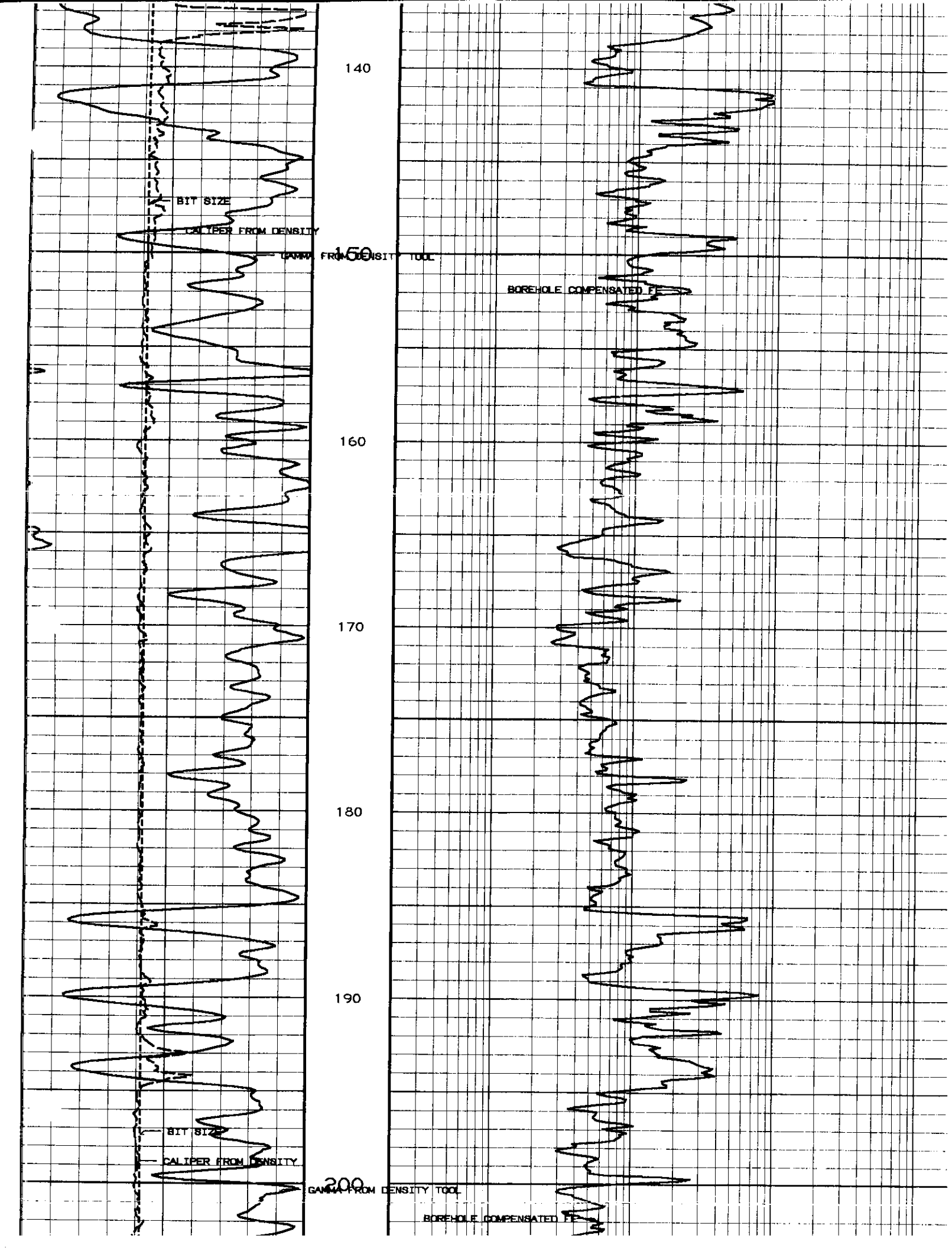
DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 9-OCT-2004 AT 16:50

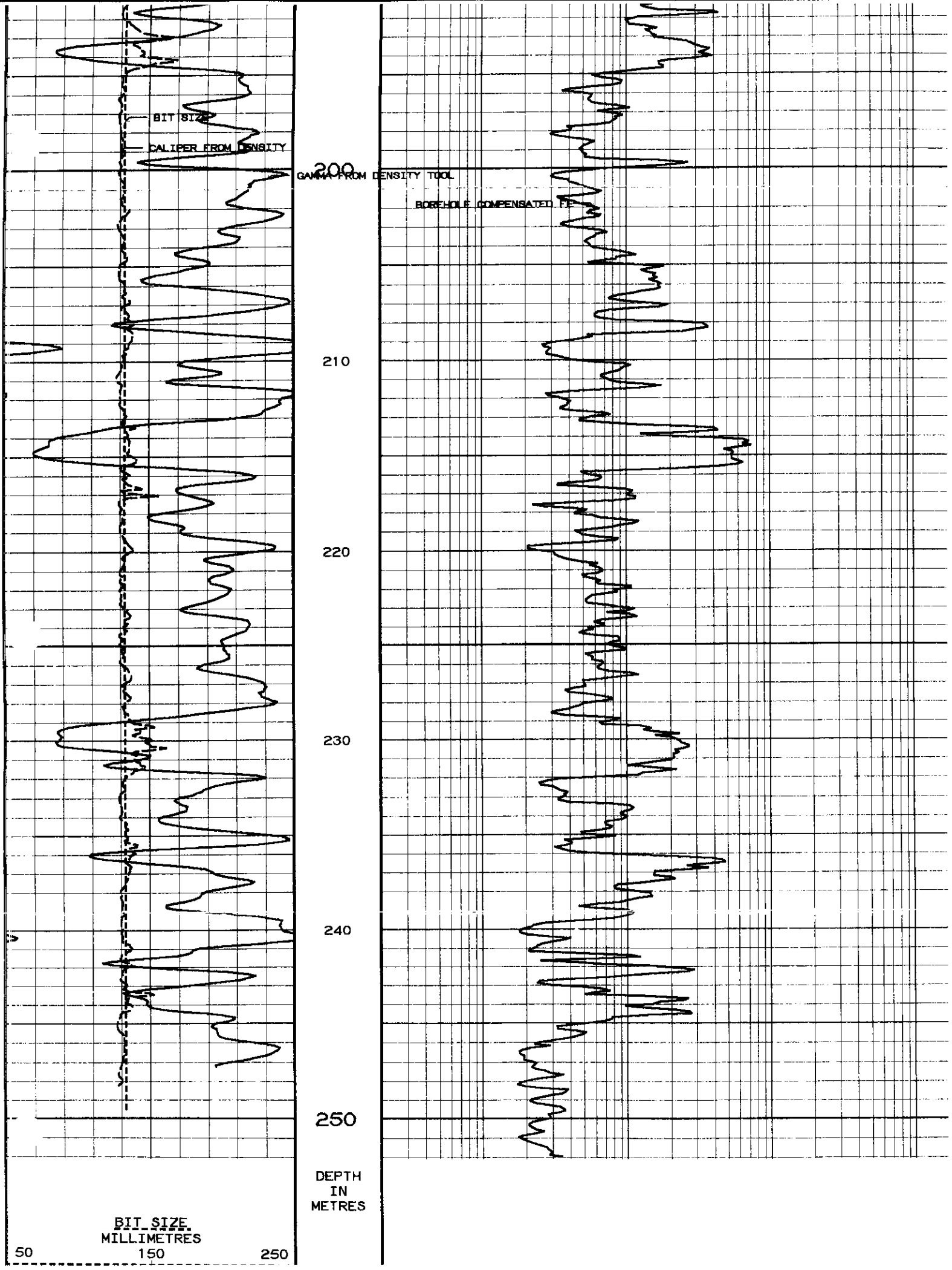
FILENAME: MRGE002M.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 09-OCT-2004 AT 17:29




API
0
75
150
REPLAY
SCALE
1:240
LEVEL
CASING
SHOE
OHM METRES
100
1000
10000
20
GAMMA FROM DENSITY TOOL
BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
BOREHOLE COMPENSATED RE
10
20
30
40
50
60


80
90
BIT SIZE
CALIPER FROM DENSITY
100
GAMMA FROM DENSITY TOOL
BORE-HOLE COMPENSATED FE
110
120
130


140
BIT SIZE
CALIPER FROM DENSITY
150
GAMMA FROM DENSITY TOOL
BOREHOLE COMPENSATED FE
160
170
180
190
BIT SIZE
CALIPER FROM DENSITY
200
GAMMA FROM DENSITY TOOL
BOREHOLE COMPENSATED FE


BIT SIZE
CALIPER FROM DENSITY
200
GAMMA FROM DENSITY TOOL
BOREHOLE COMPENSATED FF
210
220
230
240
250
DEPTH
IN
METRES
BIT SIZE
MILLIMETRES
50
150
250

CALIPER FROM DENSITY
MILLIMETRES
50 150 250

GAMMA FROM DENSITY TOOL
API
0 75 150

REPLAY SCALE 1:240

BOREHOLE COMPENSATED FE
OHM METRES
100 1000 10000 100000
20 200000

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 9-OCT-2004 AT 16:50
FILENAME: MRGE002M.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 09-OCT-2004 AT 17:29

MAIN LOG 1:240

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 9-OCT-2004 AT 16:02
FILENAME: MRGE002R.CIB RUN ID:REPEAT SECTION PLOTTED ON 09-OCT-2004 AT 17:28

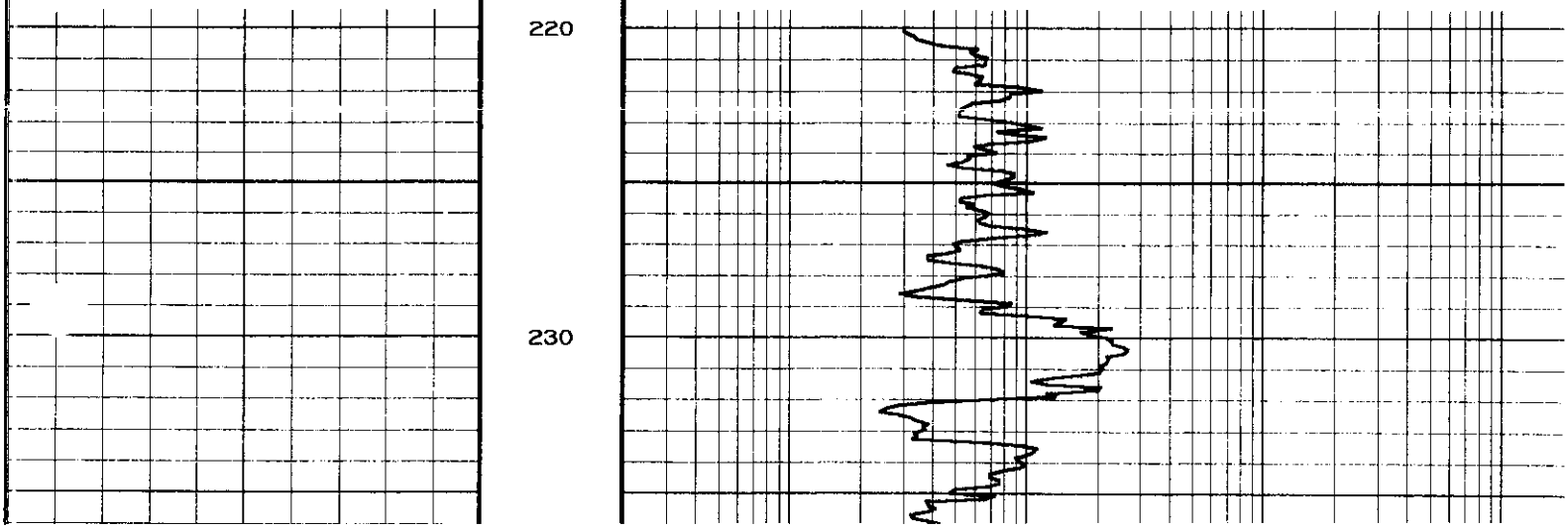
DEPTH IN METRES

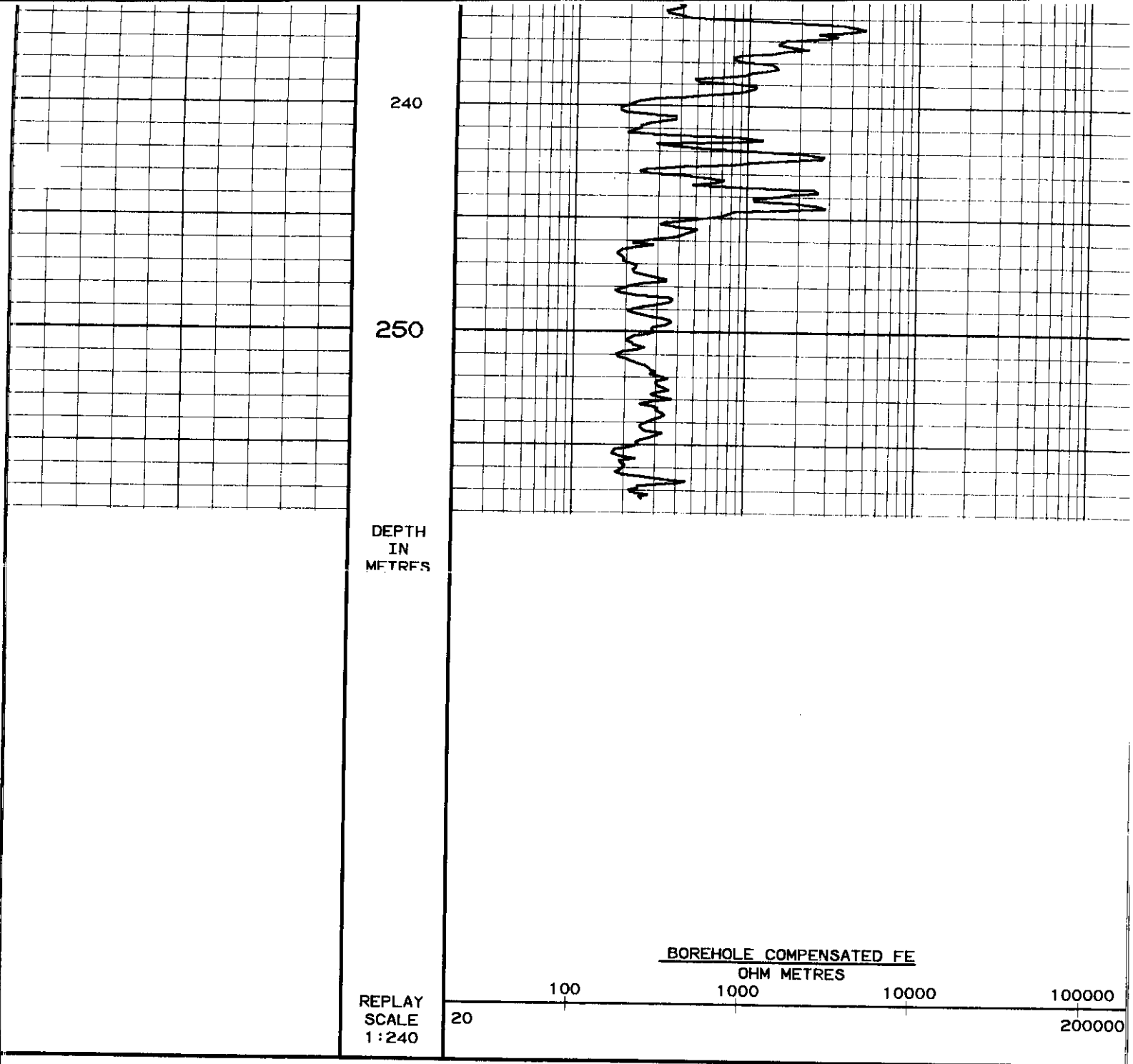
REPLAY SCALE 1:240

BOREHOLE COMPENSATED FE
OHM METRES
100 1000 10000 100000
20 200000

220

230





DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 9-OCT-2004 AT 16:02

FILENAME: MRGE002R.CIB RUN ID:REPEAT SECTION PLOTTED ON 09-OCT-2004 AT 17:28

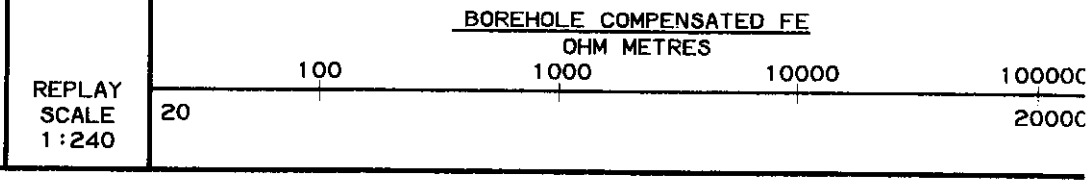
REPEAT SECTION

LOGGING/CALIBRATION CONSTANTS

CONSTANTS LAST EDITED: 07-OCT-2004 AT 09:33

LOGGING CONSTANTS AND BIT SIZE MEASUREMENTS

RESISTIVITY SONDE TYPE	SINGLE	MUD RESISTIVITY (OHM METRES)	2.000
BIT SIZE UNITS (INS/MM)	MILLIMTR	BIT DEPTH UNITS (M/FT)	METRES
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	133.35	FROM BIT DEPTH 2	3.00
BIT SIZE 3	0.00	FROM BIT DEPTH 3	0.00
BIT SIZE 4	0.00	FROM BIT DEPTH 4	0.00
BIT SIZE 5	0.00	FROM BIT DEPTH 5	0.00
TEMPERATURE UNITS	DEG C		



REPLAY SCALE 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 9-OCT-2004 AT 16:02

FILENAME: MRGE002R.CIB RUN ID:REPEAT SECTION PLOTTED ON 09-OCT-2004 AT 17:28

REPEAT SECTION

LOGGING/CALIBRATION CONSTANTS

CONSTANTS LAST EDITED: 07-OCT-2004 AT 09:33

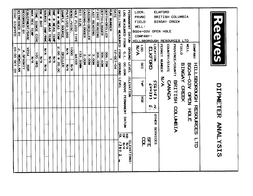
LOGGING CONSTANTS AND BIT SIZE MEASUREMENTS

RESISTIVITY SONDE TYPE	SINGLE	MUD RESISTIVITY (OHM METRES)	2.000
BIT SIZE UNITS (INS/MM)	MILLIMTR	BIT DEPTH UNITS (M/FT)	METRES
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	133.35	FROM BIT DEPTH 2	3.00
BIT SIZE 3	0.00	FROM BIT DEPTH 3	0.00
BIT SIZE 4	0.00	FROM BIT DEPTH 4	0.00
BIT SIZE 5	0.00	FROM BIT DEPTH 5	0.00
TEMPERATURE UNITS	DEG. C		

CALIBRATION CONSTANTS

FE1C CALIBRATOR VALUE 1	2.0000	FE1C COUNT RATE 1	4520.0000
FE1C CALIBRATOR VALUE 2	2000.0000	FE1C COUNT RATE 2	2982.0000
FE2 CALIBRATOR VALUE 1	2.0000	FE2 COUNT RATE 1	0.0000
FE2 CALIBRATOR VALUE 2	2000.0000	FE2 COUNT RATE 2	0.0000
GRFE CALIBRATOR VALUE 1	490.0000	GRFE COUNT RATE 1	315.0000
SP CALIBRATOR VALUE 1	1.0000	SP COUNT RATE 1	1.0000
SP CALIBRATOR VALUE 2	0.0000	SP COUNT RATE 2	0.0000

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG04-02A
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA



RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT SIZE	TO	SIZE	WEIGHT	GRADE	TO
1	152.4mm	1751.0m	139.7mm	N/A	N/A	0.0m

EQUIPMENT	RUN 1	RUN 2	RUN 3
840-105	0005-854		

REMARKS

DITMETER ANALYSIS

NORTHBOUND
EASTBOUND

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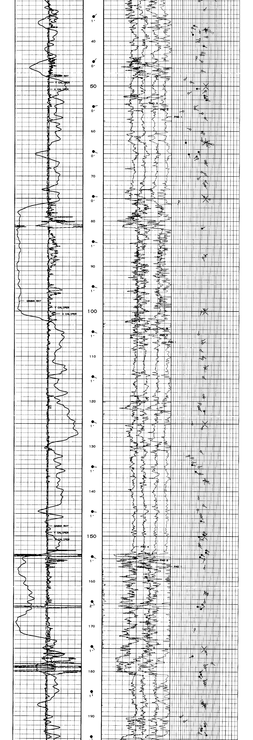
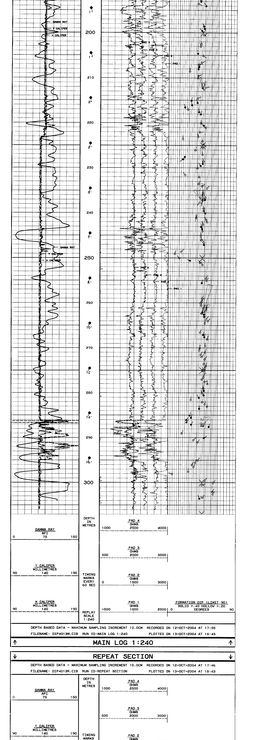
MAIN LOG 1:240

DEPTH BASED DATA + MAGNAV SAMPLING INCREMENT 10.00M RECORDED ON 19-OCT-2004 AT 17:05
FILENAME: EDF401.BK.028 RUN 03 MAIN LOG 1:240 PLOTTED ON 19-OCT-2004 AT 17:45



REPEAT SECTION

DEPTH BASED DATA + MAGNAV SAMPLING INCREMENT 10.00M RECORDED ON 19-OCT-2004 AT 17:05
FILENAME: EDF401.BK.028 RUN 03 REPEAT SECTION PLOTTED ON 19-OCT-2004 AT 18:43



DEPTH BASED DATA + MAGNAV SAMPLING INCREMENT 10.00M RECORDED ON 19-OCT-2004 AT 17:05
FILENAME: EDF401.BK.028 RUN 03 REPEAT SECTION PLOTTED ON 19-OCT-2004 AT 18:43

LOGGING/CALIBRATION CONSTANTS

DATA LAST REPROCESSED: 19-OCT-2004 AT 13:30

LOGGING CONSTANTS & GAMMA CALIBRATION

CORRELATION SHIFT (M.)	0.00	VERTICAL (M.)	0.00
BIT SIZE #1 (MM)	0.00	BIT DEPTH #1 (M)	0.00
BIT SIZE #2 (MM)	0.00	BIT DEPTH #2 (M)	0.00
BIT SIZE #3 (MM)	0.00	BIT DEPTH #3 (M)	0.00
BIT SIZE #4 (MM)	0.00	BIT DEPTH #4 (M)	0.00
CASING SHOE (M.)	0.00		
MUD DENSITY (KG/M3)	1040.00		
MUD RESISTIVITY (OHMM) @ TEMP (DEGREES)	0.20 @ 20.00		
DECALIPER (OHMM/IN)	17.00	DETAIL FACTOR	1.00
DEPTH (M/IN)		DEPTH SHIFT	NO
DEPTH UNITS	METRES	UNITS USED IN CALCULATIONS	M/S

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG04-03V OPEN HOLE
FIELD	BINGAY CREEK
PROVINCE/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

Reeves

VERTICALITY ANALYSIS

LOCN.	ELKFORD
PRVNC	BRITISH COLUMBIA
FIELD	BINGAY CREEK
WELL:	BG04-03V OPEN HOLE
COMPANY:	HILLSBOROUGH RESOURCES LTD

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG04-03V OPEN HOLE
FIELD	BINGAY CREEK
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA
PERMIT NUMBER	N/A
LOCATION	ELKFORD 5563183 N. 644333 E.
LSD	N/A
TWP	
RGE	
OTHER SERVICES	SFE CDL

PERMANENT DATUM GROUND LEVEL .ELEVATION
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS: KB N/A DF N/A GL 1387.2 m

DATE	12-OCT-04
RUN NUMBER	1
DEPTH-DRILLER	[illegible]
DEPTH-LOGGER	[illegible]
FIRST READING	[illegible]
LAST READING	[illegible]
CASING-DRILLER	M
CASING-LOGGER	M
BIT SIZE	133.35MM
HOLE FLUID TYPE	WATER
DENS./VISC.	1000 N/A
PH/FLUID LOSS	N/A N/A
SAMPLE SOURCE	DRILLER
RM @ MEAS TEMP	2.00 @ 20.0C
RMF @ MEAS TEMP	N/A
RMC @ MEAS TEMP	N/A
SOURCE: RMF/RMC	N/A N/A
RM @ BHT	N/A
TIME SINCE CIRC	105 HRS
MAX REC TEMP	N/A
EQUIPMENT/BASE	V234 RDR
RECORDED BY	A. [illegible]ASKYY
WITNESSED BY	J. [illegible]MILLAN
CIRC STOPPED	09:[illegible] OCT 08

VERTICALITY ANALYSIS INTERPRETATION NOTES

1. ALL PLOTTED OUTPUT IS AUTOMATICALLY SCALED TO OBTAIN THE BEST VISUAL EFFECT WITHIN THE PHYSICAL SPACE AVAILABLE. THE MAXIMUM SCALES BEING 1:50000 (METRIC) AND 1:48000 (IMPERIAL), AND THE MINIMUM 1:1.

2. THE ANALYSIS IS DERIVED BY INTEGRATING 10CM. SAMPLED DATA DOWN THE BOREHOLE. THE LISTING SUPPLIED WILL CONTAIN A MAXIMUM OF 200 POINTS IN MULTIPLES OF 1, 2, 5, 10, 20, 50 OR 100 METRES/ FEET DEPENDING ON THE TOTAL RANGE OF THE ANALYSIS. HOWEVER THE ANALYSIS IS CALCULATED FOR THE ENTIRE RANGE OF THE BOREHOLE AND THE FINAL BOREHOLE POSITION IS INCLUDED IN THE LISTING.

3. COMPUTED VERTICALITY MAY ONLY BE FULLY DERIVED IN OPEN SECTIONS OF THE BOREHOLE, AWAY FROM THE INFLUENCE OF ANY UNUSUAL MAGNETIC EFFECTS (AS THE AZIMUTH CALCULATIONS ARE DERIVED FROM THREE SOLID STATE MAGNETOMETERS). SO THE ANALYSIS WILL GENERALLY BEGIN AT THE END OF THE CASING AND ALL BOREHOLE POSITIONAL INFORMATION WILL RELATE TO THIS DEPTH.

4. UP TO TEN CROSS SECTIONS MAY BE REQUESTED FOR ANY BOREHOLE TO BE DISPLAYED AT ANY SCALE (THE DEFAULT SCALE IS THAT OF THE CROSS-SECTION FOR THE ENTIRE HOLE).

5. BOREHOLE POSITIONAL ERROR IS DERIVED ASSUMING THE FOLLOWING PARAMETERS.

	TILT(DEGREES)	AZIMUTH(DEGREES)
TYPICAL ERROR	+/- .3333	+/- 10.00
MAXIMUM ERROR	+/- .5000	+/- 15.00

6. ERROR ANALYSIS MAY BE CALCULATED AND PLOTTED FROM THE DATA LISTING AS FOLLOWS:

A) PLOT THE FOUR COORDINATES FROM THE ERROR LISTING (BASED UPON ZERO AZIMUTH ERROR) ON A TARGET PLOT. ORIGIN AT THE START OF THE ANALYSIS.
B) DESCRIBE ARCS OF +/- 10.00 DEGREES AND +/- 15.00 DEGREES (CENTRE AT THE ORIGIN) THROUGH THE INNER AND OUTER POINTS RESPECTIVELY.
C) CONNECT THE RESPECTIVE ARCS TOGETHER WITH STRAIGHT LINES TO GIVE THE TYPICAL AND MAXIMUM BOREHOLE POSITIONAL ERROR.

7. GIVEN BELOW IS A FULL DESCRIPTION OF THE PARAMETERS DISPLAYED ON THE ENSUING LISTING:

LOG DEPTH	THE DEPTH RECORDED ON THE FIELD LOGS FOR THE BOREHOLE.
TRUE DEPTH	THE TRUE VERTICAL DEPTH CORRESPONDING TO THE ABOVE DEPTH. CORRECTED FROM THE START OF THE ANALYSIS.
HOLE TILT AND AZIMUTH	THE SAMPLED BOREHOLE ORIENTATION.
AXIAL COORDINATES	THE COORDINATES NORTH AND EAST FROM THE TARGET ORIGIN.
POLAR COORDINATES	THE POLAR, OR RADIAL COORDINATES OF THE BOREHOLE.
ERROR COORDINATES	THE POLAR COORDINATES CORRESPONDING TO THE TYPICAL AND MAXIMUM TILT ERROR.

N.B. THE REFFRENCE POINT FOR ALL BEARING ANGLES ON THIS LISTING IS GIVEN AT THE TOP OF EACH SHEET.

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

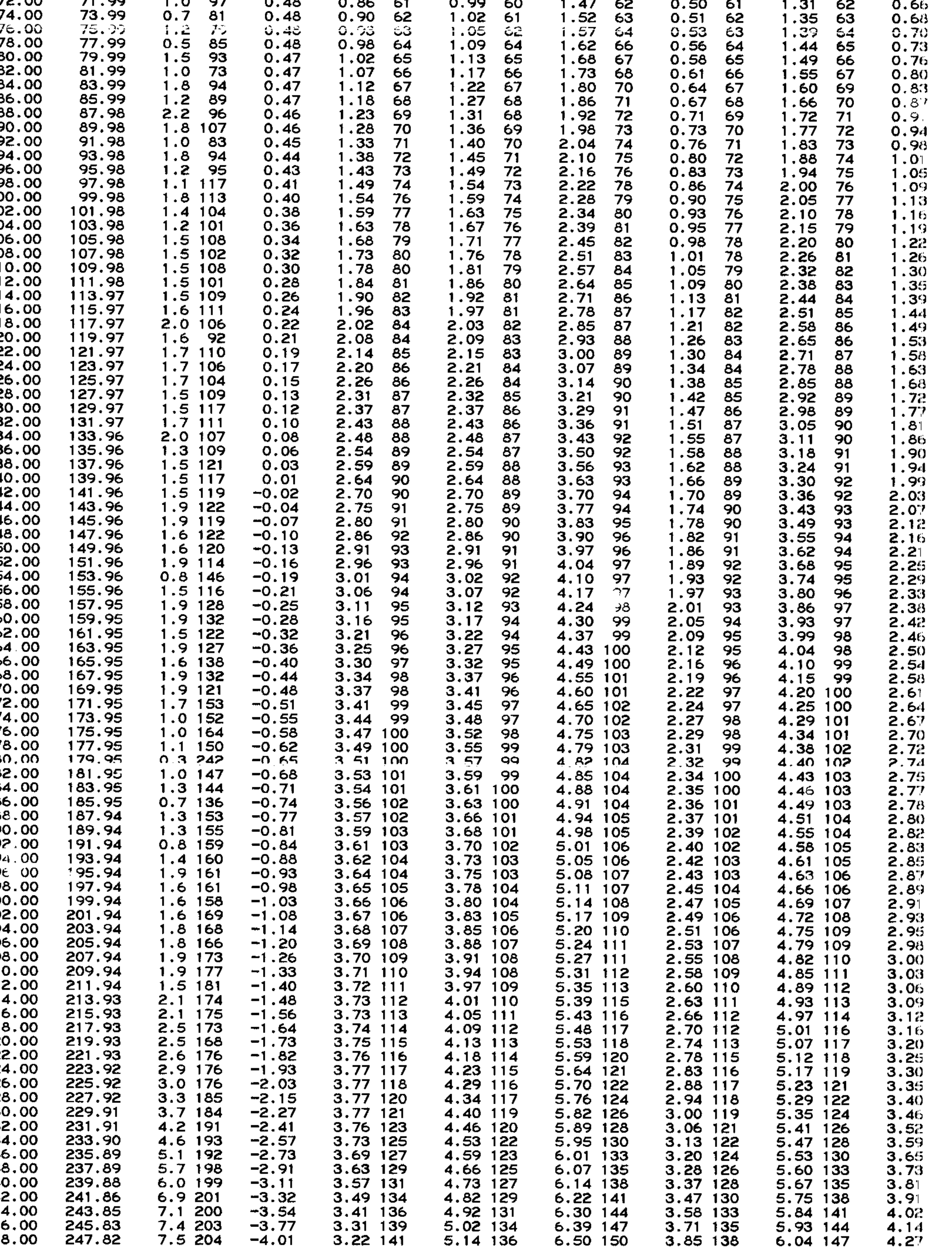
BG04-03V OPEN HOLE — VERTICALITY DATA LISTING FOR DIP4013M.CIB — DATE PROCESSED: 13-OCT-2004
ALL CO-ORDINATES WITH RESPECT TO TRUE NORTH — DATE LOGGED: 12-OCT-2004

DEPTHS LOG	TRUE	BOREHOLE TILT	AZI	AXIAL CO-ORDS NORTH	EAST	POLAR BRG	RADIUS	POLAR ERROR CO-ORDINATES (MAXIMUM & TYPICAL) BRG	RADIUS	BRG	RADIUS	BRG	RADIUS	BRD	RADIUS
4.00	4.00	0.3	203	-0.01	0.00	213	0.01	211	0.02	16	0.00	211	0.01	225	0.00
6.00	6.00	0.3	114	-0.01	0.00	184	0.01	177	0.03	324	0.01	178	0.02	242	0.00
8.00	8.00	0.4	352	-0.01	0.01	148	0.01	139	0.03	291	0.01	140	0.02	244	0.00
10.00	10.00	0.5	56	0.00	0.01	90	0.01	89	0.04	266	0.01	89	0.03	255	0.00
12.00	12.00	0.3	327	0.02	0.02	52	0.03	58	0.06	293	0.01	57	0.05	16	0.01
14.00	14.00	0.6	29	0.03	0.03	39	0.04	45	0.09	308	0.01	44	0.07	16	0.02
16.00	16.00	0.8	13	0.05	0.03	33	0.06	37	0.12	336	0.01	37	0.10	19	0.03
18.00	18.00	0.8	24	0.07	0.04	29	0.09	33	0.16	354	0.02	32	0.13	19	0.04
20.00	20.00	0.9	355	0.10	0.05	27	0.11	29	0.20	7	0.03	29	0.17	20	0.06
22.00	22.00	1.0	28	0.13	0.06	25	0.15	27	0.25	11	0.04	27	0.21	20	0.08
24.00	24.00	1.0	28	0.16	0.07	24	0.18	26	0.30	14	0.06	26	0.26	21	0.10
26.00	26.00	0.9	26	0.19	0.09	25	0.21	27	0.35	18	0.07	26	0.30	22	0.12
28.00	28.00	1.3	26	0.22	0.11	26	0.25	27	0.40	20	0.09	27	0.35	24	0.14
30.00	30.00	1.3	43	0.26	0.13	27	0.29	28	0.46	23	0.11	28	0.40	25	0.17
32.00	32.00	1.5	50	0.29	0.15	28	0.33	29	0.52	25	0.14	29	0.45	27	0.20
34.00	34.00	0.8	48	0.32	0.18	30	0.37	30	0.57	28	0.16	30	0.50	29	0.23
36.00	36.00	1.3	81	0.34	0.22	32	0.41	33	0.63	32	0.18	33	0.55	32	0.26
38.00	38.00	1.5	57	0.36	0.25	35	0.44	35	0.68	35	0.21	35	0.60	35	0.28
40.00	40.00	1.1	76	0.37	0.29	38	0.47	38	0.72	38	0.22	38	0.64	38	0.31
42.00	41.99	1.2	72	0.38	0.32	40	0.50	40	0.77	40	0.24	40	0.68	40	0.33
44.00	43.99	0.8	73	0.39	0.36	42	0.53	42	0.81	43	0.25	42	0.72	42	0.35
46.00	45.99	1.5	83	0.40	0.39	44	0.56	44	0.86	45	0.27	44	0.76	45	0.37
48.00	47.99	1.3	50	0.42	0.43	46	0.60	45	0.91	47	0.29	46	0.81	46	0.40
50.00	49.99	0.8	62	0.43	0.47	47	0.64	47	0.96	49	0.31	47	0.85	48	0.42
52.00	51.99	1.5	82	0.44	0.51	49	0.67	49	1.01	50	0.33	49	0.90	50	0.45
54.00	53.99	0.8	77	0.45	0.54	50	0.70	50	1.06	52	0.35	50	0.94	51	0.47
56.00	55.99	1.6	75	0.46	0.58	52	0.74	51	1.11	54	0.37	51	0.99	53	0.49
58.00	57.99	1.0	72	0.46	0.62	53	0.77	53	1.16	55	0.39	53	1.03	54	0.52
60.00	59.99	1.3	87	0.47	0.66	55	0.80	54	1.20	56	0.41	54	1.07	55	0.54
62.00	61.99	1.3	89	0.47	0.69	56	0.84	55	1.25	57	0.42	55	1.11	57	0.56
64.00	63.99	1.0	90	0.47	0.73	57	0.87	56	1.29	59	0.44	57	1.15	58	0.58
66.00	65.99	1.0	92	0.47	0.76	58	0.89	58	1.34	60	0.45	58	1.19	59	0.60
68.00	67.99	1.3	103	0.47	0.79	59	0.92	59	1.38	61	0.47	59	1.23	60	0.62
70.00	69.99	1.0	70	0.48	0.83	60	0.96	59	1.43	62	0.48	60	1.27	61	0.64
72.00	71.99	1.0	97	0.48	0.86	61	0.99	60	1.47	62	0.50	61	1.31	62	0.66
74.00	73.99	0.7	81	0.48	0.90	62	1.02	61	1.52	63	0.51	62	1.35	63	0.68
76.00	75.99	1.2	75	0.48	0.93	63	1.05	62	1.57	64	0.53	63	1.39	64	0.70
78.00	77.99	0.5	85	0.48	0.98	64	1.09	64	1.62	66	0.56	64	1.44	65	0.73
80.00	79.99	1.5	93	0.47	1.02	65	1.13	65	1.68	67	0.58	65	1.49	66	0.76
82.00	81.99	1.0	73	0.47	1.07	66	1.17	66	1.73	68	0.61	66	1.55	67	0.80
84.00	83.99	1.8	94	0.47	1.12	67	1.22	67	1.80	70	0.64	67	1.60	69	0.83
86.00	85.99	1.2	89	0.47	1.18	68	1.27	68	1.86	71	0.67	68	1.66	70	0.87
88.00	87.98	2.2	96	0.46	1.23	69	1.31	68	1.92	72	0.71	69	1.72	71	0.9[illegible]
90.00	89.98	1.8	107	0.46	1.28	70	1.36	69	1.98	73	0.73	70	1.77	72	0.94
92.00	91.98	1.0	83	0.45	1.33	71	1.40	70	2.04	74	0.76	71	1.83	73	0.98
94.00	93.98	1.8	94	0.44	1.38	72	1.45	71	2.10	75	0.80	72	1.88	74	1.01
96.00	95.98	1.2	95	0.43	1.43	73	1.49	72	2.16	76	0.83	73	1.94	75	1.05
98.00	97.98	1.1	117	0.41	1.49	74	1.54	73	2.22	78	0.86	74	2.00	76	1.09
100.00	99.98	1.8	113	0.40	1.54	76	1.59	74	2.28	79	0.90	75	2.05	77	1.13
102.00	101.98	1.4	104	0.38	1.59	77	1.63	75	2.34	80	0.93	76	2.10	78	1.16
104.00	103.98	1.2	101	0.36	1.63	78	1.67	76	2.39	81	0.95	77	2.15	79	1.19
106.00	105.98	1.5	108	0.34	1.68	79	1.71	77	2.45	82	0.98	78	2.20	80	1.22
108.00	107.98	1.5	102	0.32	1.73	80	1.76	78	2.51	83	1.01	78	2.26	81	1.26
110.00	109.98	1.5	108	0.30	1.78	80	1.81	79	2.57	84	1.05	79	2.32	82	1.30
112.00	111.98	1.5	101	0.28	1.84	81	1.86	80	2.64	85	1.09	80	2.38	83	1.35
114.00	113.97	1.5	109	0.26	1.90	82	1.92	81	2.71	86	1.13	81	2.44	84	1.39
116.00	115.97	1.6	111	0.24	1.96	83	1.97	81	2.78	87	1.17	82	2.51	85	1.44
118.00	117.97	2.0	106	0.22	2.02	84	2.03	82	2.85	87	1.21	82	2.58	86	1.49
120.00	119.97	1.6	92	0.21	2.08	84	2.09	83	2.93	88	1.26	83	2.65	86	1.53
122.00	121.97	1.7	110	0.19	2.14	85	2.15	83	3.00	89	1.30	84	2.71	87	1.58
124.00	123.97	1.7	106	0.17	2.20	86	2.21	84	3.07	89	1.34	84	2.78	88	1.63
126.00	125.97	1.7	104	0.15	2.26	86	2.26	84	3.14	90	1.38	85	2.85	88	1.68
128.00	127.97	1.5	109	0.13	2.31	87	2.32	85	3.21	90	1.42	85	2.92	89	1.72
130.00	129.97	1.5	117	0.12	2.37	87	2.37	86	3.29	91	1.47	86	2.98	89	1.77
132.00	131.97	1.7	111	0.10	2.43	88	2.43	86	3.36	91	1.51	87	3.05	90	1.81
134.00	133.96	2.0	107	0.08	2.48	88	2.48	87	3.43	92	1.55	87	3.11	90	1.86
136.00	135.96	1.3	109	0.06	2.54	89	2.54	87	3.50	92	1.58	88	3.18	91	1.90
138.00	137.96	1.5	121	0.03	2.59	89	2.59	88	3.56	93	1.62	88	3.24	91	1.94
140.00	139.96	1.5	117	0.01	2.64	90	2.64	88	3.63	93	1.66	89	3.30	92	1.99
142.00	141.96	1.5	119	-0.02	2.70	90	2.70	89	3.70	94	1.70	89	3.36	92	2.03
144.00	143.96	1.9	122	-0.04	2.75	91	2.75	89	3.77	94	1.74	90	3.43	93	2.07
146.00	145.96	1.9	119	-0.07	2.80	91	2.80	90	3.83	95	1.78	90	3.49	93	2.12
148.00	147.96	1.6	122	-0.10	2.86	92	2.86	90	3.90	96	1.82	91	3.55	94	2.16
150.00	149.96	1.6	120	-0.13	2.91	93	2.91	91	3.97	96	1.86	91	3.62	94	2.21
152.00	151.96	1.9	114	-0.16	2.96	93	2.96	91	4.04	97	1.89	92	3.68	95	2.25
154.00	153.96	0.8	146	-0.19	3.01	94	3.02	92	4.10	97	1.93	92	3.74	95	2.29
156.00	155.96	1.5	116	-0.21	3.06	94	3.07	93	4.17	97	1.97	93	3.80	96	2.33
158.00	157.95	1.9	128	-0.25	3.11	95	3.12	93	4.24	98	2.01	93	3.86	97	2.38
160.00	159.95	1.9	132	-0.28	3.16	95	3.17	94	4.30	99	2.05	94	3.93	97	2.42
162.00	161.95	1.5	122	-0.32	3.21	96	3.22	95	4.37	99	2.09	95	3.99	98	2.46
164.00	163.95	1.9	127	-0.36	3.25	96	3.27	95	4.43	100	2.12	95	4.04	98	2.50
166.00	165.95	1.6	138	-0.40	3.30	97	3.32	96	4.49	100	2.16	96	4.10	99	2.54
168.00	167.95	1.9	132	-0.44	3.34	98	3.37	96	4.55	101	2.19	96	4.15	99	2.58
170.00	169.95	1.9	121	-0.48	3.37	98	3.41	96	4.60	101	2.22	97	4.20	100	2.61
172.00	171.95	1.7	153	-0.51	3.41	99	3.45	97	4.65	102	2.24	97	4.25	100	2.64
174.00	173.95	1.0	152	-0.55	3.44	99	3.48	97	4.70	102	2.27	98	4.29	101	2.67
176.00	175.95	1.0	164	-0.58	3.47	100	3.52	98	4.75	103	2.29	98	4.34	101	2.70
178.00	177.95	1.1	150	-0.62	3.49	100	3.55	99	4.79	103	2.31	99	4.38	102	2.72
180.00	179.95	0.3	242	-0.65	3.51	100	3.57	99	4.82	104	2.32	99	4.40	102	2.74
182.00	181.95	1.0	147	-0.68	3.53	101	3.59	99	4.85	104	2.34	100	4.43	103	2.75
184.00	183.95	1.3	144	-0.71	3.54	101	3.61	100	4.88	104	2.35	100	4.46	103	2.77
186.00	185.95	0.7	136	-0.74	3.56	102	3.63	101	4.91	104	2.36	101	4.49	103	2.78
188.00	187.94	1.3	153	-0.77	3.57	102	3.66	101	4.94	105	2.37	101	4.51	104	2.80
190.00	189.94	1.3	155	-0.81	3.59	103	3.68	102	4.98	105	2.39	102	4.55	104	2.82
192.00	191.94	0.8	159	-0.84	3.61	103	3.70	102	5.01	106	2.40	102	4.58	105	2.83
194.00	193.94	1.4	160	-0.88	3.62	104	3.73	103	5.05	106	2.42	103	4.61	105	2.85
196.00	195.94	1.9	161	-0.93	3.64	104	3.75	103	5.08	107	2.43	103	4.63	106	2.87
198.00	197.94	1.6	161	-0.98	3.65	105	3.78	104	5.11	107	2.45	104	4.66	106	2.89
200.00	199.94	1.6	158	-1.03	3.66	106	3.80	104	5.14	108	2.47	105	4.69	107	2.91
202.00	201.94	1.6	169	-1.08	3.67	106	3.83	105	5.17	109	2.49	106	4.72	108	2.93
204.00	203.94	1.8	168	-1.14	3.68	107	3.85	106	5.20	110	2.51	106	4.75	109	2.95
206.00	205.94	1.8	166	-1.20	3.69	108	3.88	107	5.24	111	2.53	107	4.79	109	2.98
208.00	207.94	1.9	173	-1.26	3.70	109	3.91	108	5.27	111	2.55	108	4.82	110	3.00
210.00	209.94	1.9	177	-1.33	3.71	110	3.94	109	5.31	112	2.58	109	4.85	111	3.03
212.00	211.94	1.5	181	-1.40	3.72	111	3.97	109	5.35	113	2.60	110	4.89	112	3.06
214.00	213.93	2.1	174	-1.48	3.73	112	4.01	110	5.39	115	2.63	111	4.93	113	3.09
216.00	215.93	2.1	175	-1.56	3.73	113	4.05	112	5.43	116	2.66	112	4.97	114	3.12
218.00	217.93	2.5	173	-1.64	3.74	114	4.09	113	5.48	117	2.70	113	5.01	116	3.16
220.00	219.93	2.5	168	-1.73	3.75	115	4.13	113	5.53	118	2.74	113	5.07	117	3.20
222.00	221.93	2.6	176	-1.82	3.76	116	4.18	114	5.59	120	2.78	115	5.12	118	3.25
224.00	223.92	2.9	176	-1.93	3.77	117	4.23	115	5.64	121	2.83	116	5.17	119	3.30
226.00	225.92	3.0	176	-2.03	3.77	118	4.29	116	5.70	122	2.88	117	5.23	121	3.35
228.00	227.92	3.3	185	-2.15	3.77	120	4.34	117	5.76	124	2.94	118	5.29	122	3.40
230.00	229.91	3.7	184	-2.27	3.77	121	4.40	119	5.82	126	3.00	119	5.35	124	3.46
232.00	231.91	4.2	191	-2.41	3.76	123	4.46	120	5.89	128	3.06	121	5.41	126	3.52
234.00	233.90	4.6	193	-2.57	3.73	125	4.53	122	5.95	130	3.13	122	5.47	128	3.59
236.00	235.89	5.1	192	-2.73	3.69	127	4.59	123	6.01	133	3.20	124	5.53	130	3.65
238.00	237.89	5.7	198	-2.91	3.63	129	4.66	125	6.07	135	3.28	126	5.60	133	3.73
240.00	239.88	6.0	199	-3.11	3.57	131	4.73	127	6.14	138	3.37	128	5.67	135	3.81
242.00	241.86	6.9	201	-3.32	3.49	134	4.82	129	6.22	141	3.47	130	5.75	138	3.91
244.00	243.85	7.1	200	-3.54	3.41	136	4.92	131	6.30	144	3.58	133	5.84	141	4.02
246.00	245.83	7.4	203	-3.77	3.31	139	5.02	134	6.39	147	3.71	135	5.93	144	4.14
248.00	247.82	7.5	204	-4.01	3.22	141	5.14	136	6.50	150	3.85	138	6.04	147	4.27
250.00	249.80	8.1	202	-4.26	3.11	144	5.27	138	6.62	153	4.01	140	6.16	149	4.42
252.00	251.78	8.5	204	-4.52	3.00	146	5.42	141	6.75	156	4.18	142	6.30	152	4.58
254.00	253.76	8.9	203	-4.79	2.88	149	5.59	143	6.89	159	4.38	145	6.45	155	4.76
256.00	255.73	9.3	203	-5.07	2.76	151	5.77	145	7.06	161	4.59	147	6.63	157	4.97
258.00	257.70	9.5	202	-5.38	2.63	154	5.98	148	7.25	164	4.82	149	6.82	160	5.19
260.00	259.67	10.2	204	-5.69	2.50	156	6.22	150	7.47	166	5.08	152	7.04	162	5.44
262.00	261.64	10.3	200	-6.03	2.36	159	6.47	152	7.70	168	5.36	154	7.28	164	5.71
264.00	[illegible]3.61	10.7	202	-6.36	2.22	161	6.74	154	7.95	170	5.65	156	7.53	167	5.99
266.00	265.57	10.8	204	-6.70	2.07	163	7.01	156	8.21	172	5.95	158	7.80	169	6.28
268.00	267.54	11.3	206	-7.05	1.91	165	7.30	158	8.48	174	6.26	160	8.07	171	6.59
270.00	269.50	11.6	206	-7.41	1.73	167	7.61	160	8.76	176	6.58	162	8.36	172	6.91
272.00	271.45	11.6	204	-7.78	1.56	169	7.93	162	9.07	177	6.93	164	8.68	174	7.24
274.00	273.41	11.9	206	-8.15	1.37	170	8.26	164	9.38	179	7.28	166	9.00	176	7.59
276.00	275.36	12.5	208	-8.53	1.18	172	8.61	166	9.71	180	7.64	168	9.33	177	7.95
278.00	277.32	13.1	207	-8.92	0.98	174	8.97	168	10.06	182	8.02	169	9.68	179	8.32
280.00	279.26	13.4	207	-9.32	0.77	175	9.35	169	10.42	183	8.41	171	10.05	180	8.71
282.00	281.21	13.5	210	-9.73	0.55	177	9.75	171	10.80	184	8.82	173	10.44	181	9.11
284.00	283.15	13.9	206	-10.15	0.33	178	10.16	172	11.20	185	9.24	174	10.84	183	9.53
286.00	285.09	14.5	206	-10.59	0.11	179	10.59	174	11.62	186	9.69	176	11.27	184	9.97
288.00	287.02	15.1	206	-11.06	-0.12	181	11.06	175	12.08	187	10.16	177	11.72	185	10.44
290.00	288.95	15.1	202	-11.54	-0.33	182	11.54	176	12.56	188	10.65	178	12.21	186	10.93
292.00	290.88	15.8	200	-12.03	-0.54	183	12.04	177	13.05	189	11.15	179	12.70	187	11.43
294.00	292.80	16.2	201	-12.54	-0.76	183	12.56	178	13.57	189	11.67	180	13.22	187	11.95
296.00	294.72	16.2	199	-13.06	-0.97	184	13.10	179	1[illegible].10	190	12.20	181	13.76	188	12.49
298.00	296.64	16.6	203	-13.60	-1.16	185	13.65	180	14.65	190	12.75	182	14.31	188	13.03
300.00	298.55	16.9	199	-14.14	-1.37	186	14.20	181	15.21	191	13.30	182	14.87	189	13.59
302.00	300.46	17.4	199	-14.70	-1.57	186	14.78	182	15.79	191	13.87	183	15.44	189	14.16
304.00	302.37	17.6	201	-15.26	-1.78	187	15.37	182	16.38	192	14.45	184	16.03	190	14.74
306.00	304.16	******	***	-15.82	-1.89	187	15.93	183	16.95	191	15.00	184	16.60	190	15.30

CROSS SECTION

ALL FIGURES IN LOG DEPTH MS
TARGET ORIGIN DEPTH.....2.80
LAST PLOTTED DEPTH......306.00
DEPTH MARKERS ANNOTATED
IN MULTIPLES OF.........20
FIRST DEPTH MARKER AT...20
LAST DEPTH MARKER AT....300

PLOT WITH RESPECT TO TRUE NORTH
SCALE 1:500
DECLINATION 17.0 DEG.



BOREHOLE POSITIONAL ERROR

THE TWO BOXES SURROUNDING THE LAST PLOTTED POINT SHOW THE TYPICAL, AND MAXIMUM, POSITIONAL ERROR AT THAT DEPTH.

FINAL BOREHOLE POSITION

THE LAST PLOTTED DEPTH IS AT 15.82 MS SOUTH, 1.89 MS WEST IE. 15.93 MS FROM THE ORIGIN, 187 DEG FROM TRUE NORTH

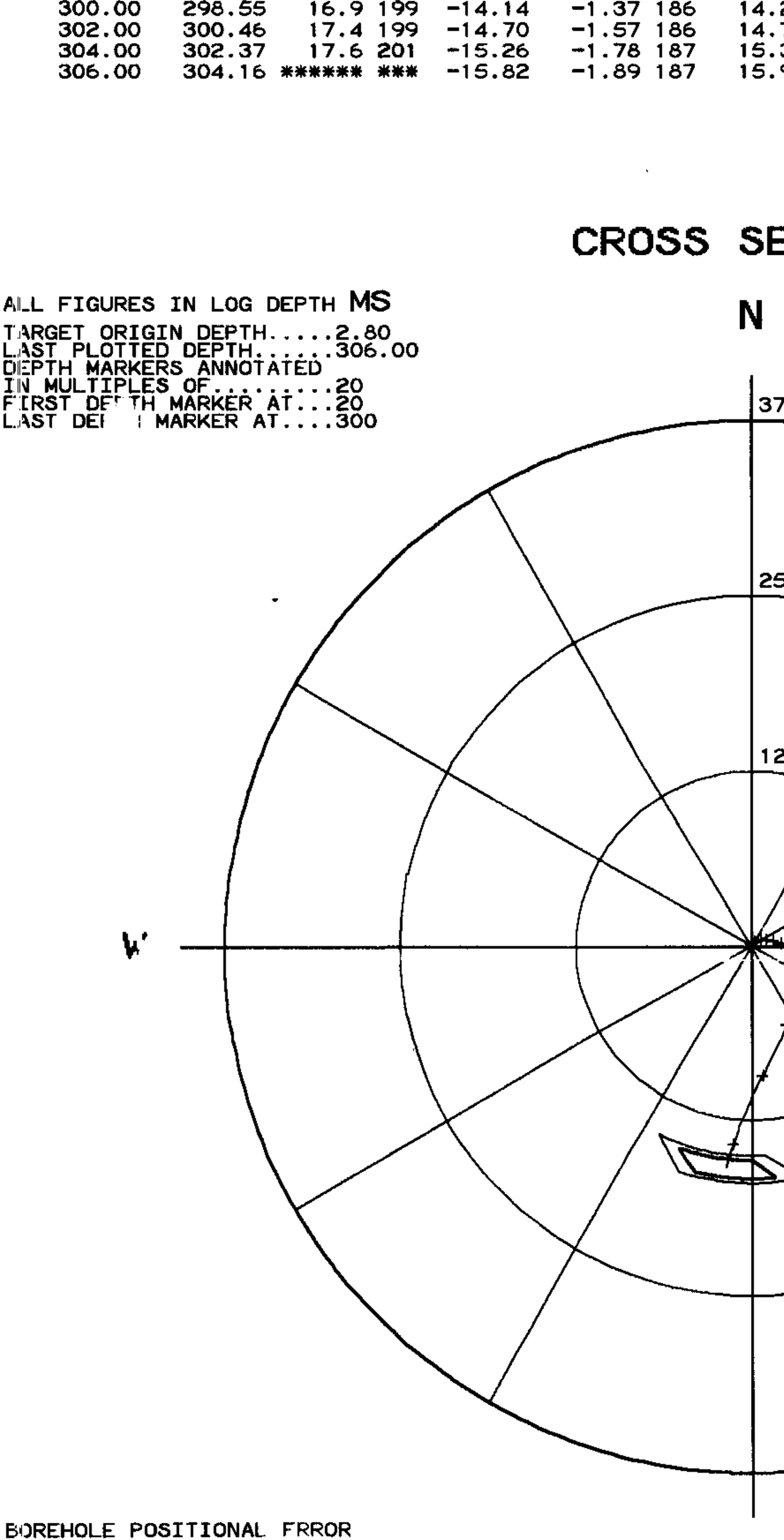
VERTICAL SECTIONS

(TRUE DEPTH VS DISPLACEMENT)

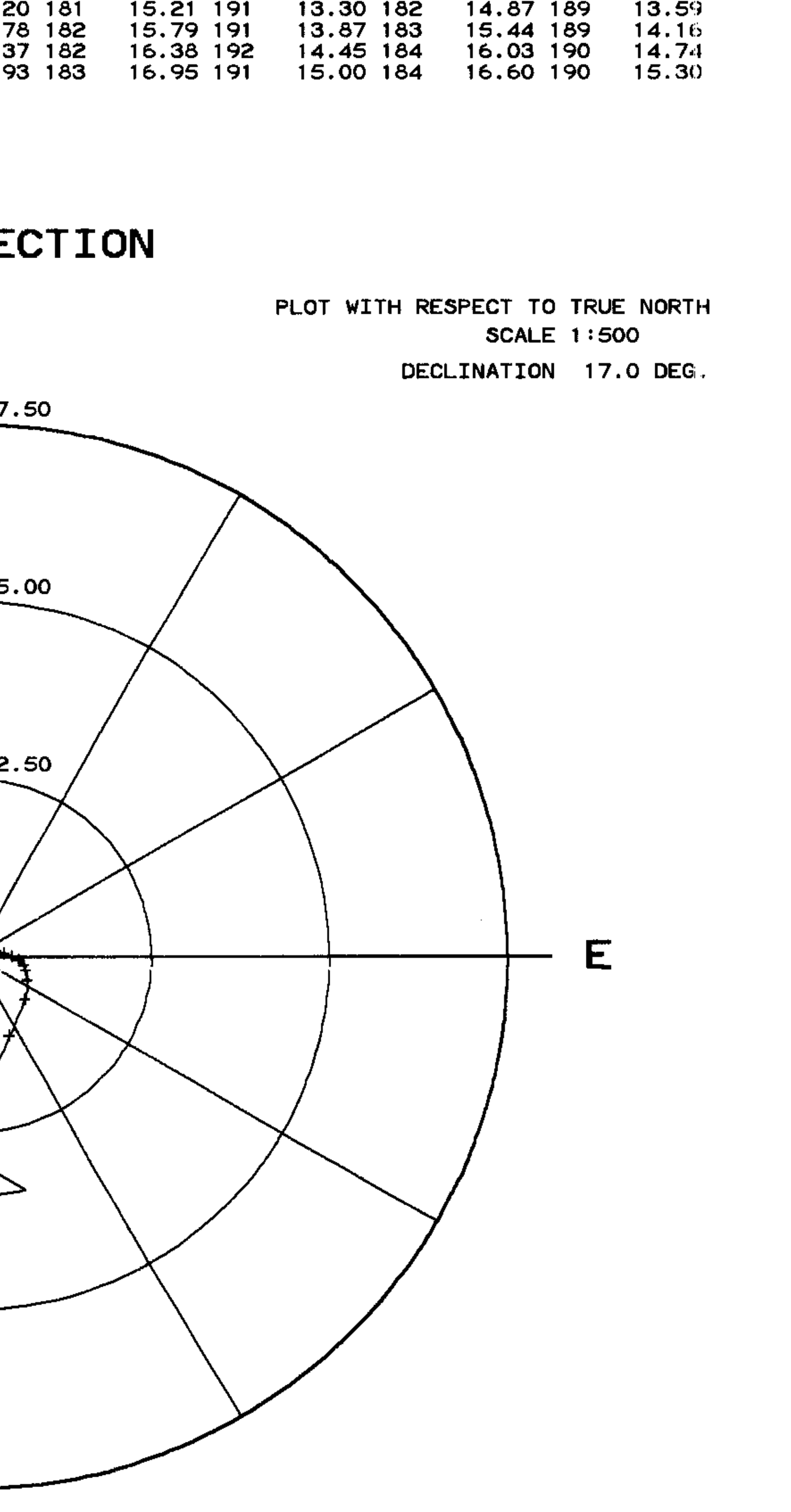
VERTICAL SCALE 1:2000
HORIZONTAL SCALE 1:1000

MARKERS ANNOTATED AS ABOVE

N-S SECTION

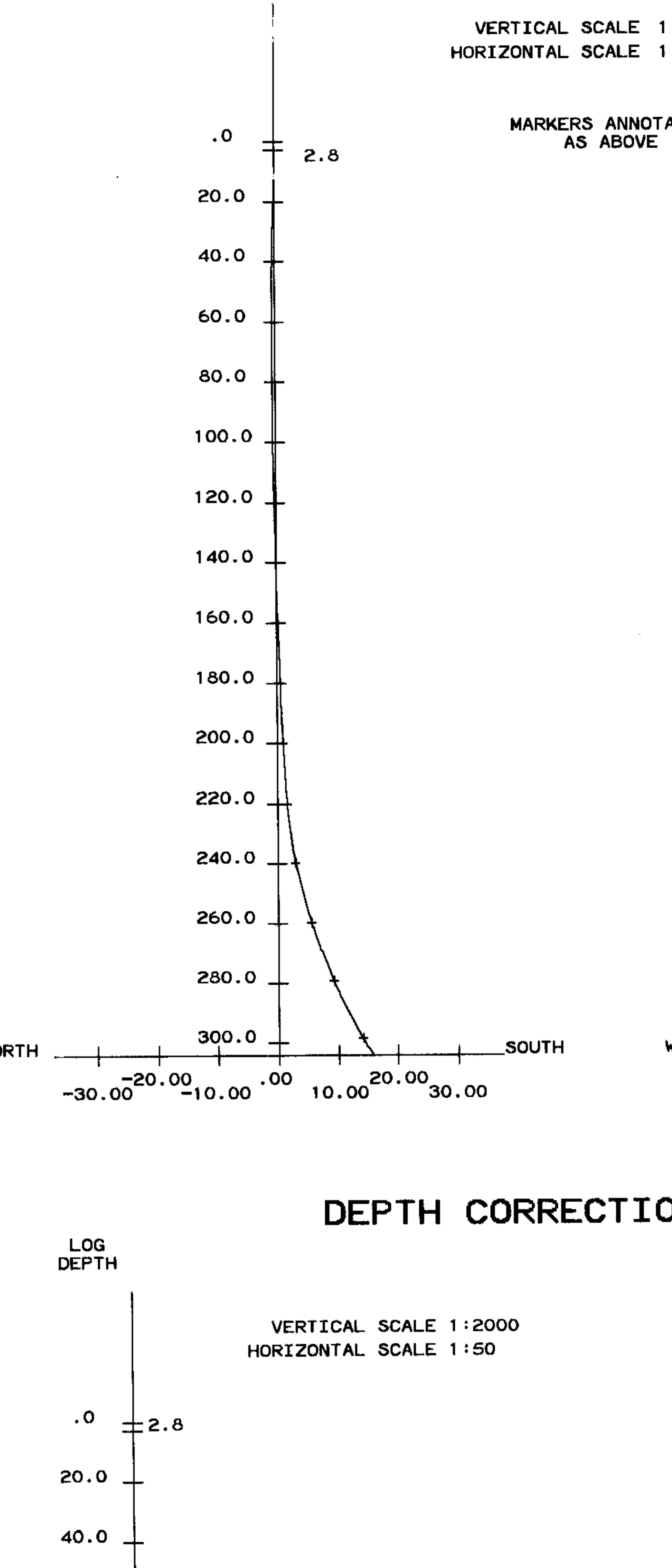


E-W SECTION



DEPTH CORRECTION ANALYSIS

VERTICAL SCALE 1:2000
HORIZONTAL SCALE 1:50



DEPTHS: LOG	TRUE	DEPTHS: LOG	TRUE	DEPTHS: LOG	TRUE
4.00	4.00	144.00	143.96	284.00	283.15
6.00	6.00	146.00	145.96	286.00	285.09
8.00	8.00	148.00	147.96	288.00	287.02
10.00	10.00	150.00	149.96	290.00	288.95
12.00	12.00	152.00	151.96	292.00	290.88
14.00	14.00	154.00	153.96	294.00	292.80
16.00	16.00	156.00	155.96	296.00	294.72
18.00	18.00	158.00	157.95	298.00	296.64
20.00	20.00	160.00	159.95	300.00	298.55
22.00	22.00	162.00	161.95	302.00	300.46
24.00	24.00	164.00	163.95	304.00	302.37
26.00	26.00	166.00	165.95	306.00	304.16
28.00	28.00	168.00	167.95		
30.00	30.00	170.00	169.95		
32.00	32.00	172.00	171.95		
34.00	34.00	174.00	173.95		
36.00	36.00	176.00	175.95		
38.00	38.00	178.00	177.95		
40.00	40.00	180.00	179.95		
42.00	41.99	182.00	181.95		
44.00	43.99	184.00	183.95		
46.00	45.99	186.00	185.95		
48.00	47.99	188.00	187.94		
50.00	49.99	190.00	189.94		
52.00	51.99	192.00	191.94		
54.00	53.99	194.00	193.94		
56.00	55.99	196.00	195.94		
58.00	57.99	198.00	197.94		
60.00	59.99	200.00	199.94		
62.00	61.99	202.00	201.94		
64.00	63.99	204.00	203.94		
66.00	65.99	206.00	205.94		
68.00	67.99	208.00	207.94		
70.00	69.99	210.00	209.94		
72.00	71.99	212.00	211.94		
74.00	73.99	214.00	213.93		
76.00	75.99	216.00	215.93		
78.00	77.99	218.00	217.93		
80.00	79.99	220.00	219.93		
82.00	81.99	222.00	221.93		
84.00	83.99	224.00	223.92		
86.00	85.99	226.00	225.92		
88.00	87.98	228.00	227.92		
90.00	89.98	230.00	229.91		
92.00	91.98	232.00	231.91		
94.00	93.98	234.00	233.90		
96.00	95.98	236.00	235.89		
98.00	97.98	238.00	237.89		
100.00	99.98	240.00	239.88		
102.00	101.98	242.00	241.86		
104.00	103.98	244.00	243.85		
106.00	105.98	246.00	245.83		
108.00	107.98	248.00	247.82		
110.00	109.98	250.00	249.80		
112.00	111.98	252.00	251.78		
114.00	113.97	254.00	253.76		
116.00	115.97	256.00	255.73		
118.00	117.97	258.00	257.70		
120.00	119.97	260.00	259.67		
122.00	121.97	262.00	261.64		
124.00	123.97	264.00	263.61		
126.00	125.97	266.00	265.57		
128.00	127.97	268.00	267.54		
130.00	129.97	270.00	269.50		
132.00	131.97	272.00	271.45		
134.00	133.96	274.00	273.41		
136.00	135.96	276.00	275.36		
138.00	137.96	278.00	277.32		
140.00	139.96	280.00	279.26		
142.00	141.96	282.00	281.21		

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG04-03V OPEN HOLE
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

FOCUSSED ELECTRIC GAMMA RAY CALIPER

Reeves

LOCN. ELKFORD
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG04-03V OPEN HOLE
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG04-03V OPEN HOLE
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION ELKFORD 5563183 N. 644333 E.

OTHER SERVICES
CDL
DIP/VERT

LSD	SEC	TWP	RGE
N/A			

PERMANENT DATUM GROUND LEVEL ELEVATION
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1387.2 m

DATE	13-OCT-04			
RUN NUMBER	1			
DEPTH-DRILLER	306.70M			
DEPTH-LOGGER	306.60M			
FIRST READING	305.30M			
LAST READING	4.00M			
CASING-DRILLER	3.00M			
CASING-LOGGER	3.00M			
BIT SIZE	133.35MM			
HOLE FLUID TYPE	WATER			
DENS./VISC.	1000 N/A			
PH/FLUID LOSS	N/A N/A			
SAMPLE SOURCE	DRILLER			
RM @ MEAS TEMP	2.00 @ 20.0C			
RMF @ MEAS TEMP	N/A			
RMC @ MEAS TEMP	N/A			
SOURCE: RMF/RMC	N/A N/A			
RM @ BHT	N/A			
TIME SINCE CIRC	105 HRS			
MAX REC TEMP	N/A			
EQUIPMENT/BASE	V234 RDR			
RECORDED BY	A.SPASKYY			
WITNESSED BY	J. MCMILLAN			
CIRC STOPPED	09:00 OCT 08			

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	133.35MM	3.00M	TD	159.00MM	N/A	SURFACE	3.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
SFE	102			

REMARKS

FOCUSSED ELECTRIC GAMMA RAY CALIPER

NORTHING:

EASTING :

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS IN OUR PRICE SCHEDULE

MAIN LOG 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 13-OCT-2004 AT 15:19

FILENAME: MRGE013M.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 13-OCT-2004 AT 15:30

BIT SIZE
MILLIMETRES
90 140 190

CALIPER FROM DENSITY
MILLIMETRES
90 140 190

GAMMA FROM DENSITY TOOL
API
0 75 150

DEPTH IN METRES

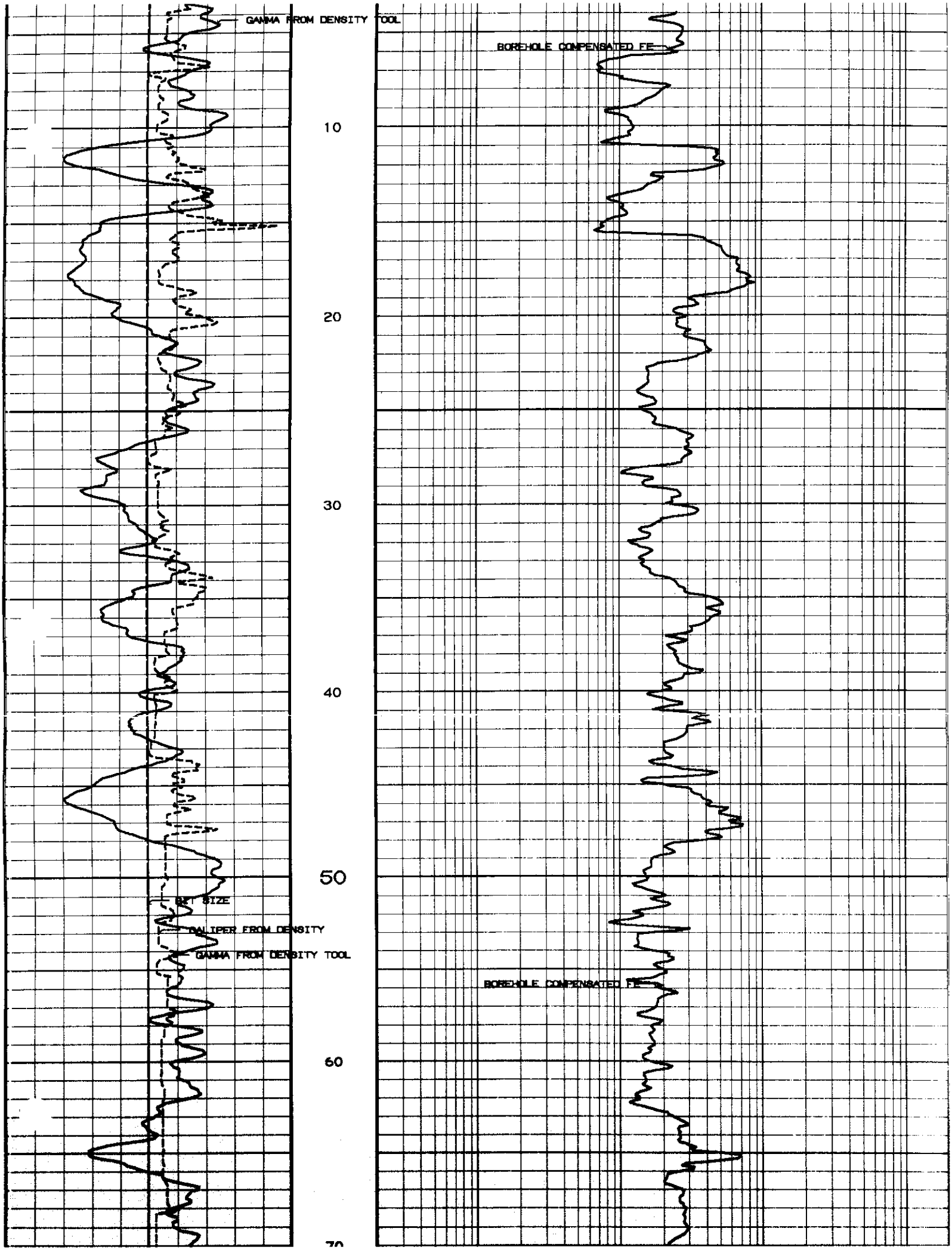
REPLAY SCALE 1:240

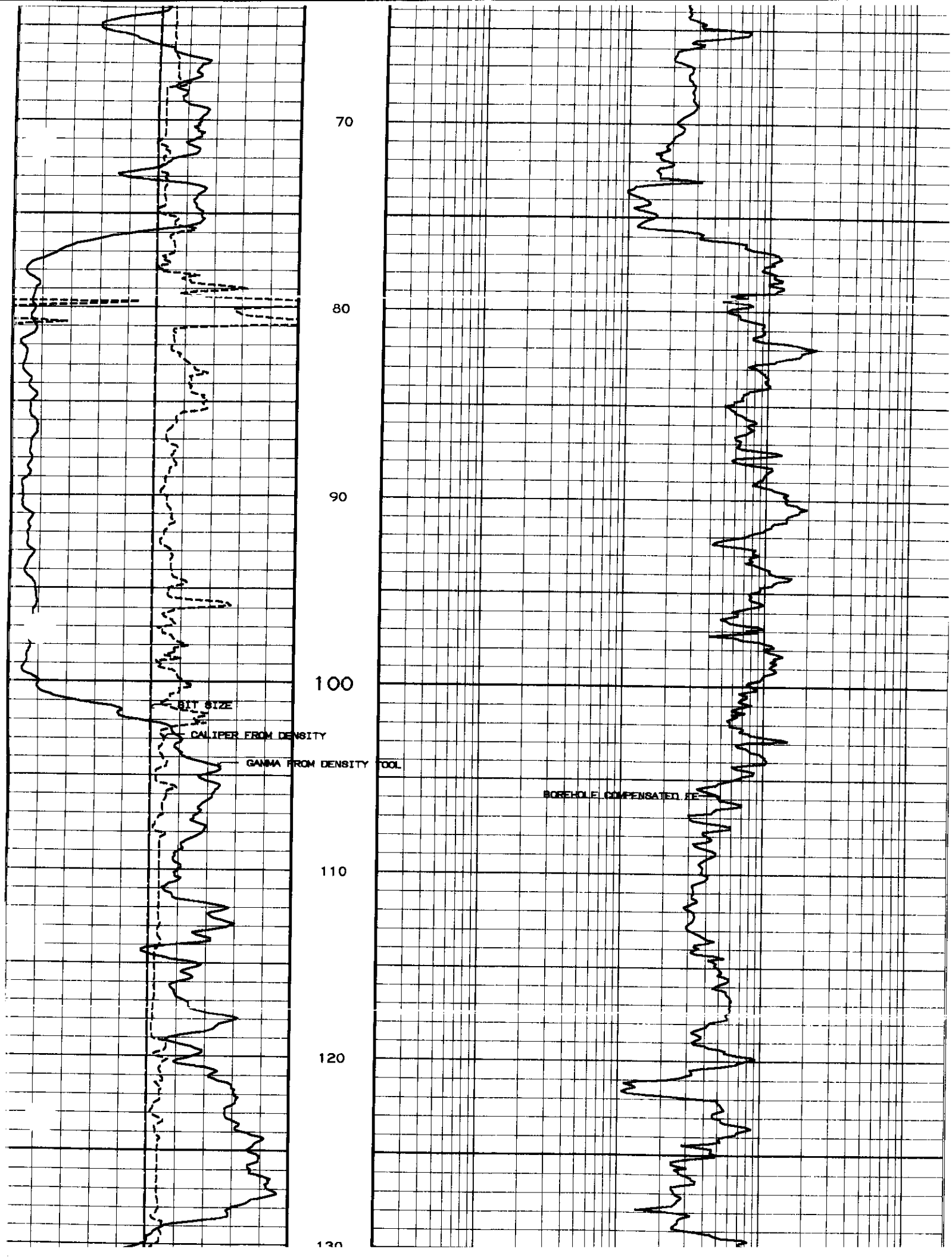
LEVEL 0

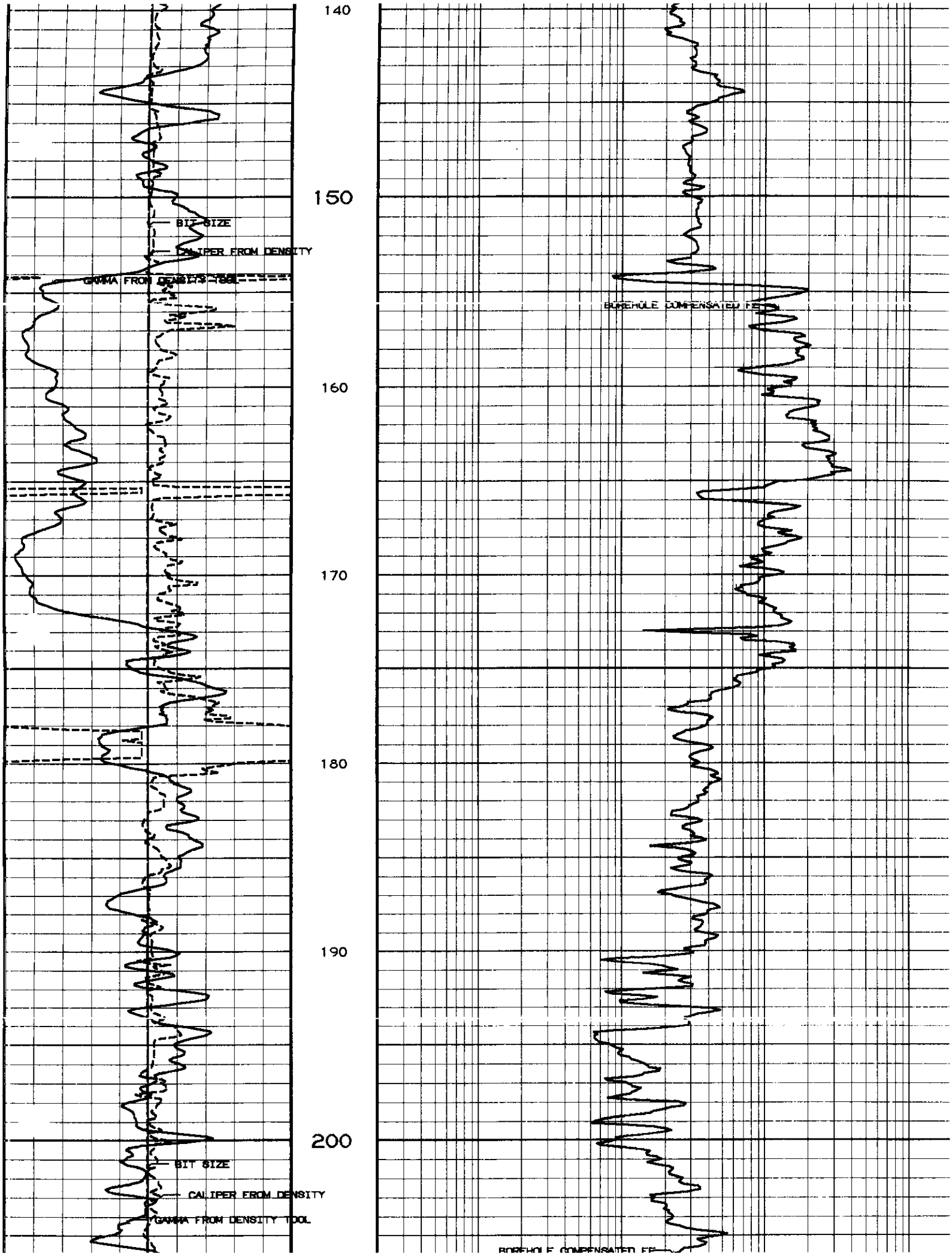
BIT SIZE

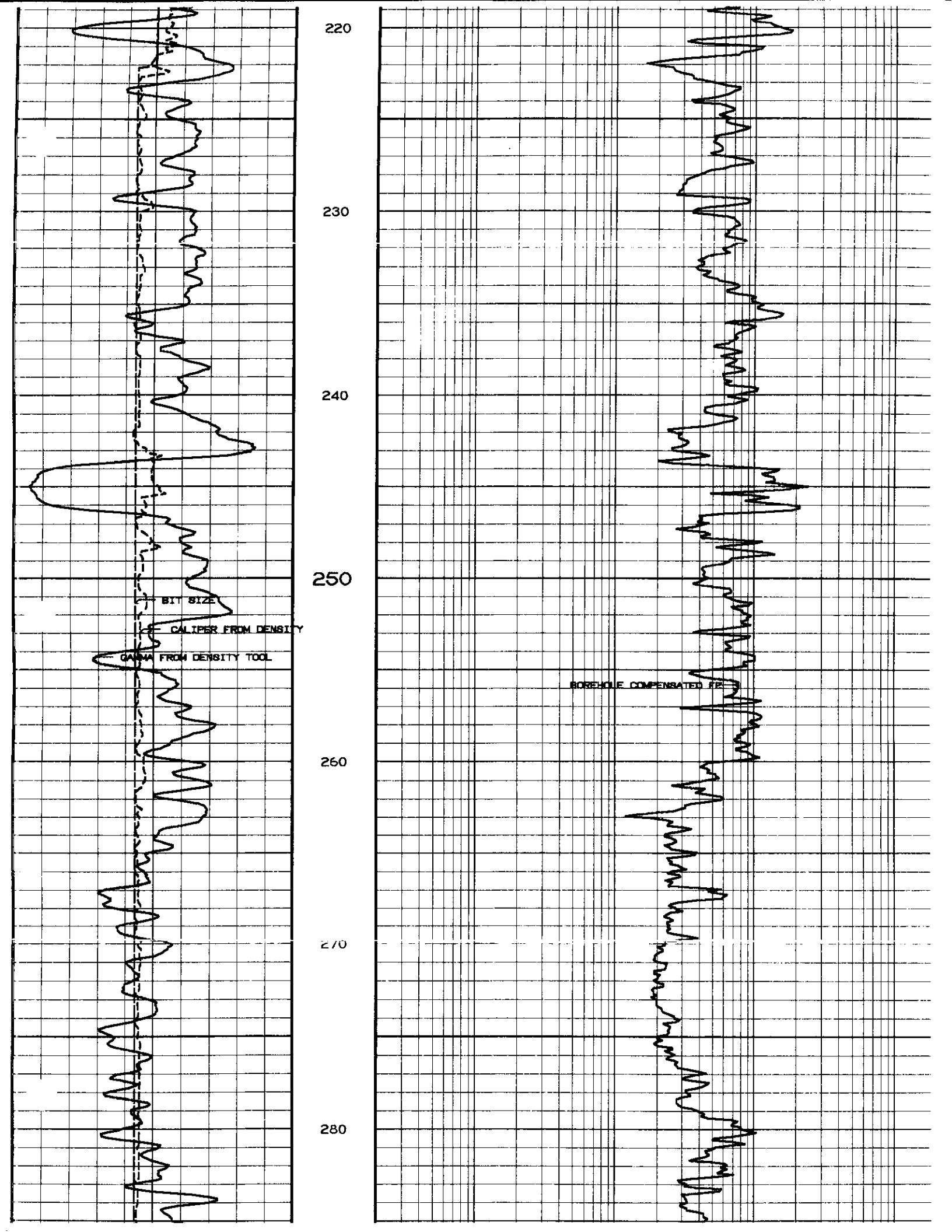
CASING

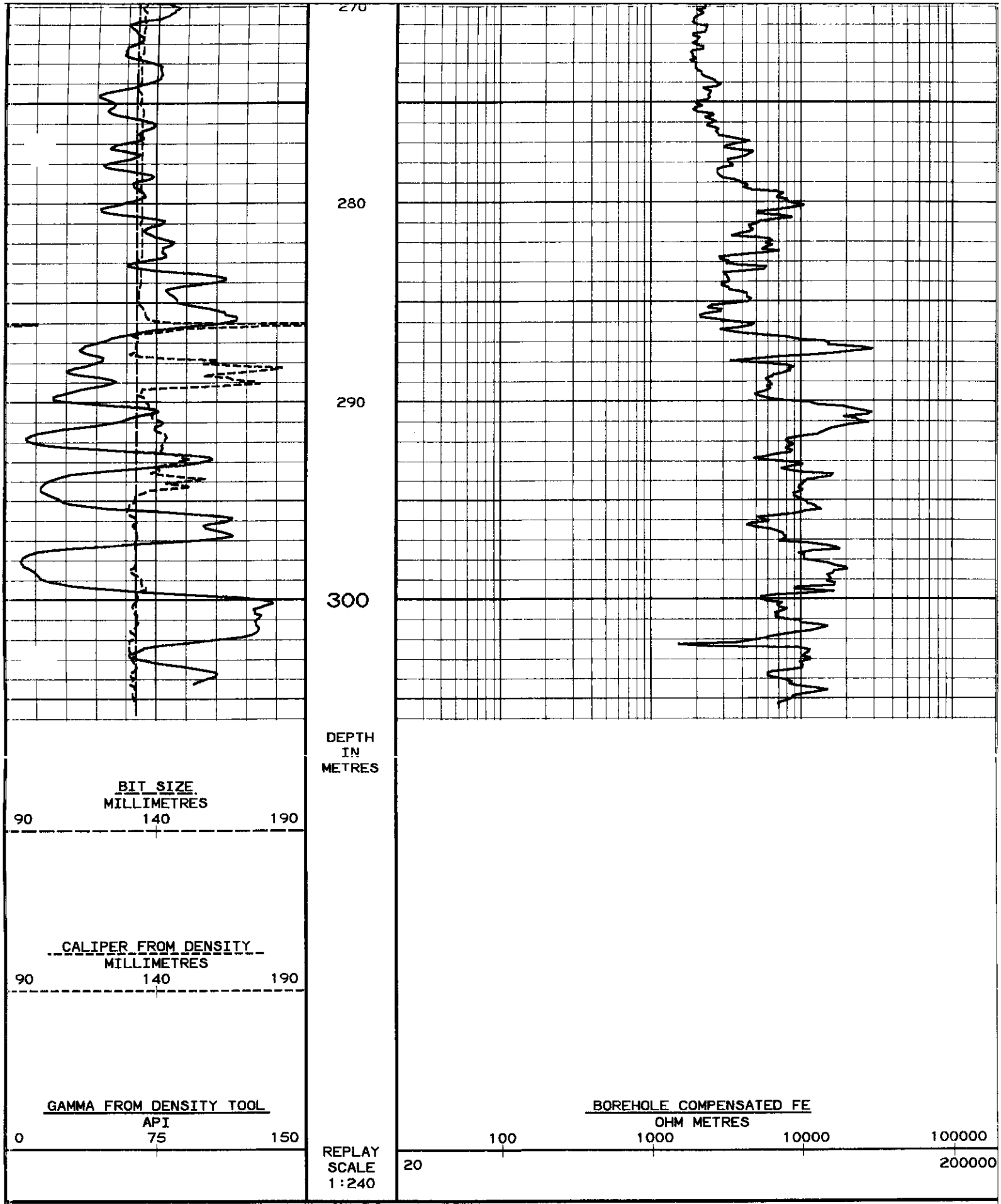
BOREHOLE COMPENSATED FE
OHM METRES
100 1000 10000 100000
20 200000


GAMMA FROM DENSITY TOOL
BOREHOLE COMPENSATED FE
10
20
30
40
50
BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
BOREHOLE COMPENSATED FE
60
70


70
80
90
100
110
120
130
BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
BOREHOLE COMPENSATED RE


140
150
160
170
180
190
200
BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
BOREHOLE COMPENSATED RE
BOREHOLE COMPENSATED RE


220
230
240
250
260
270
280
BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
BOREHOLE COMPENSATED FR



DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 13-OCT-2004 AT 15:19

FILENAME: MRGE013M.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 13-OCT-2004 AT 15:30

MAIN LOG 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 13-OCT-2004 AT 15:19

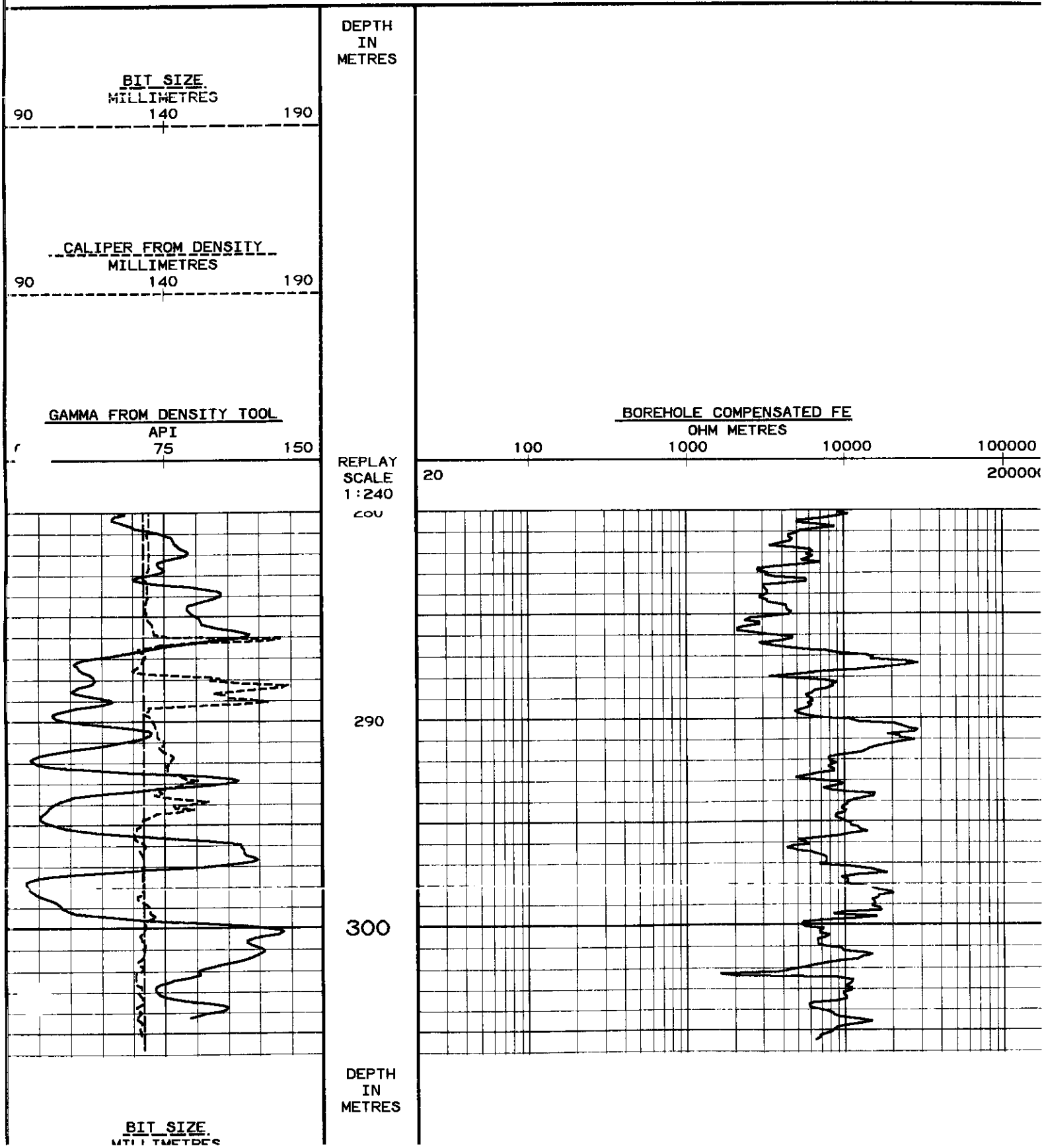
FILENAME: MRGE013M.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 13-OCT-2004 AT 15:30

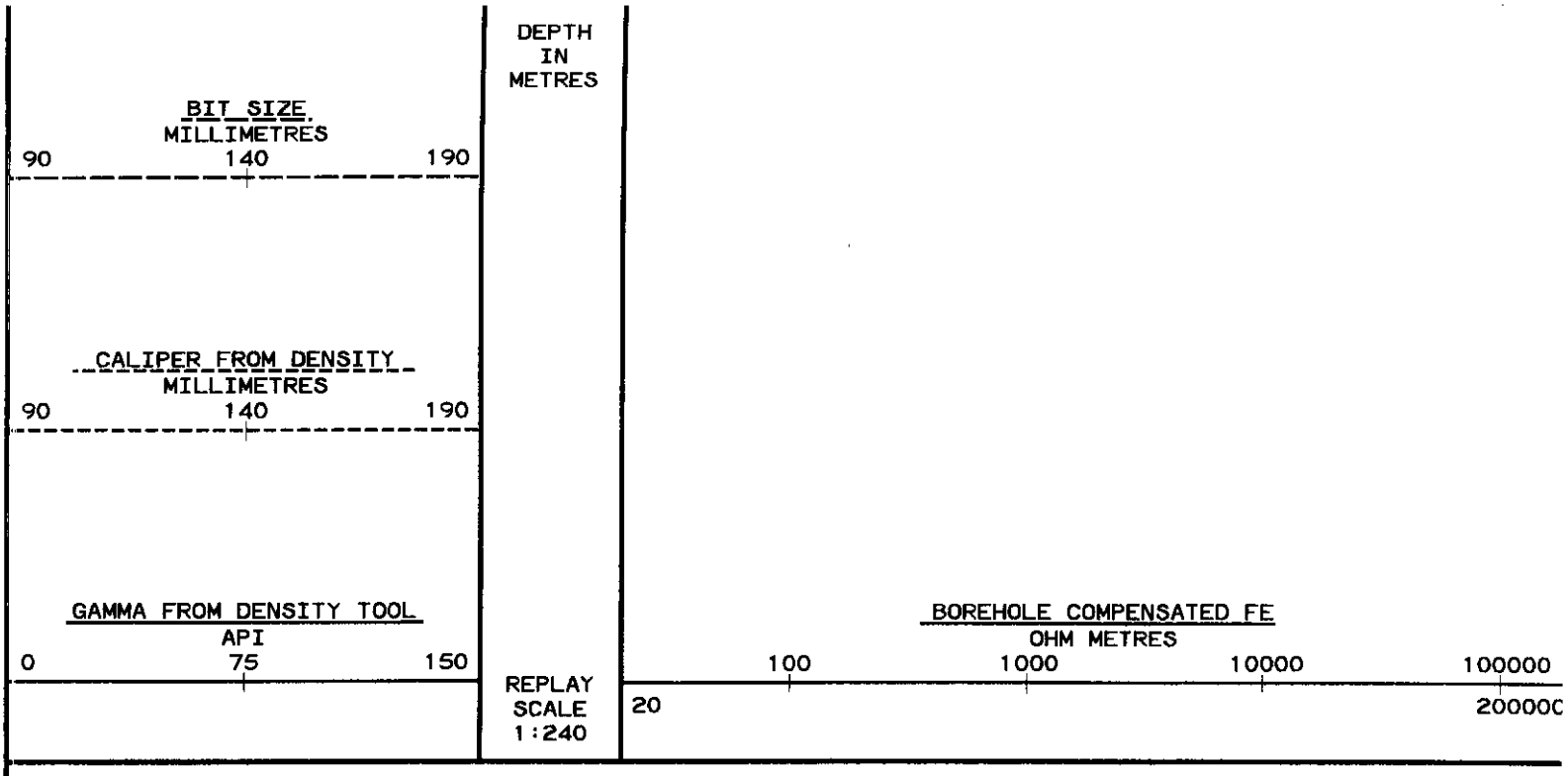
MAIN LOG 1:240

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 13-OCT-2004 AT 15:18

FILENAME: MRGE013R.CIB RUN ID:REPEAT SECTION PLOTTED ON 13-OCT-2004 AT 15:30





DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 13-OCT-2004 AT 15:18

FILENAME: MRGE013R.CIB RUN ID:REPEAT SECTION PLOTTED ON 13-OCT-2004 AT 15:30

REPEAT SECTION

LOGGING/CALIBRATION CONSTANTS

CONSTANTS LAST EDITED: 13-OCT-2004 AT 15:16

LOGGING CONSTANTS AND BIT SIZE MEASUREMENTS

RESISTIVITY SONDE TYPE	SINGLE	MUD RESISTIVITY (OHM METRES)	2.000
BIT SIZE UNITS (INS/MM)	MILLIMTR	BIT DEPTH UNITS (M/FT)	METRES
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	3.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	222.00
BIT SIZS 4	0.00	FROM BIT DEPTH 4	0.00
BIT SIZE 5	0.00	FROM BIT DEPTH 5	0.00
TEMPERATURE UNITS	DEG. C		

CALIBRATION CONSTANTS

FE1C CALIBRATOR VALUE 1	2.0000	FE1C COUNT RATE 1	4502.0000
FE1C CALIBRATOR VALUE 2	2000.0000	FE1C COUNT RATE 2	2998.0000
FE2 CALIBRATOR VALUE 1	2.0000	FE2 COUNT RATE 1	0.0000
FE2 CALIBRATOR VALUE 2	2000.0000	FE2 COUNT RATE 2	0.0000
GRFE CALIBRATOR VALUE 1	490.0000	GRFE COUNT RATE 1	315.0000
SP CALIBRATOR VALUE 1	1.0000	SP COUNT RATE 1	1.0000
SP CALIBRATOR VALUE 2	0.0000	SP COUNT RATE 2	0.0000

LOGGING CONSTANTS

SONDE TYPE	DD4	
BIT SIZE AND CALIPER UNITS	MMS	
BIT DEPTH AND WATER LEVEL UNITS	METRES	
CALIPER SOURCE FOR PROCESSING	CAL	
WATER LEVEL	.00	METRES
ANNULAR VOLUME DIAMETER	133.35	MMS.
CALIPER ARM LENGTH FROM PIVOT	208.28	MMS.
MUD WEIGHT	1.00	GM/CC
Z/A MULTIPLIER	1.11	
MATRIX DENSITY	2.65	GM/CC
DENSITY OF MUD FILTRATE	1.00	GM/CC
GAMMA STRIP COEFFICIENT	0.44	

CALIBRATION CONSTANTS TABLE

LOGGING/CALIBRATION CONSTANTS

CONSTANTS LAST EDITED: 13-OCT-2004 AT 15:16

LOGGING CONSTANTS AND BIT SIZE MEASUREMENTS

RESISTIVITY SONDE TYPE	SINGLE	MUD RESISTIVITY (OHM METRES)	2.000
BIT SIZE UNITS (INS/MM)	MILLIMTR	BIT DEPTH UNITS (M/FT)	METRES
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	3.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	222.00
BIT SIZS 4	0.00	FROM BIT DEPTH 4	0.00
BIT SIZE 5	0.00	FROM BIT DEPTH 5	0.00
TEMPERATURE UNITS	DEG. C		

CALIBRATION CONSTANTS

FE1C CALIBRATOR VALUE 1	2.0000	FE1C COUNT RATE 1	4502.0000
FE1C CALIBRATOR VALUE 2	2000.0000	FE1C COUNT RATE 2	2998.0000
FE2 CALIBRATOR VALUE 1	2.0000	FE2 COUNT RATE 1	0.0000
FE2 CALIBRATOR VALUE 2	2000.0000	FE2 COUNT RATE 2	0.0000
GRFE CALIBRATOR VALUE 1	490.0000	GRFE COUNT RATE 1	315.0000
SP CALIBRATOR VALUE 1	1.0000	SP COUNT RATE 1	1.0000
SP CALIBRATOR VALUE 2	0.0000	SP COUNT RATE 2	0.0000

LOGGING CONSTANTS

SONDE TYPE	DD4	
BIT SIZE AND CALIPER UNITS	MMS	
BIT DEPTH AND WATER LEVEL UNITS	METRES	
CALIPER SOURCE FOR PROCESSING	CAL	
WATER LEVEL	.00	METRES
ANNULAR VOLUME DIAMETER	133.35	MMS.
CALIPER ARM LENGTH FROM PIVOT	208.28	MMS.
MUD WEIGHT	1.00	GM/CC
Z/A MULTIPLIER	1.11	
MATRIX DENSITY	2.65	GM/CC
DENSITY OF MUD FILTRATE	1.00	GM/CC
GAMMA STRIP COEFFICIENT	0.44	

CALIBRATION CONSTANTS TABLE

MEASURED GAMMA VALUE	387.31	CALIBRATED GAMMA VALUE	872.00
MEASURED LSD VALUE 1	410.30	CALIBRATED LSD VALUE 1	3516.00
MEASURED LSD VALUE 2	40.03	CALIBRATED LSD VALUE 2	368.00
MEASURED BRD VALUE 1	1375.71	CALIBRATED BRD VALUE 1	10980.00
MEASURED BRD VALUE 2	718.70	CALIBRATED BRD VALUE 2	5893.00
CALIPER RING SIZE 1	76.20	COUNTS FOR RING 1	1801.00
CALIPER RING SIZE 2	101.60	COUNTS FOR RING 2	2164.00
CALIPER RING SIZE 3	127.00	COUNTS FOR RING 3	2538.00
CALIPER RING SIZE 4	152.40	COUNTS FOR RING 4	2907.00
CALIPER RING SIZE 5	203.20	COUNTS FOR RING 5	3680.00
CALIPER RING SIZE 6	254.00	COUNTS FOR RING 6	4553.00
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	3.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	222.00
BIT SIZE 4	.00	FROM BIT DEPTH 4	0.00
BIT SIZE 5	.00	FROM BIT DEPTH 5	0.00
BRD FIELD CHECK AT BASE	882.70	LSD FIELD CHECK AT BASE	259.30
BRD FIELD CHECK (CPS)	881.30	LSD FIELD CHECK (CPS)	258.90

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG04-03V OPEN HOLE
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

COMPENSATED DENSITY
GAMMA RAY
CALIPER

Reeves

LOCN. ELKFORD
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG04-03V OPEN HOLE
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG04-03V OPEN HOLE
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION 5563183 N.
ELKFORD 644333 E.

LSD	SEC	TWP	RGE
N/A			

OTHER SERVICES
SFE
DIP/VERT

PERMANENT DATUM GROUND LEVEL ELEVATION
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1387.2 m.

DATE	13-OCT-04										
RUN NUMBER	1										
DEPTH-DRILLER	306.70M										
DEPTH-LOGGER	306.60M										
FIRST READING	304.90M										
LAST READING	0.00M										
CASING-DRILLER	3.00M										
CASING-LOGGER	3.00M										
BIT SIZE	133.35MM										
HOLE FLUID TYPE	WATER										
DENS./VISC.	1000	N/A									
PH/FLUID LOSS	N/A	N/A									
SAMPLE SOURCE	DRILLER										
RM @ MEAS TEMP	2.00 @ 20.0C										
RMF @ MEAS TEMP	N/A										
RMC @ MEAS TEMP	N/A										
SOURCE: RMF/RMC	N/A	N/A									
RM @ BHT	N/A										
TIME SINCE CIRC	105 HRS										
MAX REC TEMP	N/A										
EQUIPMENT/BASE	V234	RDR									
RECORDED BY	A.SPASKYY										
WITNESSED BY	J. MCMILLAN										
CIRC STOPPED	09:00 OCT 08										

NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	133.35MM	3.00M	TD	159.00MM	N/A	SURFACE	3.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
DD4	004			

REMARKS

COMPENSATED DENSITY GAMMA RAY CALIPER

NORTHING:

EASTING :

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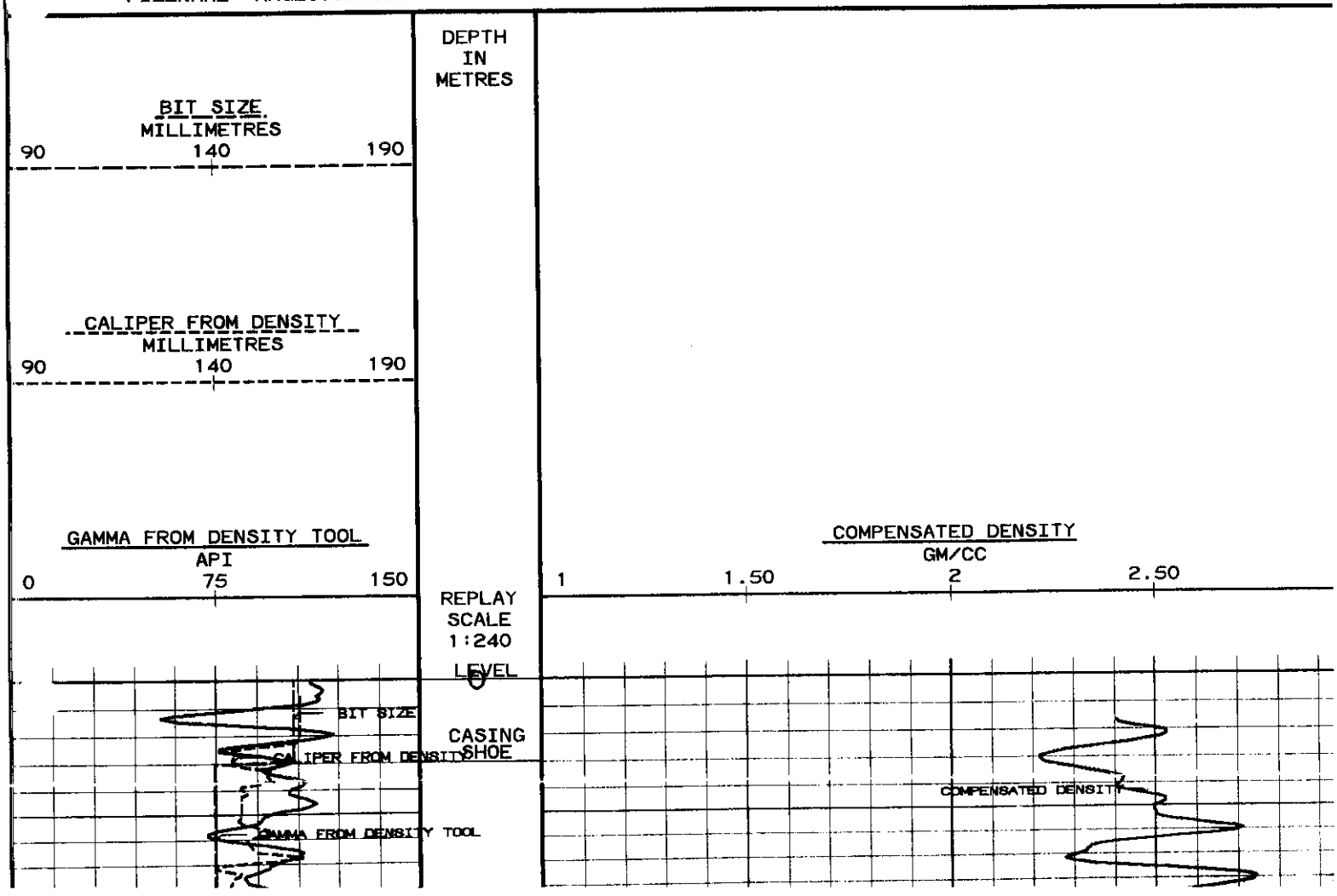
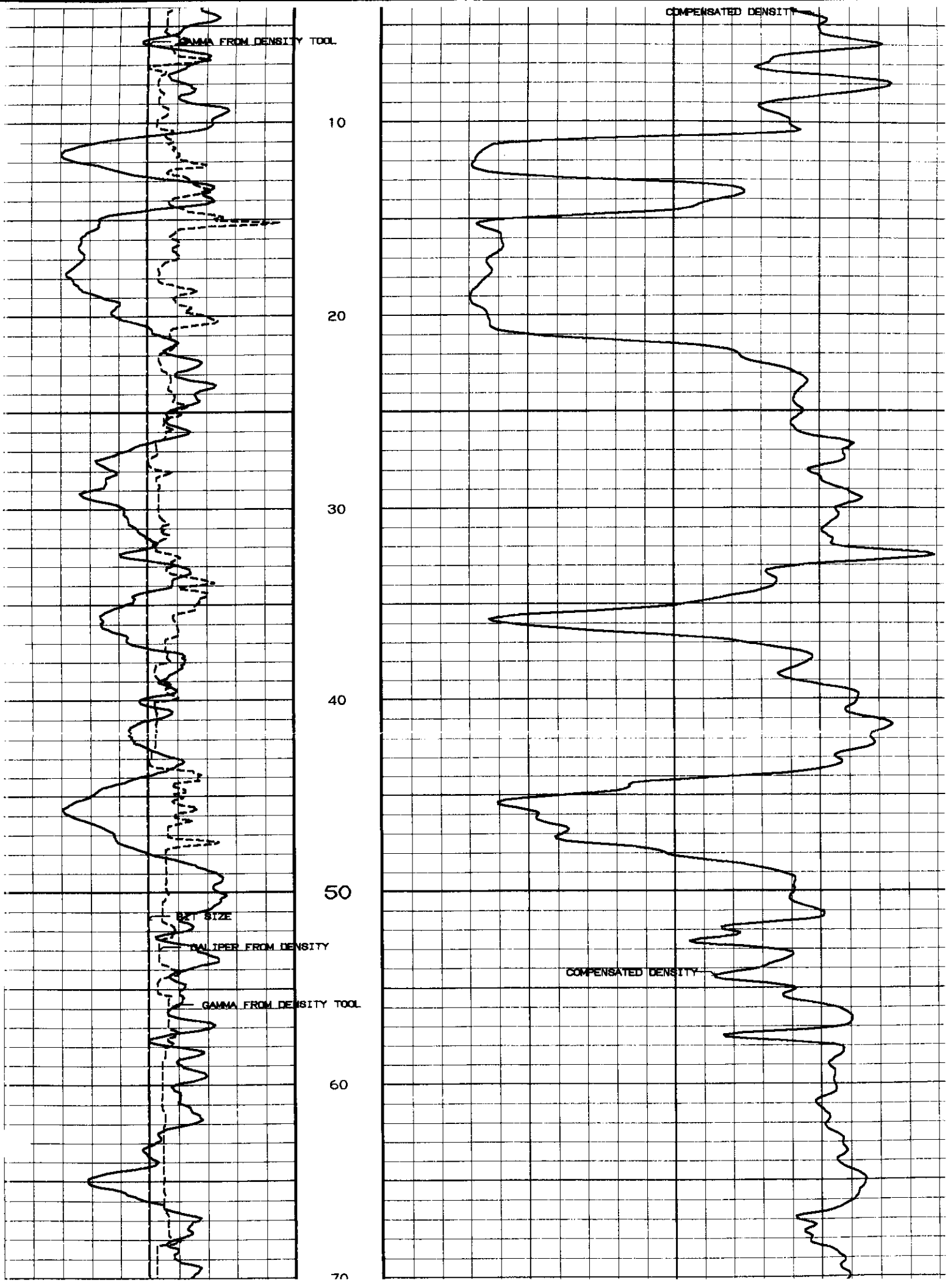
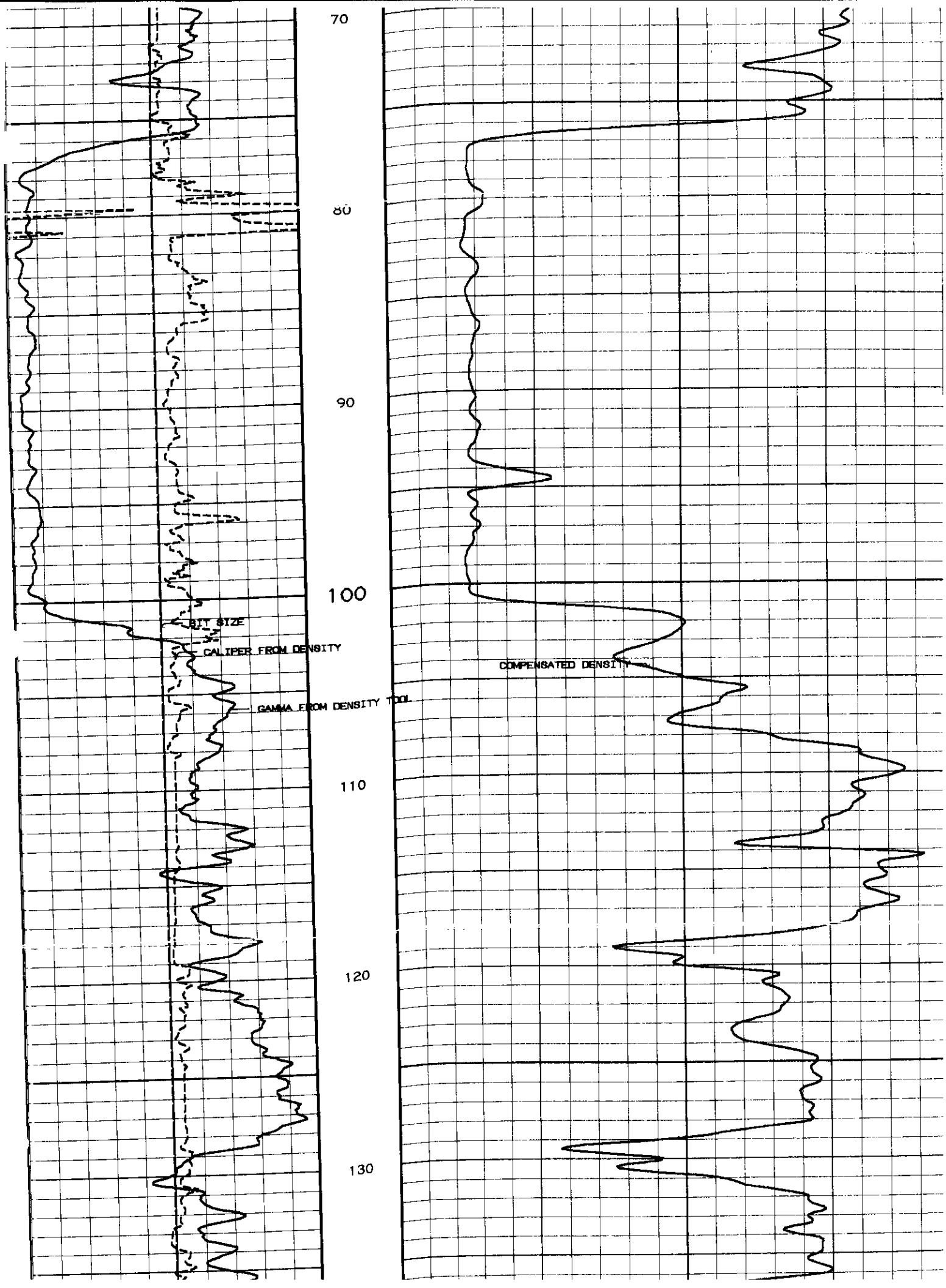
MAIN LOG 1:240

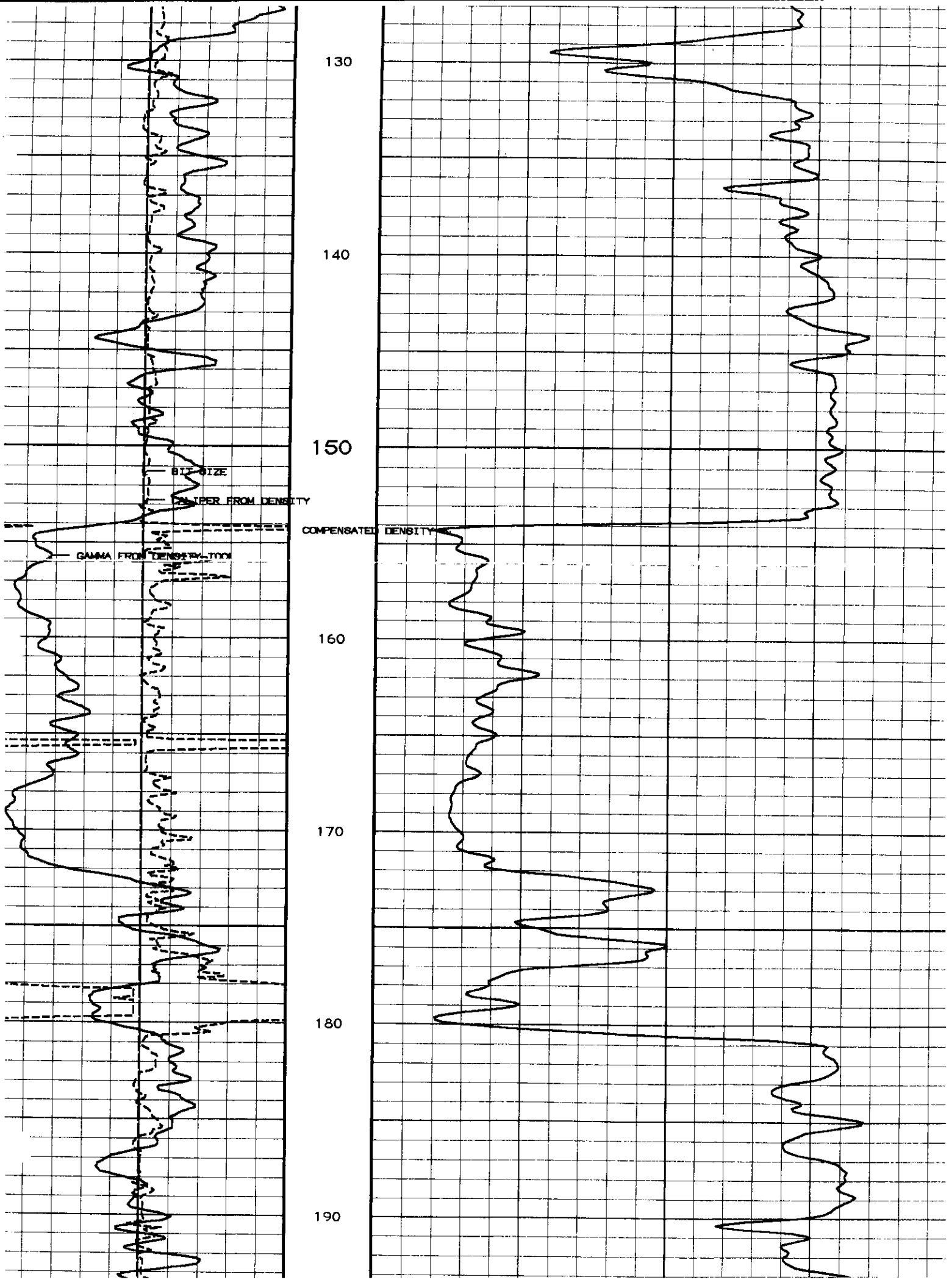
DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 13-OCT-2004 AT 15:19

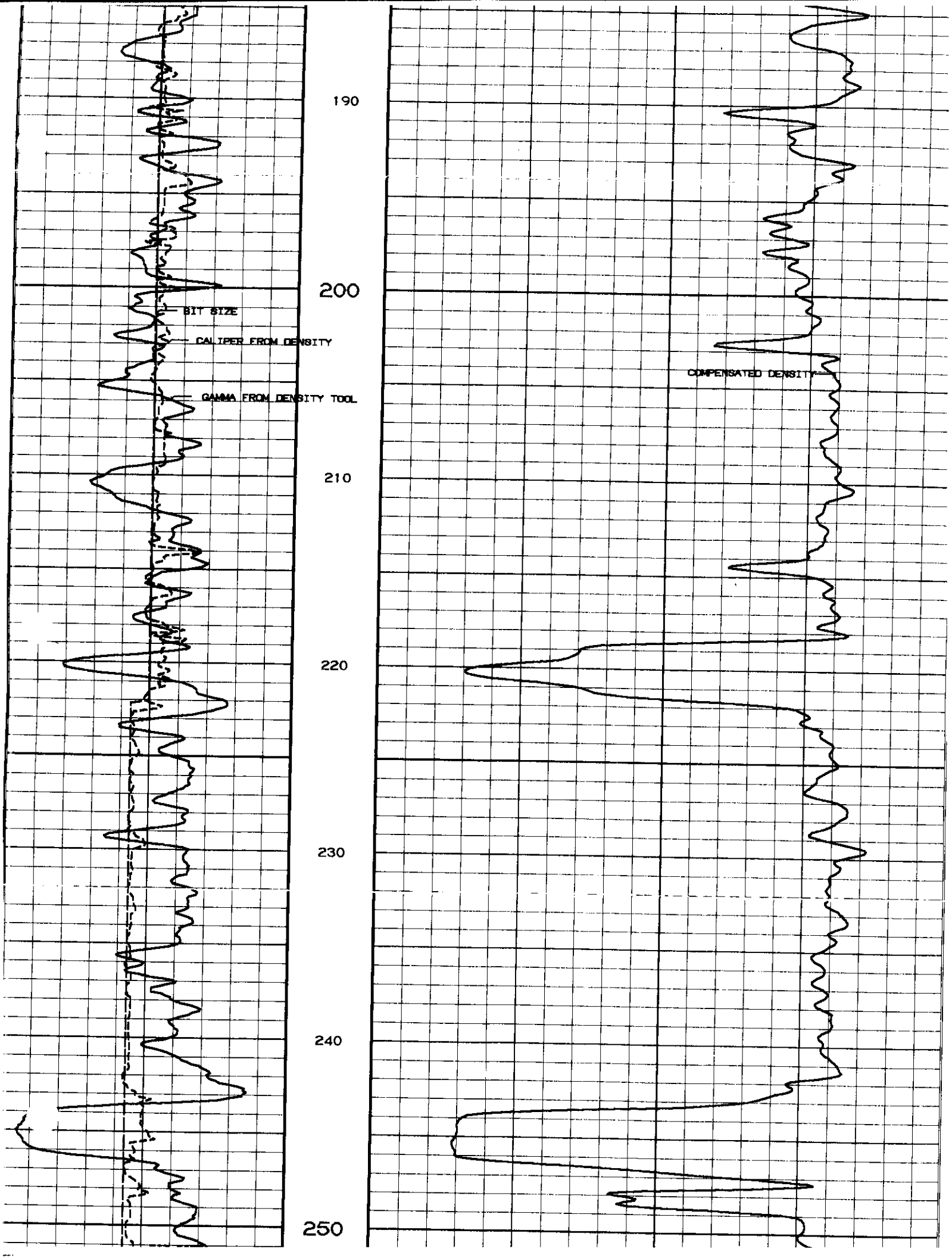
FILENAME: MRGE013M.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 13-OCT-2004 AT 15:48

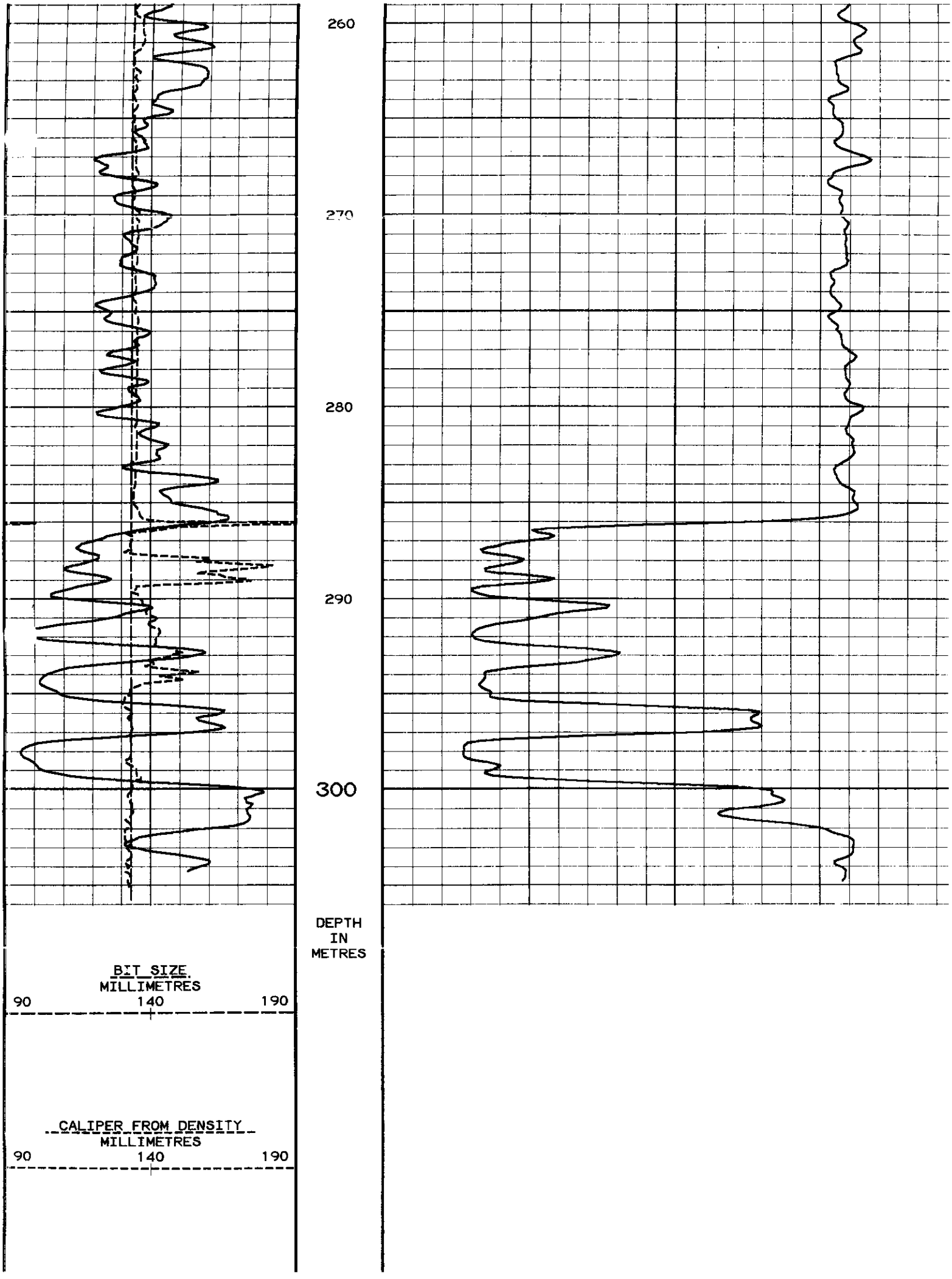



GAMMA FROM DENSITY TOOL
10
20
30
40
50
BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
60
70
COMPENSATED DENSITY
COMPENSATED DENSITY


70
80
90
100
110
120
130
BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
COMPENSATED DENSITY


130
140
150
160
170
180
190
BIT SIZE
CALIPER FROM DENSITY
COMPENSATED DENSITY
GAMMA FROM DENSITY TOOL


190
200
210
220
230
240
250
BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
COMPENSATED DENSITY


260
270
280
290
300
DEPTH
IN
METRES
BIT SIZE
MILLIMETRES
90
140
190
CALIPER FROM DENSITY
MILLIMETRES
90
140
190

GAMMA FROM DENSITY TOOL
API
0 75 150

REPLAY SCALE 1:240

COMPENSATED DENSITY
GM/CC
1 1.50 2 2.50

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 13-OCT-2004 AT 15:19

FILENAME: MRGE013M.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 13-OCT-2004 AT 15:48

MAIN LOG 1:240

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 13-OCT-2004 AT 15:18

FILENAME: MRGE013R.CIB RUN ID:REPEAT SECTION PLOTTED ON 13-OCT-2004 AT 15:48

DEPTH IN METRES

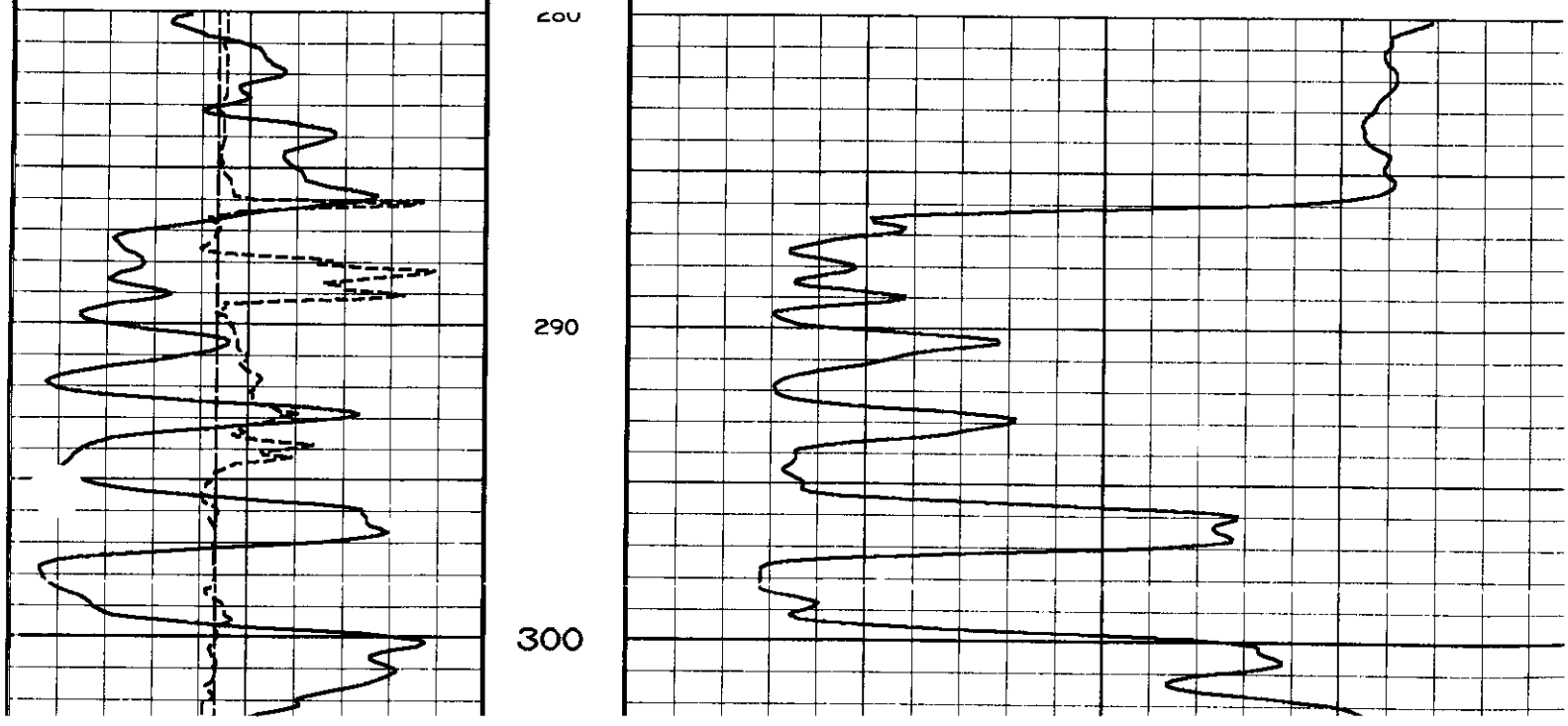
BIT SIZE
MILLIMETRES
90 140 190

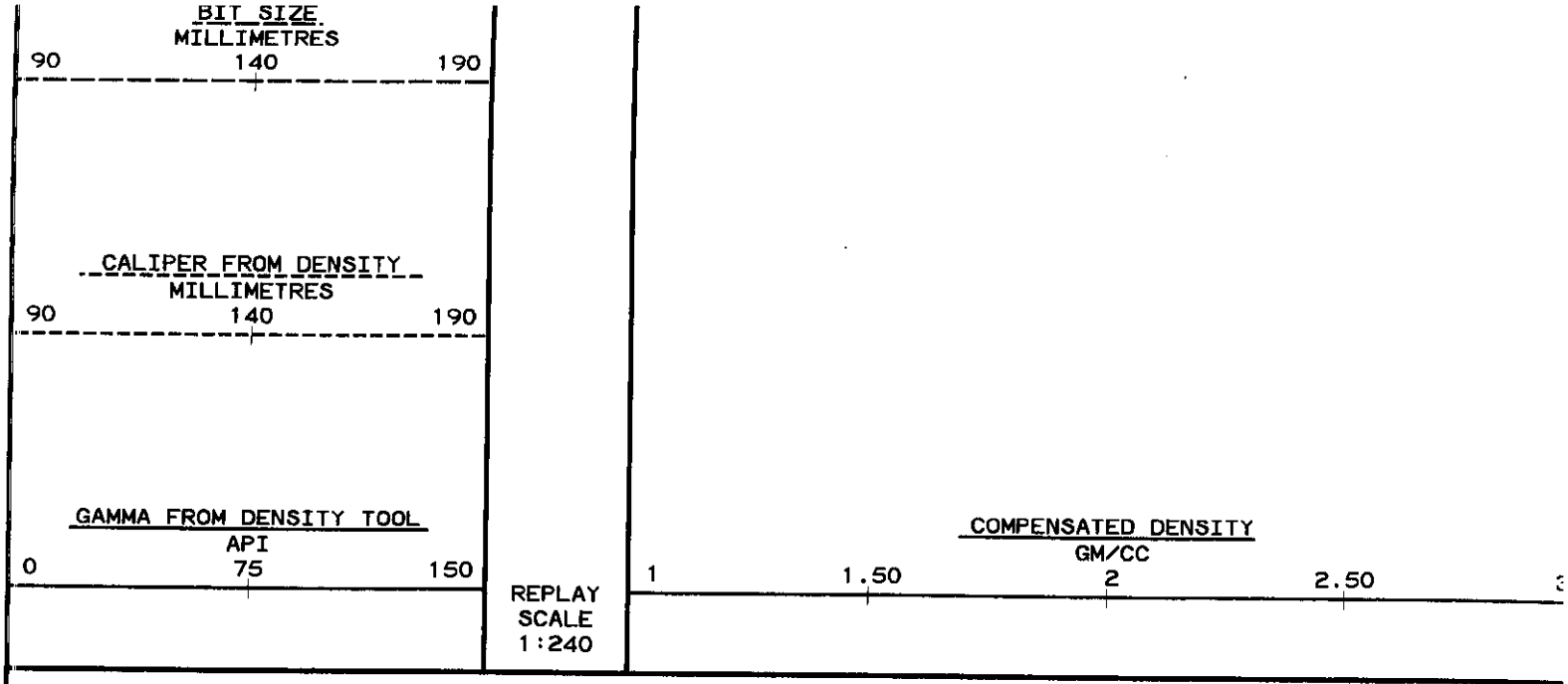
CALIPER FROM DENSITY
MILLIMETRES
140 190

GAMMA FROM DENSITY TOOL
API
0 75 150

COMPENSATED DENSITY
GM/CC
1 1.50 2 2.50 3

REPLAY SCALE 1:240





DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 13-OCT-2004 AT 15:18

FILENAME: MRGE013R.CIB RUN ID:REPEAT SECTION PLOTTED ON 13-OCT-2004 AT 15:48

REPEAT SECTION

LOGGING/CALIBRATION CONSTANTS

CONSTANTS LAST EDITED: 13-OCT-2004 AT 15:16

LOGGING CONSTANTS AND BIT SIZE MEASUREMENTS

RESISTIVITY SONDE TYPE	SINGLE	MUD RESISTIVITY (OHM METRES)	2.000
BIT SIZE UNITS (INS/MM)	MILLIMTR	BIT DEPTH UNITS (M/FT)	METRES
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	3.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	222.00
BIT SIZS 4	0.00	FROM BIT DEPTH 4	0.00
BIT SIZE 5	0.00	FROM BIT DEPTH 5	0.00
TEMPERATURE UNITS	DEG. C		

CALIBRATION CONSTANTS

FE1C CALIBRATOR VALUE 1	2.0000	FE1C COUNT RATE 1	4502.0000
FE1C CALIBRATOR VALUE 2	2000.0000	FE1C COUNT RATE 2	2998.0000
FE2 CALIBRATOR VALUE 1	2.0000	FE2 COUNT RATE 1	0.0000
FE2 CALIBRATOR VALUE 2	2000.0000	FE2 COUNT RATE 2	0.0000
GRFE CALIBRATOR VALUE 1	490.0000	GRFE COUNT RATE 1	315.0000
SP CALIBRATOR VALUE 1	1.0000	SP COUNT RATE 1	1.0000
SP CALIBRATOR VALUE 2	0.0000	SP COUNT RATE 2	0.0000

LOGGING CONSTANTS

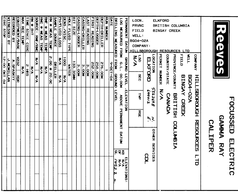
SONDE TYPE	DD4
BIT SIZE AND CALIPER UNITS	MMS
BIT DEPTH AND WATER LEVEL UNITS	METRES
CALIPER SOURCE FOR PROCESSING	CAL
WATER LEVEL	.00 METRES
ANNULAR VOLUME DIAMETER	133.35 MMS.
CALIPER ARM LENGTH FROM PIVOT	208.28 MMS.
MUD WEIGHT	1.00 GM/CC
Z/A MULTIPLIER	1.11
MATRIX DENSITY	2.65 GM/CC
DENSITY OF MUD FILTRATE	1.00 GM/CC
GAMMA STRIP COEFFICIENT	0.44

CALIBRATION CONSTANTS TABLE

MEASURED GAMMA VALUE	387.31	CALIBRATED GAMMA VALUE	872.00
MEASURED LSD VALUE 1	410.30	CALIBRATED LSD VALUE 1	3516.00
MEASURED LSD VALUE 2	40.03	CALIBRATED LSD VALUE 2	368.00

MEASURED BRD VALUE 1	1375.71	CALIBRATED BRD VALUE 1	10980.00
MEASURED BRD VALUE 2	718.70	CALIBRATED BRD VALUE 2	5893.00
CALIPER RING SIZE 1	76.20	COUNTS FOR RING 1	1801.00
CALIPER RING SIZE 2	101.60	COUNTS FOR RING 2	2164.00
CALIPER RING SIZE 3	127.00	COUNTS FOR RING 3	2538.00
CALIPER RING SIZE 4	152.40	COUNTS FOR RING 4	2907.00
CALIPER RING SIZE 5	203.20	COUNTS FOR RING 5	3680.00
CALIPER RING SIZE 6	254.00	COUNTS FOR RING 6	4553.00
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	3.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	222.00
BIT SIZE 4	.00	FROM BIT DEPTH 4	0.00
BIT SIZE 5	.00	FROM BIT DEPTH 5	0.00
BRD FIELD CHECK AT BASE	882.70	LSD FIELD CHECK AT BASE	259.30
BRD FIELD CHECK (CPS)	881.30	LSD FIELD CHECK (CPS)	258.90

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG04-03V OPEN HOLE
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA



RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT SIZE (MILLIMETRES)	FROM	TO	SIZE	WEIGHT	FROM	TO
1	155.56MM	0.00M	70	139.00MM	N/A	SURFACE	0.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
MTE	104			

REMARKS

FOCUSED ELECTRIC GAMMA RAY CALIPER

OPERATION: BOREHOLE FILLS MORE THAN 50 DEGREES EASTING : TOOLS MOVED DOWN, EASILY

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MAIN LOG 1:240

DEPTH BASED DATA = WAYCAR SAMPLING INCREMENT 15.00M RECORDED ON 9-OCT-2004 AT 15:39
FILENAME : WR0203DR.C08 RUN 02-WAYCAR LOG 1:240 PLOTTED ON 09-OCT-2004 AT 17:29

BIT SIZE MILLIMETRES 155 200

CALIPER FROM DENSITY MILLIMETRES 80 130 200

GAMMA FROM DENSITY TOOL API 0 75 150

DEPTH IN METRES

REPLAY PASS 1 1:240

BOREHOLE COMPENSATED FE OHM METRES 100 1000 10000 100000

BOREHOLE COMPENSATED FE OHM METRES 20 200000

MAIN LOG 1:240

DEPTH BASED DATA = WAYCAR SAMPLING INCREMENT 15.00M RECORDED ON 9-OCT-2004 AT 15:39
FILENAME : WR0203DR.C08 RUN 02-WAYCAR LOG 1:240 PLOTTED ON 09-OCT-2004 AT 17:29

REPEAT SECTION

DEPTH BASED DATA = WAYCAR SAMPLING INCREMENT 15.00M RECORDED ON 9-OCT-2004 AT 15:10
FILENAME : WR0203DR.C08 RUN 02-REPEAT SECTION PLOTTED ON 09-OCT-2004 AT 17:28

DEPTH BASED DATA = WAYCAR SAMPLING INCREMENT 15.00M RECORDED ON 9-OCT-2004 AT 15:10
FILENAME : WR0203DR.C08 RUN 02-REPEAT SECTION PLOTTED ON 09-OCT-2004 AT 17:28

REPEAT SECTION

LOGGING/CALIBRATION CONSTANTS

CONSTANTS LAST EDITED: 07-OCT-2004 AT 20:33

LOGGING CONSTANTS AND BIT SIZE MEASUREMENTS

RESISTIVITY NORM TYPE	BOREHOLE AND RESISTIVITY UNITS	LOGS MATRIX	MUD TYPE
BIT SIZE 1	MILLIMETRES	BIT DEPTH (METRES)	70.0000
BIT SIZE 2	155.56	FROM BIT SIZE 1	0.00
BIT SIZE 3	0.00	FROM BIT SIZE 2	0.00
BIT SIZE 4	0.00	FROM BIT SIZE 3	0.00
CALIPER MATR	0.00	FROM BIT SIZE 4	0.00

CALIBRATION CONSTANTS

FE1 CAL CORRECTION VALUE	FE1 COUNT RATE 1	#1000.0000	
FE2 CAL CORRECTION VALUE	#1000.0000	FE2 COUNT RATE 1	#1000.0000
FE3 CAL CORRECTION VALUE	#1000.0000	FE3 COUNT RATE 1	#1000.0000
FE4 CAL CORRECTION VALUE	#1000.0000	FE4 COUNT RATE 1	#1000.0000
SP CALIBRATION VALUE 1	1.0000	SP COUNT RATE 1	0.0000
SP CALIBRATION VALUE 2	1.0000	SP COUNT RATE 2	0.0000

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG04-02A
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

MARKED

COMPENSATED DENSITY
GAMMA RAY
CALIPER

Reeves

LOCN. ELKFORD
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG04-04A OPEN HOLE
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG04-04A OPEN HOLE
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION ELKFORD 5563183 N. 644332 E.

OTHER SERVICES: SFE, DIP/VERT

LSD	SEC	TWP	RGE
N/A			

PERMANENT DATUM GROUND LEVEL ,ELEVATION
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1387.2 m.

DATE	13-OCT-04	
RUN NUMBER	1	
DEPTH-DRILLER	245.50M	
DEPTH-LOGGER	245.50M	
FIRST READING	243.90M	
LAST READING	0.00M	
CASING-DRILLER	3.00M	
CASING-LOGGER	3.00M	
BIT SIZE	133.35MM	
HOLE FLUID TYPE	WATER	
DENS./VISC.	1000	N/A
PH/FLUID LOSS	N/A	N/A
SAMPLE SOURCE	DRILLER	
RM @ MEAS TEMP	2.00 @ 20.0C	
RMF @ MEAS TEMP	N/A	
RMC @ MEAS TEMP	N/A	
SOURCE: RMF/RMC	N/A	N/A
RM @ BHT	N/A	
TIME SINCE CIRC	6.0 HRS	
MAX REC TEMP	N/A	
EQUIPMENT/BASE	V234	RDR
RECORDED BY	A.SPASKYY	
WITNESSED BY	J. MCMILLAN	
CIRC STOPPED	07:30 OCT 12	

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	133.35MM	3.00M	TD	159.00MM	N/A	SURFACE	3.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
DD4	004			

REMARKS

COMPENSATED DENSITY GAMMA RAY CALIPER

NORTHING:

EASTING :

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MAIN LOG 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 13-OCT-2004 AT 17:41

FILENAME: MRGE014M.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 13-OCT-2004 AT 18:03

DEPTH IN METRES

BIT SIZE
MILLIMETRES
90 140 190

CALIPER FROM DENSITY
MILLIMETRES
90 140 190

GAMMA FROM DENSITY TOOL
API
0 75 150

NOTE : COALS NOT CORRECTED FOR TRUE THICKNESS.

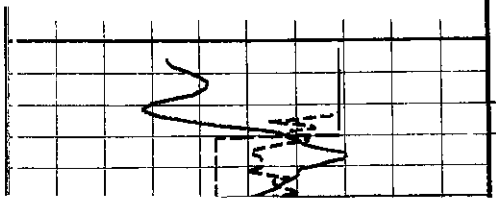
COMPENSATED DENSITY
GM/CC
1 1.50 2 2.50

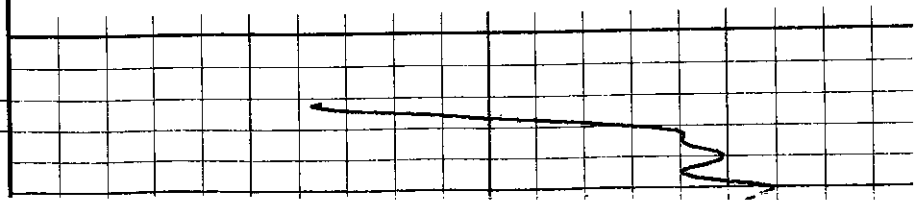
REPLAY SCALE 1:240

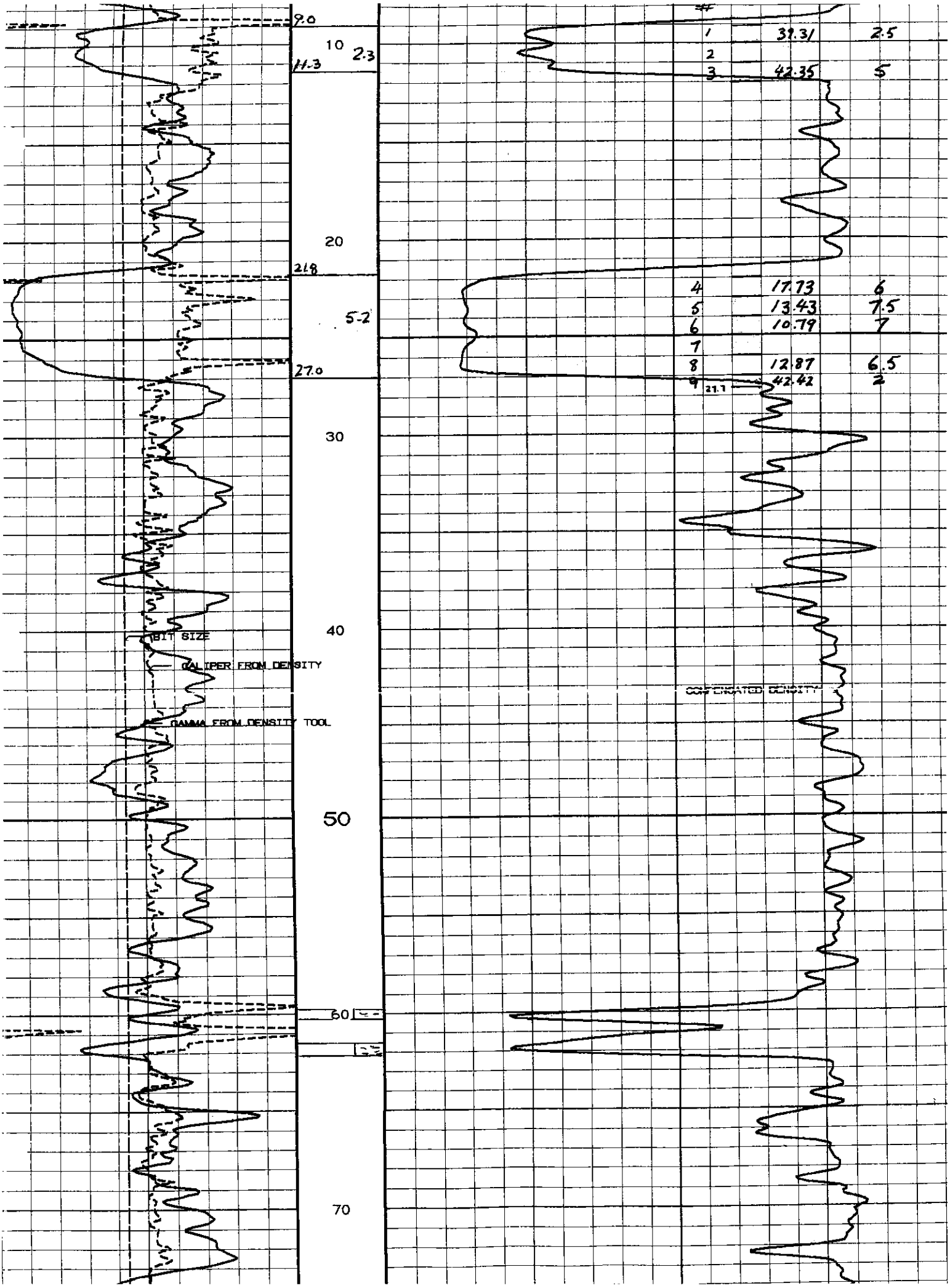
0

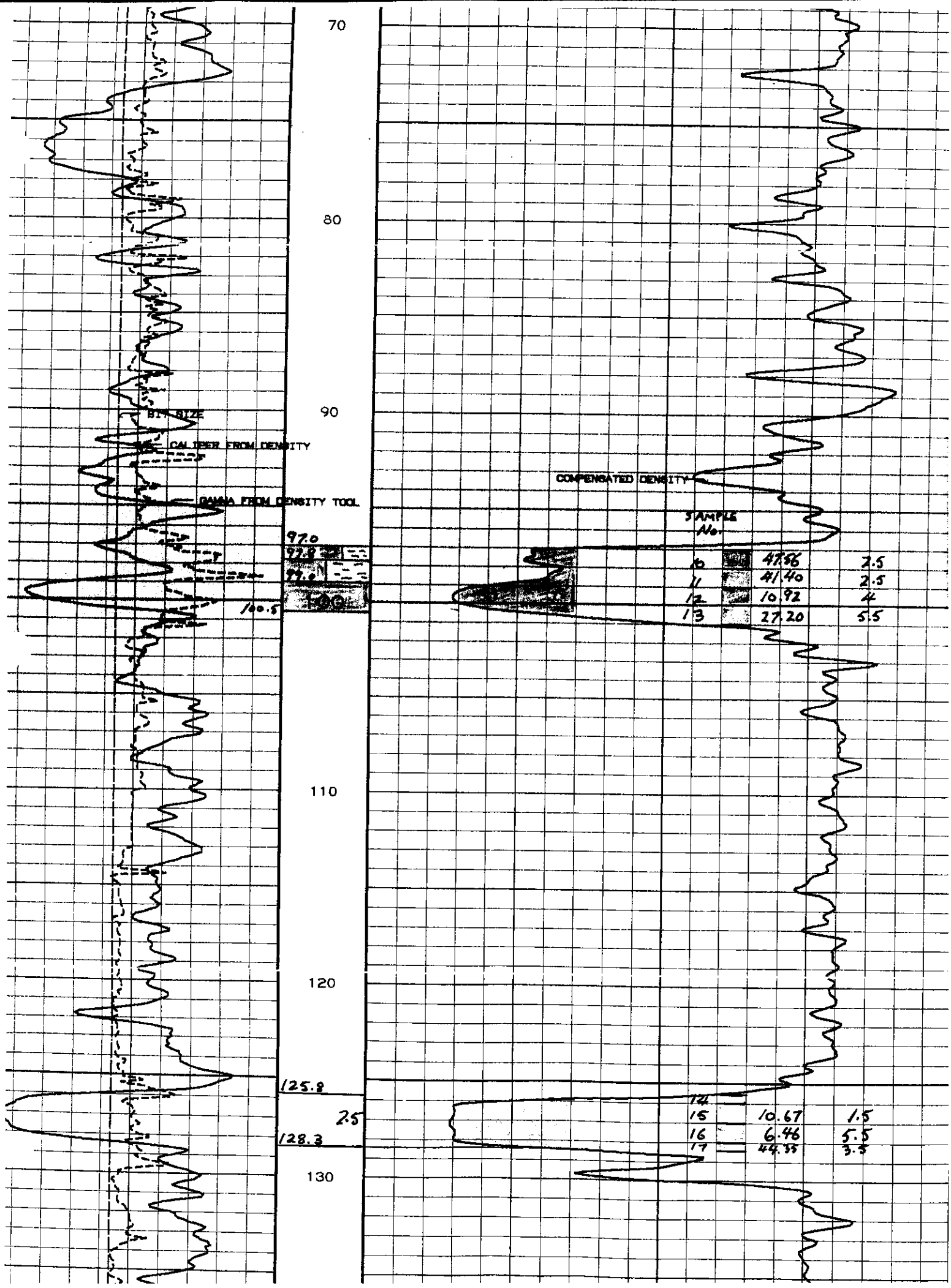
FLUID LEVEL

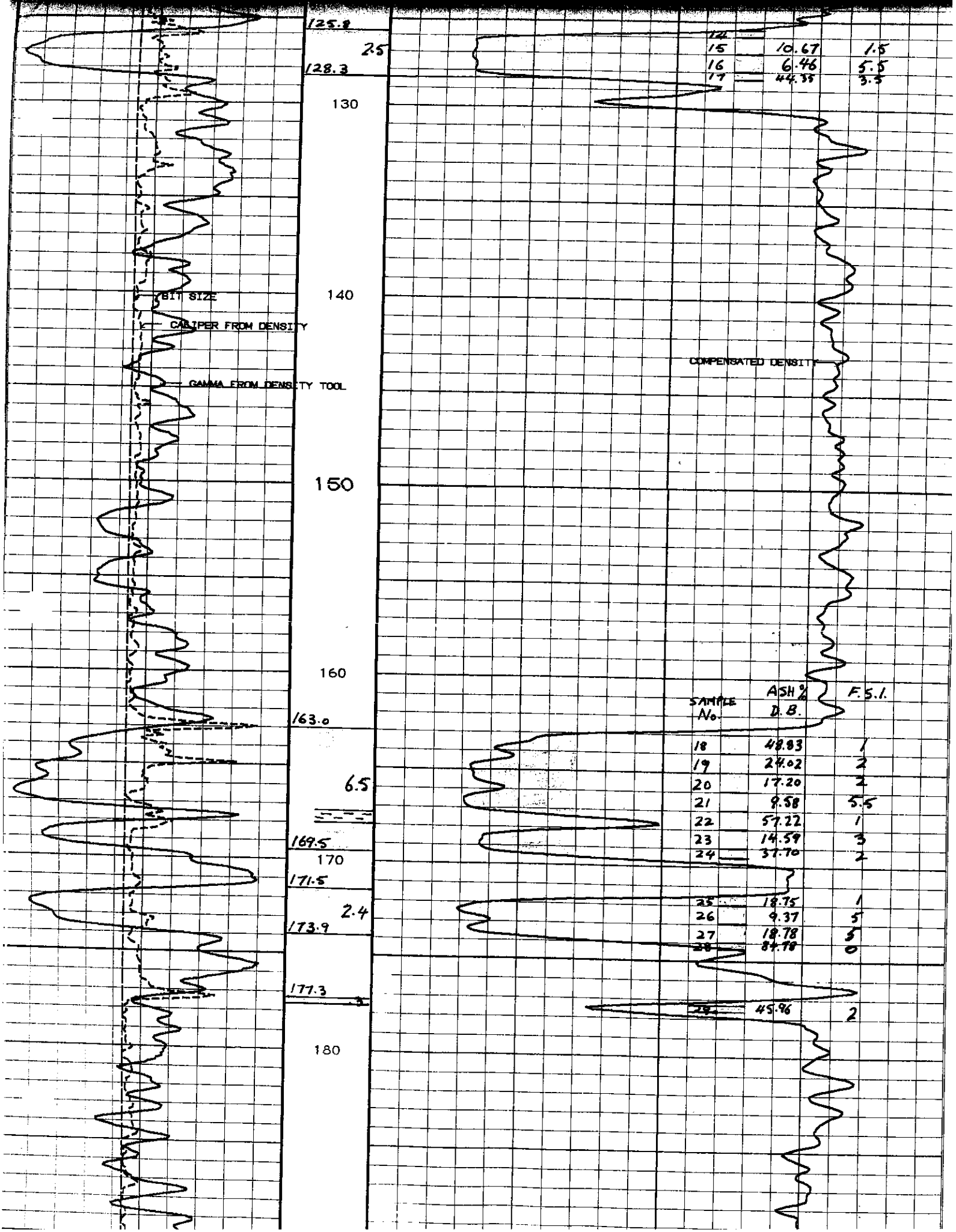
CASING SHOE

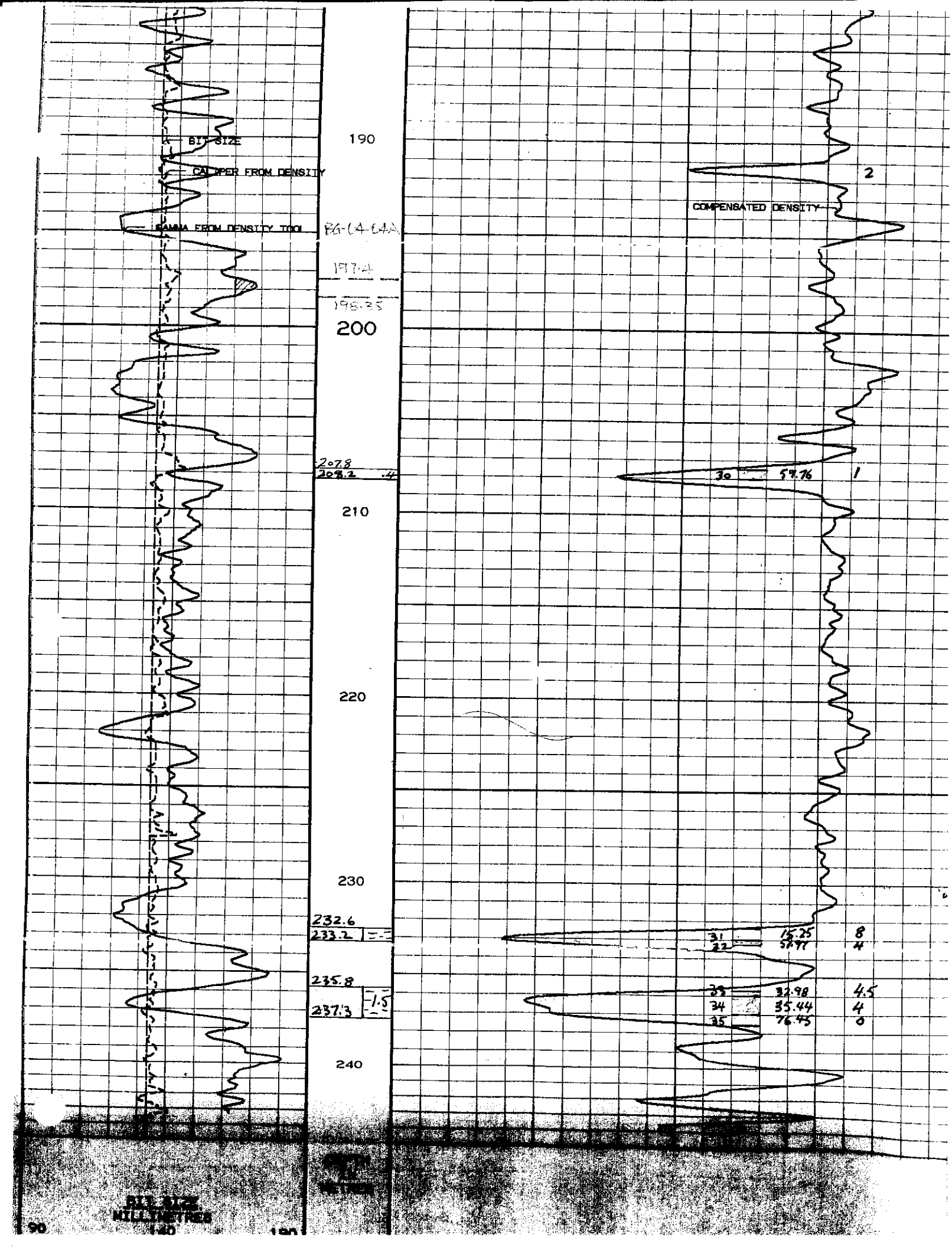


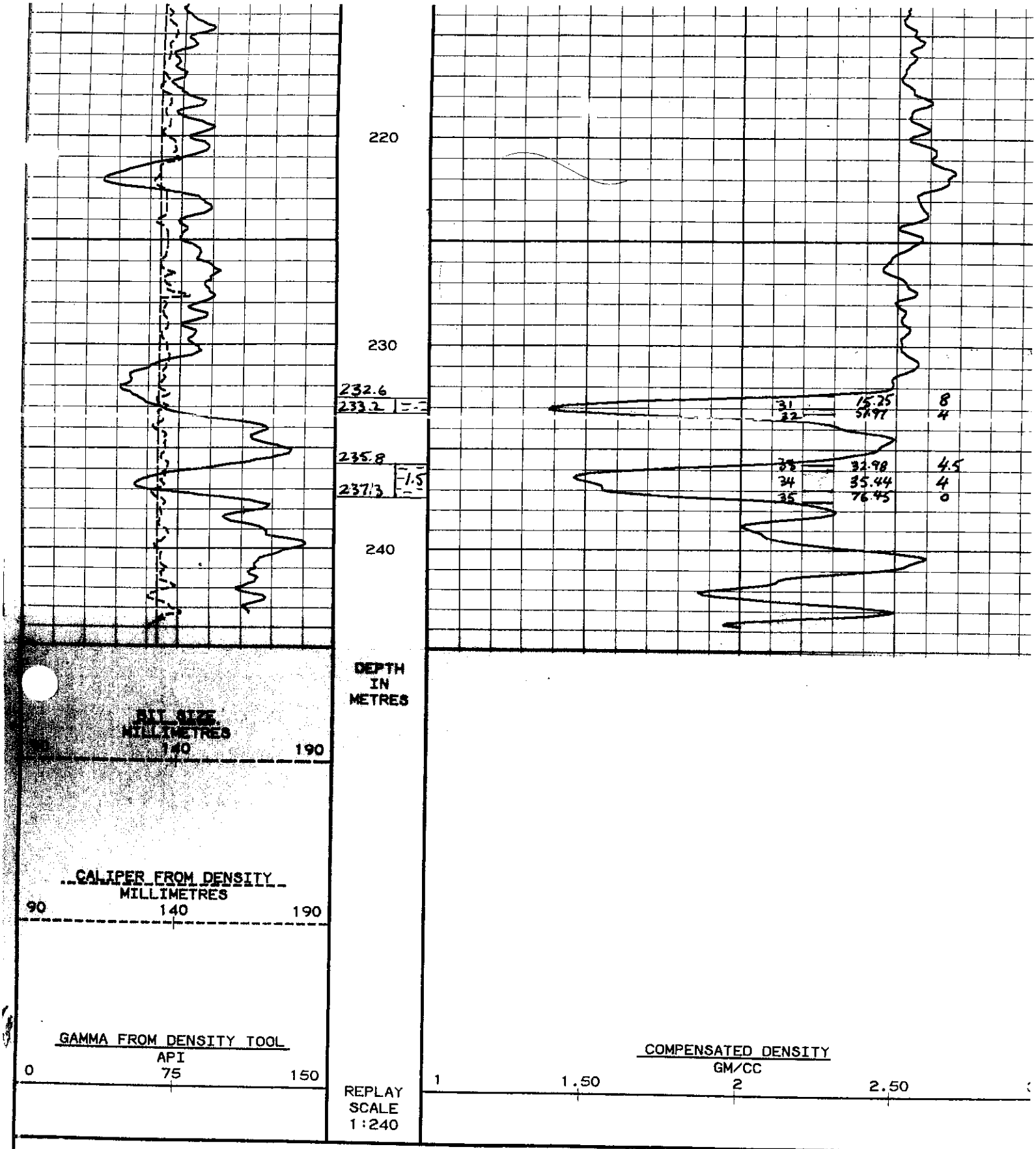



9.0
10
2.3
11.3
20
21.8
5.2
27.0
30
40
BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
50
60
70
1
39.31
2.5
2
3
42.35
5
4
17.73
6
5
13.43
7.5
6
10.79
7
7
8
12.87
6.5
9
21.1
42.42
2
CORRELATED DENSITY


70
80
90
110
120
130
BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
COMPENSATED DENSITY
97.0
97.8
99.6
100.5
125.8
25
128.3
SAMPLE No.
10 47.86 2.5
11 41.40 2.5
12 10.92 4
13 27.20 5.5
14
15 10.67 1.5
16 6.46 5.5
17 44.35 3.5


125.8
2.5
128.3
130
140
BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
150
160
163.0
6.5
169.5
170
171.5
2.4
173.9
177.3
180
COMPENSATED DENSITY
SAMPLE No.
ASH % D.B.
F.S.I.
15 10.67 1.5
16 6.46 5.5
17 44.35 3.5
18 48.83 1
19 24.02 2
20 17.20 2
21 9.58 5.5
22 57.22 1
23 14.59 3
24 37.70 2
25 18.75 1
26 9.37 5
27 18.78 5
28 84.78 0
29 45.96 2


BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
BG-14-14A
197.4
196.35
190
200
210
220
230
240
207.8
208.2
.4
232.6
233.2
235.8
237.3
1.5
COMPENSATED DENSITY
2
30
57.76
1
31
15.25
8
32
57.77
4
33
32.98
4.5
34
35.44
4
35
76.45
0
BIT SIZE
MILLIMETRES
90
140
190



DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 13-OCT-2004 AT 17:41

FILENAME: MRGE014M.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 13-OCT-2004 AT 18:03

MAIN LOG 1:240

[redacted]

FOCUSSED ELECTRIC
GAMMA RAY
CALIPER

Reeves

LOCN. ELKFORD
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG04-04A OPEN HOLE
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG04-04A OPEN HOLE
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION				OTHER SERVICES
ELKFORD				CDL DIP/VERT
LSD	SEC	TWP	RGE	
N/A				

PERMANENT DATUM GROUND LEVEL ,ELEVATION
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL

DATE	13-OCT-04	
RUN NUMBER	1	
DEPTH-DRILLER	245.50M	
DEPTH-LOGGER	245.50M	
FIRST READING	244.50M	
LAST READING	5.20M	
CASING-DRILLER	3.00M	
CASING-LOGGER	3.00M	
BIT SIZE	133.35MM	
HOLE FLUID TYPE	WATER	
DENS./VISC.	1000 N/A	
PH/FLUID LOSS	N/A N/A	
SAMPLE SOURCE	DRILLER	
RM @ MEAS TEMP	2.00 @ 20.0C	
RMF @ MEAS TEMP	N/A	
RMC @ MEAS TEMP	N/A	
SOURCE: RMF/RMC	N/A N/A	
RM @ BHT	N/A	
TIME SINCE CIRC	6.0 HRS	
MAX REC TEMP	N/A	
EQUIPMENT/BASE	V234 RDR	
RECORDED BY	A.SPASKYY	
WITNESSED BY	J. MCMILLAN	
CIRC STOPPED	07:30 OCT 12	

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	133.35MM	3.00M	TD	159.00MM	N/A	SURFACE	3.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
SFE	104			

REMARKS

FOCUSSED ELECTRIC GAMMA RAY CALIPER

NORTHING:

EASTING :

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS IN OUR PRICE SCHEDULE

MAIN LOG 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 13-OCT-2004 AT 17:41

FILENAME: MRGE014M.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 13-OCT-2004 AT 17:50

BIT SIZE
MILLIMETRES
90 140 190

CALIPER FROM DENSITY
MILLIMETRES
90 140 190

GAMMA FROM DENSITY TOOL
API
0 75 150

DEPTH IN METRES

REPLAY SCALE 1:240

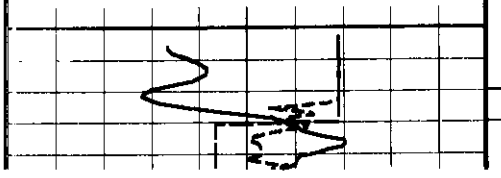
0

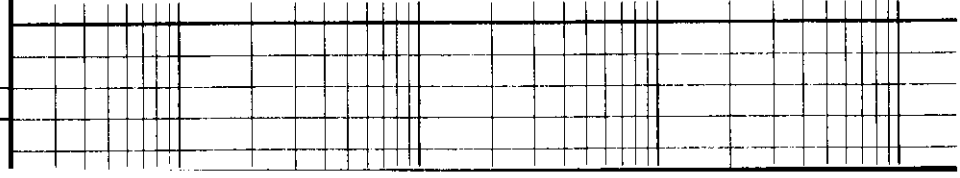
FLUID LEVEL

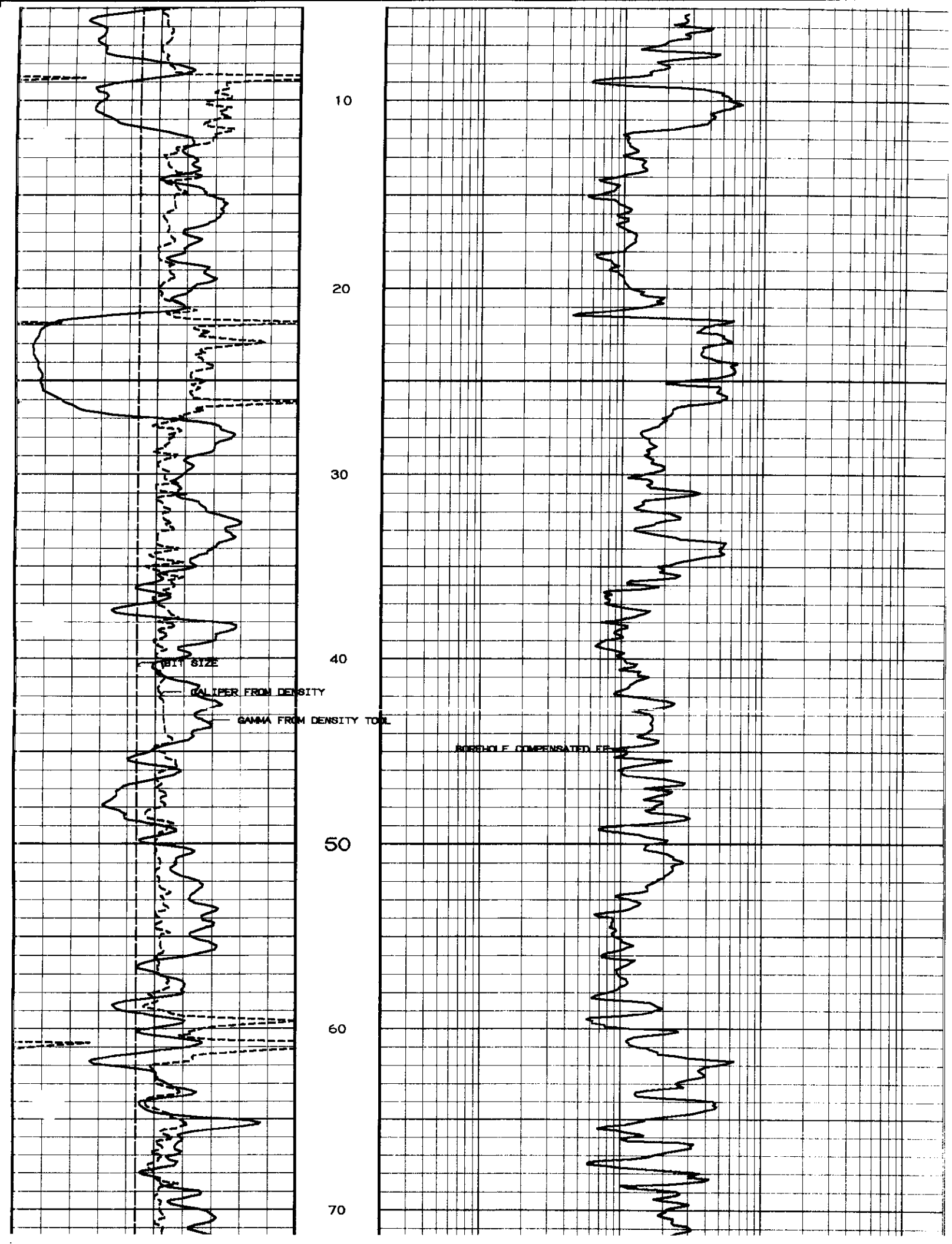
CASING SHOE

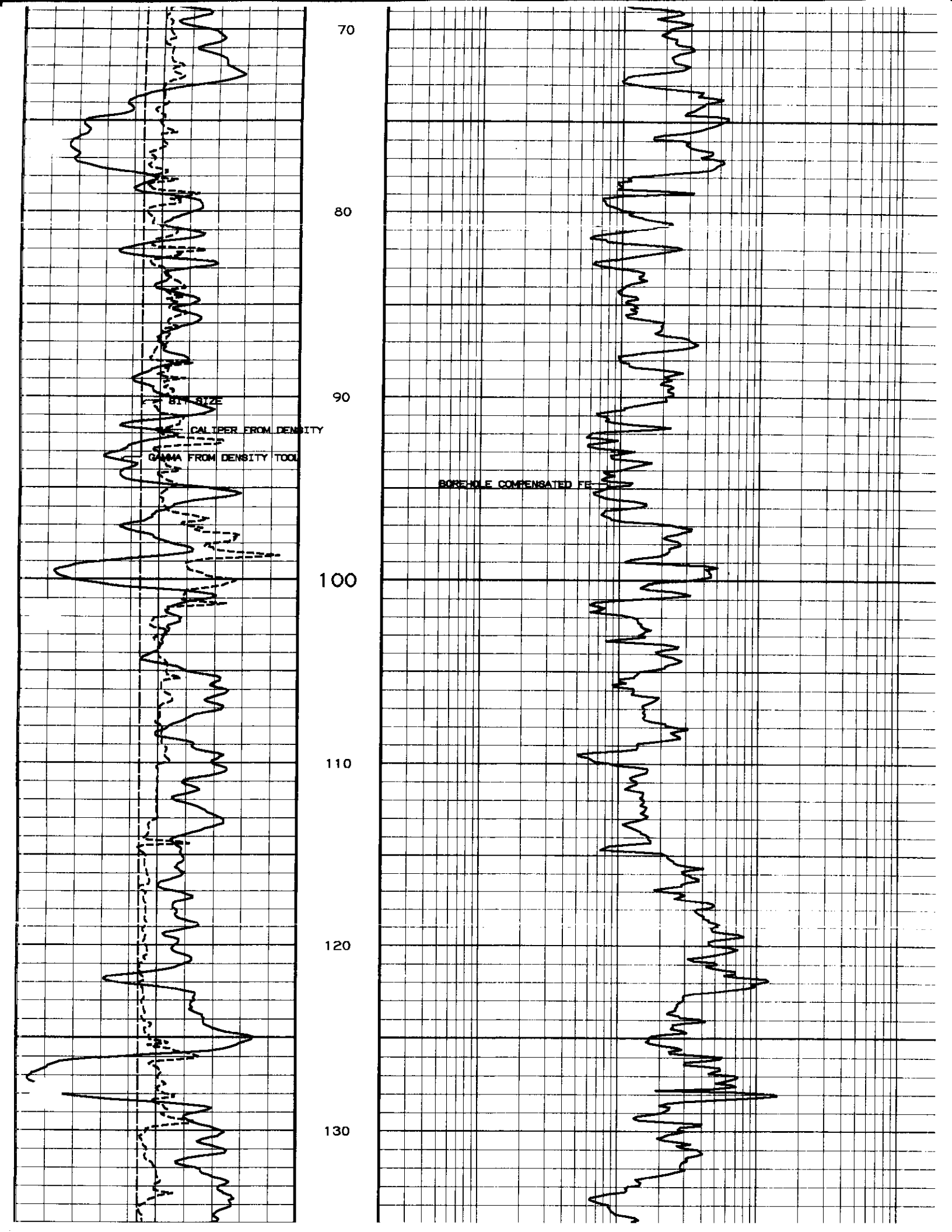
BOREHOLE COMPENSATED FE
OHM METRES
100 1000 10000 100000

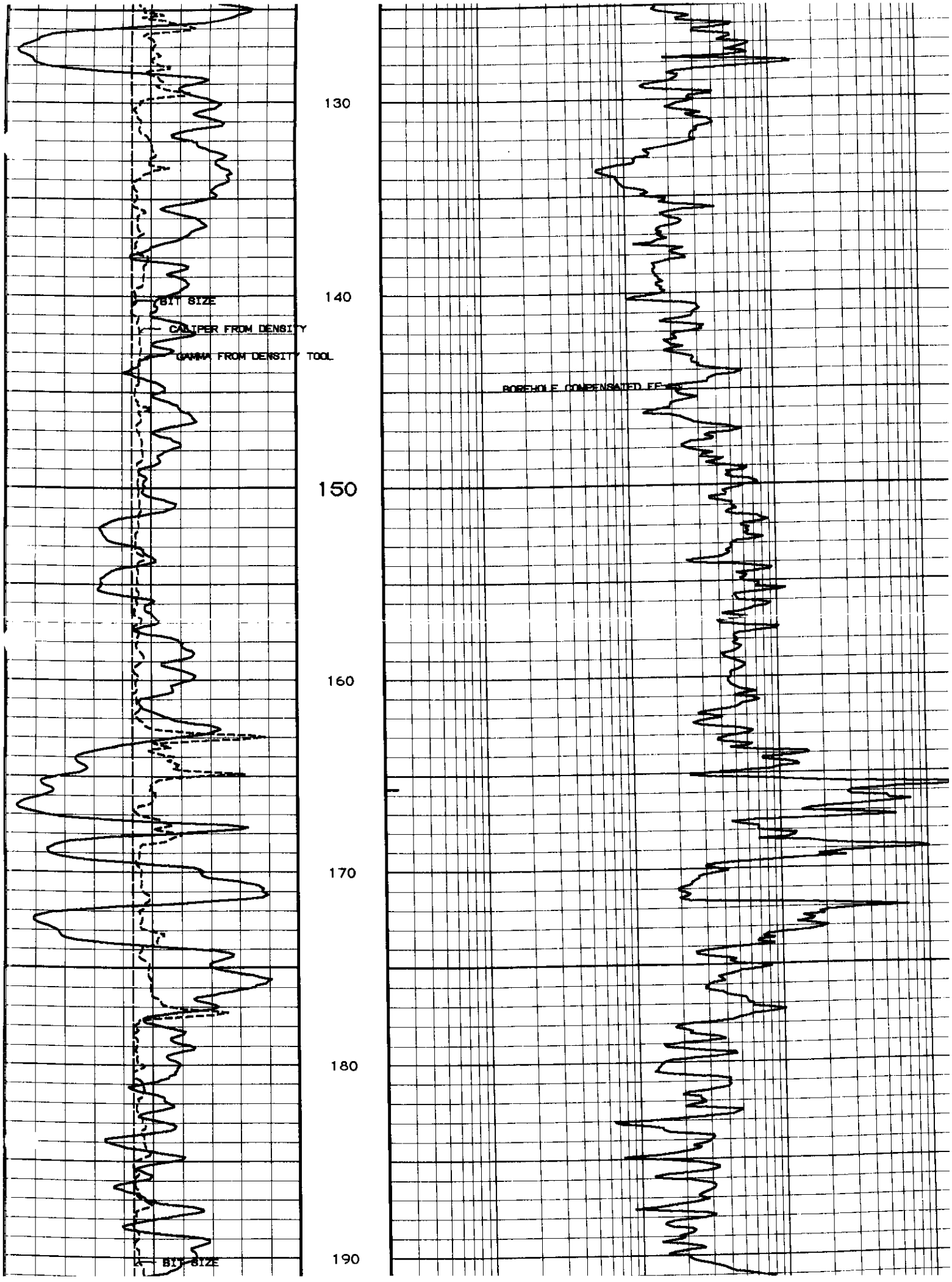
20 200000

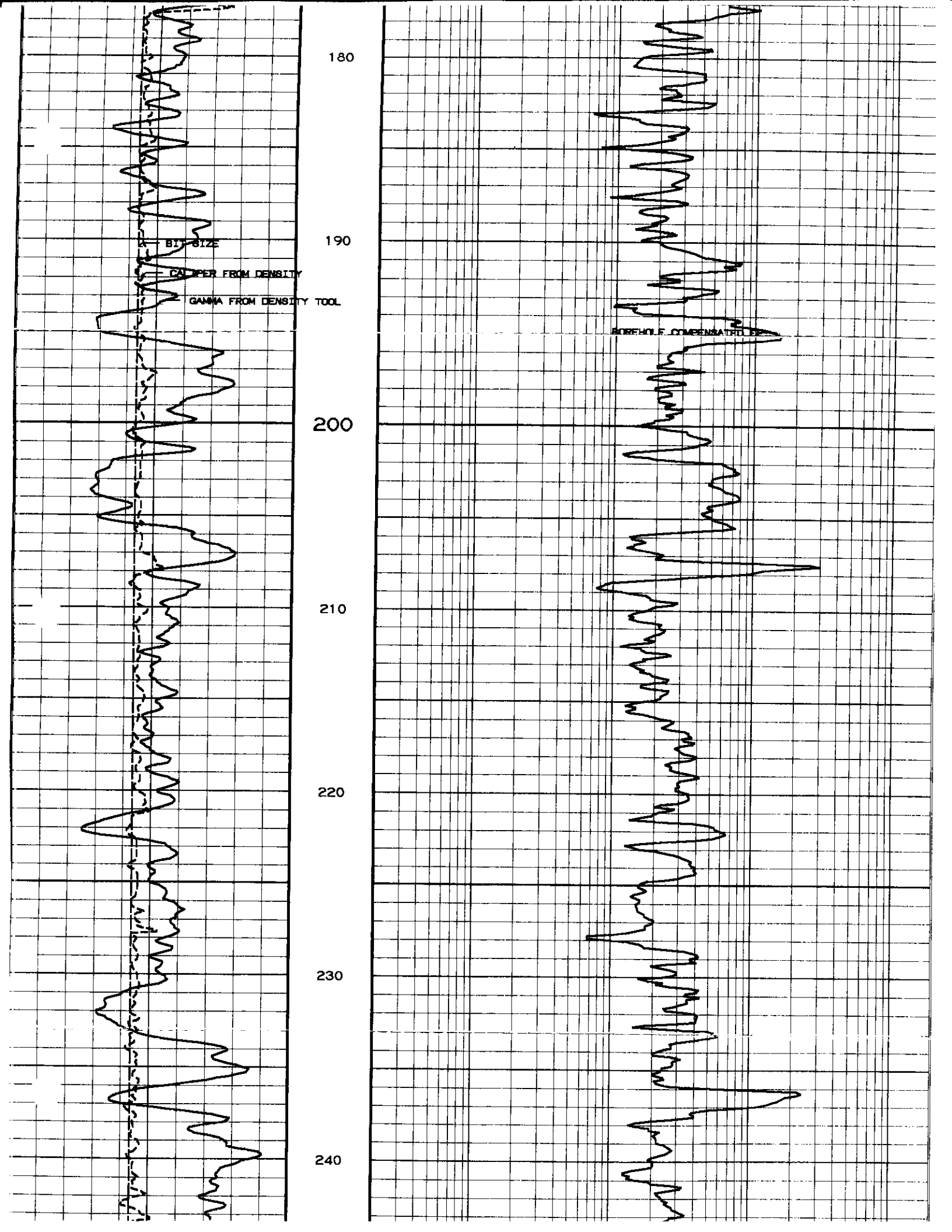


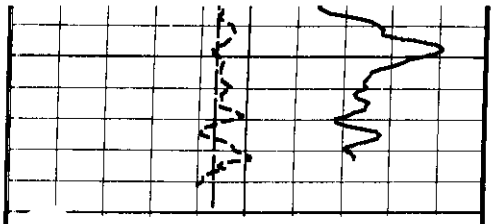



10
20
30
40
50
60
70
BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
BOREHOLE COMPENSATED EE

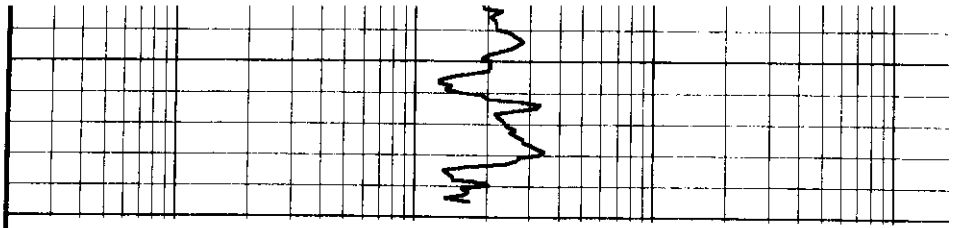

70
80
90
100
110
120
130
BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
BOREHOLE COMPENSATED FE


130
140
150
160
170
180
190
BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
BOREHOLE COMPENSATED
BIT SIZE


180
190
200
210
220
230
240
BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
BOREHOLE COMPENSATED



240



DEPTH
IN
METRES

BIT SIZE
MILLIMETRES
90 140 190

CALIPER FROM DENSITY
MILLIMETRES
90 140 190

GAMMA FROM DENSITY TOOL
API
0 75 150

BOREHOLE COMPENSATED FE
OHM METRES
100 1000 10000 100000
20 200000

REPLAY
SCALE
1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 13-OCT-2004 AT 17:41

FILENAME: MRGE014M.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 13-OCT-2004 AT 17:50

MAIN LOG 1:240

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 13-OCT-2004 AT 17:39

FILENAME: MRGE014R.CIB RUN ID:REPEAT SECTION PLOTTED ON 13-OCT-2004 AT 17:49

DEPTH
IN
METRES

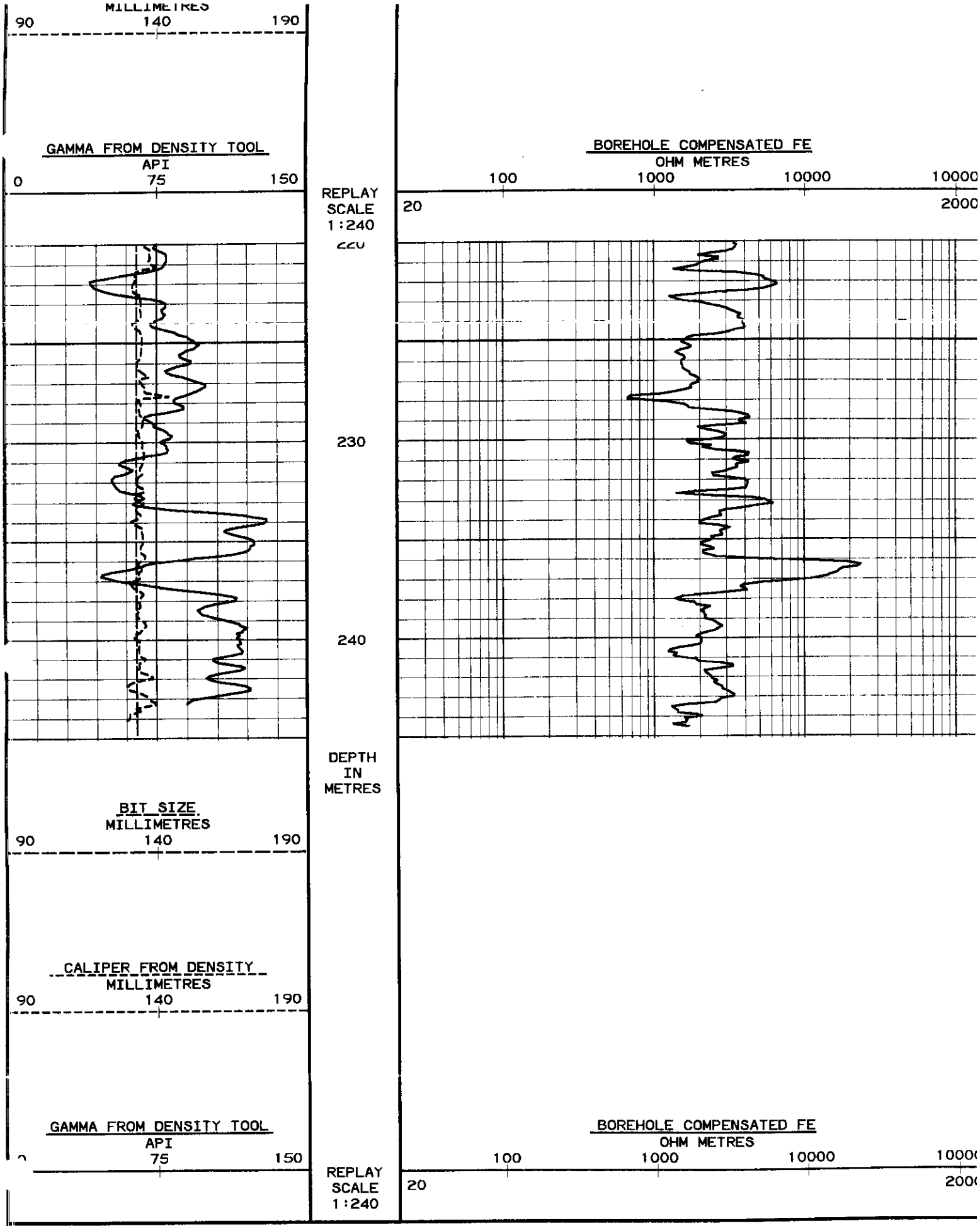
BIT SIZE
MILLIMETRES
90 140 190

CALIPER FROM DENSITY
MILLIMETRES
90 140 190

GAMMA FROM DENSITY TOOL
API
0 75 150

BOREHOLE COMPENSATED FE
OHM METRES
100 1000 10000 100000
20 200000

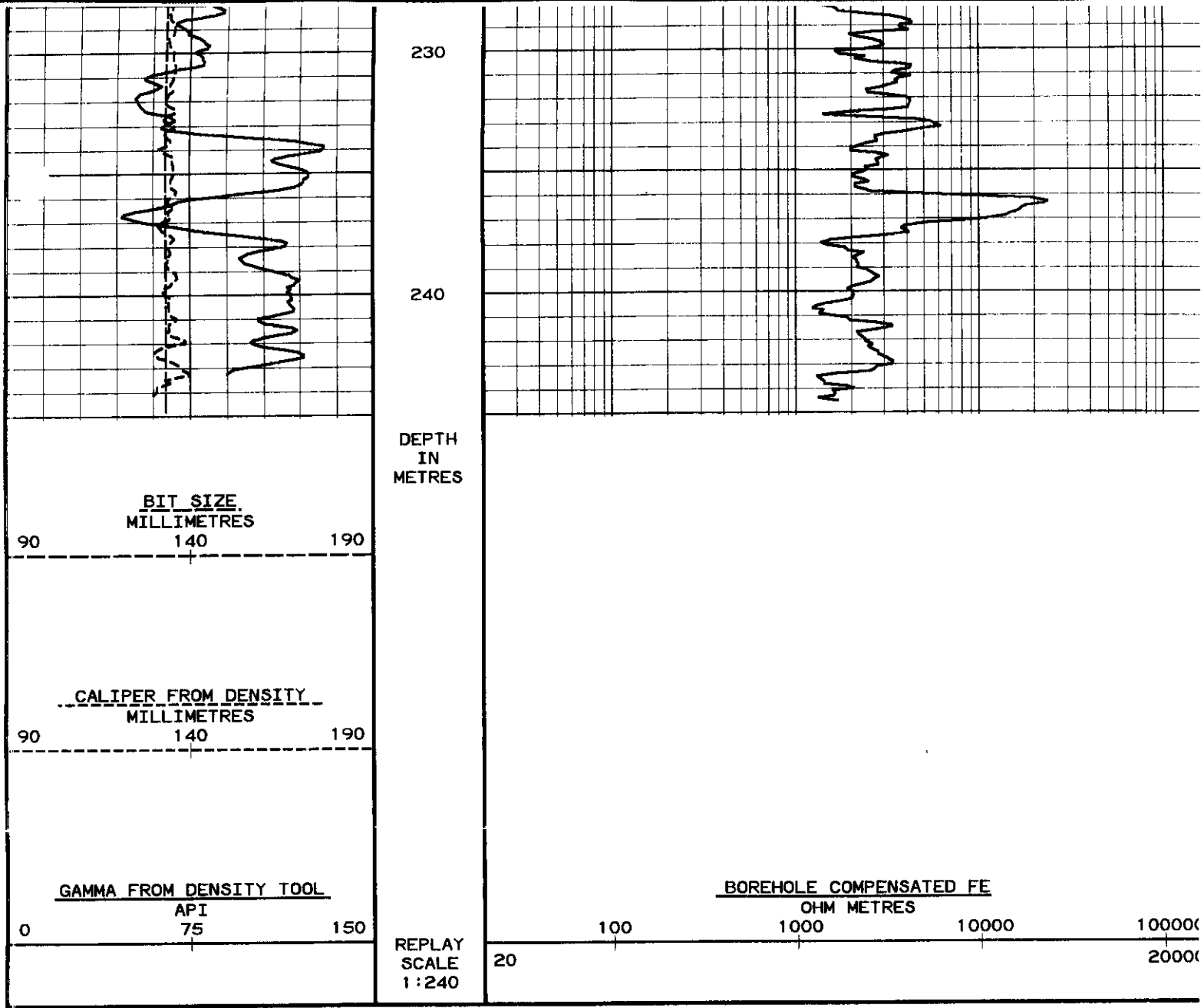
REPLAY
SCALE
1:240



DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 13-OCT-2004 AT 17:39

FILENAME: MRGE014R.CIB RUN ID:REPEAT SECTION PLOTTED ON 13-OCT-2004 AT 17:49

REPEAT SECTION



DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 13-OCT-2004 AT 17:39

FILENAME: MRGE014R.CIB RUN ID:REPEAT SECTION PLOTTED ON 13-OCT-2004 AT 17:49

REPEAT SECTION

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG04-04A OPEN HOLE
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

MARKED

COMPENSATED DENSITY
GAMMA RAY
CALIPER

Reeves

LOCN. ELKFORD
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG04-04A OPEN HOLE
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG04-04A OPEN HOLE
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION ELKFORD
5563183 N.
644332 E.

OTHER SERVICES
SFE
DIP/VERT

LSD	SEC	TWP	RGE
N/A			

PERMANENT DATUM GROUND LEVEL ,ELEVATION
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1387.2 m.

DATE	13-OCT-04
RUN NUMBER	1
DEPTH-DRILLER	245.50M
DEPTH-LOGGER	245.50M
FIRST READING	243.90M
LAST READING	0.00M
CASING-DRILLER	3.00M
CASING-LOGGER	3.00M
BIT SIZE	133.35MM
HOLE FLUID TYPE	WATER
DENS./VISC.	1000 N/A
PH/FLUID LOSS	N/A N/A
SAMPLE SOURCE	DRILLER
RM @ MEAS TEMP	2.00 @ 20.0C
RMF @ MEAS TEMP	N/A
RMC @ MEAS TEMP	N/A
SOURCE: RMF/RMC	N/A N/A
RM @ BHT	N/A
TIME SINCE CIRC	6.0 HRS
MAX REC TEMP	N/A
EQUIPMENT/BASE	V234 RDR
RECORDED BY	A.SPASKYY
WITNESSED BY	J. MCMILLAN
CIRC STOPPED	07:30 OCT 12

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	133.35MM	3.00M	TD	159.00MM	N/A	SURFACE	3.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
DD4	004			

REMARKS

COMPENSATED DENSITY GAMMA RAY CALIPER

NORTHING:

EASTING :

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MAIN LOG 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 13-OCT-2004 AT 17:41

FILENAME: MRGE014M.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 13-OCT-2004 AT 18:03

DEPTH IN METRES

BIT SIZE
MILLIMETRES
90 140 190

CALIPER FROM DENSITY
MILLIMETRES
90 140 190

GAMMA FROM DENSITY TOOL
API
0 75 150

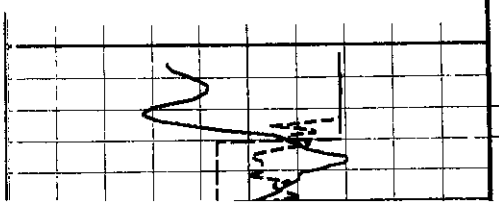
REPLAY SCALE 1:240

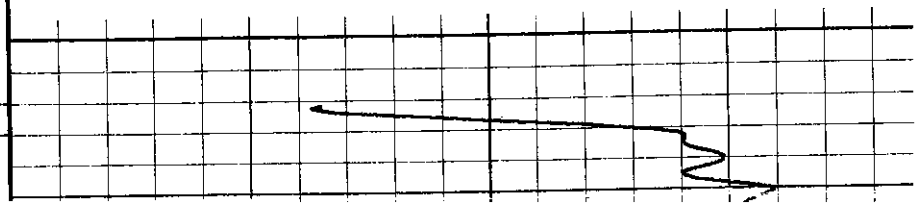
FLUID LEVEL

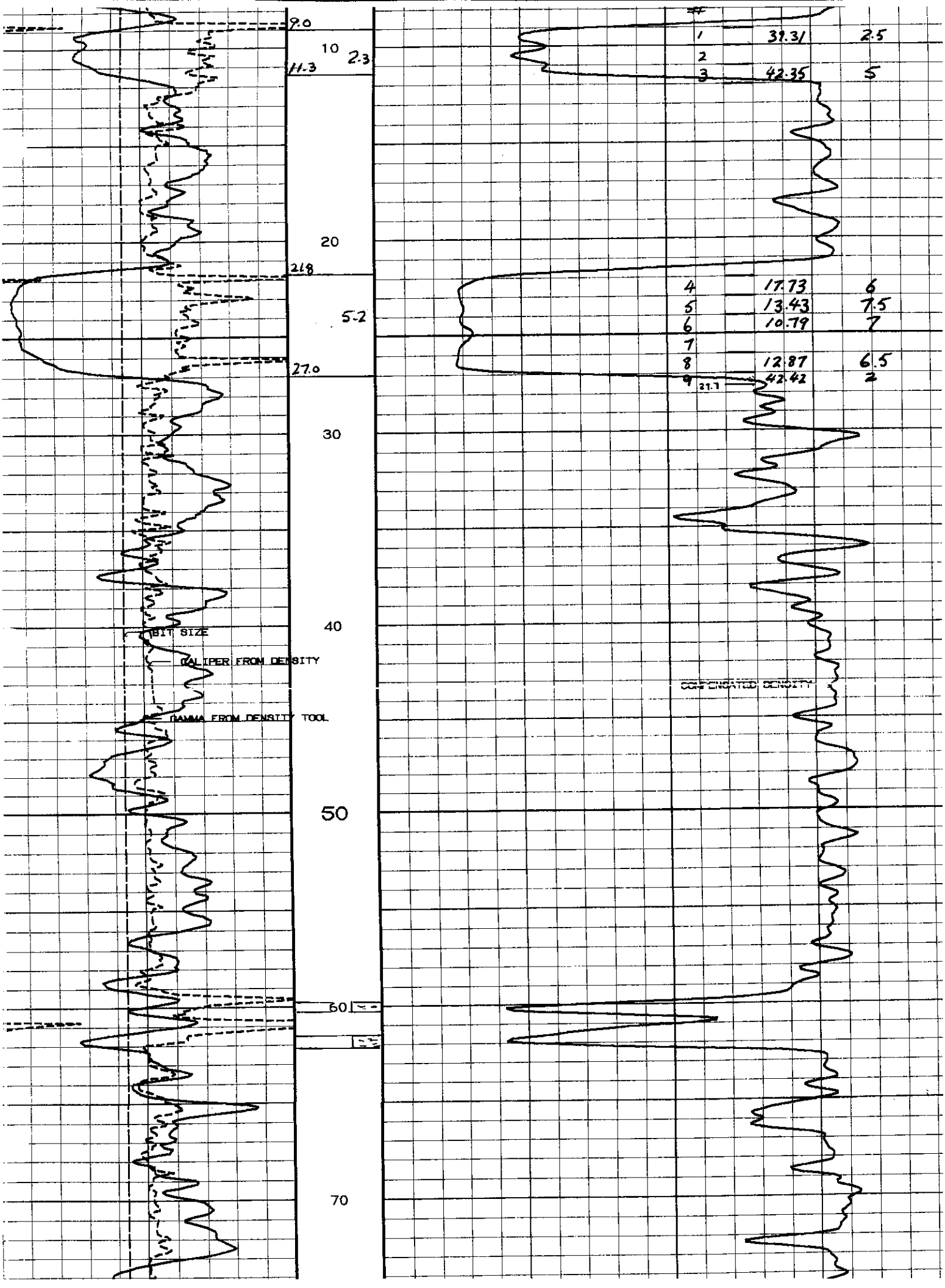
CASING SHOE

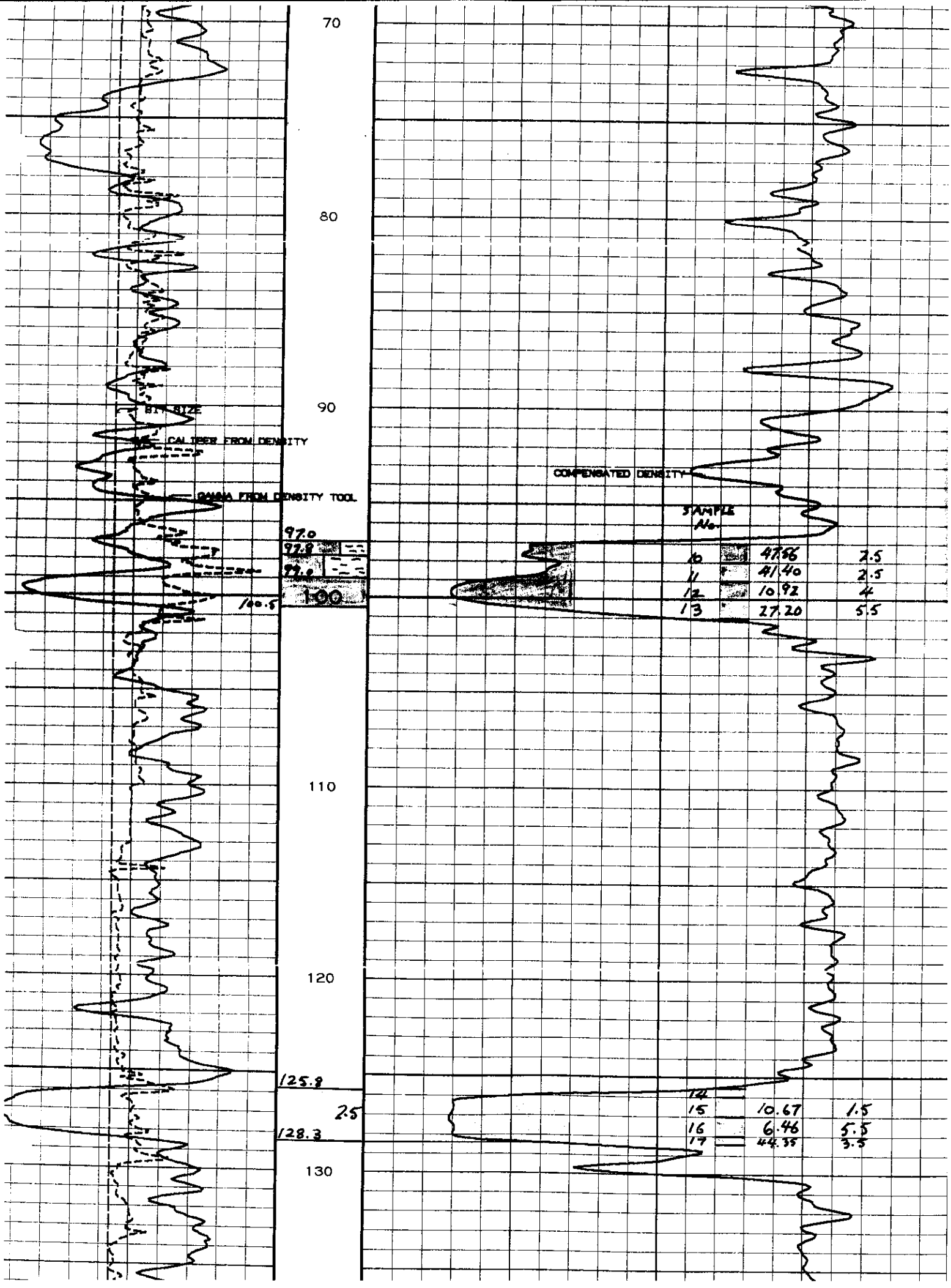
NOTE : COALS NOT CORRECTED FOR TRUE THICKNESS.

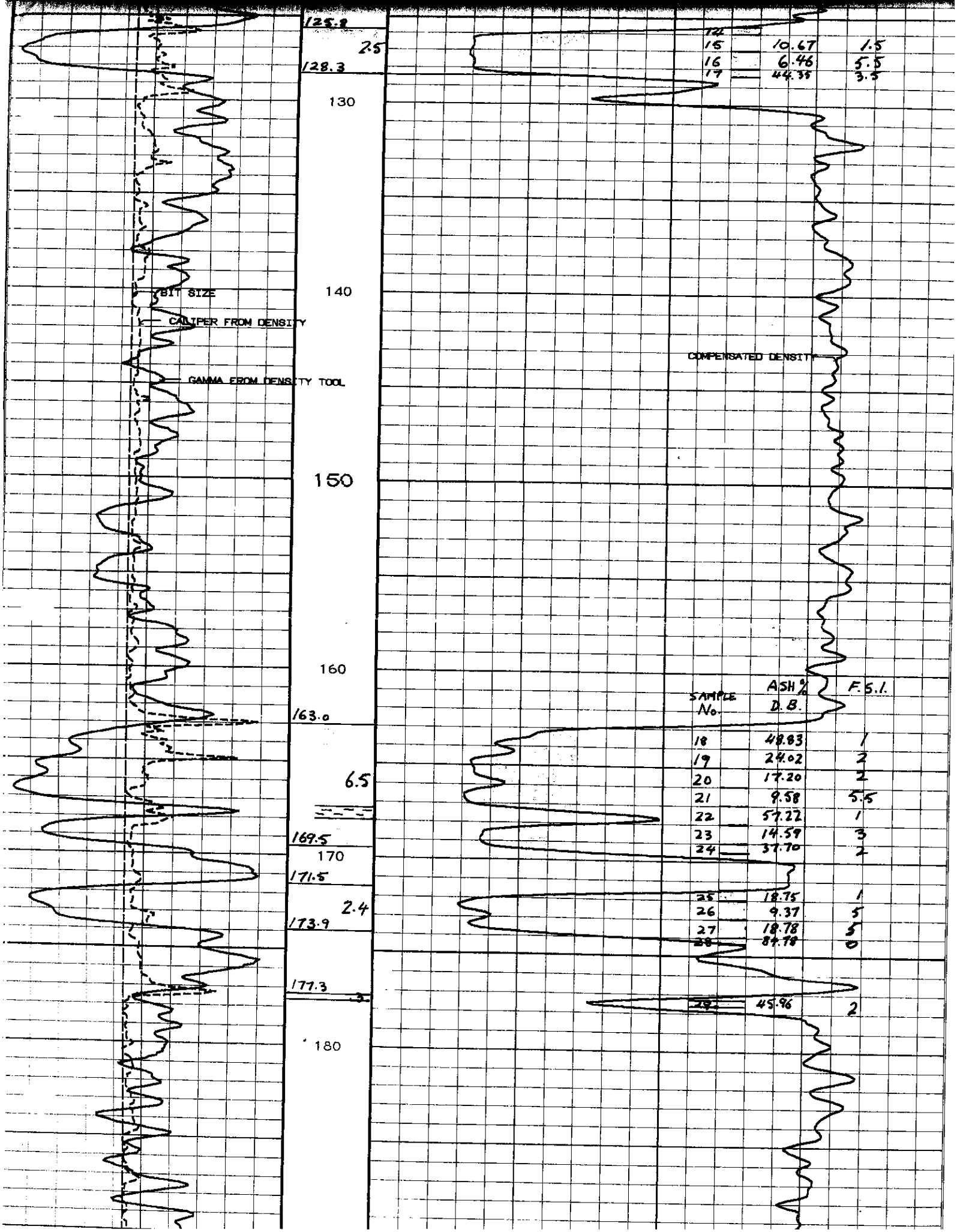
COMPENSATED DENSITY
GM/CC
1 1.50 2 2.50

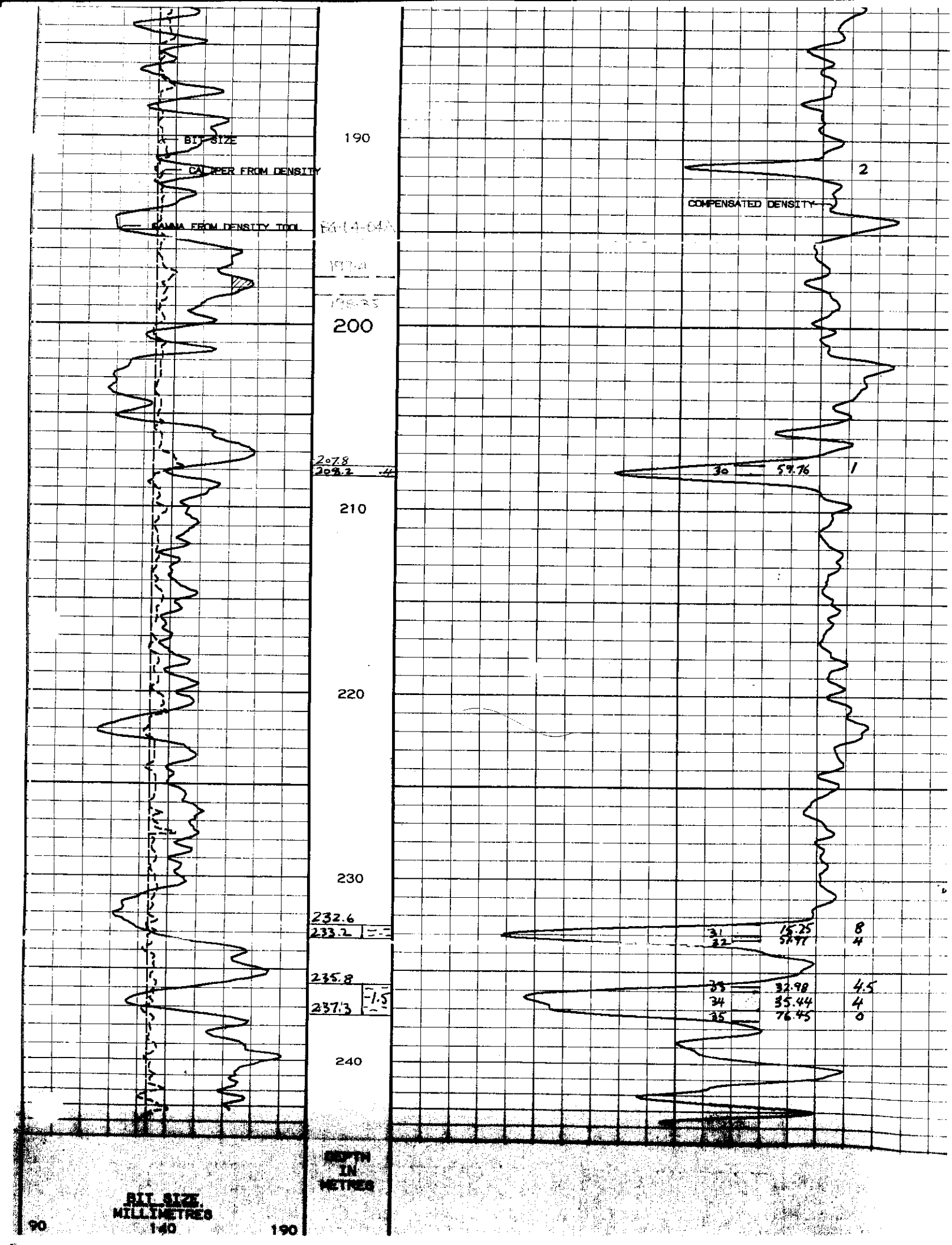




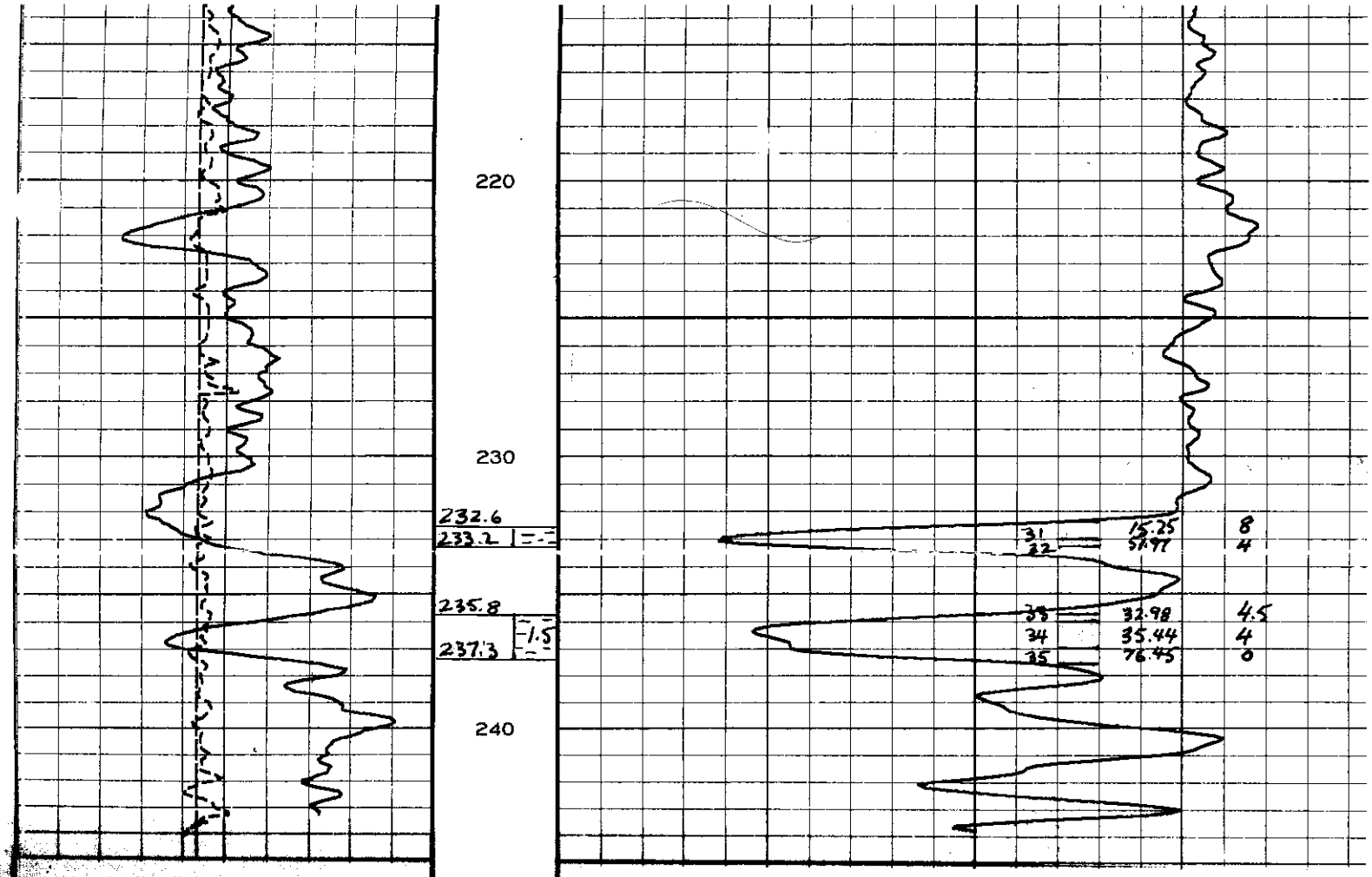

9.0
10
11.3
2.3
20
21.8
5.2
27.0
30
40
BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
50
60
70
#
1 31.31 2.5
2
3 42.35 5
4 17.73 6
5 13.43 7.5
6 10.79 7
7
8 12.87 6.5
9 21.1 42.42 2
COMPENSATED DENSITY


70
80
90
110
120
130
BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
COMPENSATED DENSITY
97.0
97.8
99.0
100
100.5
125.8
25
128.3
SAMPLE No.
10 47.56 2.5
11 41.40 2.5
12 10.92 4
13 27.20 5.5
14
15 10.67 1.5
16 6.46 5.5
17 44.35 3.5


125.8
2.5
128.3
130
140
BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
150
160
163.0
6.5
169.5
170
171.5
2.4
173.9
177.3
180
COMPENSATED DENSITY
14
15 10.67 1.5
16 6.46 5.5
17 44.35 3.5
SAMPLE No.
ASH % D.B.
F.S.I.
18 48.83 1
19 24.02 2
20 17.20 2
21 9.58 5.5
22 57.22 1
23 14.59 3
24 37.70 2
25 18.75 1
26 9.37 5
27 18.78 5
28 84.78 0
29 45.96 2



BIT SIZE
CALIPER FROM DENSITY
GAMMA FROM DENSITY TOOL
COMPENSATED DENSITY
190
200
210
220
230
240
207.8
208.2
232.6
233.2
235.8
237.3
-1.5
30
59.76
1
2
31
15.25
8
32
4
33
32.98
4.5
34
35.44
4
35
76.45
0
DEPTH IN METRES
BIT SIZE MILLIMETRES
90
140
190



DEPTH IN METRES

BIT SIZE
MILLIMETRES
90 140 190

CALIPER FROM DENSITY
MILLIMETRES
90 140 190

GAMMA FROM DENSITY TOOL
API
0 75 150

COMPENSATED DENSITY
GM/CC
1 1.50 2 2.50

REPLAY SCALE 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 13-OCT-2004 AT 17:41

FILENAME: MRGE014M.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 13-OCT-2004 AT 18:03

MAIN LOG 1:240

[redacted]

Reeves

DIPMETER ANALYSIS

COMPANY: HILLSBOROUGH RESOURCES LTD
WELL: 4-04A OPEN HOLE
FIELD: BINGAY CREEK
PROV/STATE: BRITISH COLUMBIA
LOCATION: ELKFORD

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG04-04A OPEN HOLE
FIELD	BINGAY CREEK
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA
PERMIT NUMBER	N/A

LOCATION		OTHER SERVICES
ELKFORD	5563183 N. 644332 E.	SFE CDL

LSD	SEC	TWP	RGE
N/A			

PERMANENT DATUM GROUND LEVEL ,ELEVATION
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1387.2 m.

DATE	12-OCT-04							
RUN NUMBER	1							
DEPTH-DRILLER	245.50M							
DEPTH-LOGGER	245.50M							
FIRST READING	245.00M							
LAST READING	3.00M							
CASING-DRILLER	3.00M							
CASING-LOGGER	3.00M							
BIT SIZE	133.35MM							
HOLE FLUID TYPE	WATER							
DENS./VISC.	1000	N/A						
PH/FLUID LOSS	N/A	N/A						
SAMPLE SOURCE	DRILLER							
RM @ MEAS TEMP	2.00 @ 20.0C							
RMF @ MEAS TEMP	N/A							
RMC @ MEAS TEMP	N/A							
SOURCE: RMF/RMC	N/A	N/A						
RM @ BHT	N/A							
TIME SINCE CIRC	6.0 HRS							
MAX REC TEMP	N/A							
EQUIPMENT/BASE	V234	RDR						
RECORDED BY	A.SPASKYY							
WITNESSED BY	J. MCMILLAN							
CIRC STOPPED	07:30 OCT 12							

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	133.35MM	3.00M	TD	159.00MM	N/A	SURFACE	3.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
SQD.V03	005.204			

REMARKS

DIPMETER ANALYSIS

NORTHING: BOREHOLE TILT AND FORMATION DIP MIGHT BE NOT CORRECT

EASTING : FROM 232M TO TD

.L INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS
.ND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS,
AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE
OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE
RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE
INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS IN OUR PRICE SCHEDULE

MAIN LOG 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 12-OCT-2004 AT 16:18

FILENAME: DIP4014M.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 19-OCT-2004 AT 09:51

GAMMA RAY
API
0 75 150

Y CALIPER
MILLIMETRES
90 140 190

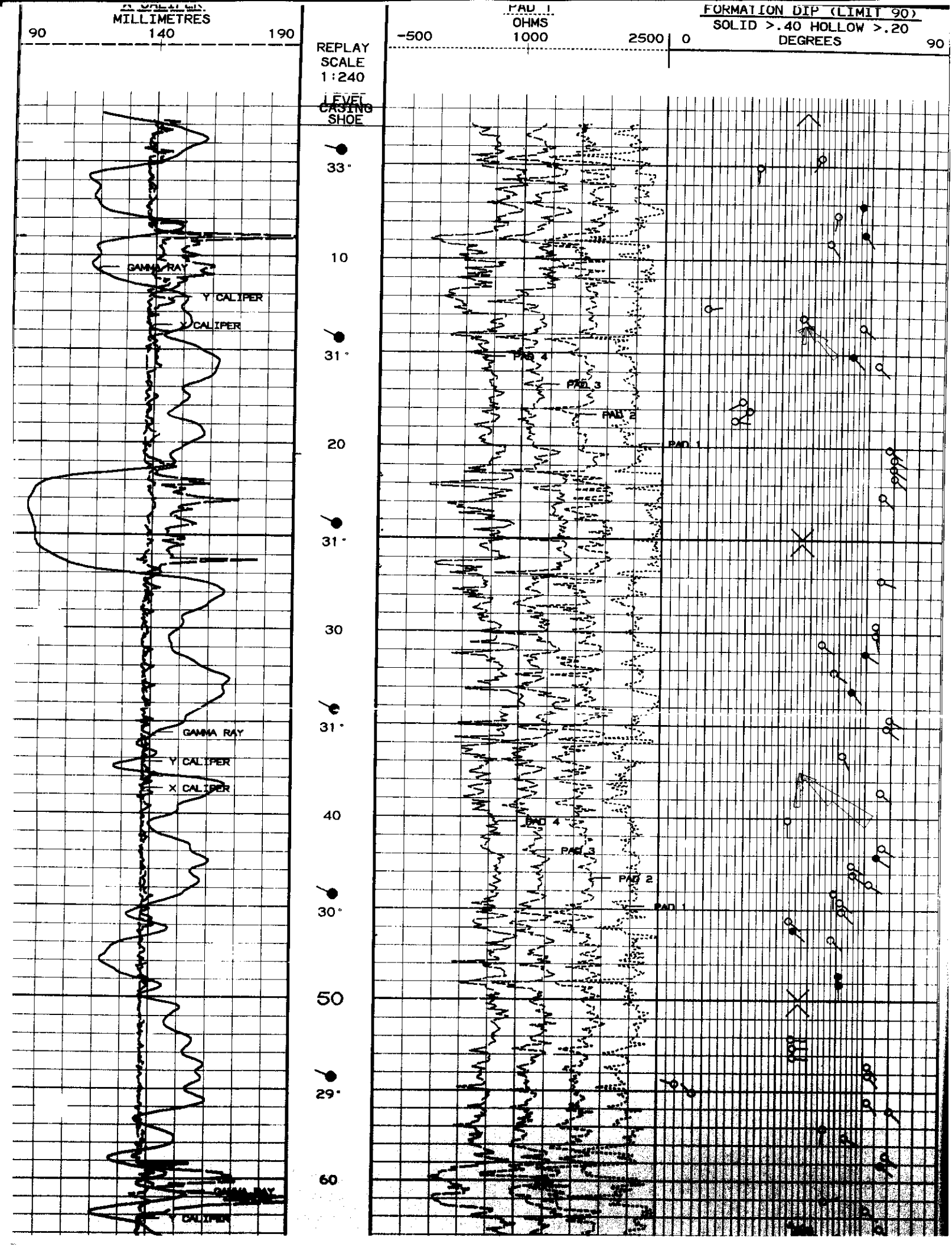
DEPTH
IN
METRES

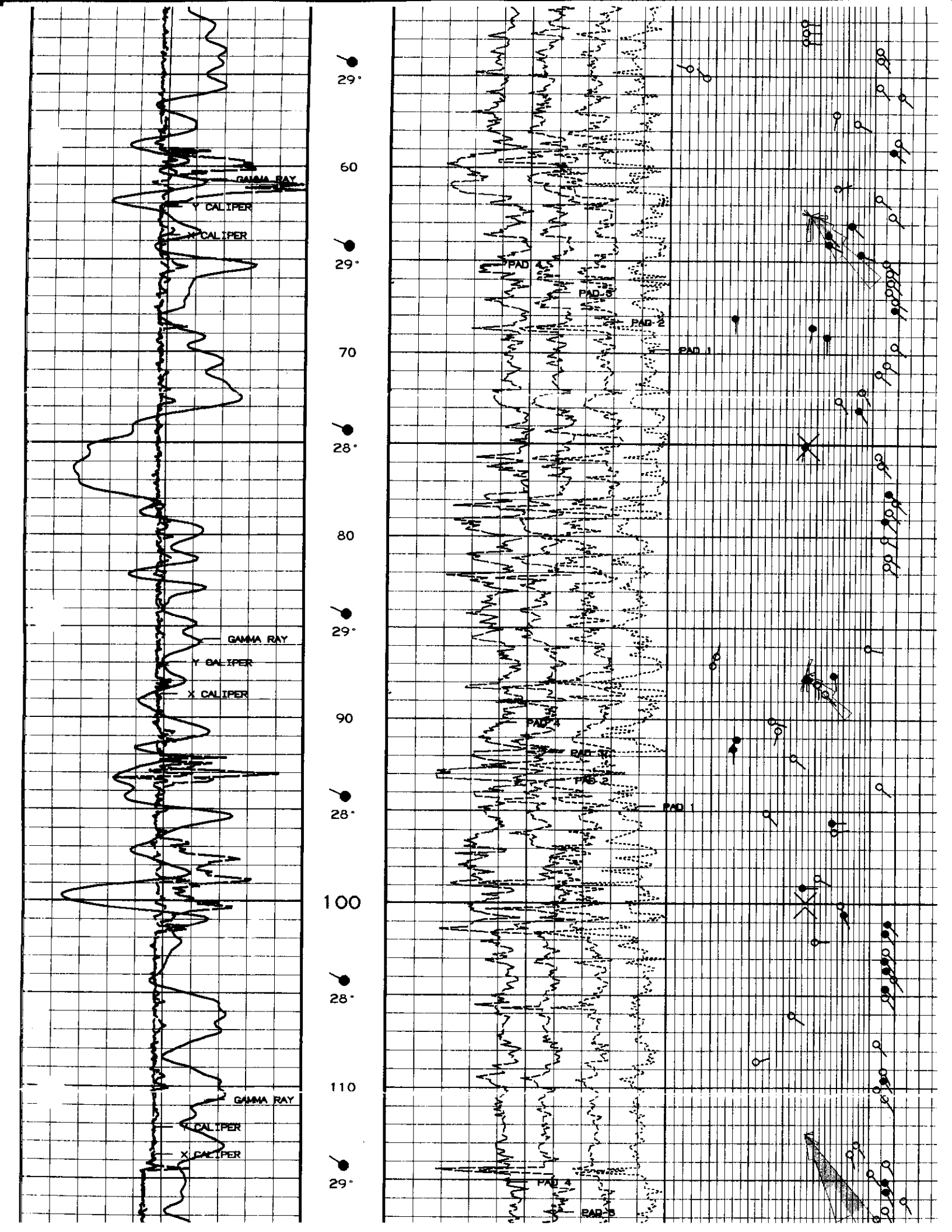
TIMING
MARKS
EVERY
60 SEC

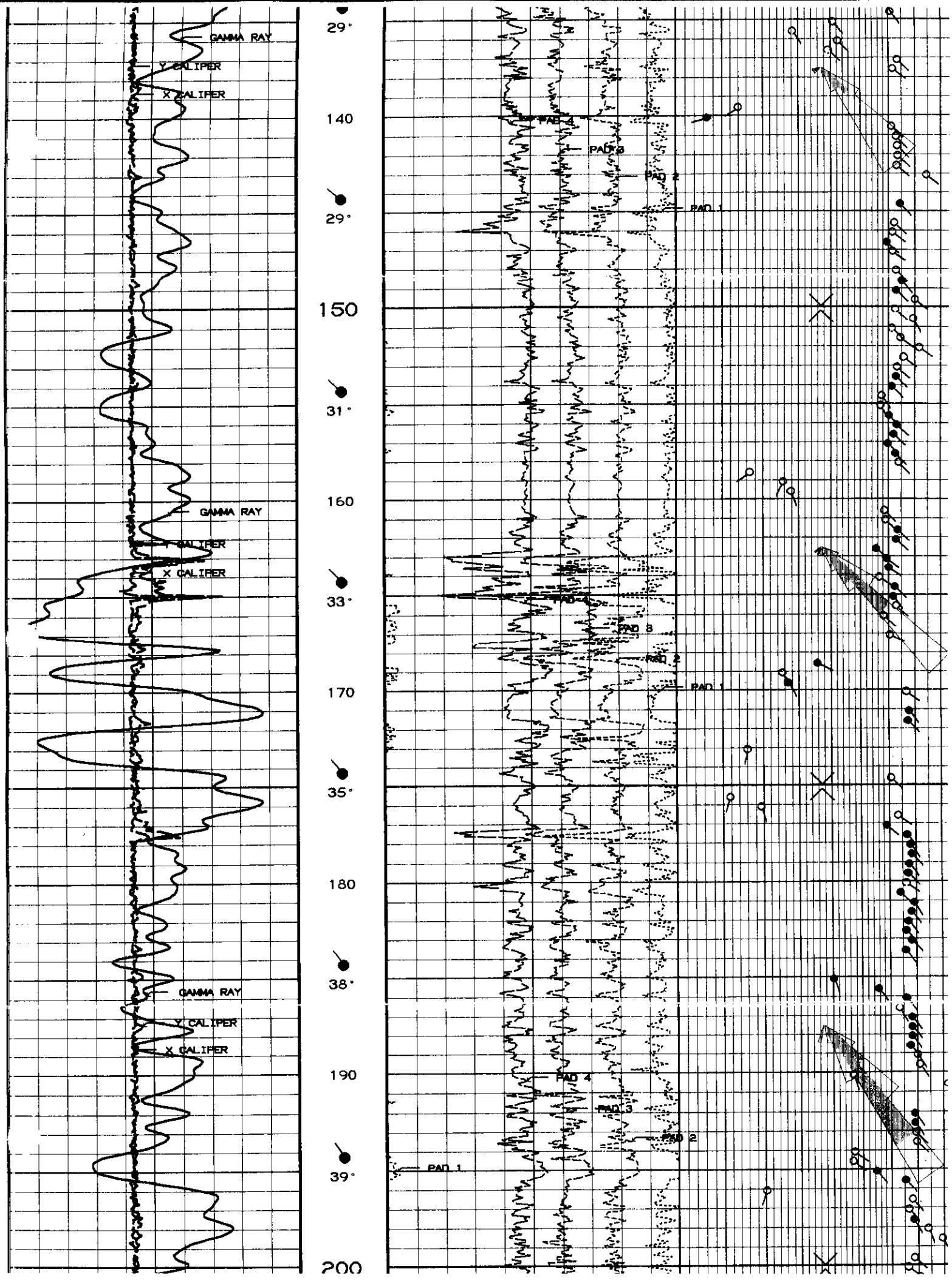
PAD 4
OHMS
1000 2500 4000

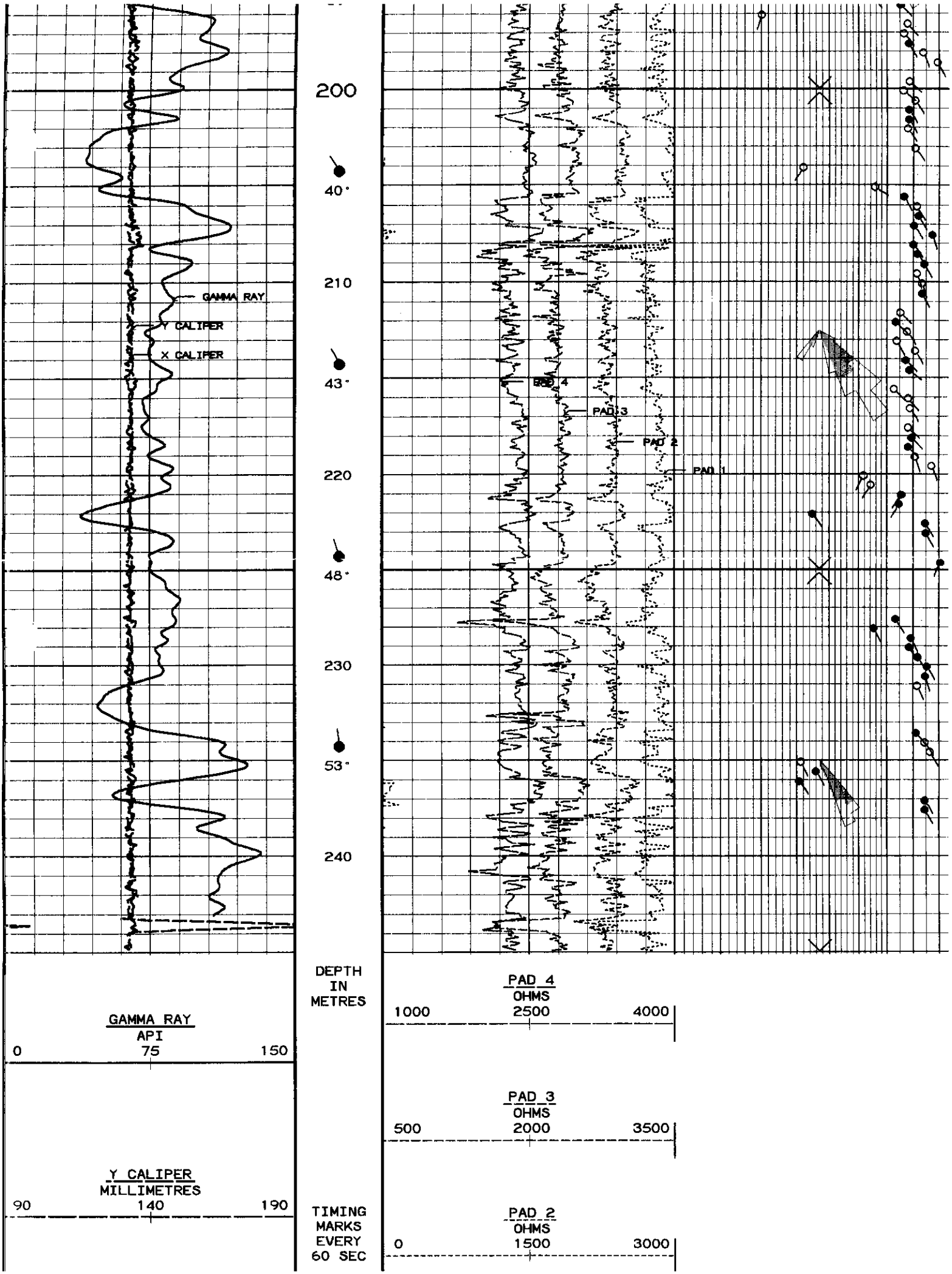
PAD 3
OHMS
500 2000 3500

PAD 2
OHMS
0 1500 3000


MILLIMETRES
90
140
190
REPLAY
SCALE
1:240
LEVEL
CASING
SHOE
33°
10
31°
20
31°
30
31°
40
30°
50
29°
60
GAMMA RAY
Y CALIPER
CALIPER
GAMMA RAY
Y CALIPER
X CALIPER
GAMMA RAY
Y CALIPER
PAD 1
OHMS
-500
1000
2500
PAD 4
PAD 3
PAD 2
PAD 1
FORMATION DIP (LIMIT 90)
SOLID >.40 HOLLOW >.20
0
DEGREES
90


GAMMA RAY
Y CALIPER
X CALIPER
29°
60
29°
70
28°
80
GAMMA RAY
Y CALIPER
X CALIPER
29°
90
28°
100
28°
110
GAMMA RAY
Y CALIPER
X CALIPER
29°
PAD 4
PAD 3
PAD 2
PAD 1
PAD 4
PAD 3
PAD 2
PAD 1
PAD 4
PAD 3


GAMMA RAY
Y CALIPER
X CALIPER
GAMMA RAY
Y CALIPER
X CALIPER
GAMMA RAY
Y CALIPER
X CALIPER
29°
140
29°
150
31°
160
33°
170
35°
180
38°
190
39°
200
PAD 4
PAD 3
PAD 2
PAD 1
PAD 4
PAD 3
PAD 2
PAD 1
PAD 4
PAD 3
PAD 2
PAD 1


200
40°
210
GAMMA RAY
Y CALIPER
X CALIPER
43°
PAD 4
PAD 3
PAD 2
220
PAD 1
48°
230
53°
240
DEPTH
IN
METRES
GAMMA RAY
API
0
75
150
Y CALIPER
MILLIMETRES
90
140
190
TIMING
MARKS
EVERY
60 SEC
PAD 4
OHMS
1000
2500
4000
PAD 3
OHMS
500
2000
3500
PAD 2
OHMS
0
1500
3000

X CALIPER
MILLIMETRES
90 140 190

REPLAY
SCALE
1:240

PAD 1
OHMS
-500 1000 2500

FORMATION DIP (LIMIT 90)
SOLID >.40 HOLLOW >.20
DEGREES
0 90

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 12-OCT-2004 AT 16:18

FILENAME: DIP4014M.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 19-OCT-2004 AT 09:51

MAIN LOG 1:240

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 12-OCT-2004 AT 16:09

FILENAME: DIP4R014.CIB RUN ID:REPEAT SECTION PLOTTED ON 19-OCT-2004 AT 09:51

GAMMA RAY
API
0 75 150

Y CALIPER
MILLIMETRES
90 140 190

X CALIPER
MILLIMETRES
90 140 190

DEPTH
IN
METRES

TIMING
MARKS
EVERY
60 SEC

REPLAY
SCALE
1:240

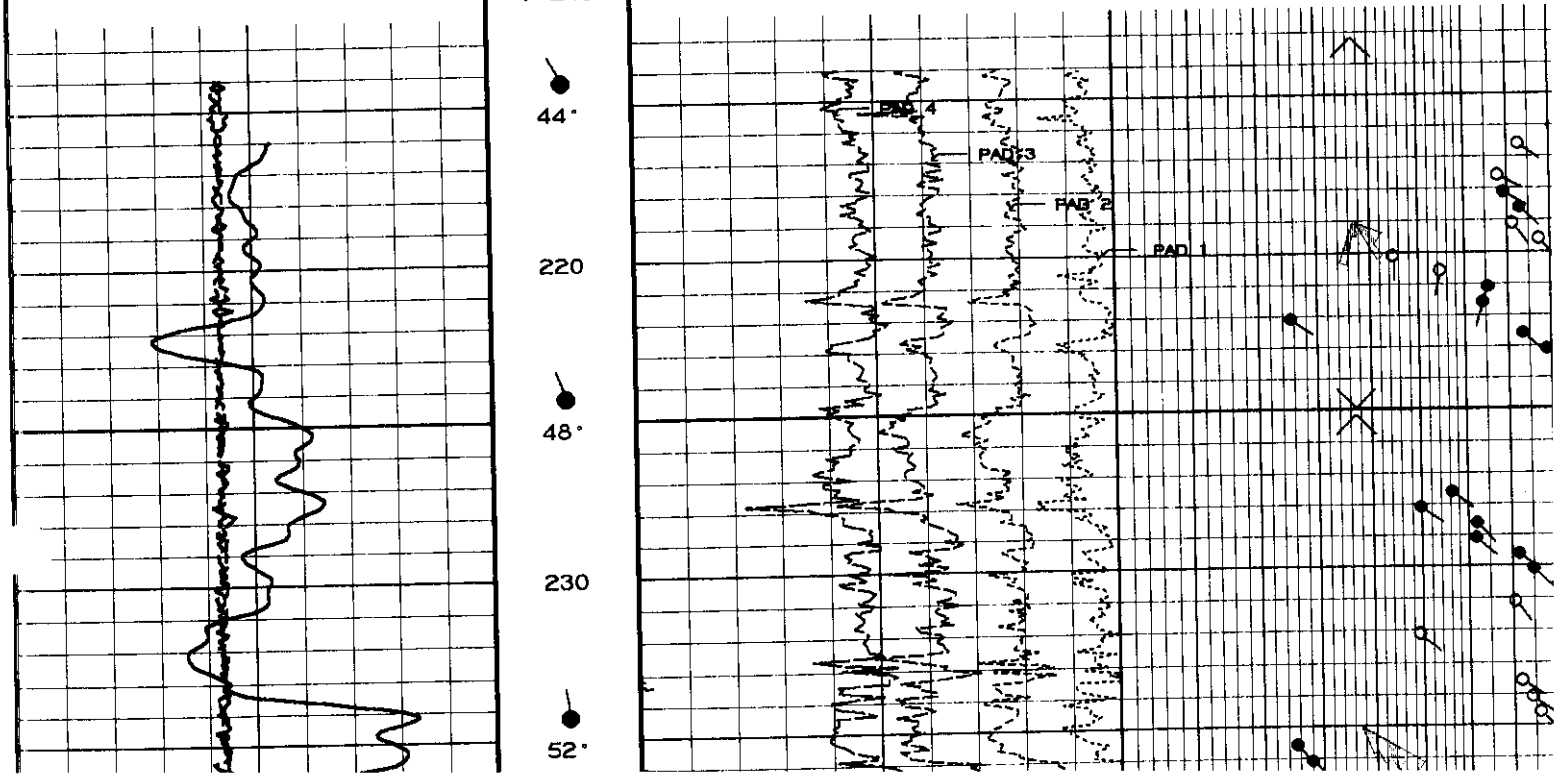
PAD 4
OHMS
1000 2500 4000

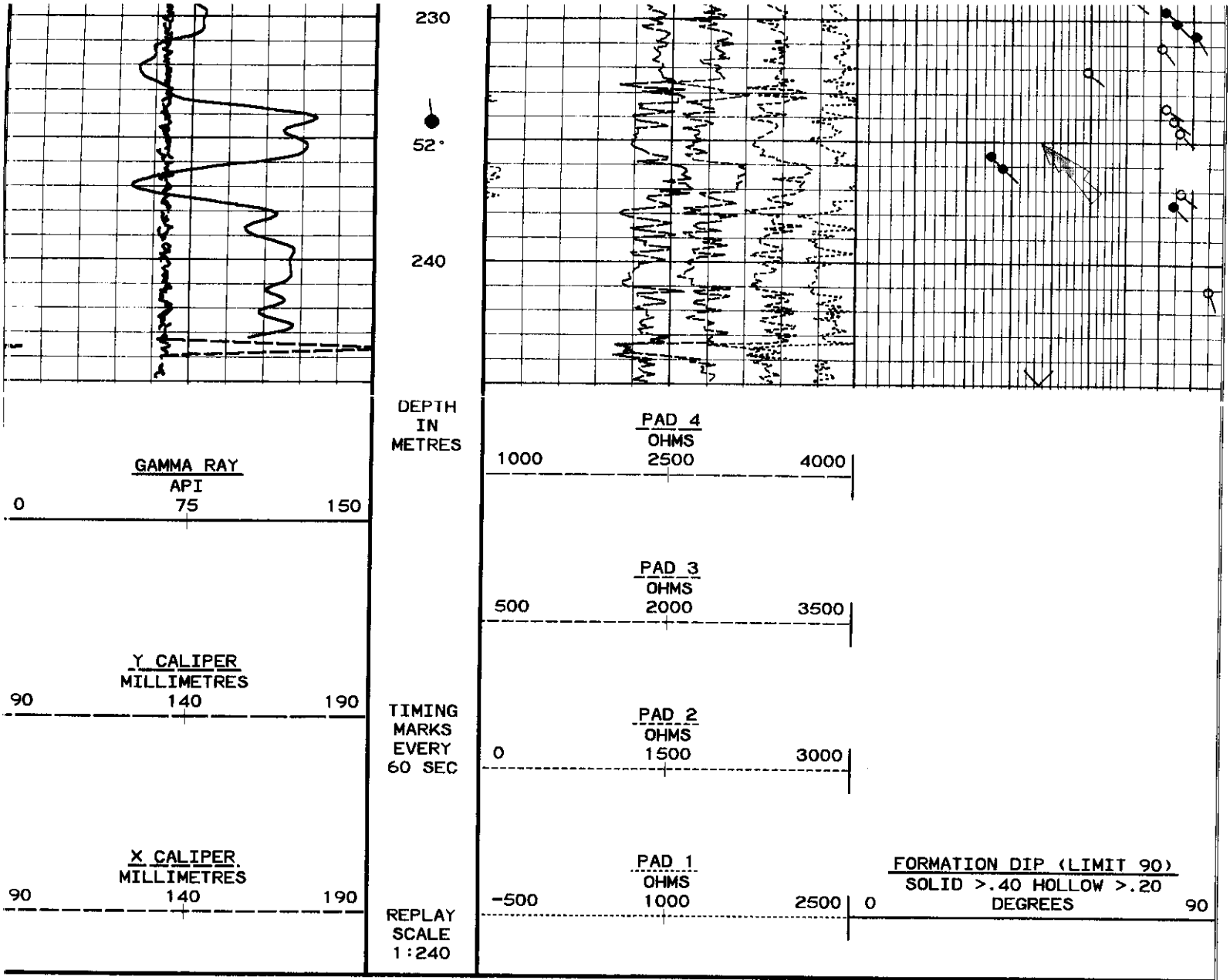
PAD 3
OHMS
500 2000 3500

PAD 2
OHMS
0 1500 3000

PAD 1
OHMS
-500 1000 2500

FORMATION DIP (LIMIT 90)
SOLID >.40 HOLLOW >.20
DEGREES
0





DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 12-OCT-2004 AT 16:09

FILENAME: DIP4R014.CIB RUN ID:REPEAT SECTION PLOTTED ON 19-OCT-2004 AT 09:51

REPEAT SECTION

LOGGING/CALIBRATION CONSTANTS

DATA LAST REPROCESSED: 13-OCT-2004 AT 16:41

LOGGING CONSTANTS & GAMMA CALIBRATION

CORRELATION STEP (M.)	.50	CORRELATION INTERVAL (M.)	1.00
BIT SIZE #1 (MM)	0.00	BIT DEPTH #1 (M)	0.00
BIT SIZE #2 (MM)	0.00	BIT DEPTH #2 (M)	0.00
BIT SIZE #3 (MM)		BIT DEPTH #3 (M)	0.00
BIT SIZE #4 (MM)		BIT DEPTH #4 (M)	0.00
BIT SIZE #5 (MM)	.00	BIT DEPTH #5 (M)	0.00
GAMMA CALIBRATOR (API)	0.00	GAMMA COUNTS	0.00
PAD PENETRATION (MM)	3.81	SEARCH ANGLE (DEGREES)	45.00
STRUCTURAL DIP ANGLE (DEGREES)	.00	STRUCTURAL DIP AZI. (DEGREES)	.00
DECLINATION (DEGREES)	18.00 E	DETAIL PAD DATA	NO
CORRELATE	YES	CALIPER UNITS	MM
DEPTH UNITS	METRIC	CALIPER USED IN CALCULATIONS	YES

BIT SIZE #1 (MM)	0.00	BIT DEPTH #1 (M)	0.00
BIT SIZE #2 (MM)	0.0[illegible]	BIT DEPTH #2 (M)	0.00
BIT SIZE #3 (MM)		BIT DEPTH #3 (M)	0.00
BIT SIZE #4 (MM)		BIT DEPTH #4 (M)	0.00
BIT SIZE #5 (MM)	.00	BIT DEPTH #5 (M)	0.00
GAMMA CALIBRATOR (API)	0.00	GAMMA COUNTS	0.00
PAD PENETRATION (MM)	3.81	SEARCH ANGLE (DEGREES)	45.00
STRUCTURAL DIP ANGLE (DEGREES)	.00	STRUCTURAL DIP AZI. (DEGREES)	.00
DECLINATION (DEGREES)	18.00 E	DETAIL PAD DATA	NO
CORRELATE	YES	CALIPER UNITS	MM
DEPTH UNITS	METRIC	CALIPER USED IN CALCULATIONS	YES

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG04-04A OPEN HOLE
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

Reeves VERTICALITY ANALYSIS

LOCN. ELKFORD
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG04-04A OPEN HOLE
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG04-04A OPEN HOLE
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION 5563183 N.
ELKFORD 644332 E.

LSD	SEC	TWP	RGE
N/A			

OTHER SERVICES
SFE
CDL

PERMANENT DATUM GROUND LEVEL ELEVATION
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1387.2 m

DATE	12-OCT-04						
RUN NUMBER	1						
DEPTH-DRILLER	245.50M						
DEPTH-LOGGER	245.50M						
FIRST READING	245.00M						
LAST READING	3.00M						
CASING-DRILLER	3.00M						
CASING-LOGGER	3.00M						
BIT SIZE	133.35MM						
HOLE FLUID TYPE	WATER						
DENS./VISC.	1000	N/A					
PH/FLUID LOSS	N/A	N/A					
SAMPLE SOURCE	DRILLER						
RM @ MEAS TEMP	2.00 @ 20.0C						
RMF @ MEAS TEMP	N/A						
RMC @ MEAS TEMP	N/A						
SOURCE: RMF/RMC	N/A	N/A					
RM @ BHT	N/A						
TIME SINCE CIRC	6.0 HRS						
MAX REC TEMP	N/A						
EQUIPMENT/BASE	V234	RDR					
RECORDED BY	A.SPASKYY						
WITNESSED BY	J. MCMILLAN						
CIRC STOPPED	07:30 OCT 12						

VERTICALITY ANALYSIS INTERPRETATION NOTES

ALL PLOTTED OUTPUT IS AUTOMATICALLY SCALED TO OBTAIN THE BEST VISUAL EFFECT WITHIN THE PHYSICAL SPACE AVAILABLE. THE MAXIMUM SCALES BEING 1:50000 (METRIC) AND 1:48000 (IMPERIAL), AND THE MINIMUM 1:1.

2. THE ANALYSIS IS DERIVED BY INTEGRATING 10CM. SAMPLED DATA DOWN THE BOREHOLE. THE LISTING SUPPLIED WILL CONTAIN A MAXIMUM OF 200 POINTS IN MULTIPLES OF 1, 2, 5, 10, 20, 50 OR 100 METRES/FEET DEPENDING ON THE TOTAL RANGE OF THE ANALYSIS. HOWEVER THE ANALYSIS IS CALCULATED FOR THE ENTIRE RANGE OF THE BOREHOLE AND THE FINAL BOREHOLE POSITION IS INCLUDED IN THE LISTING.

3. COMPUTED VERTICALITY MAY ONLY BE FULLY DERIVED IN OPEN SECTIONS OF THE BOREHOLE, AWAY FROM THE INFLUENCE OF ANY UNUSUAL MAGNETIC EFFECTS (AS THE AZIMUTH CALCULATIONS ARE DERIVED FROM THREE SOLID STATE MAGNETOMETERS). SO THE ANALYSIS WILL GENERALLY BEGIN AT THE END OF THE CASING AND ALL BOREHOLE POSITIONAL INFORMATION WILL RELATE TO THIS DEPTH.

4. UP TO TEN CROSS SECTIONS MAY BE REQUESTED FOR ANY BOREHOLE TO BE DISPLAYED AT ANY SCALE (THE DEFAULT SCALE IS THAT OF THE CROSS-SECTION FOR THE ENTIRE HOLE).

5. BOREHOLE POSITIONAL ERROR IS DERIVED ASSUMING THE FOLLOWING PARAMETERS.

	TILT(DEGREES)	AZIMUTH(DEGREES)
TYPICAL ERROR	+/- .3333	+/- 10.00
MAXIMUM ERROR	+/- .5000	+/- 15.00

6. ERROR ANALYSIS MAY BE CALCULATED AND PLOTTED FROM THE DATA LISTING AS FOLLOWS:

A) PLOT THE FOUR COORDINATES FROM THE ERROR LISTING (BASED UPON ZERO AZIMUTH ERROR) ON A TARGET PLOT. ORIGIN AT THE START OF THE ANALYSIS.
B) DESCRIBE ARCS OF +/- 10.00 DEGREES AND +/- 15.00 DEGREES (CENTRE AT THE ORIGIN) THROUGH THE INNER AND OUTER POINTS RESPECTIVELY.
C) CONNECT THE RESPECTIVE ARCS TOGETHER WITH STRAIGHT LINES TO GIVE THE TYPICAL AND MAXIMUM BOREHOLE POSITIONAL ERROR.

7. GIVEN BELOW IS A FULL DESCRIPTION OF THE PARAMETERS DISPLAYED ON THE ENSUING LISTING:

LOG DEPTH	THE DEPTH RECORDED ON THE FIELD LOGS FOR THE BOREHOLE.
TRUE DEPTH	THE TRUE VERTICAL DEPTH CORESPONDING TO THE ABOVE DEPTH. CORRECTED FROM THE START OF THE ANALYSIS.
HOLE TILT AND AZIMUTH	THE SAMPLED BOREHOLE ORIENTATION.
AXIAL COORDINATES	THE COORDINATES NORTH AND EAST FROM THE TARGET ORIGIN.
POLAR COORDINATES	THE POLAR, OR RADIAL COORDINATES OF THE BOREHOLE.
ERROR COORDINATES	THE POLAR COORDINATES CORRESPONDING TO THE TYPICAL AND MAXIMUM TILT ERROR.

N.B. THE REFERENCE POINT FOR ALL BEARING ANGLES ON THIS LISTING IS GIVEN AT THE TOP OF EACH SHEET.

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

BG04-04A OPEN HOLE — VERTICALITY DATA LISTING FOR DIP4VERT.CIB — DATE PROCESSED: 19-OCT-200
ALL CO-ORDINATES WITH RESPECT TO TRUE NORTH — DATE LOGGED: 12-OCT-200

DEPTHS		BOREHOLE		AXIAL CO-ORDS		POLAR		POLAR ERROR CO-ORDINATES (MAXIMUM & TYPICAL)					
LOG	TRUE	TILT	AZI	NORTH	EAST	BRG	RADIUS	BRG	RADIUS	BRG	RADIUS	BRG	RADIUS	BRD	RADIU
4.00	3.78	33.4	2	0.72	0.06	5	0.72	5	0.73	5	0.71	5	0.73	5	0.7
6.00	5.45	33.4	305	1.24	-0.45	340	1.32	340	1.33	340	1.30	340	1.33	340	1.3
8.00	7.12	32.5	296	1.80	-1.39	322	2.27	322	2.30	322	2.24	322	2.29	322	2.2
10.00	8.82	31.3	287	2.17	-2.38	312	3.22	312	3.26	312	3.18	312	3.25	312	3.1
12.00	10.53	31.5	281	2.42	-3.38	306	4.16	306	4.22	306	4.10	306	4.20	306	4.1
14.00	12.23	31.5	281	2.63	-4.41	301	5.14	301	5.21	301	5.07	301	5.18	301	5.0
16.00	13.93	32.3	281	2.83	-5.45	297	6.14	297	6.23	297	6.06	297	6.20	297	6.0
18.00	15.62	32.8	282	3.02	-6.50	295	7.17	295	7.26	295	7.07	295	7.23	295	7.1
20.00	17.30	32.5	282	3.23	-7.56	293	8.22	293	8.33	293	8.11	293	8.29	293	8.1
22.00	19.01	30.9	277	3.39	-8.59	292	9.23	292	9.36	292	9.10	292	9.32	292	9.1
24.00	20.73	30.4	276	3.49	-9.60	290	10.22	290	10.36	290	10.08	290	10.31	290	10.1
26.00	22.45	31.0	278	3.61	-10.62	289	11.22	289	11.37	289	11.06	289	11.32	289	11.1
28.00	24.16	32.3	280	3.75	-11.65	288	12.24	288	12.41	288	12.07	288	12.35	288	12.1
30.00	25.85	32.6	282	3.94	-12.70	287	13.29	287	13.48	287	13.11	287	13.42	287	13.1
32.00	27.55	31.6	277	4.11	-13.74	287	14.34	287	14.54	287	14.14	287	14.47	287	14.2
34.00	29.25	31.4	280	4.28	-14.78	286	15.38	286	15.60	286	15.17	286	15.53	286	15.2
36.00	30.96	31.5	281	4.45	-15.80	286	16.42	286	16.65	286	16.19	286	16.57	286	16.2
38.00	32.67	30.8	280	4.60	-16.82	285	17.44	285	17.69	285	17.19	285	17.60	285	17.2
40.00	34.38	31.6	279	4.76	-17.85	285	18.47	285	18.73	285	18.21	285	18.65	285	18.3
42.00	36.08	31.6	279	4.95	-18.88	285	19.52	285	19.79	285	19.24	285	19.70	285	19.3
44.00	37.79	31.2	279	5.12	-19.91	284	20.56	284	20.85	284	20.27	284	20.75	284	20.3

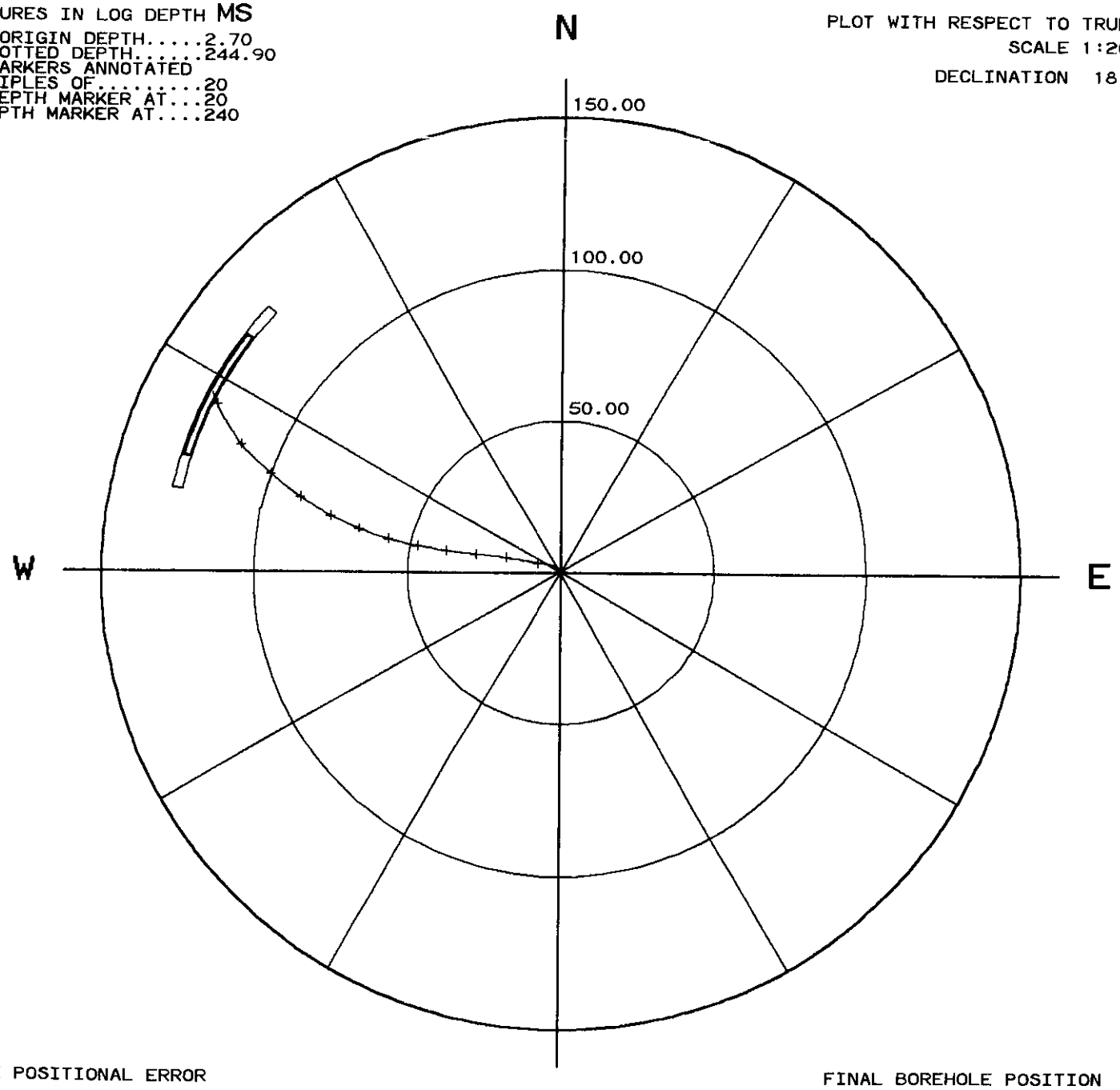
32.00	27.55	31.6 277	4.11	-13.74 287	14.34 287	14.54 287	14.14 287	14.47 287	14.2
34.00	29.25	31.4 280	4.28	-14.78 286	15.38 286	15.60 286	15.17 286	15.53 286	15.2
36.00	30.96	31.5 281	4.45	-15.80 286	16.42 286	16.65 286	16.19 286	16.57 286	16.2
38.00	32.67	30.8 280	4.60	-16.82 285	17.44 285	17.69 285	17.19 285	17.60 285	17.2
40.00	34.38	31.6 279	4.76	-17.85 285	18.47 285	18.73 285	18.21 285	18.65 285	18.3
42.00	36.08	31.6 279	4.95	-18.88 285	19.52 285	19.79 285	19.24 285	19.70 285	19.3
44.00	37.79	31.2 279	5.12	-19.91 284	20.56 284	20.85 284	20.27 284	20.75 284	20.3
46.00	39.51	30.0 278	5.27	-20.92 284	21.57 284	21.87 284	21.26 284	21.77 284	21.3
48.00	41.24	29.8 279	5.39	-21.91 284	22.57 284	22.89 284	22.24 284	22.78 284	22.3
0.00	42.98	29.5 277	5.50	-22.89 284	23.54 283	23.88 284	23.21 283	23.77 284	23.3
52.00	44.72	29.3 274	5.59	-23.87 283	24.52 283	24.87 283	24.17 283	24.75 283	24.2
54.00	46.47	29.3 273	5.67	-24.84 283	25.48 283	25.85 283	25.12 283	25.73 283	25.2
56.00	48.21	29.1 276	5.77	-25.82 283	26.45 283	26.83 283	26.07 283	26.71 283	26.2
58.00	49.96	29.4 277	5.86	-26.79 282	27.42 282	27.82 282	27.03 282	27.69 282	27.1
60.00	51.70	29.7 276	5.96	-27.77 282	28.40 282	28.81 282	27.99 282	28.68 282	28.1
62.00	53.44	29.3 277	6.07	-28.74 282	29.38 282	29.80 282	28.95 282	29.66 282	29.0
64.00	55.19	29.2 276	6.17	-29.71 282	30.35 282	30.79 282	29.90 282	30.64 282	30.0
66.00	56.93	29.1 275	6.28	-30.68 282	31.32 282	31.77 282	30.86 282	31.62 282	31.0
68.00	58.68	28.8 275	6.38	-31.65 281	32.29 281	32.76 281	31.81 281	32.60 281	31.9
70.00	60.43	29.1 279	6.50	-32.61 281	33.25 281	33.74 281	32.77 281	33.58 281	32.9
72.00	62.18	29.1 278	6.61	-33.58 281	34.22 281	34.72 281	33.72 281	34.55 281	33.8
74.00	63.93	28.8 277	6.72	-34.53 281	35.18 281	35.70 281	34.66 281	35.53 281	34.8
76.00	65.68	28.8 278	6.84	-35.49 281	36.14 281	36.67 281	35.61 281	36.50 281	35.7
78.00	67.44	28.4 275	6.96	-36.44 281	37.10 281	37.65 281	36.55 281	37.47 281	36.7
80.00	69.19	28.8 278	7.08	-37.39 281	38.06 281	38.62 281	37.49 281	38.43 281	37.6
82.00	70.95	28.9 278	7.20	-38.35 281	39.02 281	39.59 281	38.44 281	39.40 281	38.6
84.00	72.70	29.0 277	7.31	-39.30 281	39.98 281	40.57 281	39.38 281	40.37 281	39.5
86.00	74.45	29.1 280	7.46	-40.27 280	40.95 280	41.56 280	40.34 280	41.36 280	40.5
88.00	76.18	30.4 285	7.66	-41.24 281	41.94 281	42.56 281	41.32 281	42.36 281	41.5
90.00	77.91	29.8 284	7.90	-42.22 281	42.95 281	43.59 281	42.31 281	43.37 281	42.5
92.00	79.66	28.8 279	8.07	-43.17 281	43.92 281	44.57 281	43.26 281	44.35 281	43.4
94.00	81.41	28.4 277	8.24	-44.12 281	44.88 281	45.55 281	44.21 281	45.33 281	44.4
96.00	83.17	28.3 277	8.38	-45.06 281	45.83 281	46.52 281	45.15 281	46.29 281	45.3
98.00	84.93	28.4 277	8.51	-46.01 280	46.79 280	47.49 280	46.09 280	47.25 280	46.3
100.00	86.68	28.4 279	8.66	-46.95 280	47.74 280	48.45 280	47.02 280	48.22 280	47.2
102.00	88.44	28.8 282	8.80	-47.90 280	48.70 280	49.43 280	47.97 280	49.19 280	48.2
104.00	90.19	28.7 280	8.97	-48.85 280	49.67 280	50.41 280	48.92 280	50.16 280	49.1
106.00	91.94	29.2 281	9.15	-49.81 280	50.64 280	51.40 280	49.88 280	51.15 280	50.1
108.00	93.68	29.8 284	9.37	-50.77 280	51.62 280	52.40 280	50.85 280	52.14 280	51.1
110.00	95.41	29.7 284	9.60	-51.73 281	52.61 281	53.40 281	51.82 281	53.14 281	52.0
112.00	97.15	29.2 283	9.83	-52.69 281	53.60 281	54.40 281	52.79 281	54.13 281	53.0
114.00	98.90	29.0 283	10.04	-53.64 281	54.57 281	55.39 281	53.74 281	55.12 281	54.0
116.00	100.64	29.6 284	10.28	-54.59 281	55.55 281	56.38 281	54.71 281	56.11 281	54.9
118.00	102.38	29.6 287	10.57	-55.55 281	56.54 281	57.39 281	55.69 281	57.11 281	55.9
.00	104.11	29.3 286	10.85	-56.49 281	57.53 281	58.39 281	56.66 281	58.10 281	56.9
.00	105.86	28.8 286	11.11	-57.43 281	58.49 281	59.37 281	57.61 281	59.08 281	57.9
24.00	107.62	28.4 285	11.35	-58.35 281	59.45 281	60.34 281	58.55 281	60.05 281	58.8
126.00	109.38	28.3 285	11.59	-59.27 281	60.40 281	61.31 281	59.48 281	61.00 281	59.7
128.00	111.12	30.3 290	11.89	-60.20 281	61.37 281	62.29 281	60.44 281	61.98 281	60.7
130.00	112.86	29.7 288	12.22	-61.14 281	62.35 281	63.29 281	61.40 281	62.98 281	61.7
132.00	114.59	30.1 291	12.55	-62.08 281	63.33 281	64.29 281	62.37 281	63.97 281	62.7
134.00	116.32	30.1 292	12.93	-63.01 282	64.33 282	65.30 282	63.35 282	64.97 282	63.6
136.00	118.05	29.6 291	13.31	-63.94 282	65.31 282	66.30 282	64.32 282	65.97 282	64.6
138.00	119.79	29.5 290	13.69	-64.86 282	66.29 282	67.29 282	65.28 282	66.96 282	65.6
140.00	121.52	31.2 296	14.08	-65.78 282	67.27 282	68.29 282	66.25 282	67.95 282	66.5
142.00	123.24	30.1 295	14.50	-66.71 282	68.27 282	69.29 282	67.23 282	68.95 282	67.5
144.00	124.97	30.0 294	14.92	-67.63 282	69.25 282	70.30 282	68.20 282	69.95 282	68.5
146.00	126.70	30.1 293	15.31	-68.55 283	70.24 283	71.29 283	69.17 283	70.94 283	69.5
148.00	128.43	30.2 294	15.71	-69.47 283	71.22 283	72.30 283	70.15 283	71.94 283	70.5
150.00	130.15	30.8 294	16.14	-70.40 283	72.22 283	73.31 283	71.13 283	72.95 283	71.4
152.00	131.86	31.0 295	16.57	-71.33 283	73.23 283	74.33 283	72.12 283	73.97 283	72.4
154.00	133.57	31.8 297	17.01	-72.27 283	74.25 283	75.36 283	73.12 283	74.99 283	73.5
156.00	135.27	31.6 297	17.48	-73.21 283	75.27 283	76.40 283	74.13 283	76.02 283	74.5
158.00	136.97	32.6 299	17.96	-74.16 284	76.30 284	77.45 284	75.15 284	77.07 284	75.5
160.00	138.66	32.8 298	18.46	-75.10 284	77.34 284	78.50 284	76.17 284	78.11 284	76.5
162.00	140.34	32.6 299	18.98	-76.06 284	78.39 284	79.56 284	77.21 284	79.17 284	77.6
164.00	142.02	33.3 297	19.49	-77.02 284	79.44 284	80.63 284	78.25 284	80.24 284	78.6
166.00	143.68	34.6 300	20.02	-77.99 284	80.52 284	81.72 284	79.31 284	81.32 284	79.7
168.00	145.32	34.9 302	20.62	-78.96 285	81.61 285	82.83 285	80.39 285	82.42 285	80.8
170.00	146.95	35.3 301	21.22	-79.95 285	82.72 285	83.95 285	81.48 285	83.54 285	81.8
172.00	148.56	36.7 305	21.90	-80.92 285	83.84 285	85.08 285	82.59 285	84.67 285	83.0
174.00	150.18	35.6 302	22.53	-81.91 285	84.95 285	86.21 285	83.69 285	85.79 285	84.1
176.00	151.80	36.5 303	23.16	-82.90 286	86.08 286	87.35 286	84.80 286	86.92 286	85.2
178.00	153.41	37.6 306	23.82	-83.89 286	87.21 286	88.49 286	85.92 286	88.06 286	86.3
180.00	155.00	36.7 304	24.53	-84.88 286	88.35 286	89.64 286	87.05 286	89.21 286	87.4
182.00	156.59	37.8 307	25.25	-85.86 286	89.49 286	90.80 286	88.18 286	90.37 286	88.6
184.00	158.17	37.2 303	25.97	-86.84 287	90.64 287	91.96 287	89.31 287	91.52 287	89.7
186.00	159.74	38.0 308	26.72	-87.82 287	91.80 287	93.13 287	90.45 287	92.69 287	90.9
188.00	161.32	38.4 308	27.46	-88.81 287	92.95 287	94.30 287	91.60 287	93.85 287	92.0
190.00	162.89	38.2 307	28.19	-89.80 287	94.12 287	95.48 287	92.75 287	95.03 287	93.2
1 00	164.46	38.9 307	28.94	-90.79 288	95.29 288	96.66 288	93.91 288	96.21 288	94.3
00	165.99	40.8 311	29.78	-91.77 288	96.48 288	97.86 288	95.09 288	97.40 288	95.5
196.00	167.53	39.4 309	30.58	-92.76 288	97.67 288	99.07 288	96.26 288	98.60 288	96.7
198.00	169.07	40.5 311	31.39	-93.75 289	98.86 288	100.27 289	97.45 289	99.80 289	97.9
200.00	170.56	41.9 313	32.31	-94.71 289	100.07 289	101.49 289	98.64 289	101.02 289	99.1
202.00	172.06	40.8 312	33.20	-95.68 289	101.28 289	102.71 289	99.84 289	102.23 289	100.3
204.00	173.57	40.3 309	34.06	-96.67 289	102.50 289	103.94 289	101.04 289	103.46 289	101.5
206.00	175.08	41.3 313	34.92	-97.67 290	103.72 290	105.18 290	102.26 290	104.69 290	102.7
208.00	176.56	42.1 313	35.83	-98.65 290	104.96 290	106.43 290	103.48 290	105.94 290	103.9
210.00	178.03	43.0 313	36.76	-99.64 290	106.20 290	107.68 290	104.71 290	107.19 290	105.2
212.00	179.47	43.5 314	37.75	-100.60 291	107.45 291	108.95 291	105.95 291	108.45 291	106.4

228.00	190.38	48.6	325	46.89	-107.82	294	117.57	293	119.14	294	115.99	293	118.62	294	116.
230.00	191.72	47.8	324	48.05	-108.73	294	118.87	294	120.45	294	117.28	294	119.93	294	117.
232.00	192.93	57.8	336	49.44	-109.49	294	120.14	294	121.72	294	118.54	294	121.20	294	119.
234.00	194.20	49.1	326	50.74	-110.32	295	121.43	295	123.02	295	119.82	295	122.49	295	120.
236.00	195.44	52.0	332	52.11	-111.08	295	122.69	295	124.30	295	121.08	295	123.76	295	121.
238.00	196.67	53.2	335	53.52	-111.80	296	123.95	296	125.56	296	122.33	296	125.02	296	122.
240.00	197.84	54.9	338	55.00	-112.45	296	125.18	296	126.80	296	123.55	296	126.26	296	124.
242.00	198.95	55.5	340	56.56	-113.03	297	126.39	297	128.02	297	124.76	297	127.48	297	125.
244.00	199.96	66.9	340	58.18	-113.60	297	127.63	297	129.26	297	125.99	297	128.72	297	126.
244.90	200.31	66.7	336	58.95	-113.92	297	128.26	297	129.90	297	126.62	297	129.35	297	127.

CROSS SECTION

ALL FIGURES IN LOG DEPTH MS
TARGET ORIGIN DEPTH.....2.70
LAST PLOTTED DEPTH.....244.90
DEPTH MARKERS ANNOTATED
IN MULTIPLES OF.....20
FIRST DEPTH MARKER AT...20
LAST DEPTH MARKER AT....240

PLOT WITH RESPECT TO TRUE NOR
SCALE 1:2000
DECLINATION 18.0 DE



BOREHOLE POSITIONAL ERROR

THE TWO BOXES SURROUNDING
THE ST PLOTTED DEPTH SHOW
THE PICAL, AND MAXIMUM,
POS..IONAL ERROR AT THAT
DEPTH.

FINAL BOREHOLE POSITION

THE LAST PLOTTED DEPTH IS AT
58.95 MS NORTH, 113.92 MS
WEST IE. 128.26 MS FROM THE
ORIGIN, 297 DEG FROM TRUE NOR

VERTICAL SECTIONS

THE TWO BOXES SURROUNDING THE LAST PLOTTED DEPTH SHOW THE TYPICAL, AND MAXIMUM, POSITIONAL ERROR AT THAT DEPTH.

S

THE LAST PLOTTED DEPTH IS AT 58.95 MS NORTH, 113.92 MS WEST IE. 128.26 MS FROM THE ORIGIN, 297 DEG FROM TRUE NOR

VERTICAL SECTIONS

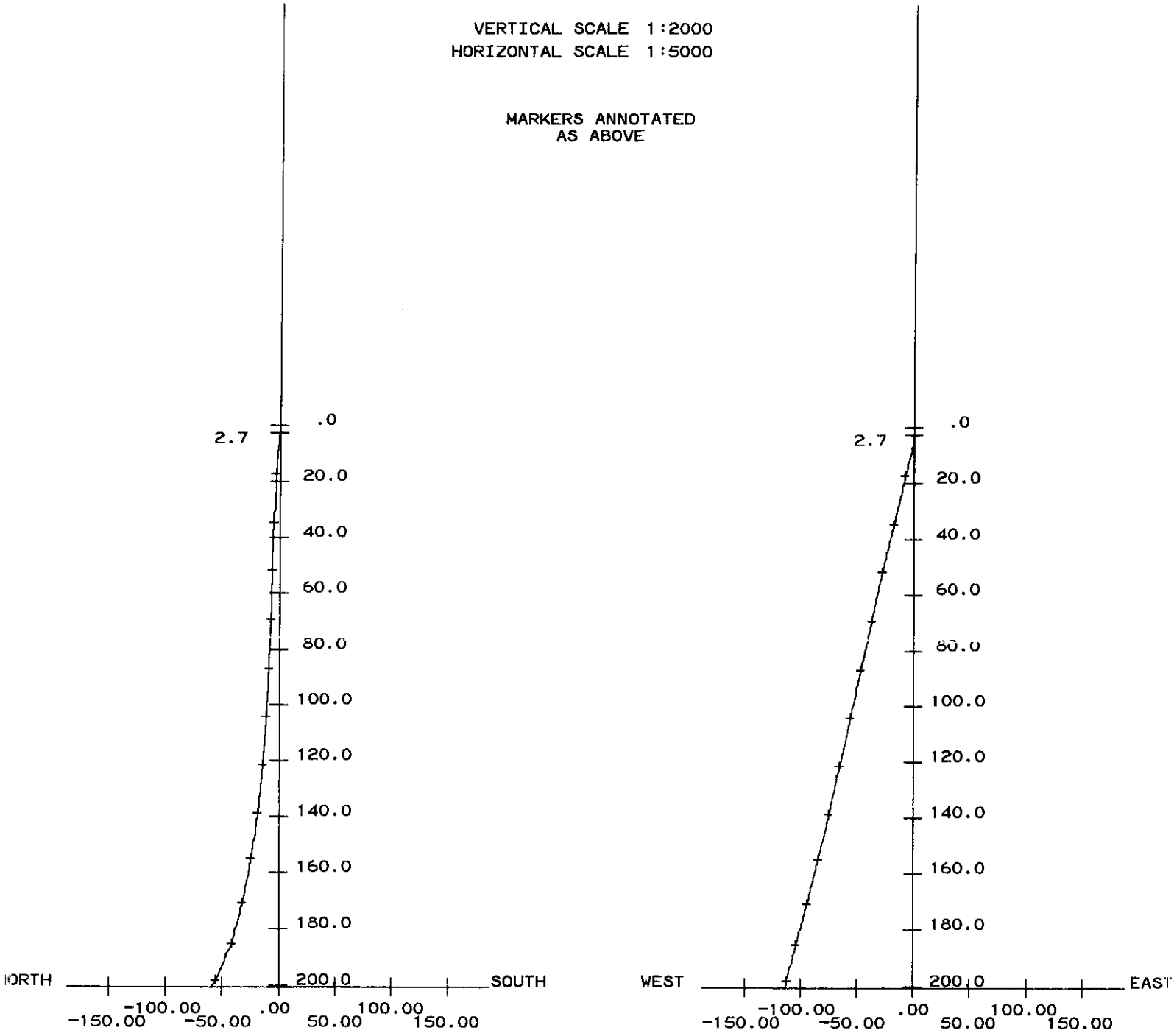
N-S SECTION

(TRUE DEPTH VS DISPLACEMENT)

E-W SECTION

VERTICAL SCALE 1:2000
HORIZONTAL SCALE 1:5000

MARKERS ANNOTATED AS ABOVE



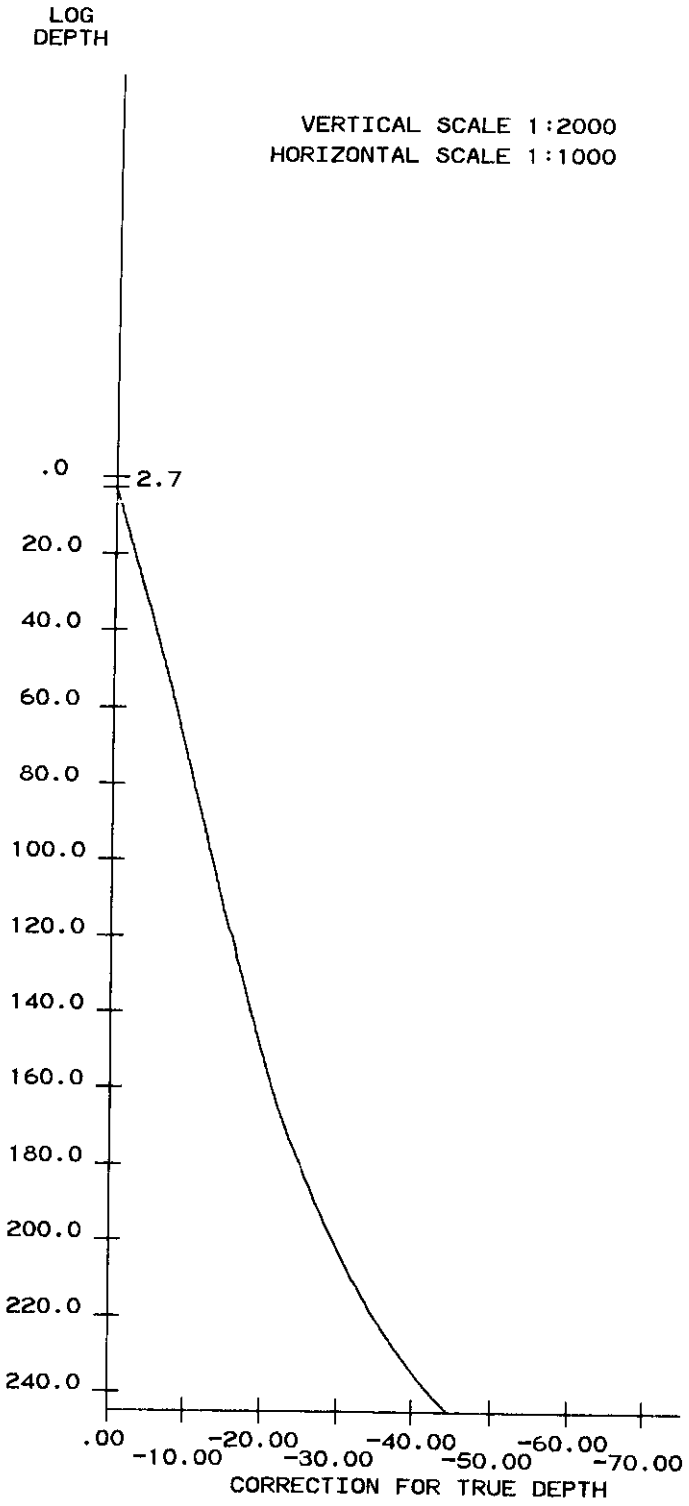
DEPTH CORRECTION ANALYSIS

LOG DEPTH

VERTICAL SCALE 1:2000
HORIZONTAL SCALE 1:1000

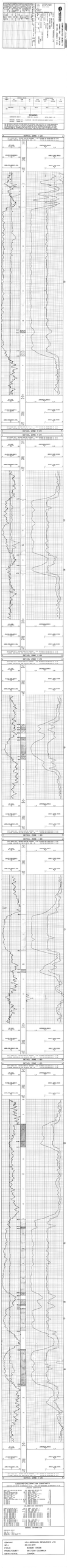
DEPTHS: LOG	TRUE	DEPTHS: LOG	TRUE
4.00	3.78	144.00	124.97
6.00	5.45	146.00	126.70

DEPTH CORRECTION ANALYSIS



DEPTHS: LOG	TRUE	DEPTHS: LOG	TRUE
4.00	3.78	144.00	124.97
6.00	5.45	146.00	126.70
8.00	7.12	148.00	128.43
10.00	8.82	150.00	130.15
12.00	10.53	152.00	131.86
14.00	12.23	154.00	133.57
16.00	13.93	156.00	135.27
18.00	15.62	158.00	136.97
20.00	17.30	160.00	138.66
22.00	19.01	162.00	140.34
24.00	20.73	164.00	142.02
26.00	22.45	166.00	143.68
28.00	24.16	168.00	145.32
30.00	25.85	170.00	146.95
32.00	27.55	172.00	148.56
34.00	29.25	174.00	150.18
36.00	30.96	176.00	151.80
38.00	32.67	178.00	153.41
40.00	34.38	180.00	155.00
42.00	36.08	182.00	156.59
44.00	37.79	184.00	158.17
46.00	39.51	186.00	159.74
48.00	41.24	188.00	161.32
50.00	42.98	190.00	162.89
52.00	44.72	192.00	164.46
54.00	46.47	194.00	165.99
56.00	48.21	196.00	167.53
58.00	49.96	198.00	169.07
60.00	51.70	200.00	170.56
62.00	53.44	202.00	172.06
64.00	55.19	204.00	173.57
66.00	56.93	206.00	175.08
68.00	58.68	208.00	176.56
70.00	60.43	210.00	178.03
72.00	62.18	212.00	179.47
74.00	63.93	214.00	180.91
76.00	65.68	216.00	182.35
78.00	67.44	218.00	183.77
80.00	69.19	220.00	185.16
82.00	70.95	222.00	186.47
84.00	72.70	224.00	187.75
86.00	74.45	226.00	189.05
88.00	76.18	228.00	190.38
90.00	77.91	230.00	191.72
92.00	79.66	232.00	192.93
94.00	81.41	234.00	194.20
96.00	83.17	236.00	195.44
98.00	84.93	238.00	196.67
100.00	86.68	240.00	197.84
102.00	88.44	242.00	198.95
104.00	90.19	244.00	199.96
106.00	91.94	244.90	200.31
108.00	93.68		
110.00	95.41		
112.00	97.15		
114.00	98.90		
116.00	100.64		
118.00	102.38		
120.00	104.11		
122.00	105.86		
124.00	107.62		
126.00	109.38		
128.00	111.12		
130.00	112.86		
132.00	114.59		
134.00	116.32		
136.00	118.05		
138.00	119.79		
140.00	121.52		
142.00	123.24		

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG04-04A OPEN HOLE
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA



PRECISION ENERGY SERVICES

FOCUSSED ELECTRIC
GAMMA RAY, CALIPER
SCALE 1:240

LOCN. 5562990N 644285E
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG-05-07V
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG-05-07V
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION 5562990N 644285E

LSD	SEC	TWP	RGE
N/A			

OTHER SERVICES
CDL
DIP/VERT

PERMANENT DATUM GROUND LEVEL ,ELEVATION 1402.473M
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1402.473M

DATE	28-MAR-05			
RUN NUMBER	1			
DEPTH-DRILLER	185.00M			
DEPTH-LOGGER	184.96M			
FIRST READING	182.10M			
LAST READING	6.30M			
CASING-DRILLER	6.00M			
CASING-LOGGER	5.90M			
BIT SIZE	133.35MM			
HOLE FLUID TYPE	WATER			
DENS./VISC.	1000 N/A			
PH/FLUID LOSS	N/A N/A			
SAMPLE SOURCE	NONE			
RM @ MEAS TEMP	2.00 @ 20.0C			
RMF @ MEAS TEMP	N/A			
RMC @ MEAS TEMP	N/A			
SOURCE: RMF/RMC	N/A N/A			
RM @ BHT	N/A			
TIME SINCE CIRC	N/A			
MAX REC TEMP	N/A			
EQUIPMENT/BASE	V3405 RDR			
RECORDED BY	ROBB RACZ			
WITNESSED BY	G. BICKFORD			
DRILL DONE	10-MAR-05			

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	133.35MM	94	TD	159.00MM	N/A	SURFACE	6.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
SFE	103			

REMARKS

FOCUSSED ELECTRIC GAMMA RAY, CALIPER SCALE 1:240

NORTHING: 5562990.619 ELEVATION: 1402.473M SURVEYED ON MARCH 26/2005

EASTING : 644285.725

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS IN OUR PRICE SCHEDULE

MAIN LOG 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 18:47

FILENAME: MRGE07VM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 28-MAR-2005 AT 18:57

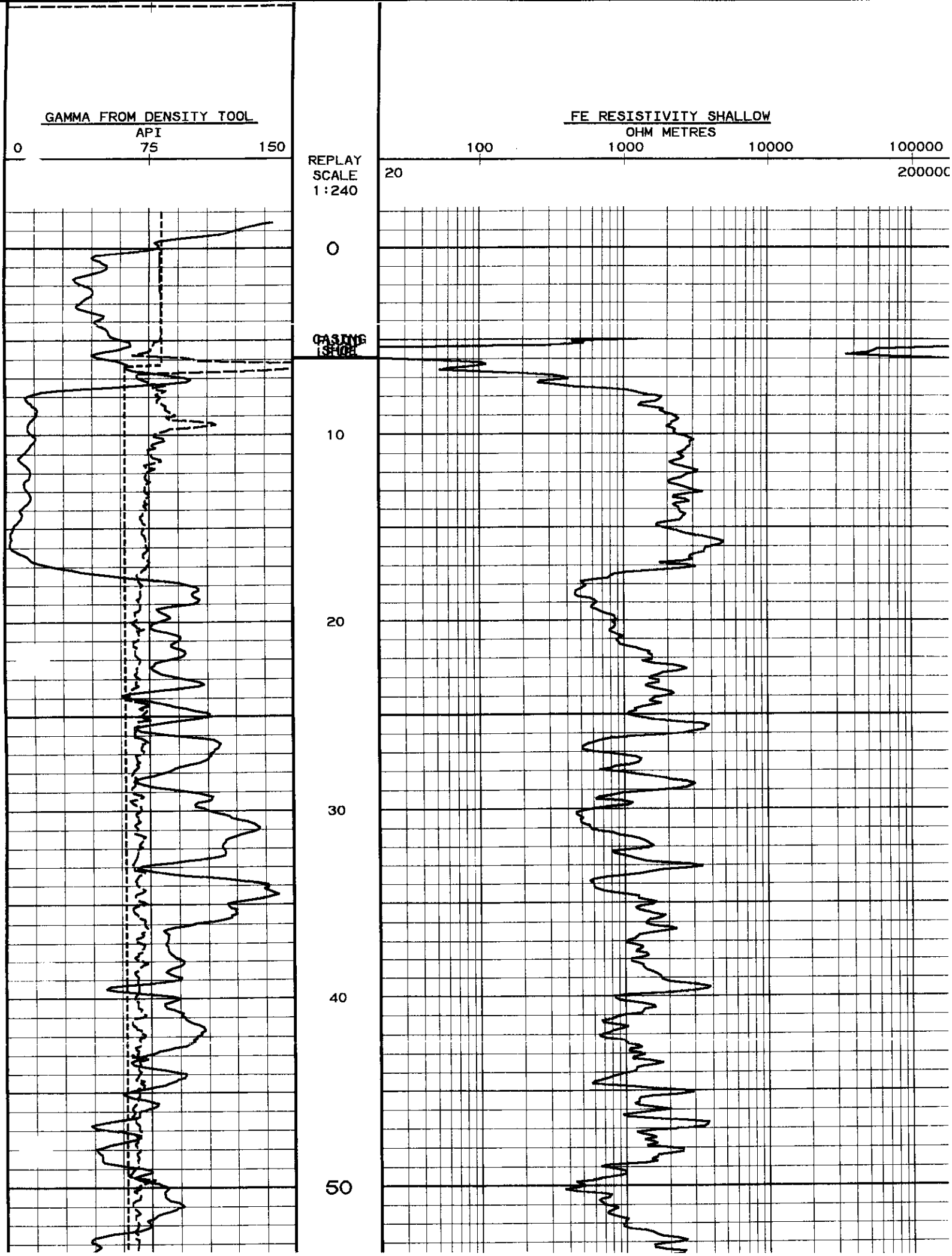
DEPTH IN METRES

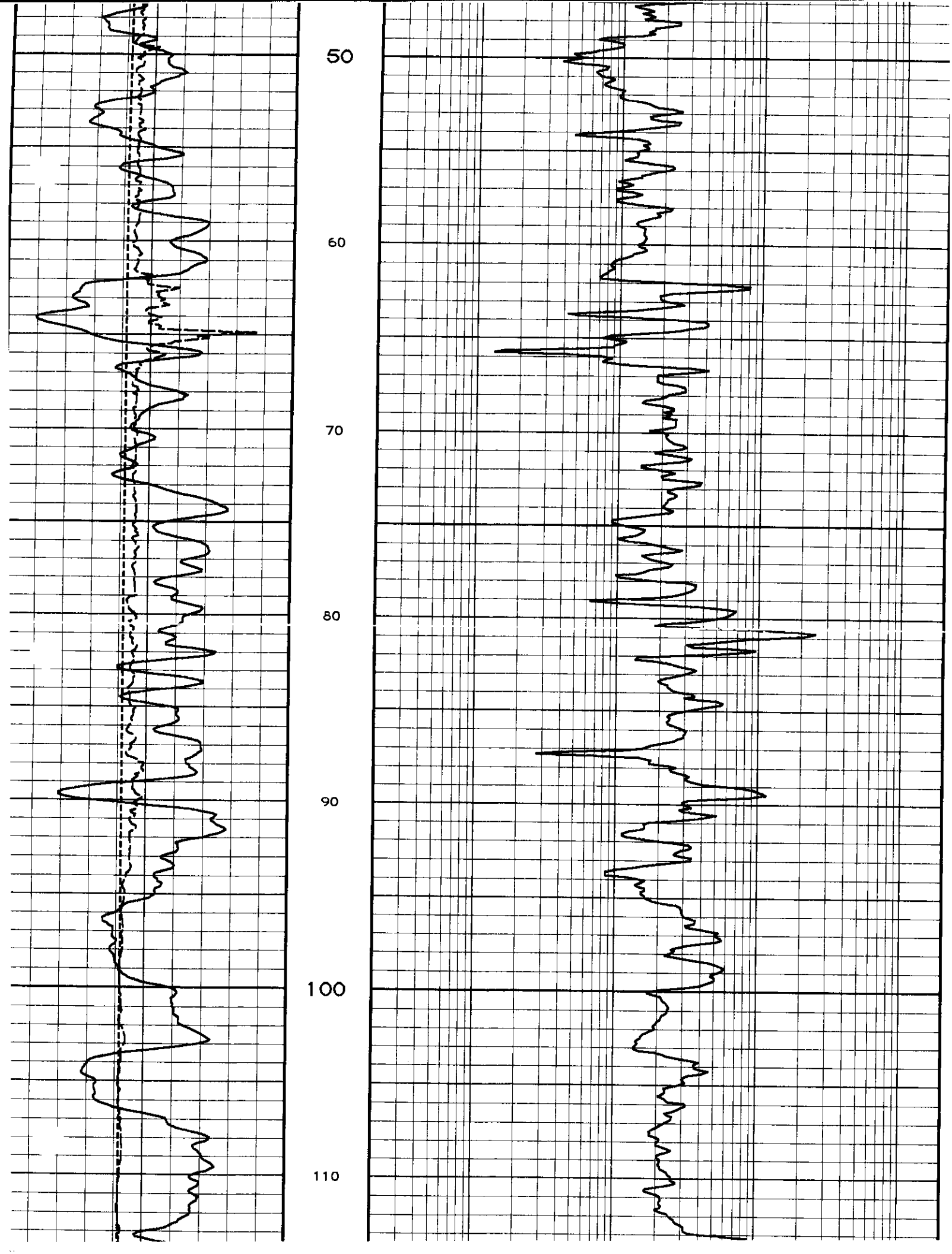
BIT SIZE
MILLIMETRES
50 150 250

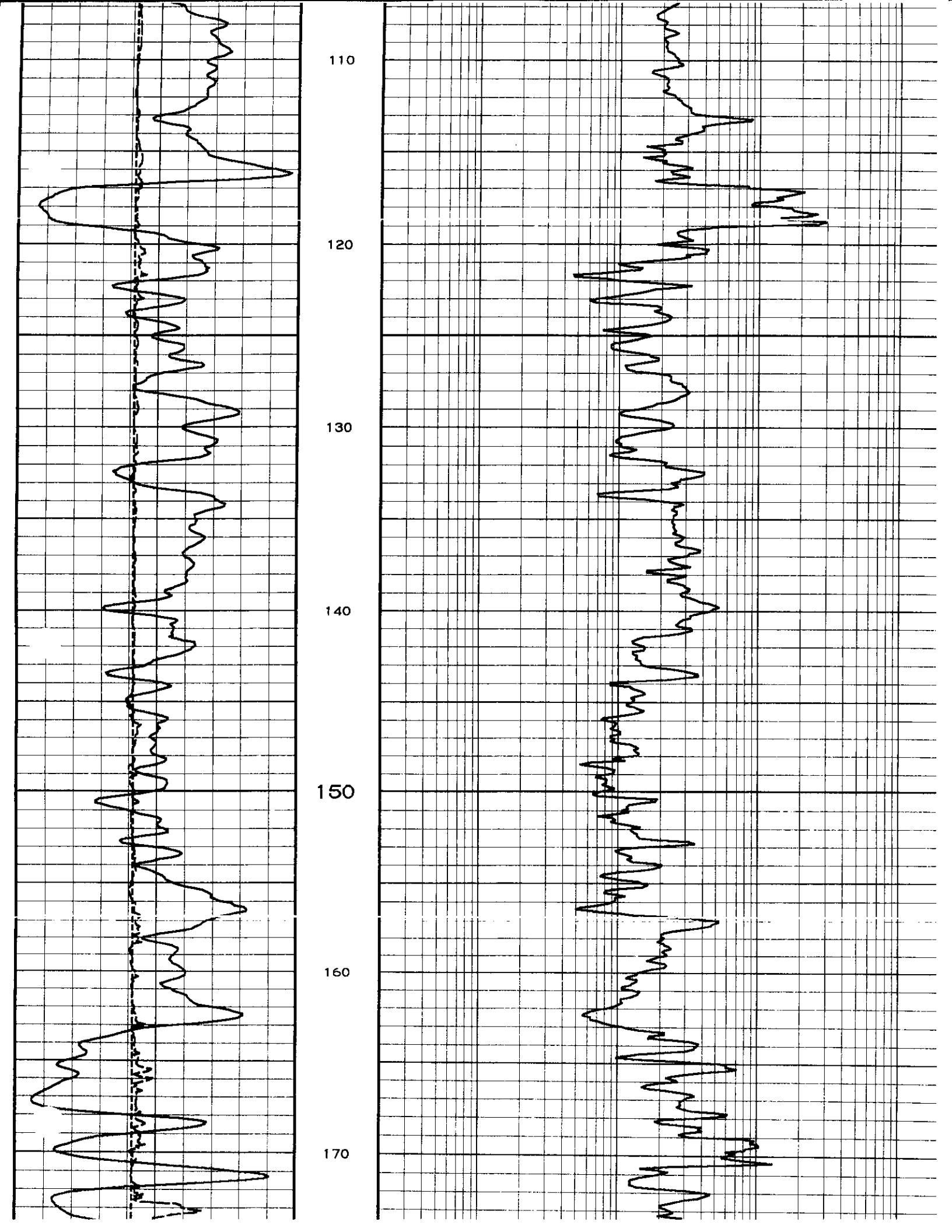
CALIPER FROM DENSITY
MILLIMETRES
50 150 250

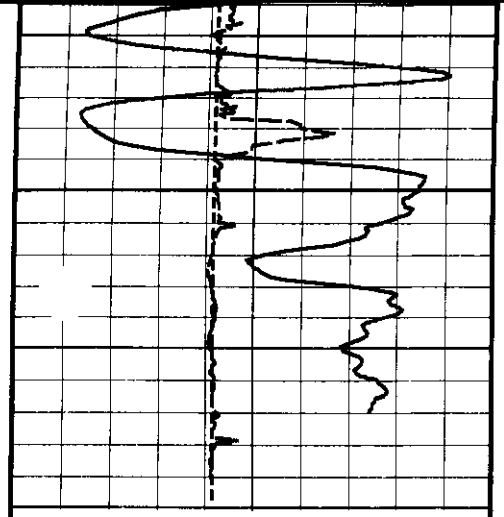
GAMMA FROM DENSITY TOOL
API

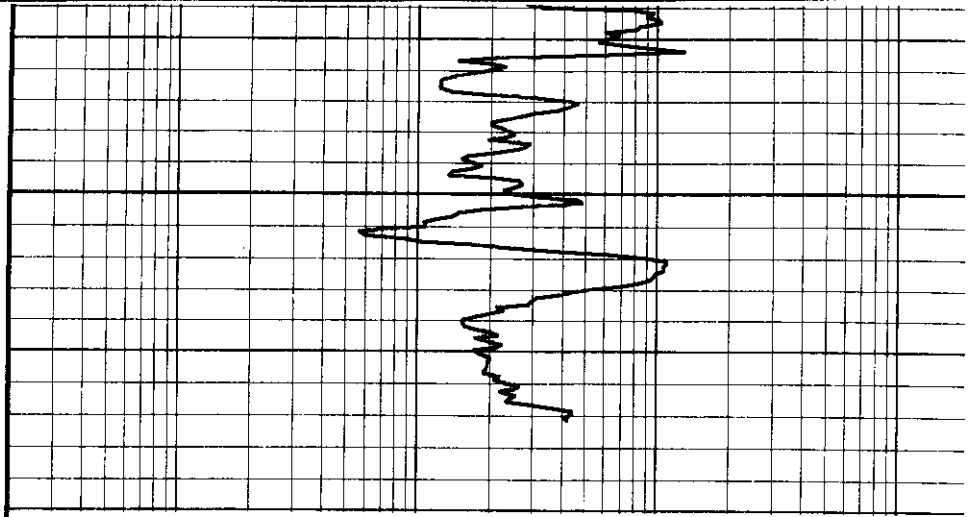
FE RESISTIVITY SHALLOW
OHM METRES


GAMMA FROM DENSITY TOOL
API
0
75
150
REPLAY
SCALE
1:240
FE RESISTIVITY SHALLOW
OHM METRES
100
1000
10000
100000
20
200000
0
10
20
30
40
50


50
60
70
80
90
100
110


110
120
130
140
150
160
170





170

180

DEPTH
IN
METRES

BIT SIZE
MILLIMETRES
50 150 250

CALIPER FROM DENSITY
MILLIMETRES
50 150 250

GAMMA FROM DENSITY TOOL
API
0 75 150

REPLAY
SCALE
1:240

FE RESISTIVITY SHALLOW
OHM METRES
100 1000 10000 100000
20 200000

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 18:47

FILENAME: MRGE07VM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 28-MAR-2005 AT 18:57

MAIN LOG 1:240

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 18:46

FILENAME: MRGE07VR.CIB RUN ID:REPEAT SECTION PLOTTED ON 28-MAR-2005 AT 18:57

DEPTH
IN
METRES

BIT SIZE
MILLIMETRES
50 150 250

CALIPER FROM DENSITY
MILLIMETRES
50 150 250

GAMMA FROM DENSITY TOOL
API
0 75 150

FE RESISTIVITY SHALLOW
OHM METRES
100 1000 10000 100000
20 200000

REPLAY SCALE 1:240

160

170

180

DEPTH IN METRES

BIT SIZE
MILLIMETRES
50 150 250

CALIPER FROM DENSITY
MILLIMETRES
50 150 250

GAMMA FROM DENSITY TOOL
API
0 75 150

FE RESISTIVITY SHALLOW
OHM METRES
100 1000 10000 100000
20 200000

REPLAY SCALE 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 18:46

FILENAME: MRGE07VR.CIB RUN ID:REPEAT SECTION PLOTTED ON 28-MAR-2005 AT 18:57

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 18:46

FILENAME: MRGE07VR.CIB RUN ID:REPEAT SECTION PLOTTED ON 28-MAR-2005 AT 18:57

REPEAT SECTION

LOGGING/CALIBRATION CONSTANTS

CONSTANTS LAST EDITED: 28-MAR-2005 AT 18:22

LOGGING CONSTANTS AND BIT SIZE MEASUREMENTS

RESISTIVITY SONDE TYPE	DUAL RR1	MUD RESISTIVITY (OHM METRES)	2.000
BIT SIZE UNITS (INS/MM)	MILLIMTR	BIT DEPTH UNITS (M/FT)	METRES
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	6.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	94.00
BIT SIZS 4	0.00	FROM BIT DEPTH 4	185.00
BIT SIZE 5	0.00	FROM BIT DEPTH 5	0.00
TEMPERATURE UNITS	DEG. C		

CALIBRATION CONSTANTS

FE1 CALIBRATOR VALUE 1	2.0000	FE1 COUNT RATE 1	4496.0000
FE1 CALIBRATOR VALUE 2	2000.0000	FE1 COUNT RATE 2	2972.0000
FE2 CALIBRATOR VALUE 1	2.0000	FE2 COUNT RATE 1	4492.0000
FE2 CALIBRATOR VALUE 2	2000.0000	FE2 COUNT RATE 2	3010.0000
GRFE CALIBRATOR VALUE 1	490.0000	GRFE COUNT RATE 1	315.0000
SP CALIBRATOR VALUE 1	1.0000	SP COUNT RATE 1	1.0000
SP CALIBRATOR VALUE 2	0.0000	SP COUNT RATE 2	0.0000

LOGGING CONSTANTS

SONDE TYPE (DD3,CCS,DDI,DDS,DDL	DDS	SONDE MODE (WET,DRY,STD)	STD
MUD WEIGHT	1.00	STRIP COEFFICIENT	0.50
ANNULAR VOLUME DIAMETER	133.35	WATER LEVEL	.00
CALIPER ARM LENGTH (CMS)	22.60	MATRIX DENSITY	2.65
CALIPER UNITS(INS,MMS)	MMS	DENSITY OF MUD FILTRATE	1.00
BRD POINT ONE	1.00	BRD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
LSD POINT ONE	1.00	LSD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
DENSITY SCALAR	1.50	BRD SCALAR	-.50
BIT DEPTHS & WATER LEVEL (FT,M)	METRES	CALIPER SOURCE FOR PROCESSING	CAL
BIT SIZE 1	159.00	FROM BIT DEPTH 1	.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	6.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	94.00
BIT SIZE 4	.00	FROM BIT DEPTH 4	185.00
BIT SIZE 5	.00	FROM BIT DEPTH 5	.00

CALIBRATION CONSTANTS

GAMMA CALIBRATOR VALUE 1	436.00	GAMMA COUNT RATE 1	237.72
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
CALIPER RING SIZE 1	76.20	CALIPER COUNT FOR RING 1	1834.00
CALIPER RING SIZE 2	101.60	CALIPER COUNT FOR RING 2	2258.00
CALIPER RING SIZE 3	127.00	CALIPER COUNT FOR RING 3	2690.00
CALIPER RING SIZE 4	152.40	CALIPER COUNT FOR RING 4	3162.00
CALIPER RING SIZE 5	203.20	CALIPER COUNT FOR RING 5	4224.00
CALIPER RING SIZE 6	254.00	CALIPER COUNT FOR RING 6	5030.00
DRY HOLE CORRECTION...			
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
DRY HOLE BRD NEW (1) GM/CC	0.00	DRY HOLE BRD LOG (1) GM/CC	0.00
DRY HOLE BRD NEW (2) GM/CC	1.00	DRY HOLE BRD LOG (2) GM/CC	1.00
DRY HOLE LSD NEW (1) GM/CC	0.00	DRY HOLE LSD LOG (1) GM/CC	0.00
DRY HOLE LSD NEW (2) GM/CC	1.00	DRY HOLE LSD LOG (2) GM/CC	1.00

COMPANY ... HUSKY OIL RESOURCES LTD

LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
CALIPER RING SIZE 1	76.20	CALIPER COUNT FOR RING 1	1834.00
CALIPER RING SIZE 2	101.60	CALIPER COUNT FOR RING 2	2258.00
CALIPER RING SIZE 3	127.00	CALIPER COUNT FOR RING 3	2690.00
CALIPER RING SIZE 4	152.40	CALIPER COUNT FOR RING 4	3162.00
CALIPER RING SIZE 5	203.20	CALIPER COUNT FOR RING 5	4224.00
CALIPER RING SIZE 6	254.00	CALIPER COUNT FOR RING 6	5030.00
DRY HOLE CORRECTION...			
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
DRY HOLE BRD NEW (1) GM/CC	0.00	DRY HOLE BRD LOG (1) GM/CC	0.00
DRY HOLE BRD NEW (2) GM/CC	1.00	DRY HOLE BRD LOG (2) GM/CC	1.00
DRY HOLE LSD NEW (1) GM/CC	0.00	DRY HOLE LSD LOG (1) GM/CC	0.00
DRY HOLE LSD NEW (2) GM/CC	1.00	DRY HOLE LSD LOG (2) GM/CC	1.00

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-07V
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

VERTICALITY ANALYSIS

LOCN. 5562990N 644285E
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG-05-07V
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG-05-07V
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION				OTHER SERVICES
5562990N 644285E				SFE CDL
LSD	SEC	TWP	RGE	
N/A				

PERMANENT DATUM GROUND LEVEL ,ELEVATION 1402.473M
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1402.473M

DATE	25-MAR-05	
RUN NUMBER	1	
DEPTH-DRILLER	185.00M	
DEPTH-LOGGER	184.96M	
FIRST READING	184.00M	
LAST READING	0.00M	
CASING-DRILLER	6.00M	
CASING-LOGGER	5.90M	
BIT SIZE	133.35MM	
HOLE FLUID TYPE	WATER	
DENS./VISC.	1000 N/A	
PH/FLUID LOSS	N/A N/A	
SAMPLE SOURCE	NONE	
RM @ MEAS TEMP	2.00 @ 20.0C	
RMF @ MEAS TEMP	N/A	
RMC @ MEAS TEMP	N/A	
SOURCE: RMF/RMC	N/A N/A	
RM @ BHT	N/A	
TIME SINCE CIRC	N/A	
MAX REC TEMP	N/A	
EQUIPMENT/BASE	V3405 RDR	
RECORDED BY	ROBB RACZ	
WITNESSED BY	G. BICKFORD	
DRILL DONE	10-MAR-05	

VERTICALITY ANALYSIS INTERPRETATION NOTES

ALL PLOTTED OUTPUT IS AUTOMATICALLY SCALED TO OBTAIN THE BEST VISUAL EFFECT WITHIN THE PHYSICAL SPACE AVAILABLE. THE MAXIMUM SCALES BEING 1:50000 (METRIC) AND 1:48000 (IMPERIAL), AND THE MINIMUM 1:1.

2. THE ANALYSIS IS DERIVED BY INTEGRATING 10CM. SAMPLED DATA DOWN THE BOREHOLE. THE LISTING SUPPLIED WILL CONTAIN A MAXIMUM OF 200 POINTS IN MULTIPLES OF 1, 2, 5, 10, 20, 50 OR 100 METRES/FEET DEPENDING ON THE TOTAL RANGE OF THE ANALYSIS. HOWEVER THE ANALYSIS IS CALCULATED FOR THE ENTIRE RANGE OF THE BOREHOLE AND THE FINAL BOREHOLE POSITION IS INCLUDED IN THE LISTING.

3. COMPUTED VERTICALITY MAY ONLY BE FULLY DERIVED IN OPEN SECTIONS OF THE BOREHOLE, AWAY FROM THE INFLUENCE OF ANY UNUSUAL MAGNETIC EFFECTS (AS THE AZIMUTH CALCULATIONS ARE DERIVED FROM THREE SOLID STATE MAGNETOMETERS). SO THE ANALYSIS WILL GENERALLY BEGIN AT THE END OF THE CASING AND ALL BOREHOLE POSITIONAL INFORMATION WILL RELATE TO THIS DEPTH.

4. UP TO TEN CROSS SECTIONS MAY BE REQUESTED FOR ANY BOREHOLE TO BE DISPLAYED AT ANY SCALE (THE DEFAULT SCALE IS THAT OF THE CROSS-SECTION FOR THE ENTIRE HOLE).

5. BOREHOLE POSITIONAL ERROR IS DERIVED ASSUMING THE FOLLOWING PARAMETERS.

	TILT(DEGREES)	AZIMUTH(DEGREES)
TYPICAL ERROR	+/- .3333	+/- 10.00
MAXIMUM ERROR	+/- .5000	+/- 15.00

6. ERROR ANALYSIS MAY BE CALCULATED AND PLOTTED FROM THE DATA LISTING AS FOLLOWS:

A) PLOT THE FOUR COORDINATES FROM THE ERROR LISTING (BASED UPON ZERO AZIMUTH ERROR) ON A TARGET PLOT. ORIGIN AT THE START OF THE ANALYSIS.
B) DESCRIBE ARCS OF +/- 10.00 DEGREES AND +/- 15.00 DEGREES (CENTRE AT THE ORIGIN) THROUGH THE INNER AND OUTER POINTS RESPECTIVELY.
C) CONNECT THE RESPECTIVE ARCS TOGETHER WITH STRAIGHT LINES TO GIVE THE TYPICAL AND MAXIMUM BOREHOLE POSITIONAL ERROR.

7. GIVEN BELOW IS A FULL DESCRIPTION OF THE PARAMETERS DISPLAYED ON THE ENSUING LISTING:

LOG DEPTH	THE DEPTH RECORDED ON THE FIELD LOGS FOR THE BOREHOLE.
TRUE DEPTH	THE TRUE VERTICAL DEPTH CORESPONDING TO THE ABOVE DEPTH. CORRECTED FROM THE START OF THE ANALYSIS.
HOLE TILT AND AZIMUTH	THE SAMPLED BOREHOLE ORIENTATION.
AXIAL COORDINATES	THE COORDINATES NORTH AND EAST FROM THE TARGET ORIGIN.
POLAR COORDINATES	THE POLAR, OR RADIAL COORDINATES OF THE BOREHOLE.
ERROR COORDINATES	THE POLAR COORDINATES CORRESPONDING TO THE TYPICAL AND MAXIMUM TILT ERROR.

N.B. THE REFERENCE POINT FOR ALL BEARING ANGLES ON THIS LISTING IS GIVEN AT THE TOP OF EACH SHEET.

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

BG-05-07V VERTICALITY DATA LISTING FOR DIP407VB.CIB DATE PROCESSED: 31-MAR-2(
ALL CO-ORDINATES WITH RESPECT TO TRUE NORTH DATE LOGGED: 25-MAR-2(

DEPTHS		BOREHOLE		AXIAL CO-ORDS		POLAR		POLAR ERROR CO-ORDINATES (MAXIMUM & TYPICAL						
LOG	TRUE	TILT	AZI	NORTH	EAST	BRG	RADIUS	BRG	RADIUS	BRG	RADIUS	BRG	RADIUS	BRD RADI
4.00	4.00	0.6	330	0.00	0.01	67	0.01	65	0.01	75	0.00	65	0.01	70 0.
5.00	5.00	0.6	30	0.00	0.01	86	0.01	87	0.02	84	0.00	86	0.02	85 0.
6.00	6.00	1.0	107	0.01	0.02	61	0.02	62	0.03	56	0.01	62	0.03	58 0.
7.00	7.00	0.5	28	0.02	0.03	55	0.03	55	0.05	54	0.02	55	0.04	54 0.
8.00	8.00	0.9	70	0.03	0.03	48	0.05	48	0.07	48	0.02	48	0.06	48 0.
9.00	9.00	0.7	257	0.03	0.03	47	0.04	46	0.06	47	0.02	46	0.05	47 0.
10.00	10.00	0.9	241	0.02	0.02	41	0.03	40	0.04	43	0.02	40	0.04	42 0.
11.00	11.00	0.7	225	0.01	0.01	26	0.01	19	0.02	37	0.01	21	0.02	33 0.
12.00	12.00	1.1	227	0.00	-0.01	305	0.01	285	0.01	15	0.00	289	0.01	346 0.
13.00	13.00	0.7	252	0.00	-0.02	259	0.02	256	0.04	283	0.00	257	0.03	267 0.
14.00	14.00	0.9	243	-0.01	-0.03	247	0.04	247	0.06	252	0.01	247	0.05	249 0.
15.00	15.00	1.1	236	-0.02	-0.05	244	0.05	244	0.08	245	0.02	244	0.07	244 0.
16.00	16.00	1.3	247	-0.03	-0.06	242	0.07	242	0.11	243	0.03	242	0.10	242 0.
17.00	17.00	1.3	247	-0.04	-0.08	241	0.09	241	0.14	241	0.04	241	0.12	241 0.
18.00	18.00	0.9	245	-0.05	-0.09	240	0.11	240	0.16	240	0.05	240	0.14	240 0.
19.00	19.00	1.1	236	-0.06	-0.11	240	0.12	239	0.19	240	0.06	239	0.17	240 0.
20.00	20.00	1.1	236	-0.07	-0.12	239	0.14	239	0.22	239	0.07	239	0.19	239 0.
21.00	21.00	0.9	245	-0.08	-0.13	238	0.16	238	0.24	238	0.07	238	0.21	238 0.
22.00	22.00	1.1	234	-0.09	-0.15	238	0.18	238	0.27	238	0.08	238	0.24	238 0.
23.00	23.00	1.1	229	-0.10	-0.17	238	0.20	238	0.30	238	0.09	238	0.26	238 0.
24.00	24.00	1.3	240	-0.11	-0.18	238	0.21	238	0.32	238	0.10	238	0.29	238 0.
25.00	25.00	1.1	231	-0.13	-0.19	237	0.23	237	0.35	237	0.11	237	0.31	237 0.
26.00	26.00	1.1	236	-0.14	-0.21	237	0.25	237	0.38	237	0.12	237	0.34	237 0.

21.00	21.00	0.9 245	-0.08	-0.13 238	0.16 238	0.24 238	0.07 238	0.21 238	0
22.00	22.00	1.1 234	-0.09	-0.15 238	0.18 238	0.27 238	0.08 238	0.24 238	0
23.00	23.00	1.1 229	-0.10	-0.17 238	0.20 238	0.30 238	0.09 238	0.26 238	0
24.00	24.00	1.3 240	-0.11	-0.18 238	0.21 238	0.32 238	0.10 238	0.29 238	0
25.00	25.00	1.1 231	-0.13	-0.19 237	0.23 237	0.35 237	0.11 237	0.31 237	0
26.00	26.00	1.1 236	-0.14	-0.21 237	0.25 237	0.38 237	0.12 237	0.34 237	0
27.00	27.00	0.5 249	-0.15	-0.23 237	0.27 237	0.40 237	0.13 237	0.36 237	0
28.00	28.00	1.1 234	-0.16	-0.24 237	0.29 237	0.43 237	0.15 237	0.39 237	0
29.00	29.00	1.4 223	-0.17	-0.26 237	0.31 237	0.46 236	0.16 237	0.41 237	0
30.00	30.00	1.1 231	-0.18	-0.27 236	0.33 237	0.49 236	0.17 236	0.44 236	0
31.00	31.00	1.3 240	-0.19	-0.29 236	0.35 236	0.52 236	0.18 236	0.46 236	0
32.00	32.00	1.3 241	-0.20	-0.31 236	0.37 236	0.55 236	0.19 236	0.49 236	0
33.00	33.00	1.5 231	-0.22	-0.32 236	0.39 236	0.58 236	0.20 236	0.52 236	0
34.00	33.99	1.5 233	-0.23	-0.34 236	0.41 236	0.61 236	0.22 236	0.54 236	0
35.00	34.99	1.3 243	-0.24	-0.36 236	0.43 236	0.64 236	0.23 236	0.57 236	0
36.00	35.99	1.3 241	-0.25	-0.38 236	0.45 236	0.67 236	0.24 236	0.60 236	0
37.00	36.99	1.5 230	-0.27	-0.39 236	0.48 236	0.70 235	0.26 236	0.62 236	0
38.00	37.99	1.3 236	-0.28	-0.41 236	0.50 236	0.73 235	0.27 236	0.65 235	0
39.00	38.99	1.5 241	-0.29	-0.43 236	0.52 236	0.76 235	0.28 236	0.68 235	0
40.00	39.99	1.5 224	-0.31	-0.45 235	0.54 235	0.79 235	0.29 235	0.71 235	0
41.00	40.99	1.1 243	-0.32	-0.46 235	0.56 235	0.82 235	0.31 235	0.73 235	0
42.00	41.99	0.9 230	-0.33	-0.48 235	0.58 235	0.85 235	0.32 235	0.76 235	0
43.00	42.99	1.5 236	-0.35	-0.50 235	0.61 235	0.88 235	0.33 235	0.79 235	0
44.00	43.99	1.1 234	-0.36	-0.52 235	0.63 235	0.91 235	0.35 235	0.82 235	0
45.00	44.99	1.3 235	-0.37	-0.53 235	0.65 235	0.94 235	0.36 235	0.84 235	0
46.00	45.99	1.5 222	-0.39	-0.55 235	0.67 235	0.97 235	0.37 235	0.87 235	0
47.00	46.99	1.5 243	-0.40	-0.57 235	0.69 235	1.00 235	0.39 235	0.90 235	0
48.00	47.99	1.2 236	-0.41	-0.59 235	0.71 235	1.03 235	0.40 235	0.93 235	0
49.00	48.99	1.3 224	-0.42	-0.60 235	0.74 235	1.06 235	0.41 235	0.95 235	0
50.00	49.99	1.2 233	-0.43	-0.62 235	0.76 235	1.09 235	0.42 235	0.98 235	0
51.00	50.99	1.3 232	-0.45	-0.64 235	0.78 235	1.12 235	0.44 235	1.01 235	0
52.00	51.99	1.2 245	-0.46	-0.66 235	0.80 235	1.15 235	0.45 235	1.04 235	0
53.00	52.99	1.2 246	-0.47	-0.68 235	0.82 235	1.18 235	0.46 235	1.06 235	0
54.00	53.99	1.3 230	-0.48	-0.70 235	0.85 235	1.22 235	0.48 235	1.09 235	0
55.00	54.99	1.3 227	-0.50	-0.71 235	0.87 235	1.25 235	0.49 235	1.12 235	0
56.00	55.99	1.2 237	-0.51	-0.73 235	0.89 235	1.28 235	0.51 235	1.15 235	0
57.00	56.99	1.2 247	-0.52	-0.75 235	0.91 235	1.31 235	0.52 235	1.18 235	0
58.00	57.99	1.2 240	-0.53	-0.77 235	0.94 235	1.34 235	0.53 235	1.20 235	0
59.00	58.99	1.2 240	-0.55	-0.79 235	0.96 235	1.37 235	0.55 235	1.23 235	0
60.00	59.99	1.5 239	-0.56	-0.81 235	0.98 235	1.40 235	0.56 235	1.26 235	0
61.00	60.99	1.2 237	-0.57	-0.83 235	1.00 236	1.43 235	0.58 235	1.29 235	0
62.00	61.99	1.5 235	-0.58	-0.85 235	1.03 236	1.47 235	0.59 235	1.32 235	0
63.00	62.99	1.5 243	-0.60	-0.87 235	1.05 235	1.50 235	0.61 235	1.35 235	0
64.00	63.99	1.5 227	-0.61	-0.89 235	1.08 235	1.53 235	0.62 235	1.38 235	0
65.00	64.99	1.5 231	-0.63	-0.90 235	1.10 235	1.56 235	0.64 235	1.41 235	0
66.00	65.99	1.5 237	-0.64	-0.92 235	1.12 235	1.60 235	0.65 235	1.44 235	0
67.00	66.99	1.2 234	-0.66	-0.94 235	1.15 235	1.63 235	0.67 235	1.47 235	0
68.00	67.99	0.9 228	-0.67	-0.96 235	1.17 235	1.66 235	0.68 235	1.50 235	0
69.00	68.99	1.6 225	-0.69	-0.98 235	1.20 235	1.70 235	0.70 235	1.53 235	0
70.00	69.99	1.5 232	-0.71	-1.00 235	1.22 235	1.73 235	0.72 235	1.56 235	0
71.00	70.98	1.2 226	-0.72	-1.02 235	1.25 235	1.76 234	0.73 235	1.59 235	0
72.00	71.98	1.5 238	-0.74	-1.04 235	1.28 235	1.80 234	0.75 235	1.62 234	0
73.00	72.98	1.5 225	-0.76	-1.06 234	1.30 235	1.83 234	0.77 235	1.66 234	0
74.00	73.98	1.6 214	-0.78	-1.08 234	1.33 234	1.87 234	0.79 234	1.69 234	0
75.00	74.98	1.8 230	-0.80	-1.10 234	1.36 234	1.91 234	0.81 234	1.72 234	0
76.00	75.98	1.5 230	-0.82	-1.12 234	1.38 234	1.94 233	0.83 234	1.76 234	1
77.00	76.98	1.6 218	-0.84	-1.14 234	1.41 234	1.98 233	0.85 234	1.79 233	1
78.00	77.98	2.0 212	-0.86	-1.16 233	1.44 234	2.02 233	0.87 233	1.82 233	1
79.00	78.98	1.6 215	-0.88	-1.18 233	1.47 233	2.05 233	0.89 233	1.86 233	1
80.00	79.98	1.8 224	-0.91	-1.19 233	1.50 233	2.09 232	0.91 233	1.89 233	1
81.00	80.98	1.8 219	-0.93	-1.21 233	1.53 233	2.13 232	0.93 233	1.93 232	1
82.00	81.98	1.8 213	-0.95	-1.23 232	1.56 233	2.17 232	0.95 232	1.96 232	1
83.00	82.98	2.2 207	-0.98	-1.25 232	1.59 232	2.21 231	0.97 232	2.00 232	1
84.00	83.98	2.1 221	-1.00	-1.27 232	1.62 232	2.24 231	0.99 232	2.04 231	1
85.00	84.98	2.1 212	-1.03	-1.29 231	1.65 232	2.28 231	1.02 232	2.07 231	1
86.00	85.98	1.8 206	-1.05	-1.31 231	1.68 231	2.32 230	1.04 231	2.11 231	1
87.00	86.98	2.1 216	-1.08	-1.33 231	1.71 231	2.36 230	1.06 231	2.14 230	1
88.00	87.98	2.1 214	-1.11	-1.34 231	1.74 231	2.40 230	1.08 231	2.18 230	1
89.00	88.98	2.1 212	-1.14	-1.36 230	1.78 231	2.44 229	1.11 230	2.22 230	1
90.00	89.98	2.1 206	-1.17	-1.38 230	1.81 230	2.48 229	1.13 230	2.26 229	1
91.00	90.98	2.1 213	-1.20	-1.40 229	1.84 230	2.52 228	1.16 230	2.30 229	1
92.00	91.97	2.1 213	-1.23	-1.42 229	1.87 230	2.57 228	1.18 229	2.34 229	1
93.00	92.97	2.1 205	-1.26	-1.43 229	1.91 229	2.61 228	1.21 229	2.37 228	1
94.00	93.97	2.1 210	-1.29	-1.45 228	1.94 229	2.65 227	1.23 229	2.41 228	1
95.00	94.97	1.8 216	-1.32	-1.47 228	1.98 229	2.69 227	1.26 228	2.45 227	1
96.00	95.97	2.1 213	-1.35	-1.49 228	2.01 228	2.73 227	1.29 228	2.49 227	1
97.00	96.97	2.1 209	-1.39	-1.51 227	2.05 228	2.78 226	1.32 228	2.53 227	1
98.00	97.97	2.1 206	-1.42	-1.52 227	2.08 228	2.82 226	1.34 227	2.58 226	1
99.00	98.97	2.1 203	-1.45	-1.54 227	2.12 227	2.87 225	1.37 227	2.62 226	1
100.00	99.97	2.5 208	-1.49	-1.56 226	2.16 227	2.91 225	1.40 227	2.66 226	1
101.00	100.97	2.5 206	-1.52	-1.58 226	2.19 227	2.96 225	1.43 227	2.70 225	1
102.00	101.97	2.2 207	-1.56	-1.60 226	2.23 226	3.00 224	1.46 226	2.75 225	1
103.00	102.97	2.5 208	-1.60	-1.62 225	2.27 226	3.05 224	1.49 226	2.79 225	1
104.00	103.97	2.5 210	-1.63	-1.64 225	2.31 226	3.10 224	1.52 226	2.84 224	1
105.00	104.96	2.5 206	-1.67	-1.65 225	2.35 225	3.15 223	1.56 225	2.88 224	1
106.00	105.96	2.7 202	-1.71	-1.67 224	2.40 225	3.20 223	1.59 225	2.93 223	1
107.00	106.96	2.7 203	-1.76	-1.69 224	2.44 225	3.25 222	1.63 225	2.98 223	1
108.00	107.96	3.0 206	-1.80	-1.71 224	2.49 224	3.31 222	1.67 224	3.03 223	1
109.00	108.96	3.0 208	-1.85	-1.74 223	2.53 224	3.36 222	1.71 224	3.09 222	1
110.00	109.96	3.0 208	-1.89	-1.76 223	2.58 224	3.42 221	1.75 224	3.14 222	2
111.00	110.96	3.3 207	-1.95	-1.78 222	2.64 223	3.48 221	1.80 223	3.20 221	2

103.00	102.97	2.5 208	-1.60	-1.62 225	2.27 226	3.05 224	1.49 226	2.79 225	1
104.00	103.97	2.5 210	-1.63	-1.64 225	2.31 226	3.10 224	1.52 226	2.84 224	1
105.00	104.96	2.5 206	-1.67	-1.65 225	2.35 225	3.15 223	1.56 225	2.88 224	1
106.00	105.96	2.7 202	-1.71	-1.67 224	2.40 225	3.20 223	1.59 225	2.93 223	1
107.00	106.96	2.7 203	-1.76	-1.69 224	2.44 225	3.25 222	1.63 225	2.98 223	1
108.00	107.96	3.0 206	-1.80	-1.71 224	2.49 224	3.31 222	1.67 224	3.03 223	1
109.00	108.96	3.0 208	-1.85	-1.74 223	2.53 224	3.36 222	1.71 224	3.09 222	1
110.00	109.96	3.0 208	-1.89	-1.76 223	2.58 224	3.42 221	1.75 224	3.14 222	2
111.00	110.96	3.3 207	-1.95	-1.78 222	2.64 223	3.48 221	1.80 223	3.20 221	2
112.00	111.96	3.6 206	-2.00	-1.81 222	2.70 223	3.55 220	1.84 223	3.26 221	2
113.00	112.95	3.6 204	-2.06	-1.83 222	2.75 223	3.61 220	1.90 222	3.33 221	2
114.00	113.95	3.9 203	-2.12	-1.86 221	2.82 222	3.68 219	1.95 222	3.39 220	2
115.00	114.95	4.2 204	-2.18	-1.88 221	2.88 222	3.76 219	2.01 222	3.46 220	2
116.00	115.95	4.1 205	-2.24	-1.91 220	2.95 222	3.83 218	2.07 221	3.54 219	2
117.00	116.94	4.4 202	-2.32	-1.94 220	3.02 221	3.91 218	2.13 221	3.62 219	2
118.00	117.94	4.8 205	-2.39	-1.97 220	3.10 221	4.00 217	2.20 220	3.70 218	2
119.00	118.94	4.8 202	-2.47	-2.00 219	3.18 220	4.09 217	2.28 220	3.79 218	2
120.00	119.93	5.1 203	-2.55	-2.04 219	3.26 220	4.18 216	2.35 220	3.87 217	2
121.00	120.93	5.0 203	-2.63	-2.07 218	3.35 219	4.27 216	2.43 219	3.96 217	2
122.00	121.92	5.3 201	-2.72	-2.10 218	3.44 219	4.36 215	2.51 219	4.05 216	2
123.00	122.92	5.3 201	-2.80	-2.14 217	3.53 219	4.46 215	2.59 218	4.15 216	2
124.00	123.92	5.6 201	-2.89	-2.17 217	3.62 218	4.56 215	2.68 218	4.25 215	2
125.00	124.91	5.7 201	-2.99	-2.20 216	3.71 218	4.66 214	2.76 217	4.35 215	3
126.00	125.91	6.0 203	-3.08	-2.24 216	3.81 217	4.77 214	2.85 217	4.45 215	3
127.00	126.90	6.0 201	-3.18	-2.28 216	3.91 217	4.88 213	2.95 217	4.56 214	3
128.00	127.89	6.3 199	-3.28	-2.31 215	4.01 217	4.99 213	3.04 216	4.66 214	3
129.00	128.89	6.3 201	-3.38	-2.35 215	4.12 216	5.10 212	3.14 216	4.77 213	3
130.00	129.88	6.3 199	-3.48	-2.39 214	4.22 216	5.21 212	3.24 216	4.88 213	3
131.00	130.88	6.3 201	-3.59	-2.43 214	4.33 216	5.33 212	3.34 215	5.00 213	3
132.00	131.87	6.4 203	-3.70	-2.47 214	4.44 215	5.45 211	3.44 215	5.11 212	3
133.00	132.86	6.7 199	-3.80	-2.51 213	4.56 215	5.57 211	3.55 214	5.23 212	3
134.00	133.86	6.8 201	-3.91	-2.55 213	4.67 215	5.69 211	3.65 214	5.35 212	3
135.00	134.85	6.8 200	-4.03	-2.59 213	4.79 214	5.81 210	3.76 214	5.47 211	4
136.00	135.84	6.8 202	-4.14	-2.64 213	4.91 214	5.94 210	3.87 214	5.60 211	4
137.00	136.83	7.3 202	-4.25	-2.68 212	5.03 214	6.07 210	3.99 213	5.72 211	4
138.00	137.83	7.3 200	-4.37	-2.73 212	5.15 214	6.21 210	4.11 213	5.86 211	4
139.00	138.82	7.4 202	-4.49	-2.78 212	5.28 213	6.34 209	4.23 213	5.99 210	4
140.00	139.81	7.6 202	-4.61	-2.83 212	5.41 213	6.48 209	4.35 213	6.12 210	4
141.00	140.80	7.7 202	-4.73	-2.89 211	5.54 213	6.62 209	4.47 212	6.26 210	4
142.00	141.79	8.0 204	-4.86	-2.94 211	5.68 213	6.76 209	4.60 212	6.40 210	4
143.00	142.78	7.9 205	-4.98	-3.00 211	5.82 213	6.91 209	4.73 212	6.54 210	5
144.00	143.77	8.0 205	-5.11	-3.06 211	5.95 212	7.05 209	4.86 212	6.69 210	5
145.00	144.76	8.2 204	-5.23	-3.12 211	6.09 212	7.20 209	4.99 212	6.83 209	5
146.00	145.75	8.4 206	-5.36	-3.18 211	6.23 212	7.35 209	5.12 212	6.98 209	5
147.00	146.74	8.4 203	-5.50	-3.24 210	6.38 212	7.50 208	5.26 211	7.13 209	5
148.00	147.73	8.6 204	-5.63	-3.30 210	6.53 212	7.66 208	5.40 211	7.28 209	5
149.00	148.72	8.6 202	-5.77	-3.36 210	6.67 212	7.81 208	5.54 211	7.43 209	5
150.00	149.71	8.7 206	-5.90	-3.42 210	6.82 211	7.97 208	5.68 211	7.59 209	6
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152.00	151.68	8.7 205	-6.18	-3.54 210	7.12 211	8.29 208	5.96 211	7.90 209	6
153.00	152.67	9.0 205	-6.32	-3.61 210	7.28 211	8.45 208	6.11 211	8.06 209	6
154.00	153.66	9.2 207	-6.46	-3.68 210	7.44 211	8.62 208	6.26 211	8.22 209	6
155.00	154.65	9.6 208	-6.61	-3.75 210	7.60 211	8.79 208	6.42 210	8.39 208	6
156.00	155.63	9.9 206	-6.76	-3.83 210	7.77 211	8.97 208	6.57 210	8.57 208	6
157.00	156.62	9.4 205	-6.91	-3.90 209	7.94 211	9.14 208	6.73 210	8.74 208	7
158.00	157.60	9.4 201	-7.06	-3.96 209	8.10 211	9.31 208	6.89 210	8.91 208	7
159.00	158.59	9.5 199	-7.22	-4.02 209	8.26 210	9.48 207	7.04 210	9.08 208	7
160.00	159.58	9.9 198	-7.38	-4.08 209	8.43 210	9.66 207	7.20 210	9.25 208	7
161.00	160.56	9.9 199	-7.54	-4.13 209	8.60 210	9.83 207	7.36 210	9.42 208	7
162.00	161.55	10.0 199	-7.70	-4.19 209	8.77 210	10.01 207	7.53 209	9.60 208	7
163.00	162.53	10.3 198	-7.87	-4.25 208	8.94 210	10.20 207	7.70 209	9.78 207	8
164.00	163.51	10.5 197	-8.04	-4.31 208	9.12 209	10.38 207	7.86 209	9.96 207	8
165.00	164.50	10.2 197	-8.21	-4.36 208	9.30 209	10.57 206	8.03 209	10.14 207	8
166.00	165.48	10.1 197	-8.38	-4.41 208	9.47 209	10.75 206	8.20 209	10.32 207	8
167.00	166.47	9.7 193	-8.55	-4.45 207	9.64 209	10.92 206	8.36 208	10.49 206	8
168.00	167.45	9.7 190	-8.72	-4.48 207	9.80 208	11.09 206	8.52 208	10.66 206	8
169.00	168.44	9.7 192	-8.88	-4.52 207	9.97 208	11.26 205	8.67 208	10.83 206	9
170.00	169.42	9.7 192	-9.05	-4.55 207	10.13 208	11.43 205	8.83 208	11.00 206	9
171.00	170.41	9.5 192	-9.21	-4.59 206	10.29 208	11.60 205	8.98 207	11.16 206	9
172.00	171.40	9.6 190	-9.37	-4.62 206	10.45 207	11.77 205	9.13 207	11.33 205	9
173.00	172.38	9.7 190	-9.53	-4.65 206	10.61 207	11.93 204	9.28 207	11.49 205	9
174.00	173.37	9.5 186	-9.70	-4.67 206	10.76 207	12.10 204	9.43 207	11.65 205	9
175.00	174.35	9.8 186	-9.86	-4.69 205	10.92 207	12.26 204	9.59 206	11.82 204	10
176.00	175.34	9.8 184	-10.03	-4.71 205	11.08 206	12.43 204	9.74 206	11.98 204	10
177.00	176.33	9.8 184	-10.20	-4.73 205	11.24 206	12.60 203	9.89 206	12.15 204	10
178.00	177.31	10.1 187	-10.37	-4.75 205	11.40 206	12.77 203	10.05 205	12.31 204	10
179.00	178.30	9.8 188	-10.54	-4.77 204	11.57 206	12.94 203	10.21 205	12.48 203	10
180.00	179.28	10.1 186	-10.71	-4.79 204	11.73 205	13.11 203	10.36 205	12.65 203	10
181.00	180.26	10.2 188	-10.89	-4.81 204	11.90 205	13.29 202	10.53 205	12.83 203	10
182.00	181.25	10.2 187	-11.06	-4.83 204	12.07 205	13.46 202	10.69 204	13.00 203	11
183.00	182.23	10.5 188	-11.24	-4.86 203	12.25 205	13.65 202	10.86 204	13.18 202	11
184.00	183.21	10.6 188	-11.42	-4.88 203	12.42 204	13.83 202	11.03 204	13.36 202	11
184.70	183.90	12.5 185	-11.56	-4.90 203	12.55 204	13.96 201	11.15 204	13.49 202	11

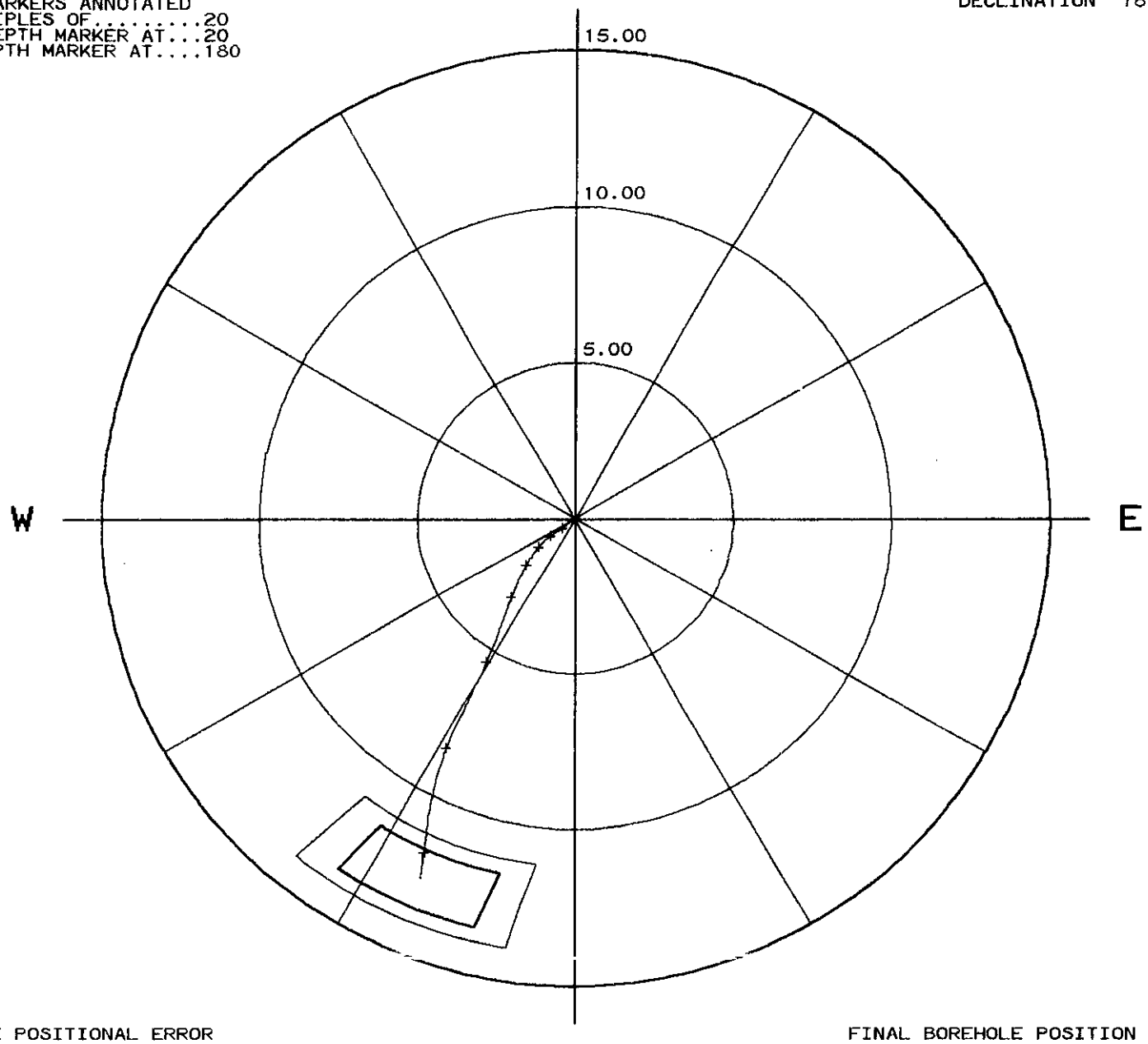
CROSS SECTION

184.00	183.21	10.6	188	-11.42	-4.88	203	12.42	204	13.83	202	11.03	204	13.30	202	11.4
184.70	183.90	12.5	185	-11.56	-4.90	203	12.55	204	13.96	201	11.15	204	13.49	202	11.6

CROSS SECTION

ALL FIGURES IN LOG DEPTH MS
TARGET ORIGIN DEPTH.....6.30
LAST PLOTTED DEPTH.....184.70
DEPTH MARKERS ANNOTATED
IN MULTIPLES OF.....20
FIRST DEPTH MARKER AT...20
LAST DEPTH MARKER AT....180

PLOT WITH RESPECT TO TRUE NORT
SCALE 1:200
DECLINATION 18.0 DEG



BOREHOLE POSITIONAL ERROR

THE TWO BOXES SURROUNDING THE LAST PLOTTED DEPTH SHOW THE TYPICAL, AND MAXIMUM, POSITIONAL ERROR AT THAT DEPTH.

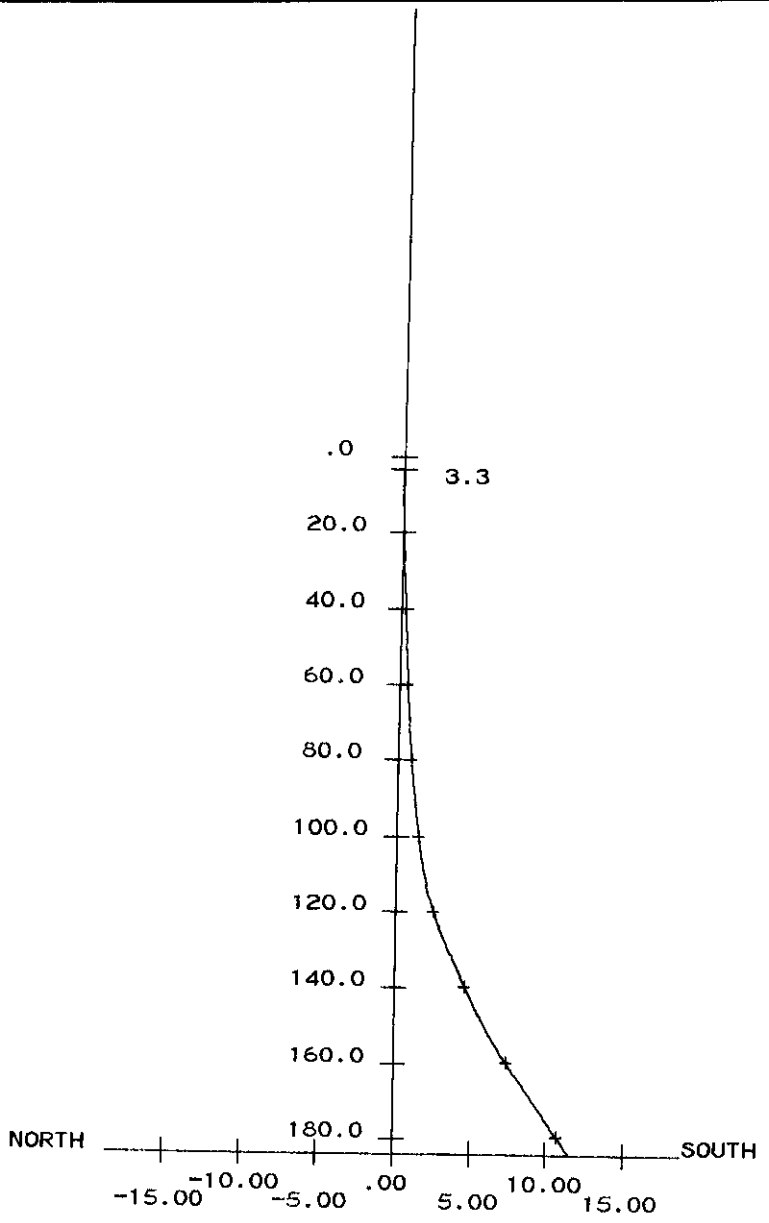
FINAL BOREHOLE POSITION

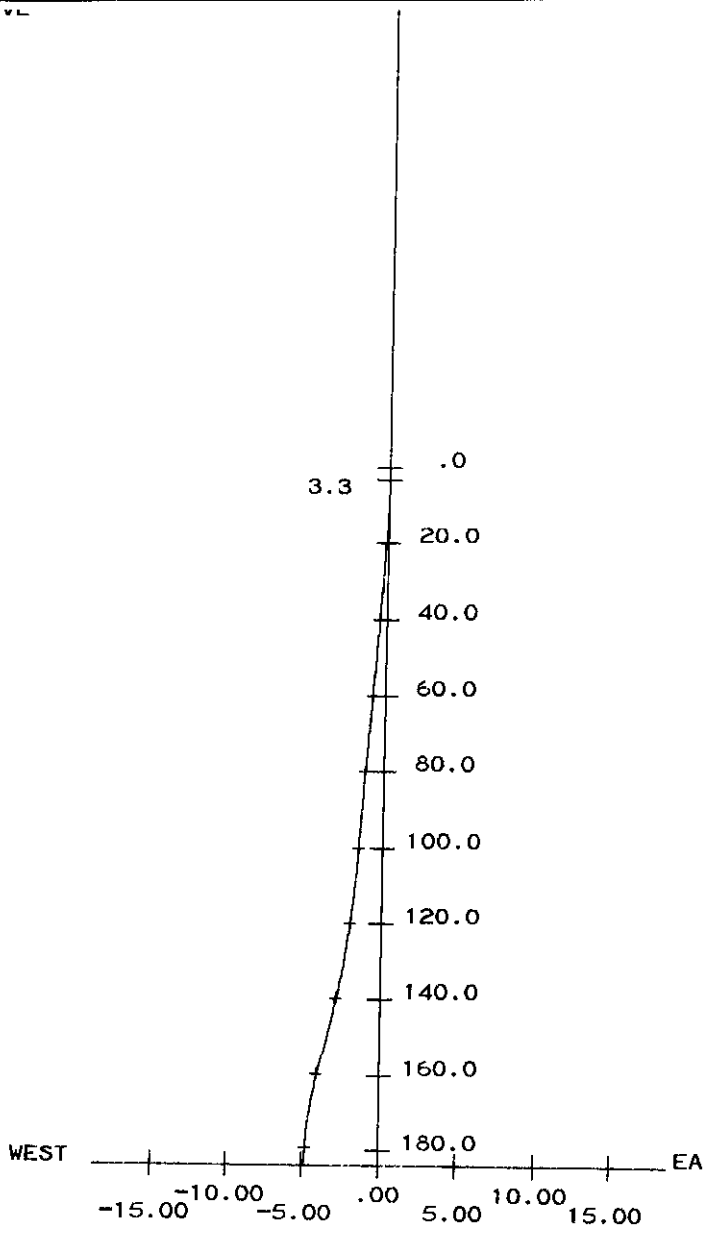
THE LAST PLOTTED DEPTH IS AT 11.56 MS SOUTH, 4.90 MS WEST IE. 12.55 MS FROM THE ORIGIN, 203 DEG FROM TRUE NORT

N-S SECTION VERTICAL SECTIONS E-W SECTION

(TRUE DEPTH VS DISPLACEMENT)

VERTICAL SCALE 1:2000
HORIZONTAL SCALE 1:500



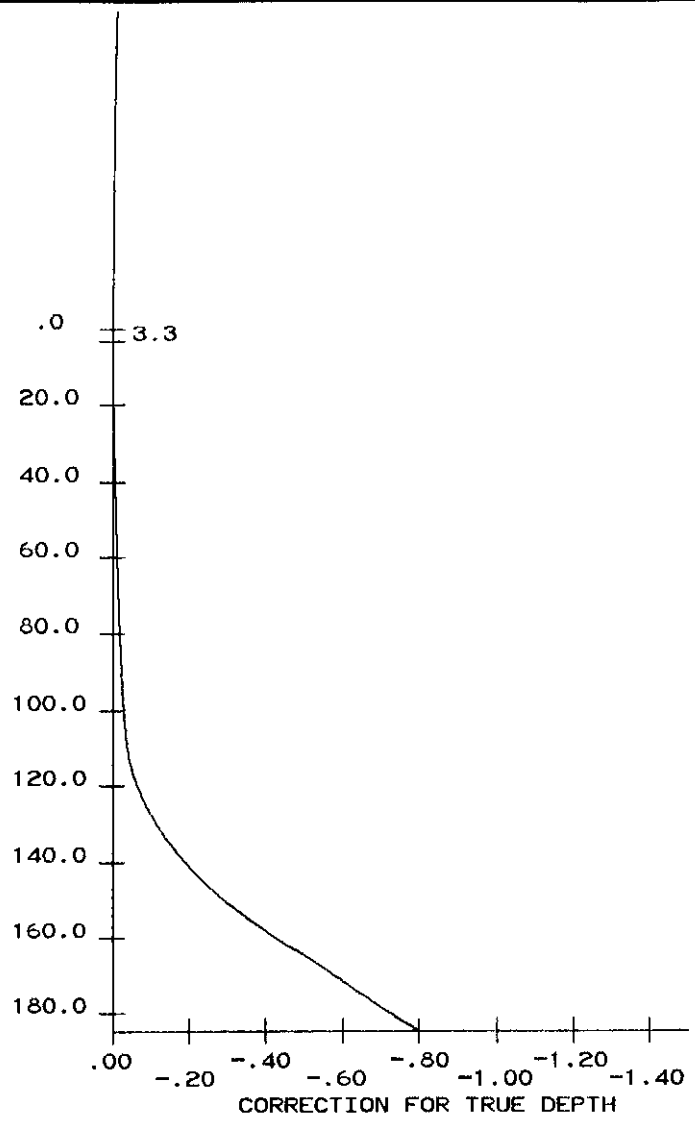


DEPTH CORRECTION ANALYSIS

LOG
DEPTH

VERTICAL SCALE 1:2000
HORIZONTAL SCALE 1:20

DEPTHS: LOG	TRUE	DEPTHS: LOG	TRUE	DEPTHS: LOG	TRUE
4.00	4.00	74.00	73.98	144.00	143.77
5.00	5.00	75.00	74.98	145.00	144.76
6.00	6.00	76.00	75.98	146.00	145.75
7.00	7.00	77.00	76.98	147.00	146.74
8.00	8.00	78.00	77.98	148.00	147.73
9.00	9.00	79.00	78.98	149.00	148.72
10.00	10.00	80.00	79.98	150.00	149.71
11.00	11.00	81.00	80.98	151.00	150.70
12.00	12.00	82.00	81.98	152.00	151.68
13.00	13.00	83.00	82.98	153.00	152.67
14.00	14.00	84.00	83.98	154.00	153.66
15.00	15.00	85.00	84.98	155.00	154.65
16.00	16.00	86.00	85.98	156.00	155.63
17.00	17.00	87.00	86.98	157.00	156.62
18.00	18.00	88.00	87.98	158.00	157.60
19.00	19.00	89.00	88.98	159.00	158.59
20.00	20.00	90.00	89.98	160.00	159.58
21.00	21.00	91.00	90.98	161.00	160.56
22.00	22.00	92.00	91.97	162.00	161.55
23.00	23.00	93.00	92.97	163.00	162.53
24.00	24.00	94.00	93.97	164.00	163.51
25.00	25.00	95.00	94.97	165.00	164.50
26.00	26.00	96.00	95.97	166.00	165.48
27.00	27.00	97.00	96.97	167.00	166.47
28.00	28.00	98.00	97.97	168.00	167.45
29.00	29.00	99.00	98.97	169.00	168.44
30.00	30.00	100.00	99.97	170.00	169.42
31.00	31.00	101.00	100.97	171.00	170.41
32.00	32.00	102.00	101.97	172.00	171.40
33.00	33.00	103.00	102.97	173.00	172.38
34.00	33.99	104.00	103.97	174.00	173.37



17.00	17.00	87.00	86.98	157.00	156.62
18.00	18.00	88.00	87.98	158.00	157.60
19.00	19.00	89.00	88.98	159.00	158.59
20.00	20.00	90.00	89.98	160.00	159.58
21.00	21.00	91.00	90.98	161.00	160.56
22.00	22.00	92.00	91.97	162.00	161.55
23.00	23.00	93.00	92.97	163.00	162.53
24.00	24.00	94.00	93.97	164.00	163.51
25.00	25.00	95.00	94.97	165.00	164.50
26.00	26.00	96.00	95.97	166.00	165.48
27.00	27.00	97.00	96.97	167.00	166.47
28.00	28.00	98.00	97.97	168.00	167.45
29.00	29.00	99.00	98.97	169.00	168.44
30.00	30.00	100.00	99.97	170.00	169.42
31.00	31.00	101.00	100.97	171.00	170.41
32.00	32.00	102.00	101.97	172.00	171.40
33.00	33.00	103.00	102.97	173.00	172.38
34.00	33.99	104.00	103.97	174.00	173.37
35.00	34.99	105.00	104.96	175.00	174.35
36.00	35.99	106.00	105.96	176.00	175.34
37.00	36.99	107.00	106.96	177.00	176.33
38.00	37.99	108.00	107.96	178.00	177.31
39.00	38.99	109.00	108.96	179.00	178.30
40.00	39.99	110.00	109.96	180.00	179.28
41.00	40.99	111.00	110.96	181.00	180.26
42.00	41.99	112.00	111.96	182.00	181.25
43.00	42.99	113.00	112.95	183.00	182.23
44.00	43.99	114.00	113.95	184.00	183.21
45.00	44.99	115.00	114.95	184.70	183.90
46.00	45.99	116.00	115.95		
47.00	46.99	117.00	116.94		
48.00	47.99	118.00	117.94		
49.00	48.99	119.00	118.94		
50.00	49.99	120.00	119.93		
51.00	50.99	121.00	120.93		
52.00	51.99	122.00	121.92		
53.00	52.99	123.00	122.92		
54.00	53.99	124.00	123.92		
55.00	54.99	125.00	124.91		
56.00	55.99	126.00	125.91		
57.00	56.99	127.00	126.90		
58.00	57.99	128.00	127.89		
59.00	58.99	129.00	128.89		
60.00	59.99	130.00	129.88		
61.00	60.99	131.00	130.88		
62.00	61.99	132.00	131.87		
63.00	62.99	133.00	132.86		
64.00	63.99	134.00	133.86		
65.00	64.99	135.00	134.85		
66.00	65.99	136.00	135.84		
67.00	66.99	137.00	136.83		
68.00	67.99	138.00	137.83		
69.00	68.99	139.00	138.82		
70.00	69.99	140.00	139.81		
71.00	70.98	141.00	140.80		
72.00	71.98	142.00	141.79		
73.00	72.98	143.00	142.78		

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-07V
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

PRECISION ENERGY SERVICES

DIPMETER ANALYSIS
SCALE 1:240

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-07V
FIELD	BINGAY CREEK
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA
LOCATION	5562990 N 644285 E

LSD	SEC	TWP	RGE	Other Services
				CDL
				SFE

API Number
License Numbe

Permanent Datum G.L. , Elevation 1402.473 metres
Log Measured From GROUND LEVEL above Permanent Datum
Drilling Measured From GROUND LEVEL

Elevations:
KB metres
DF metres
GL 1402.47 metres

Date	25-MAR-2005			
Run Number	1			
Depth Driller	185.00	metres		
Depth Logger	184.96	metres		
First Reading	184.70	metres		
Last Reading	6.00	metres		
Casing Driller	6.00	metres		
Casing Logger	5.90	metres		
Bit Size	139.70	mm		
Hole Fluid Type	WATER			
Density / Viscosity	1.00 g/c3			
PH / Fluid Loss				
Sample Source	NONE			
Rm @ Measured Temp	2.0 @ 20.0	ohm-m		
Rmf @ Measured Temp				
Rmc @ Measured Temp				
Source Rmf / Rmc				
Rm @ BHT				
Time Since Circulation	N/A			
Max Recorded Temp	7.00	deg C		
Equipment Name	SQD/VO3		013/231	
Equipment / Base	3405	RDR		
Recorded By	ROBB RACZ			
Witnessed By	G. BICKFORD			
DRILL DONE	10-MAR-2005			

BOREHOLE RECORD

Bit Size millimetres	Depth From metres	Depth To metres
139.700	6.00	94.00
133.350	94.00	185.00

CASING RECORD

Type	Size millimetres	Depth From metres	Shoe Depth metres	Weight Kg/metre
	159.000	0.00	6.00	0.00

REMARKS

SURFACE CO-ORDINATES:

NORTHING: 5562990.619
EASTING: 644285.725

ELEVATION: 1402.473 M SURVEYED ON MARCH 26/2005

WATER LEVEL: 6.0 M

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions in our price schedule.

MAIN LOG 1:240

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 01-APR-2005 11:1
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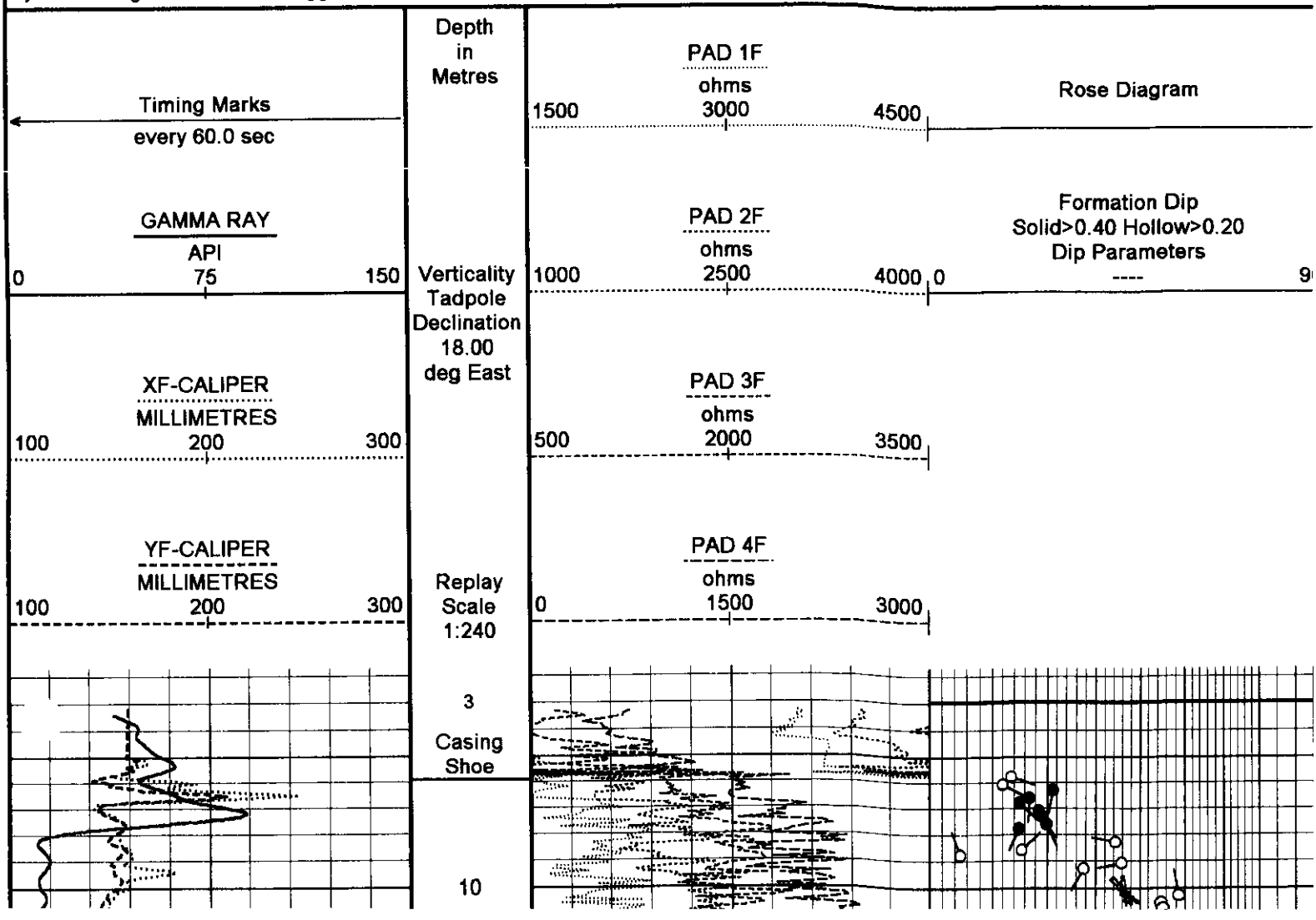
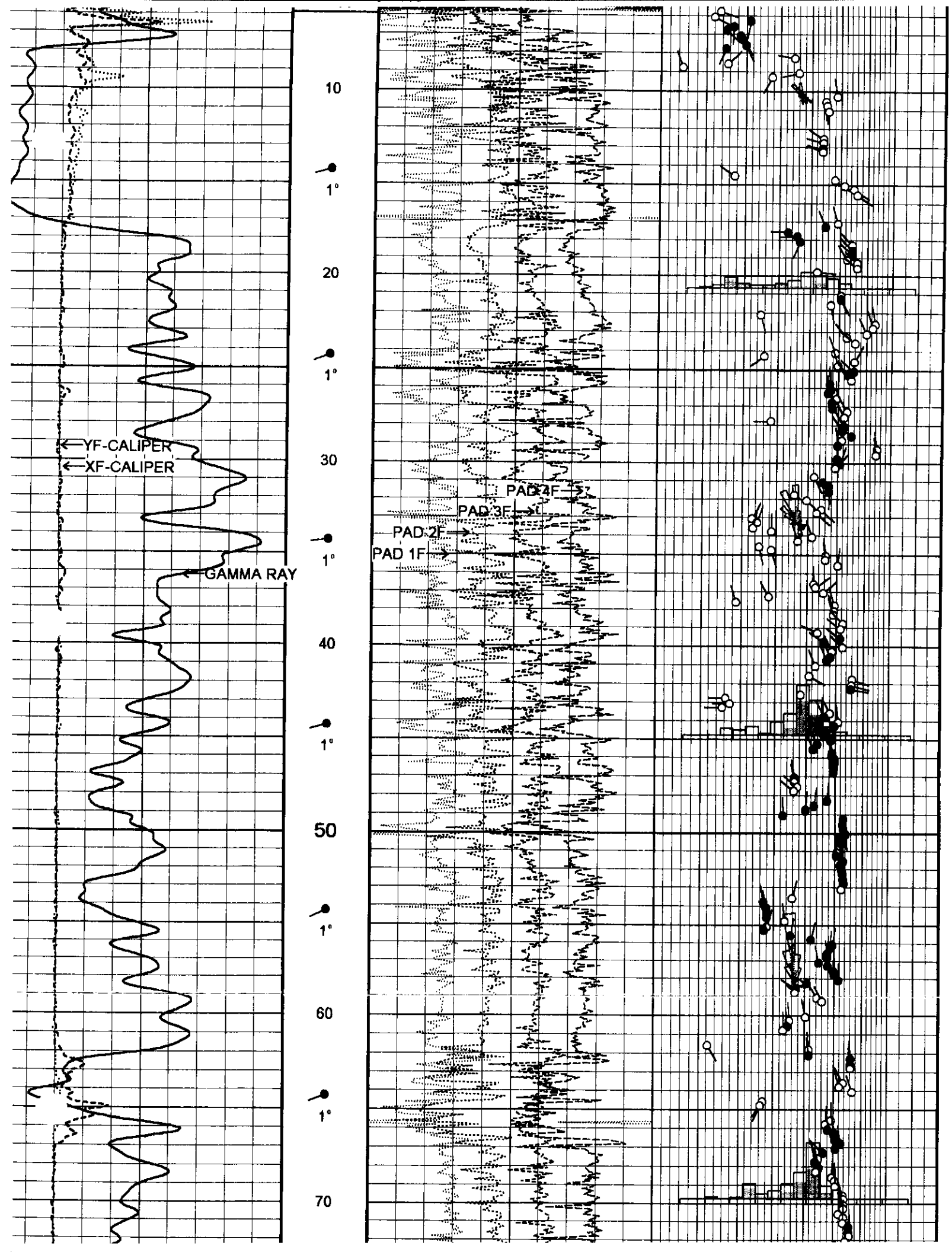
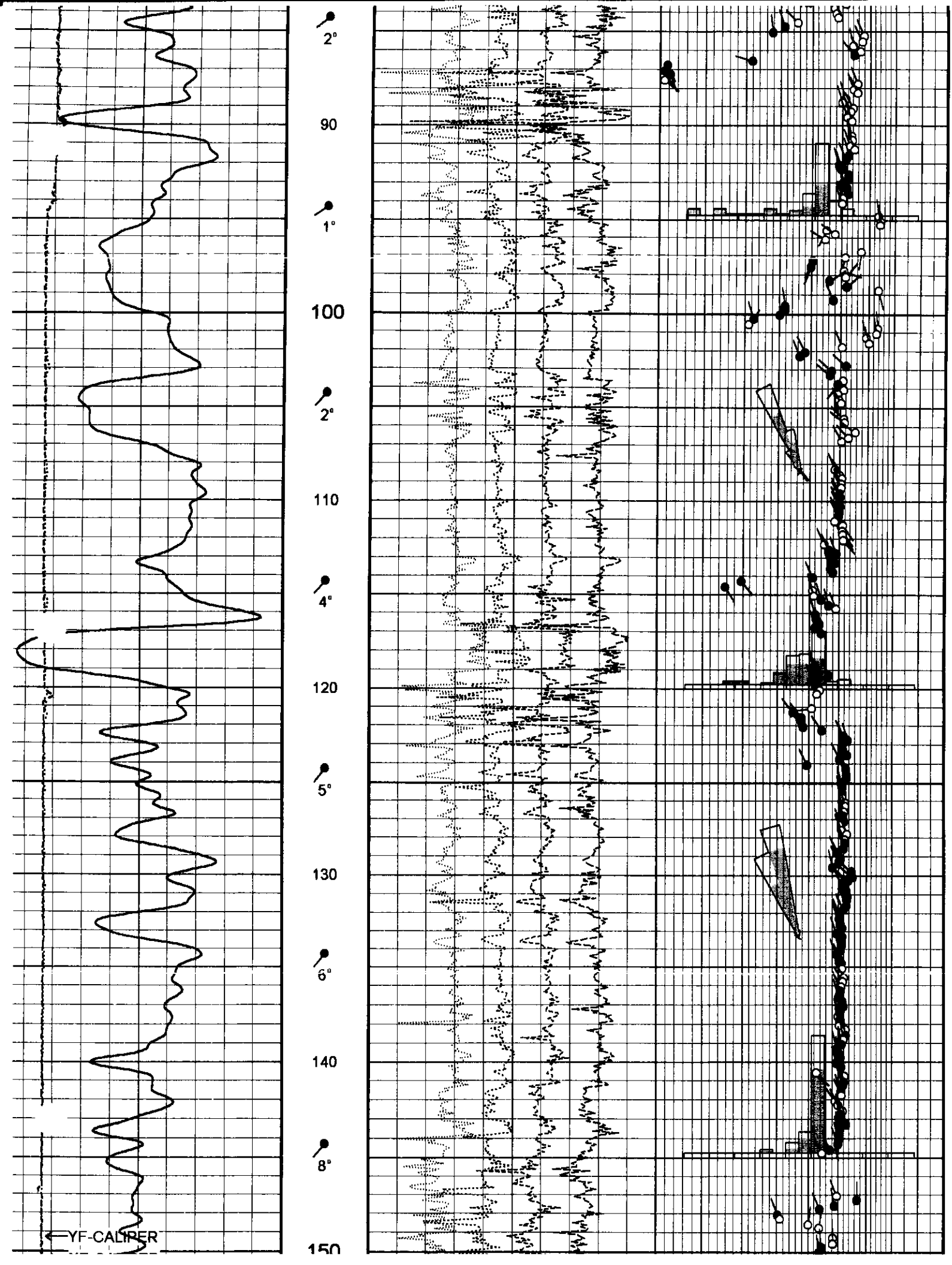
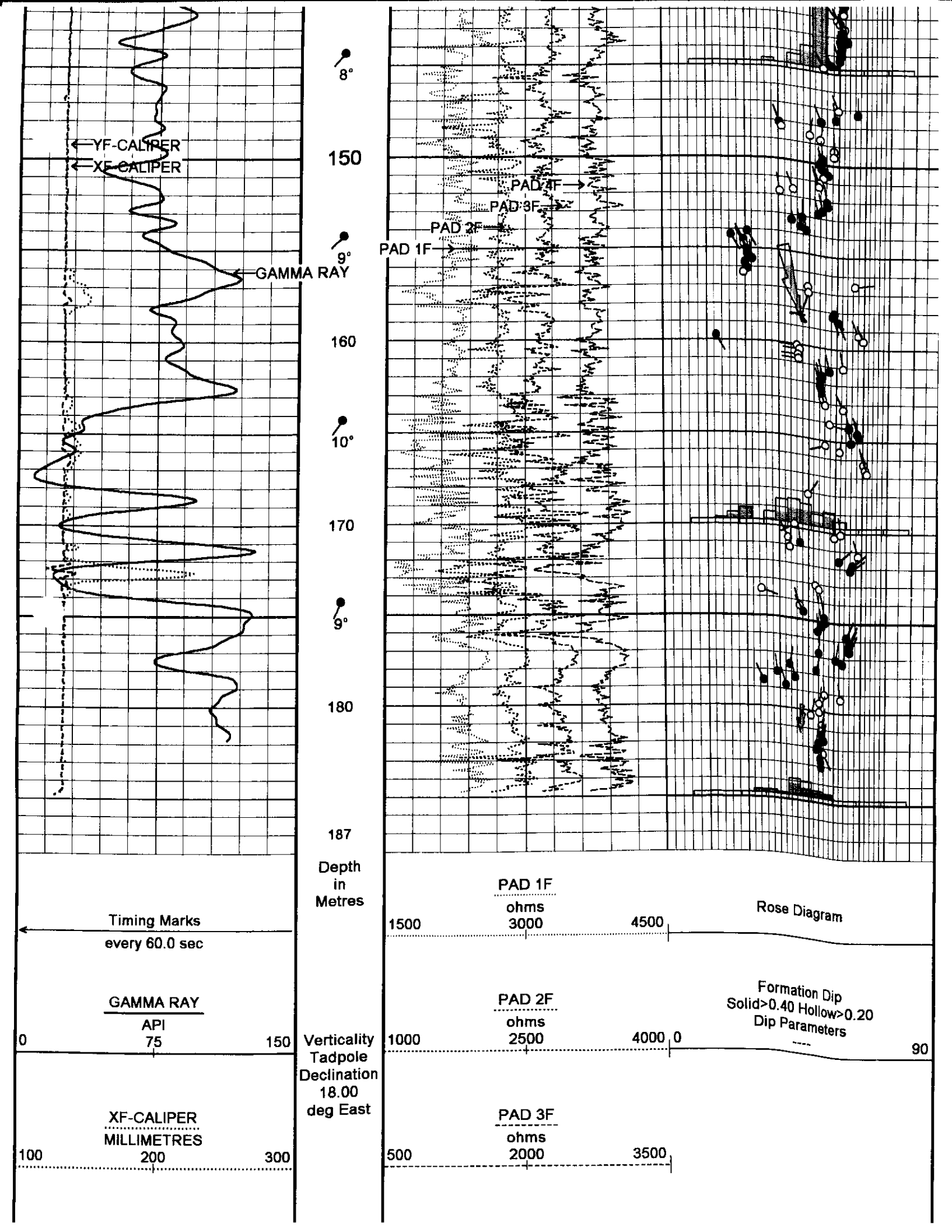
System Configuration Dates: Logged : Plotted 18-MAY-2004:




10
1°
20
1°
YF-CALIPER
XF-CALIPER
30
PAD 4F
PAD 3F
PAD 2F
PAD 1F
1°
GAMMA RAY
40
1°
50
1°
60
1°
70


2°
90
1°
100
2°
110
4°
120
5°
130
6°
140
8°
150
←YF-CALIPER


YF-CALIPER
XF-CALIPER
GAMMA RAY
PAD 4F
PAD 3F
PAD 2F
PAD 1F
8°
9°
10°
9°
150
160
170
180
187
Depth in Metres
Timing Marks every 60.0 sec
GAMMA RAY
API
0
75
150
XF-CALIPER
MILLIMETRES
100
200
300
Verticality Tadpole Declination 18.00 deg East
PAD 1F
ohms
1500
3000
4500
Rose Diagram
PAD 2F
ohms
1000
2500
4000
Formation Dip
Solid>0.40 Hollow>0.20
Dip Parameters
0
90
PAD 3F
ohms
500
2000
3500

0 75 150 | Verticality Tadpole Declination 18.00 deg East | 1000 2500 4000 | 0 ---- 90

XF-CALIPER
MILLIMETRES
10 200 300

PAD 3F
ohms
500 2000 3500

YF-CALIPER
MILLIMETRES
100 200 300

Replay Scale 1:240

PAD 4F
ohms
0 1500 3000

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 01-APR-2005 11:15
Filename: C:\logs\Elkford\Bg-07v\DIP07VM.dta
System Configuration Dates: Logged : Plotted 18-MAY-2004:

MAIN LOG 1:240

REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 01-APR-2005 11:15
Filename: C:\logs\Elkford\Bg-07v\DIP07VR.dta
System Configuration Dates: Logged : Plotted 18-MAY-2004:

Timing Marks
every 60.0 sec

Depth in Metres

PAD 1F
ohms
1500 3000 4500

Rose Diagram

GAMMA RAY
API
0 75 150

PAD 2F
ohms
1000 2500 4000

Formation Dip
Solid>0.40 Hollow>0.20
Dip Parameters
0 ---- 90

Verticality Tadpole Declination 18.00 deg East

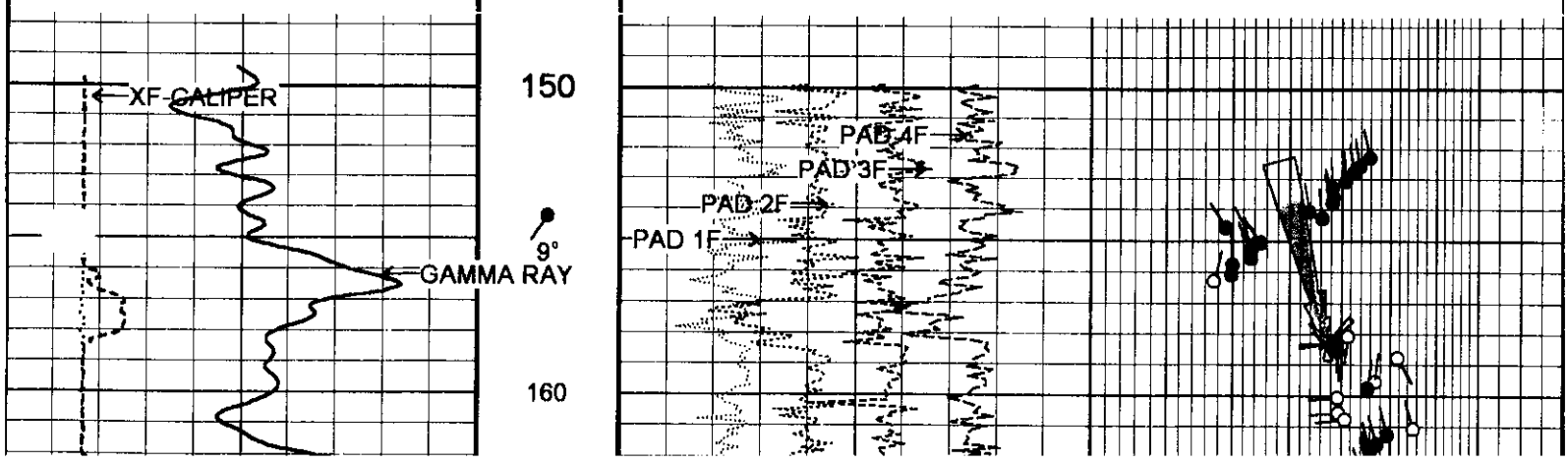
XF-CALIPER
MILLIMETRES
100 200 300

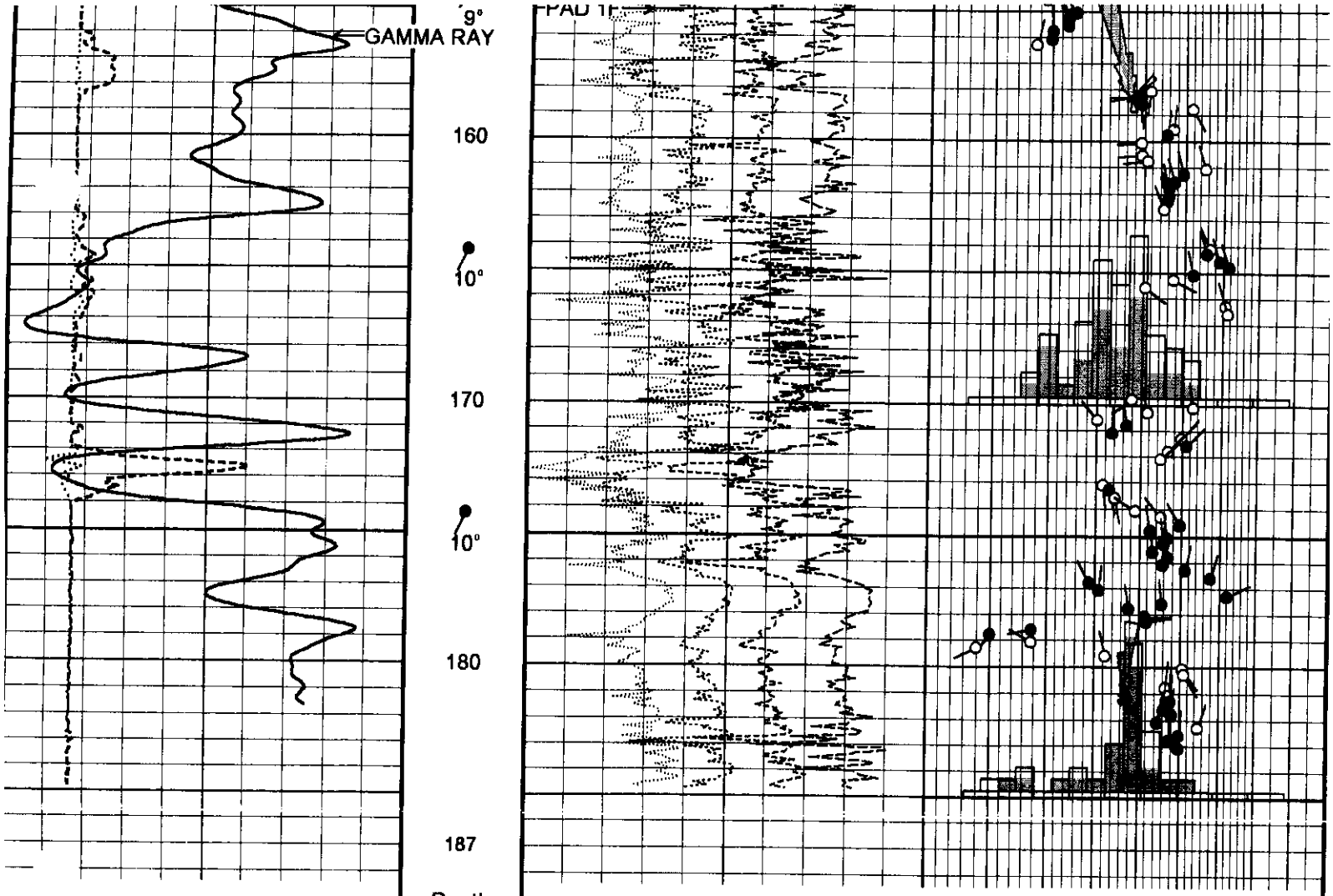
PAD 3F
ohms
500 2000 3500

YF-CALIPER
MILLIMETRES
100 200 300

Replay Scale 1:240

PAD 4F
ohms
0 1500 3000





Depth in Metres

Timing Marks
every 60.0 sec

GAMMA RAY
API
0 75 150

XF-CALIPER
MILLIMETRES
100 200 300

YF-CALIPER
MILLIMETRES
100 200 300

Verticality
Tadpole
Declination
18.00
deg East

Replay
Scale
1:240

PAD 1F
ohms
1500 3000 4500

PAD 2F
ohms
1000 2500 4000

PAD 3F
ohms
500 2000 3500

PAD 4F
ohms
0 1500 3000

Rose Diagram

Formation Dip
Solid>0.40 Hollow>0.20
Dip Parameters
---- 0 90

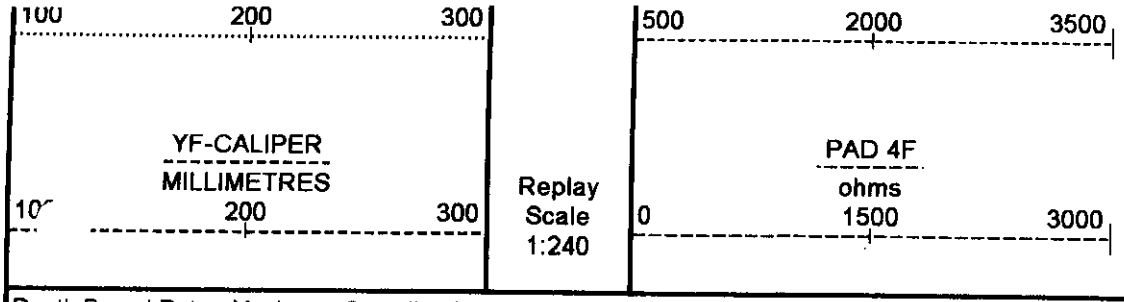
Dep ised Data - Maximum Sampling Increment 10.0cm

Plotted on 01-APR-2005 11:15

Filename: C:\logs\Elkford\Bg-07v\DIP07VR.dta

System Configuration Dates: Logged : Plotted 18-MAY-2004:

REPEAT SECTION



Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\logs\Elkford\Bg-07v\DIP07VR.dta
System Configuration Dates: Logged : Plotted 18-MAY-2004:

Plotted on 01-APR-2005 11:15

REPEAT SECTION

BEFORE SURVEY CALIBRATION

C:\logs\Elkford\Bg-07v\dip4m07v.dta

LOGGING CONSTANTS & GAMMA CALIBRATION

Correlation step (m.)	.25	Correlation interval (m.)	1.00
Bit size #1 (mm)	0.00	Bit depth #1 (m)	0.00
Bit size #2 (mm)	0.00	Bit depth #2 (m)	0.00
Bit size #3 (mm)	0.00	Bit depth #3 (m)	0.00
Bit size #4 (mm)	0.00	Bit depth #4 (m)	0.00
Bit size #5 (mm)	0.00	Bit depth #5 (m)	0.00
Gamma calibrator (API)	0.00	Gamma counts	0.00
Pad penetration (mm)	3.81	Search angle (degrees)	60.00
Structural dip angle (degrees)	.00	Structural dip azi. (degrees)	.00
Declination (degrees)	18.00 E	Detail pad data	NO
Correlate	YES	Caliper units	MM
Dep... units	METRIC	Caliper used in calculations	YES

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-07V
FIELD	BINGAY CREEK
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

Elevation Kelly Bushing		metres	First Reading	184.70	metres
Elevation Drill Floor		metres	Depth Driller	185.00	metres
Elevation Ground Level	1402.47	metres	Depth Logger	184.96	metres

PRECISION ENERGY SERVICES

DIPMETER ANALYSIS
SCALE 1:240

[redacted]

PRECISION ENERGY SERVICES

FOCUSSED ELECTRIC GAMMA RAY, CALIPER SCALE 1:240

LOCN. 5562986N 644299E
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG-05-08A
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG-05-08A
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION 5562986N 644299E

LSD	SEC	TWP	RGE
N/A			

OTHER SERVICES
CDL
DIP/VERT

PERMANENT DATUM GROUND LEVEL ,ELEVATION 1402.109M
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1402.109M

DATE	28-MAR-05							
RUN NUMBER	1							
DEPTH-DRILLER	230.00M							
DEPTH-LOGGER	230.49M							
FIRST READING	227.95M							
LAST READING	5.90M							
CASING-DRILLER	6.00M							
CASING-LOGGER	5.90M							
BIT SIZE	133.35MM							
HOLE FLUID TYPE	WATER							
DENS./VISC.	1000	N/A						
PH/FLUID LOSS	N/A	N/A						
SAMPLE SOURCE	NONE							
RM @ MEAS TEMP	2.00 @ 20.0C							
RMF @ MEAS TEMP	N/A							
RMC @ MEAS TEMP	N/A							
SOURCE: RMF/RMC	N/A	N/A						
RM @ BHT	N/A							
TIME SINCE CIRC	N/A							
MAX REC TEMP	N/A							
EQUIPMENT/BASE	V3405	RDR						
RECORDED BY	ROBB RACZ							
WITNESSED BY	G. BICKFORD							
DRILL DONE	13-MAR-05							

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	133.35MM	154.00M	TD	159.00MM	N/A	SURFACE	6.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
SFE	103			

REMARKS

FOCUSSED ELECTRIC GAMMA RAY, CALIPER SCALE 1:240

NORTHING: 5562986.174 ELEVATION: 1402.109M SURVEYED ON MARCH 26/2005

EASTING : 644299.073

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MAIN LOG 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 20:13

FILENAME: MRGE08AM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 28-MAR-2005 AT 20:16

DEPTH IN METRES

BIT SIZE
MILLIMETRES
150 250

CALIPER FROM DENSITY
MILLIMETRES
150 250

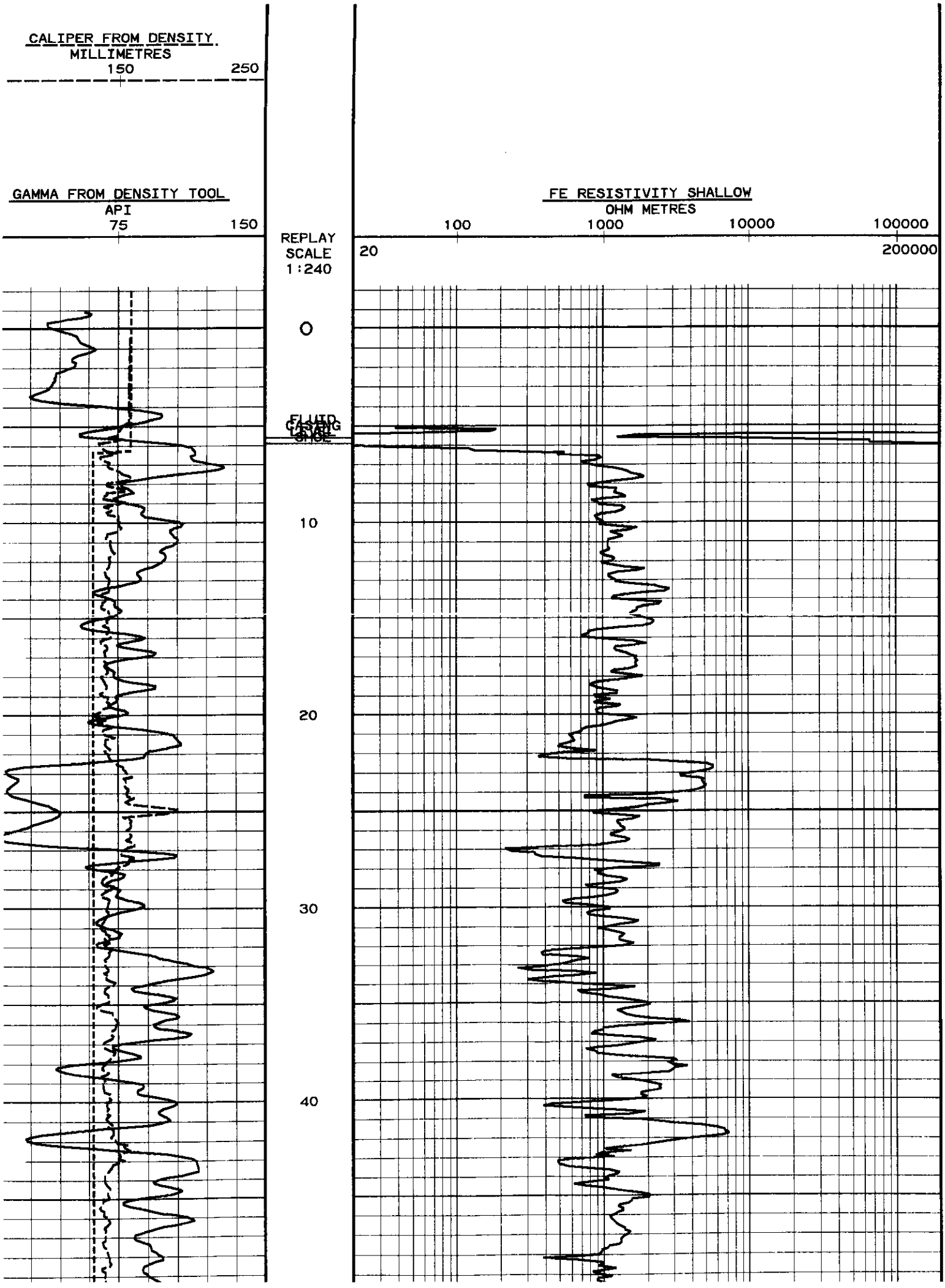
GAMMA FROM DENSITY TOOL
API
75 150

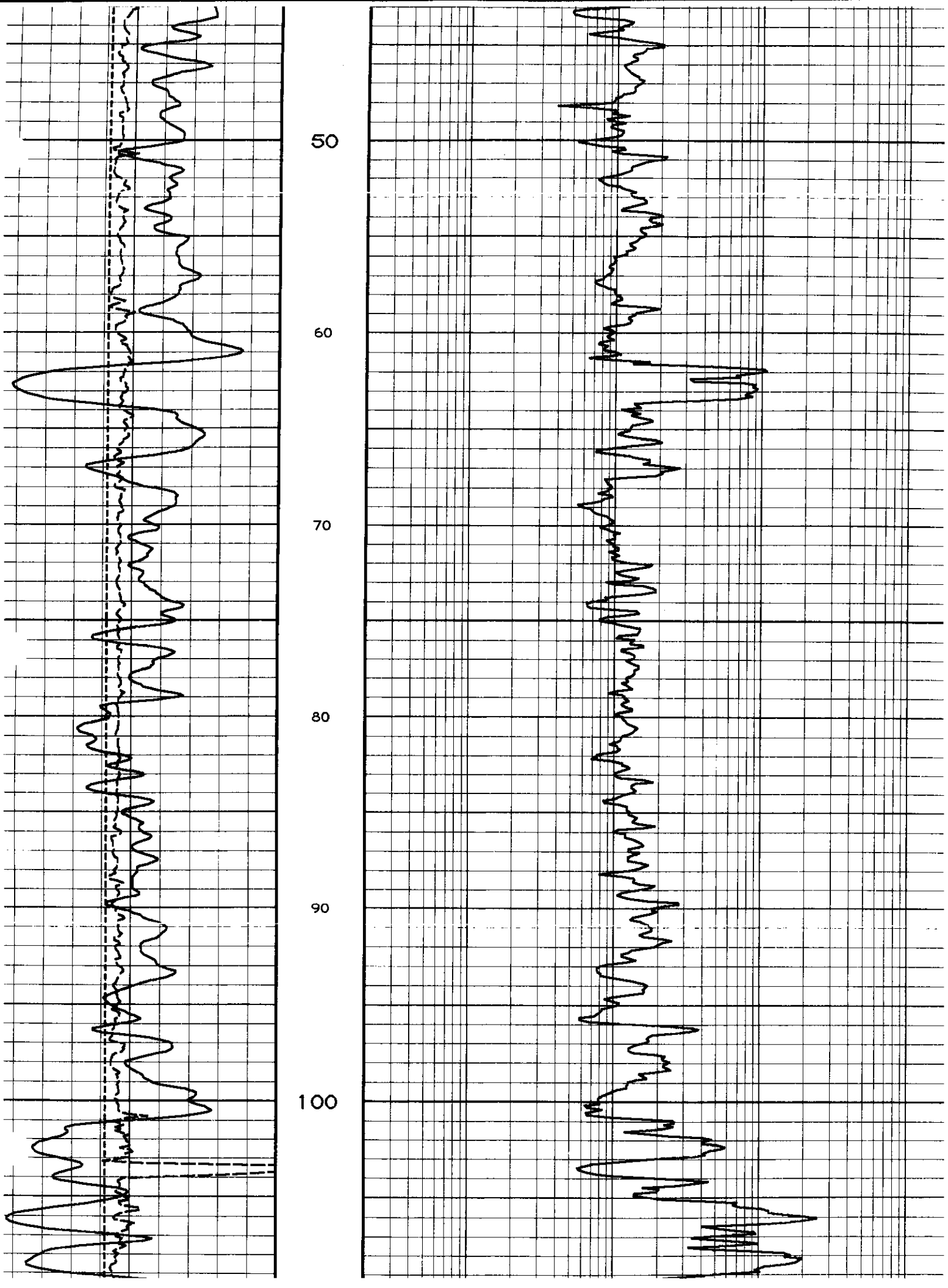
FE RESISTIVITY SHALLOW
OHM METRES
100 1000 10000 100000
20 200000

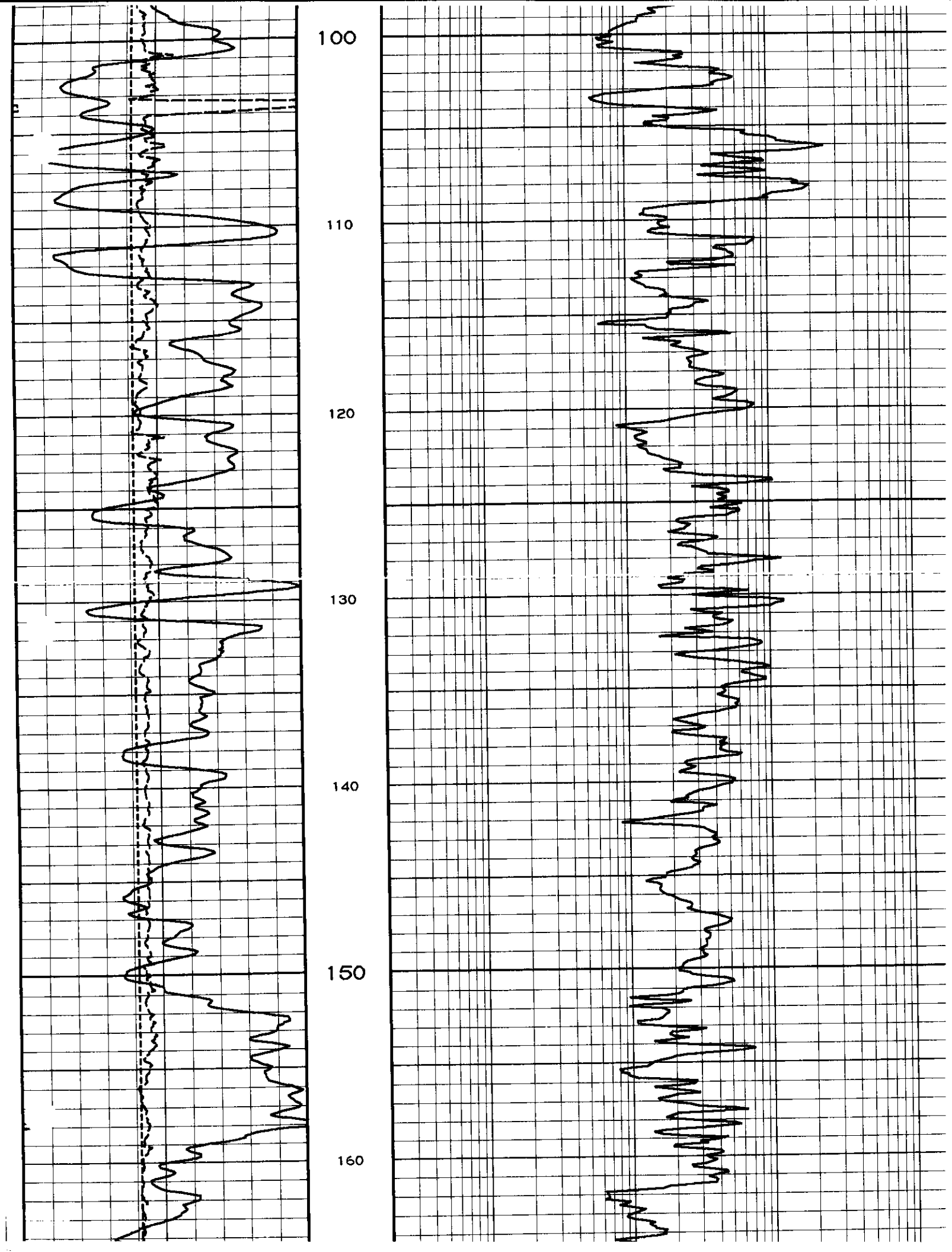
REPLAY SCALE 1:240

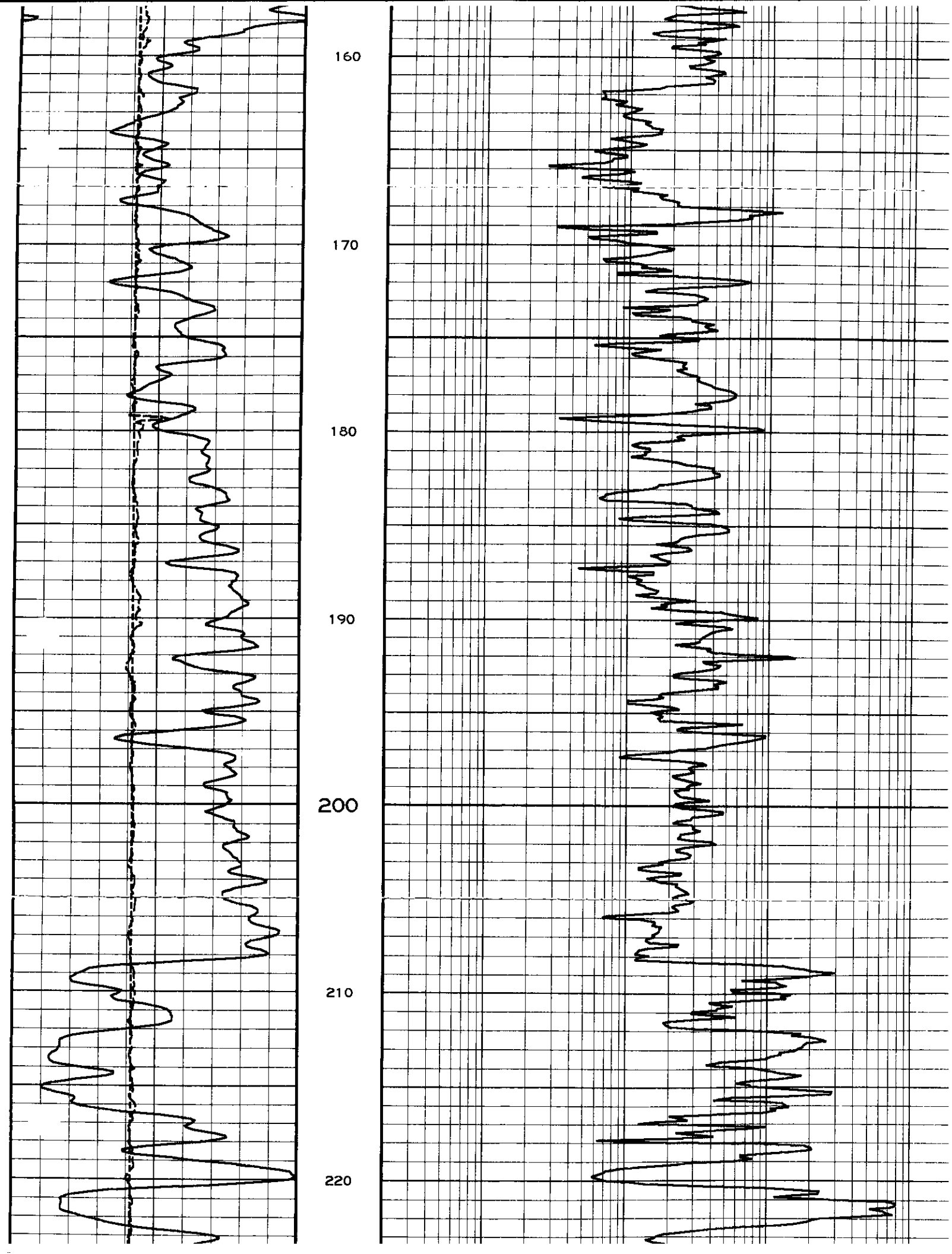
0

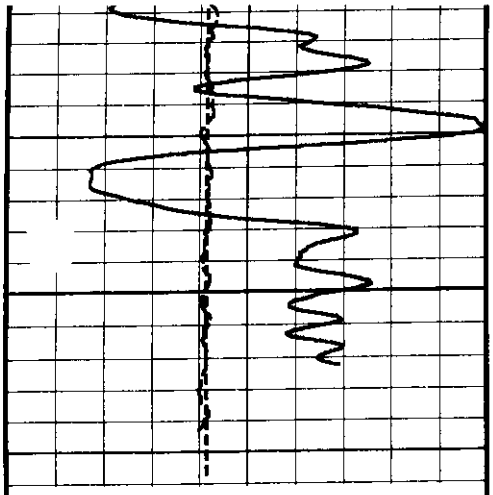
FLUID

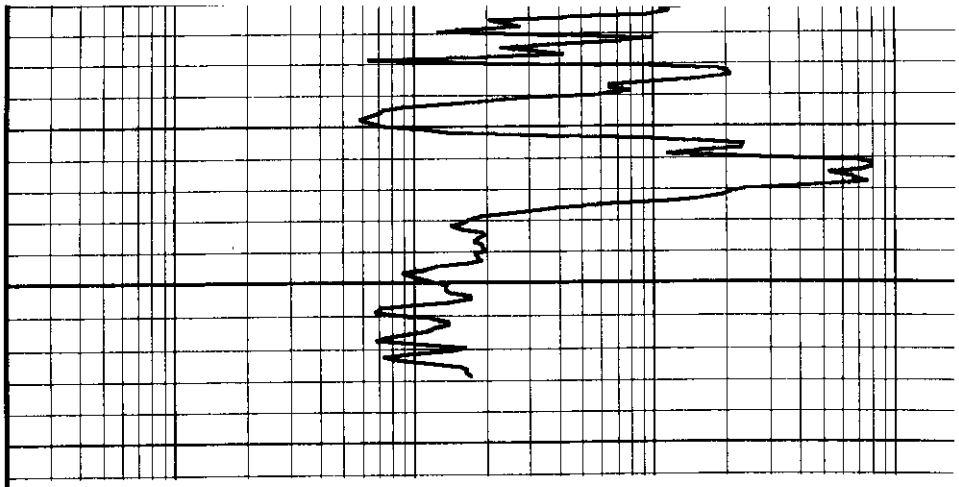

CALIPER FROM DENSITY
MILLIMETRES
150
250
GAMMA FROM DENSITY TOOL
API
75
150
REPLAY
SCALE
1:240
FE RESISTIVITY SHALLOW
OHM METRES
100
1000
10000
100000
20
200000
0
FLUID
CASING
SHOE
10
20
30
40


50
60
70
80
90
100


100
110
120
130
140
150
160


160
170
180
190
200
210
220





220

230

DEPTH
IN
METRES

BIT SIZE
MILLIMETRES
50 150 250

CALIPER FROM DENSITY
MILLIMETRES
50 150 250

GAMMA FROM DENSITY TOOL
API
0 75 150

REPLAY
SCALE
1:240

FE RESISTIVITY SHALLOW
OHM METRES
20 100 1000 10000 100000
20000

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 20:13

FILENAME: MRGE08AM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 28-MAR-2005 AT 20:16

MAIN LOG 1:240

REPEAT SECTION

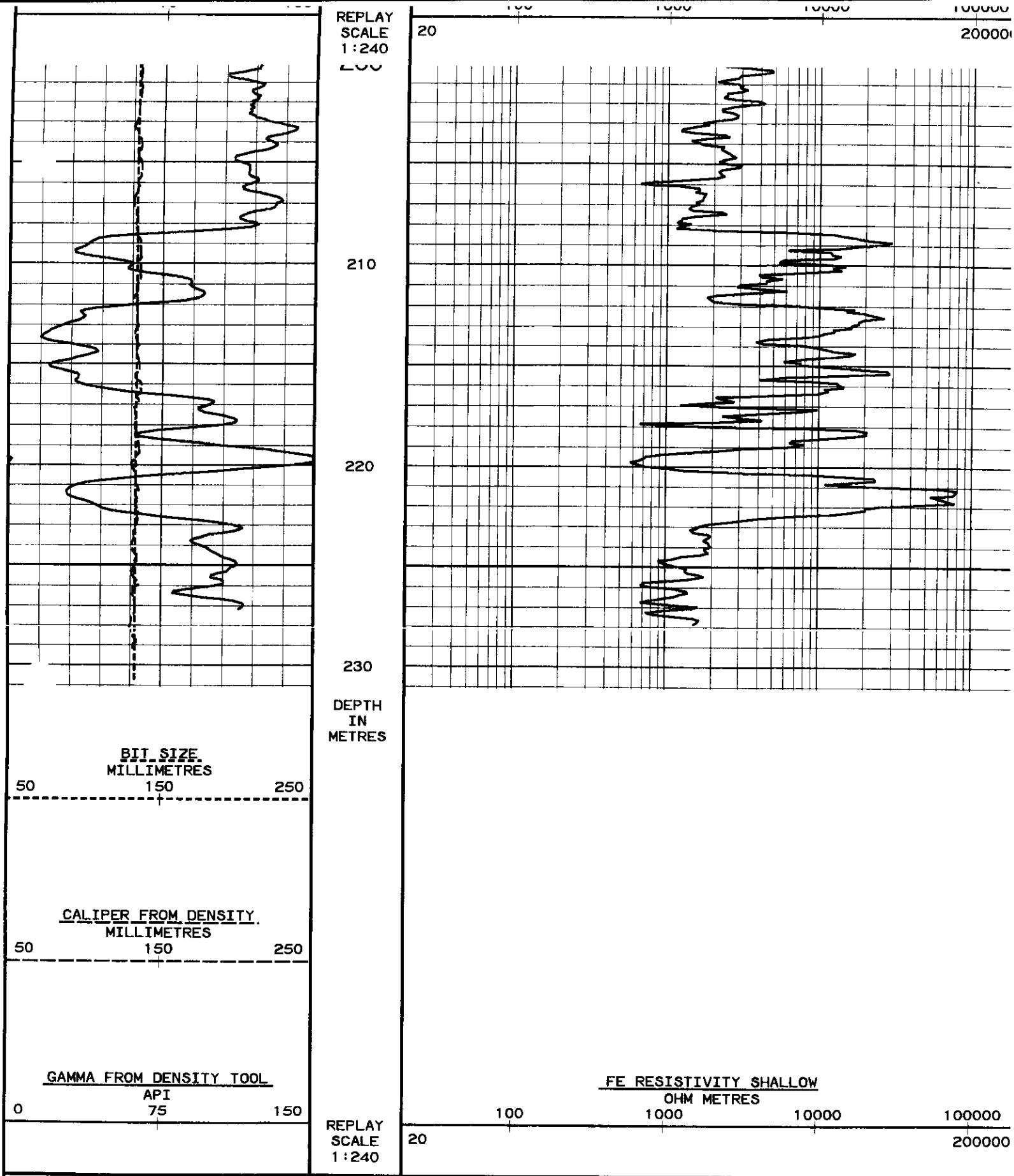
DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 20:12

FILENAME: MRGE08AR.CIB RUN ID:REPEAT SECTION PLOTTED ON 28-MAR-2005 AT 20:15

DEPTH
IN
METRES

BIT SIZE
MILLIMETRES
50 150 250

CALIPER FROM DENSITY
MILLIMETRES
50 150 250



DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 20:12

FILENAME: MRGE08AR.CIB RUN ID:REPEAT SECTION PLOTTED ON 28-MAR-2005 AT 20:15

REPEAT SECTION

LOGGING CONSTANTS AND BIT SIZE MEASUREMENTS

RESISTIVITY SONDE TYPE	DUAL RR1	MUD RESISTIVITY (OHM METRES)	2.000
BIT SIZE UNITS (INS/MM)	MILLIMTR	BIT DEPTH UNITS (M/FT)	METRES
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	6.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	154.00
BIT SIZE 4	0.00	FROM BIT DEPTH 4	230.00
BIT SIZE 5	0.00	FROM BIT DEPTH 5	0.00
TEMPERATURE UNITS	DEG. C		

CALIBRATION CONSTANTS

FE1 CALIBRATOR VALUE 1	2.0000	FE1 COUNT RATE 1	4496.0000
FE1 CALIBRATOR VALUE 2	2000.0000	FE1 COUNT RATE 2	2972.0000
FE2 CALIBRATOR VALUE 1	2.0000	FE2 COUNT RATE 1	4492.0000
FE2 CALIBRATOR VALUE 2	2000.0000	FE2 COUNT RATE 2	3010.0000
GRFE CALIBRATOR VALUE 1	490.0000	GRFE COUNT RATE 1	315.0000
SP CALIBRATOR VALUE 1	1.0000	SP COUNT RATE 1	1.0000
SP CALIBRATOR VALUE 2	0.0000	SP COUNT RATE 2	0.0000

LOGGING CONSTANTS

SONDE TYPE (DD3,CCS,DDI,DDS,DDL	DDS	SONDE MODE (WET,DRY,STD)	STD
MUD WEIGHT	1.00	STRIP COEFFICIENT	0.50
ANNULAR VOLUME DIAMETER	133.35	WATER LEVEL	.00
CALIPER ARM LENGTH (CMS)	22.60	MATRIX DENSITY	2.65
CALIPER UNITS(INS,MMS)	MMS	DENSITY OF MUD FILTRATE	1.00
BRD POINT ONE	1.00	BRD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
LSD POINT ONE	1.00	LSD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
DENSITY SCALAR	1.50	BRD SCALAR	-.50
BIT DEPTHS & WATER LEVEL (FT,M)	METRES	CALIPER SOURCE FOR PROCESSING	CAL
BIT SIZE 1	159.00	FROM BIT DEPTH 1	.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	6.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	154.00
BIT SIZE 4	.00	FROM BIT DEPTH 4	230.00
BIT SIZE 5	.00	FROM BIT DEPTH 5	.00

CALIBRATION CONSTANTS

GAMMA CALIBRATOR VALUE 1	436.00	GAMMA COUNT RATE 1	237.72
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
CALIPER RING SIZE 1	76.20	CALIPER COUNT FOR RING 1	1834.00
CALIPER RING SIZE 2	101.60	CALIPER COUNT FOR RING 2	2258.00
CALIPER RING SIZE 3	127.00	CALIPER COUNT FOR RING 3	2690.00
CALIPER RING SIZE 4	152.40	CALIPER COUNT FOR RING 4	3162.00
CALIPER RING SIZE 5	203.20	CALIPER COUNT FOR RING 5	4224.00
CALIPER RING SIZE 6	254.00	CALIPER COUNT FOR RING 6	5030.00
DRY HOLE CORRECTION...			
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
DRY HOLE BRD NEW (1) GM/CC	0.00	DRY HOLE BRD LOG (1) GM/CC	0.00
DRY HOLE BRD NEW (2) GM/CC	1.00	DRY HOLE BRD LOG (2) GM/CC	1.00
DRY HOLE LSD NEW (1) GM/CC	0.00	DRY HOLE LSD LOG (1) GM/CC	0.00
DRY HOLE LSD NEW (2) GM/CC	1.00	DRY HOLE LSD LOG (2) GM/CC	1.00

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-08A
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

PRECISION ENERGY SERVICES

COMPENSATED DENSITY GAMMA RAY, CALIPER SCALE 1:240

LOCN. 5562986N 644299E
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG-05-08A
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG-05-08A
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION 5562986N 644299E

LSD	SEC	TWP	RGE
N/A			

OTHER SERVICES
SFE
DIP/VERT

PERMANENT DATUM GROUND LEVEL .ELEVATION 1402.109M
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1402.109M

DATE	28-MAR-05							
RUN NUMBER	1							
DEPTH-DRILLER	230.00M							
DEPTH-LOGGER	230.49M							
FIRST READING	229.30M							
LAST READING	0.00M							
CASING-DRILLER	6.00M							
CASING-LOGGER	5.90M							
BIT SIZE	133.35MM							
HOLE FLUID TYPE	WATER							
DENS./VISC.	1000	N/A						
PH/FLUID LOSS	N/A	N/A						
SAMPLE SOURCE	NONE							
RM @ MEAS TEMP	2.00 @ 20.0C							
RMF @ MEAS TEMP	N/A							
RMC @ MEAS TEMP	N/A							
SOURCE: RMF/RMC	N/A	N/A						
RM @ BHT	N/A							
TIME SINCE CIRC	N/A							
MAX REC TEMP	N/A							
EQUIPMENT/BASE	V3405	RDR						
RECORDED BY	ROBB RACZ							
WITNESSED BY	G. BICKFORD							
DRILL DONE	13-MAR-05							

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	133.35MM	154.00M	TD	159.00MM	N/A	SURFACE	6.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
DD6	629			

REMARKS

COMPENSATED DENSITY GAMMA RAY, CALIPER SCALE 1:240

NORTHING: 5562986.174 ELEVATION: 1402.109M SURVEYED ON MARCH 26/2005

EASTING : 644299.073

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MAIN LOG 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 20:13

FILENAME: MRGE08AM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 28-MAR-2005 AT 20:28

BIT SIZE
MILLIMETRES
50 150 250

CALIPER FROM DENSITY
MILLIMETRES
50 150 250

GAMMA FROM DENSITY TOOL
API
0 75 150

DEPTH IN METRES

REPLAY SCALE 1:240

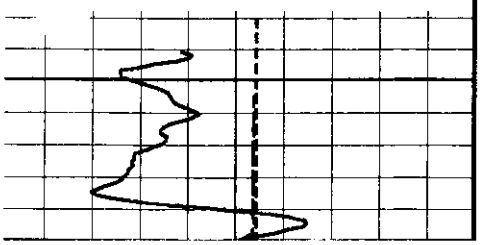
0

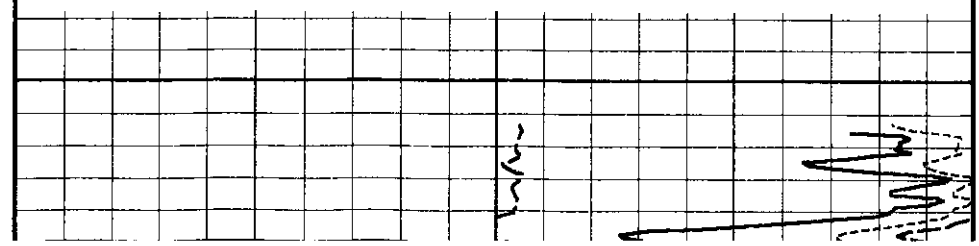
FLUID

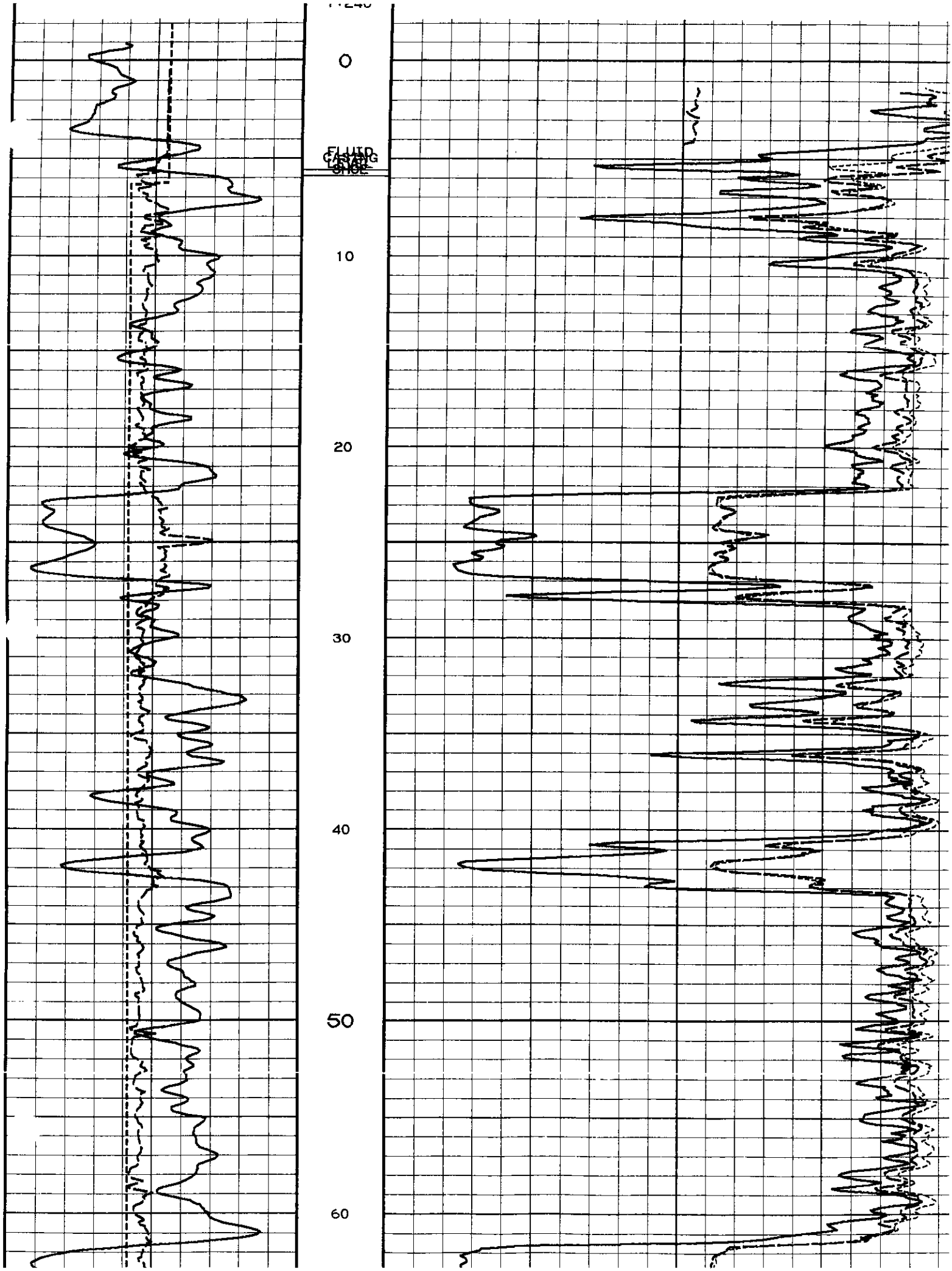
COMPENSATED DENSITY
GM/CC
1 1.50 2 2.50 3

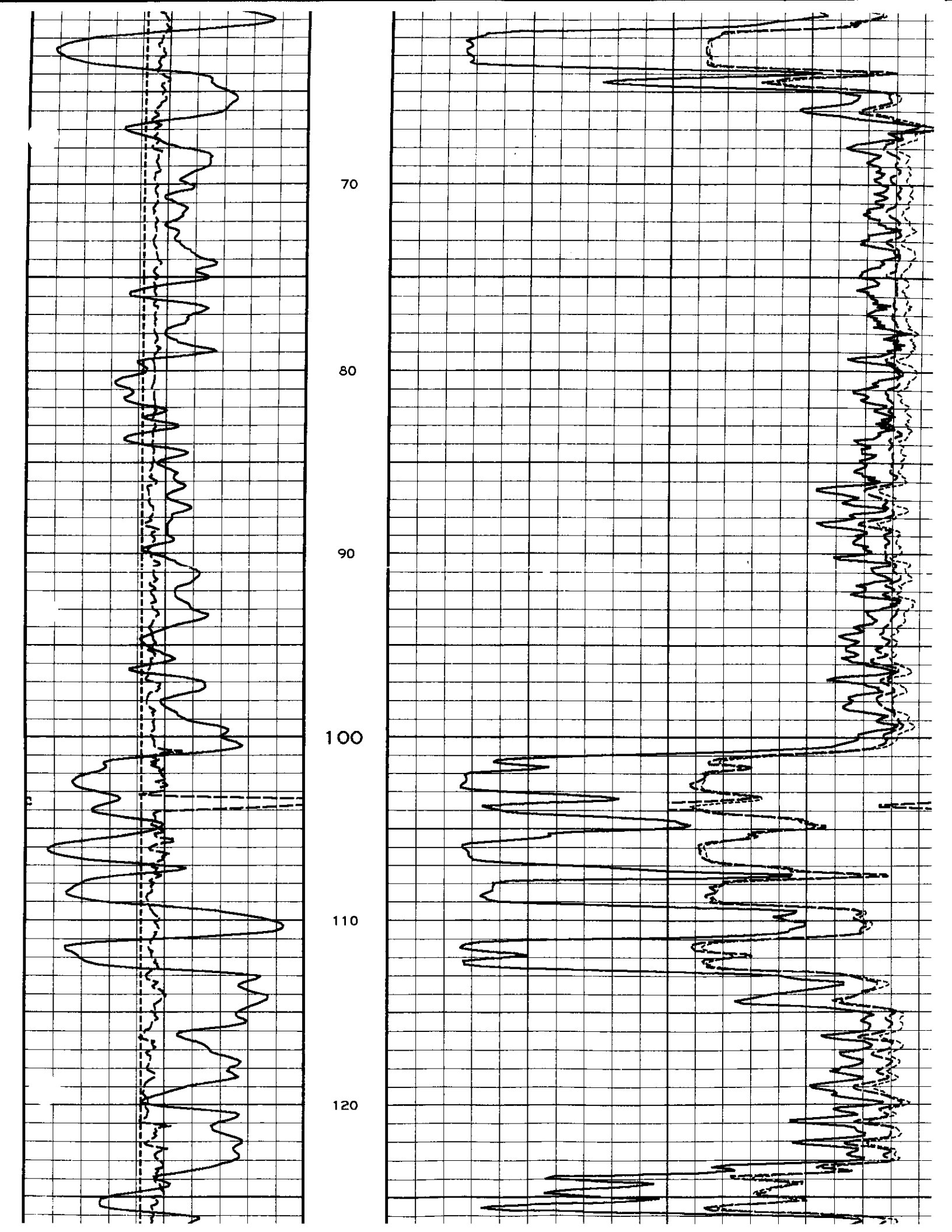
DENSITY SHORT SPACED
GM/CC
1 2 3

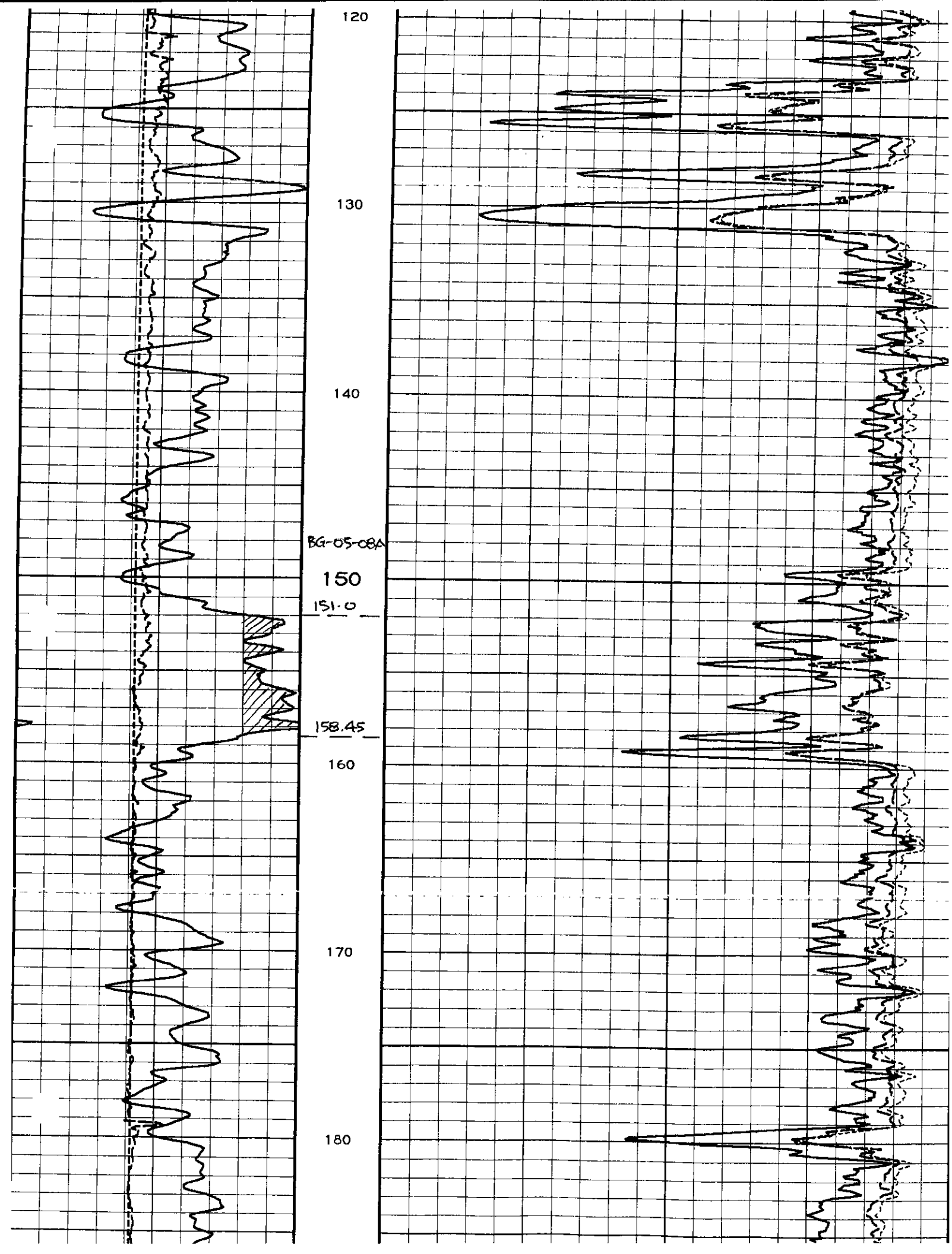
DENSITY LONG SPACED
GM/CC
1 2 3

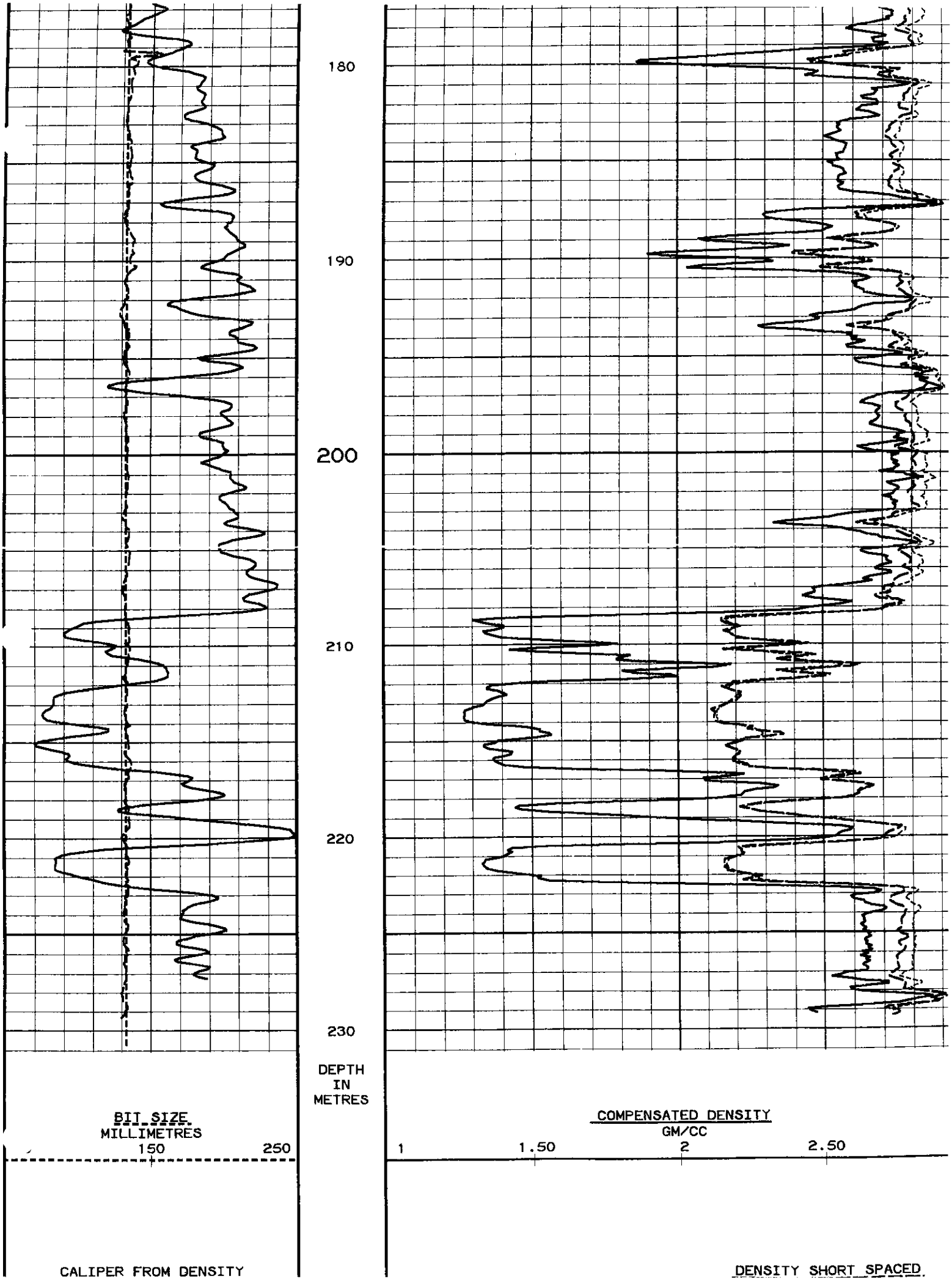





0
FLUID
CASING
SHOE
10
20
30
40
50
60


70
80
90
100
110
120


120
130
140
BG-05-08A
150
151.0
158.45
160
170
180


180
190
200
210
220
230
DEPTH
IN
METRES
BIT SIZE
MILLIMETRES
150
250
CALIPER FROM DENSITY
COMPENSATED DENSITY
GM/CC
1
1.50
2
2.50
DENSITY SHORT SPACED

MILLIMETRES
50 150 250

GAMMA FROM DENSITY TOOL
API
0 75 150

REPLAY
SCALE
1:240

GM/CC
1 2

DENSITY LONG SPACED
GM/CC
1 2

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 20:13

FILENAME: MRGE08AM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 28-MAR-2005 AT 20:28

MAIN LOG 1:240

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 20:12

FILENAME: MRGE08AR.CIB RUN ID:REPEAT SECTION PLOTTED ON 28-MAR-2005 AT 20:27

DEPTH
IN
METRES

BIT SIZE
MILLIMETRES
50 150 250

COMPENSATED DENSITY
GM/CC
1 1.50 2 2.50

CALIPER FROM DENSITY
MILLIMETRES
50 150 250

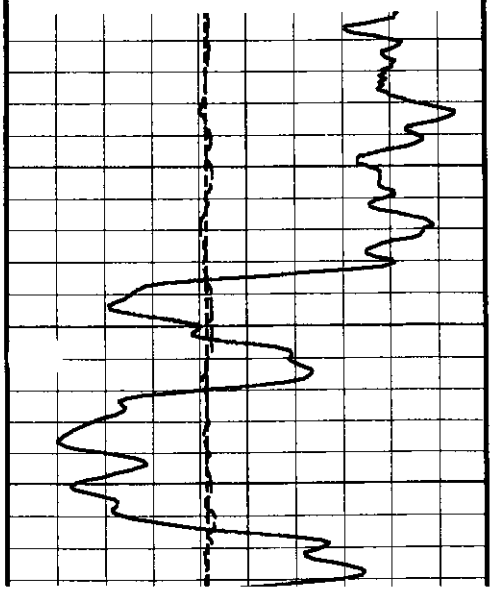
DENSITY SHORT SPACED
GM/CC
1 2

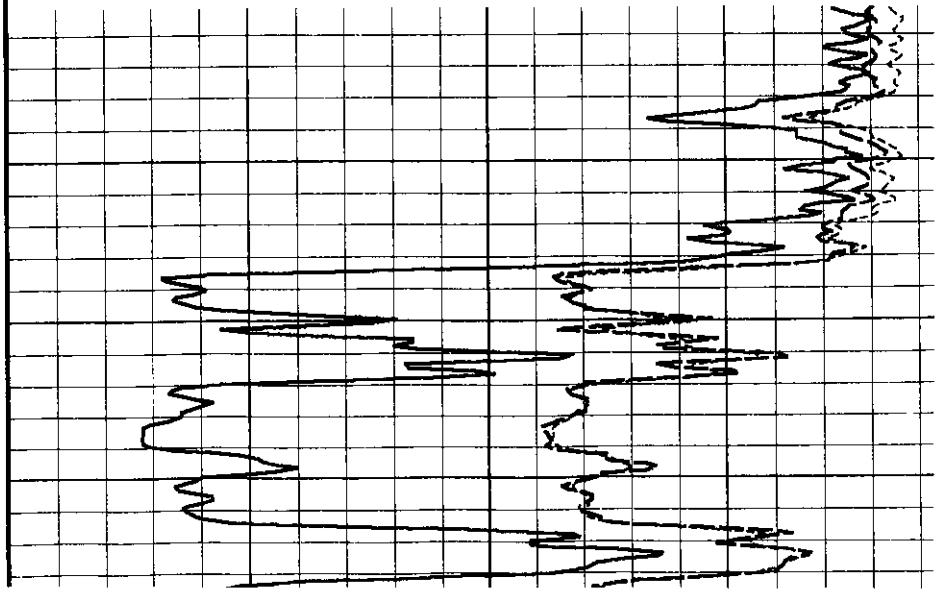
GAMMA FROM DENSITY TOOL
API
0 75 150

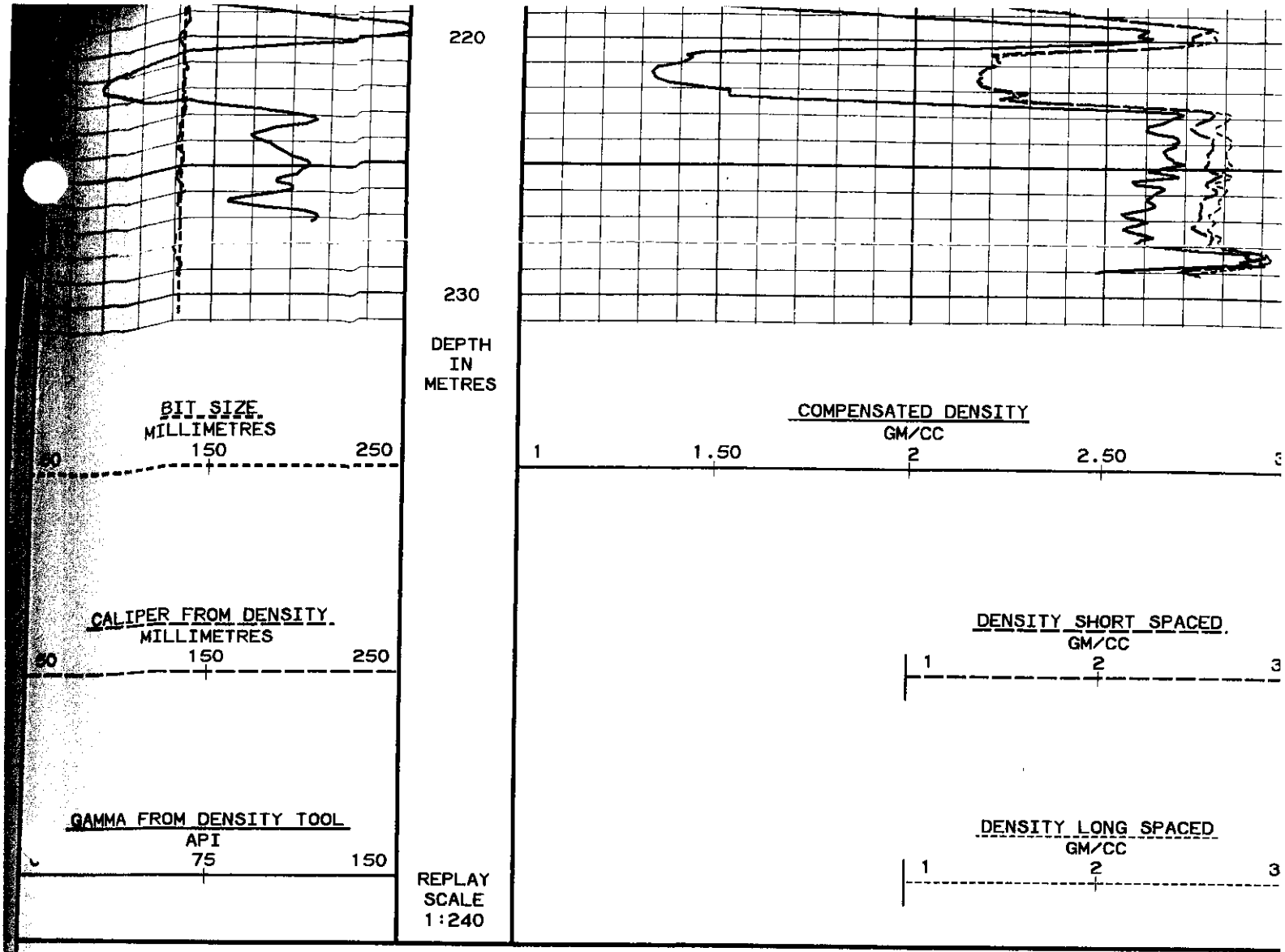
DENSITY LONG SPACED
GM/CC
1 2

REPLAY
SCALE
1:240

210







DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 20:12

FILENAME: MRGE08AR.CIB RUN ID:REPEAT SECTION PLOTTED ON 28-MAR-2005 AT 20:27

REPEAT SECTION

LOGGING/CALIBRATION CONSTANTS

CONSTANTS LAST EDITED: 28-MAR-2005 AT 19:49

LOGGING CONSTANTS AND BIT SIZE MEASUREMENTS

RESISTIVITY SONDE TYPE	DUAL RR1	MUD RESISTIVITY (OHM METRES)	2.000
BIT SIZE UNITS (INS/MM)	MILLIMTR	BIT DEPTH UNITS (M/FT)	METRES
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	6.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	154.00
BIT SIZS 4	0.00	FROM BIT DEPTH 4	230.00
BIT SIZE 5	0.00	FROM BIT DEPTH 5	0.00
TEMPERATURE UNITS	DEG. C		

CALIBRATION CONSTANTS

[illegible]	CALIBRATOR VALUE 1	2.0000	FE1	COUNT RATE 1	4496.0000
FE1	CALIBRATOR VALUE 2	2000.0000	FE1	COUNT RATE 2	2972.0000
FE2	CALIBRATOR VALUE 1	2.0000	FE2	COUNT RATE 1	4492.0000
FE2	CALIBRATOR VALUE 2	2000.0000	FE2	COUNT RATE 2	3010.0000
GRFE	CALIBRATOR VALUE 1	490.0000	GRFE	COUNT RATE 1	315.0000
SP	CALIBRATOR VALUE 1	1.0000	SP	COUNT RATE 1	1.0000
SP	CALIBRATOR VALUE 2	0.0000	SP	COUNT RATE 2	0.0000

LOGGING CONSTANTS

LOGGING CONSTANTS AND BIT SIZE MEASUREMENTS

RESISTIVITY SONDE TYPE	DUAL RR1	MUD RESISTIVITY (OHM METRES)	2.000
BIT SIZE UNITS (INS/MM)	MILLIMTR	BIT DEPTH UNITS (M/FT)	METRES
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	6.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	154.00
BIT SIZE 4	0.00	FROM BIT DEPTH 4	230.00
BIT SIZE 5	0.00	FROM BIT DEPTH 5	0.00
TEMPERATURE UNITS	DEG. C		

CALIBRATION CONSTANTS

FE1 CALIBRATOR VALUE 1	2.0000	FE1 COUNT RATE 1	4496.0000
FE1 CALIBRATOR VALUE 2	2000.0000	FE1 COUNT RATE 2	2972.0000
FE2 CALIBRATOR VALUE 1	2.0000	FE2 COUNT RATE 1	4492.0000
FE2 CALIBRATOR VALUE 2	2000.0000	FE2 COUNT RATE 2	3010.0000
GRFE CALIBRATOR VALUE 1	490.0000	GRFE COUNT RATE 1	315.0000
SP CALIBRATOR VALUE 1	1.0000	SP COUNT RATE 1	1.0000
SP CALIBRATOR VALUE 2	0.0000	SP COUNT RATE 2	0.0000

LOGGING CONSTANTS

SONDE TYPE (DD3,CCS,DDI,DDS,DDL	DDS	SONDE MODE (WET,DRY,STD)	STD
MUD WEIGHT	1.00	STRIP COEFFICIENT	0.50
ANNULAR VOLUME DIAMETER	133.35	WATER LEVEL	.00
CALIPER ARM LENGTH (CMS)	22.60	MATRIX DENSITY	2.65
CALIPER UNITS(INS,MMS)	MMS	DENSITY OF MUD FILTRATE	1.00
BRD POINT ONE	1.00	BRD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
LSD POINT ONE	1.00	LSD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
DENSITY SCALAR	1.50	BRD SCALAR	-.50
BIT DEPTHS & WATER LEVEL (FT,M)	METRES	CALIPER SOURCE FOR PROCESSING	CAL
BIT SIZE 1	159.00	FROM BIT DEPTH 1	.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	6.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	154.00
BIT SIZE 4	.00	FROM BIT DEPTH 4	230.00
BIT SIZE 5	.00	FROM BIT DEPTH 5	.00

CALIBRATION CONSTANTS

GAMMA CALIBRATOR VALUE 1	436.00	GAMMA COUNT RATE 1	237.72
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
CALIPER RING SIZE 1	76.20	CALIPER COUNT FOR RING 1	1834.00
CALIPER RING SIZE 2	101.60	CALIPER COUNT FOR RING 2	2258.00
CALIPER RING SIZE 3	127.00	CALIPER COUNT FOR RING 3	2690.00
CALIPER RING SIZE 4	152.40	CALIPER COUNT FOR RING 4	3162.00
CALIPER RING SIZE 5	203.20	CALIPER COUNT FOR RING 5	4224.00
CALIPER RING SIZE 6	254.00	CALIPER COUNT FOR RING 6	5030.00
DRY HOLE CORRECTION...			
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
DRY HOLE BRD NEW (1) GM/CC	0.00	DRY HOLE BRD LOG (1) GM/CC	0.00
DRY HOLE BRD NEW (2) GM/CC	1.00	DRY HOLE BRD LOG (2) GM/CC	1.00
DRY HOLE LSD NEW (1) GM/CC	0.00	DRY HOLE LSD LOG (1) GM/CC	0.00
DRY HOLE LSD NEW (2) GM/CC	1.00	DRY HOLE LSD LOG (2) GM/CC	1.00

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-08A
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

PRECISION ENERGY SERVICES

DIPMETER ANALYSIS
SCALE 1:240

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-08A
FIELD	BINGAY CREEK
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA
LOCATION	5562986 N 644299 E

LSD	SEC	TWP	RGE	Other Services
				CDL
API Number				SFE
License Numbe				

Permanent Datum G.L. , Elevation 1402.109 metres
Log Measured From GROUND LEVEL above Permanent Datum
Drilling Measured From GROUND LEVEL

Elevations:
KB metres
DF metres
GL 1402.11 metres

Date	25-MAR-2005			
Run Number	1			
Depth Driller	230.00	metres		
Depth Logger	230.49	metres		
First Reading	230.00	metres		
Last Reading	6.00	metres		
Casing Driller	6.00	metres		
Casing Logger	5.90	metres		
Bit Size	139.70	mm	133.35	mm
Hole Fluid Type	WATER			
Density / Viscosity	1.00 g/c3			
PH / Fluid Loss				
Sample Source	NONE			
Rm @ Measured Temp	2.0 @ 20.0	ohm-m		
Rmf @ Measured Temp				
Rmc @ Measured Temp				
Source Rmf / Rmc				
Rm @ BHT				
Time Since Circulation	N/A			
Max Recorded Temp	7.00	deg C		
Equipment Name	SQD/VO3		013/231	
Equipment / Base	3405	RDR		
Recorded By	ROBB RACZ			
Witnessed By	G. BICKFORD			
Drill Done	13-MAR-2005			

BOREHOLE RECORD

Bit Size millimetres	Depth From metres	Depth To metres
139.700	6.00	154.00
133.350	154.00	230.00

CASING RECORD

Type	Size millimetres	Depth From metres	Shoe Depth metres	Weight Kg/metre
	159.000	0.00	6.00	0.00

REMARKS

SURFACE CO-ORDINATES:

NORTHING: 5562986.174
EASTING: 644299.073

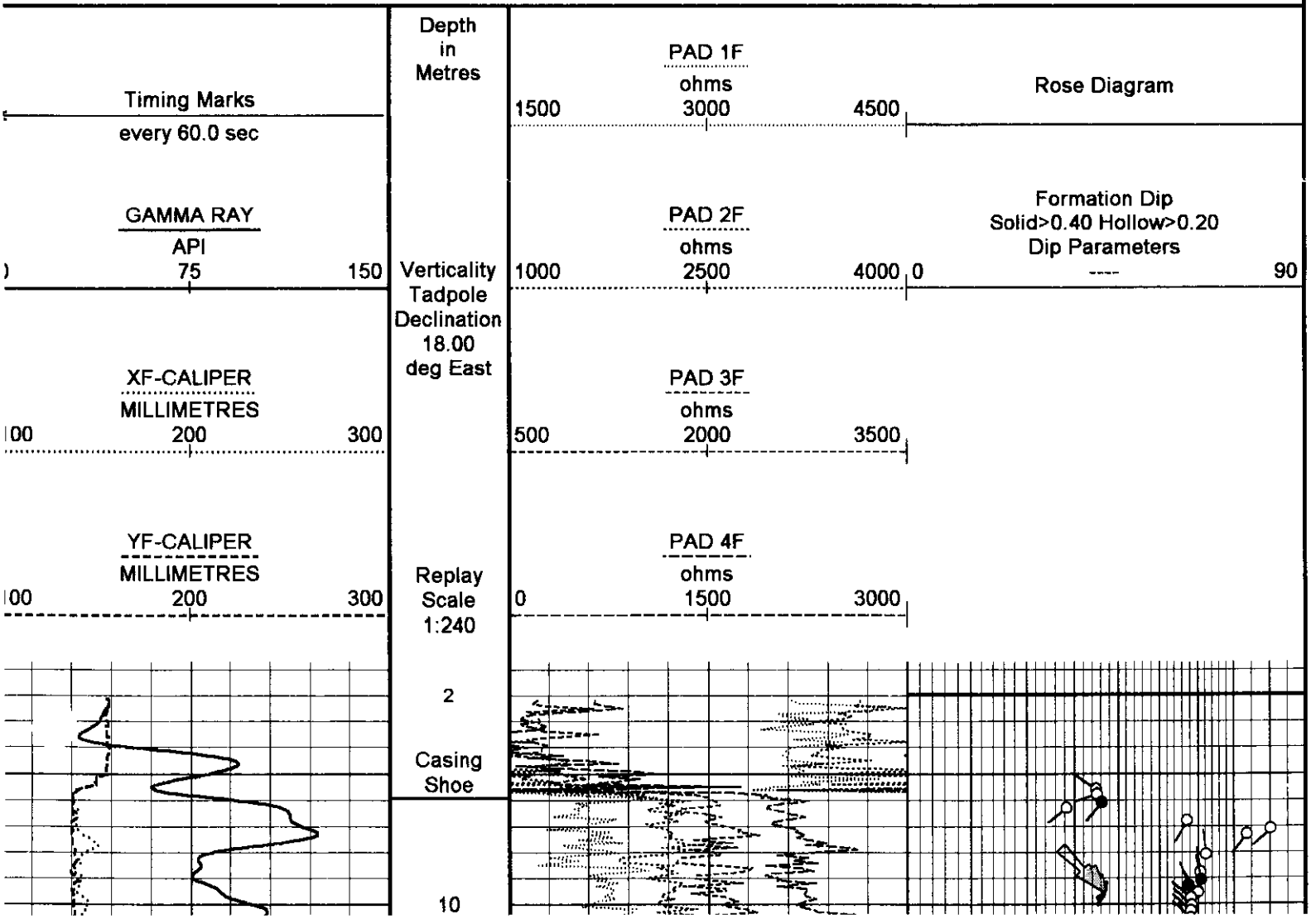
ELEVATION: 1402.109 M SURVEYED ON MARCH 26/2005

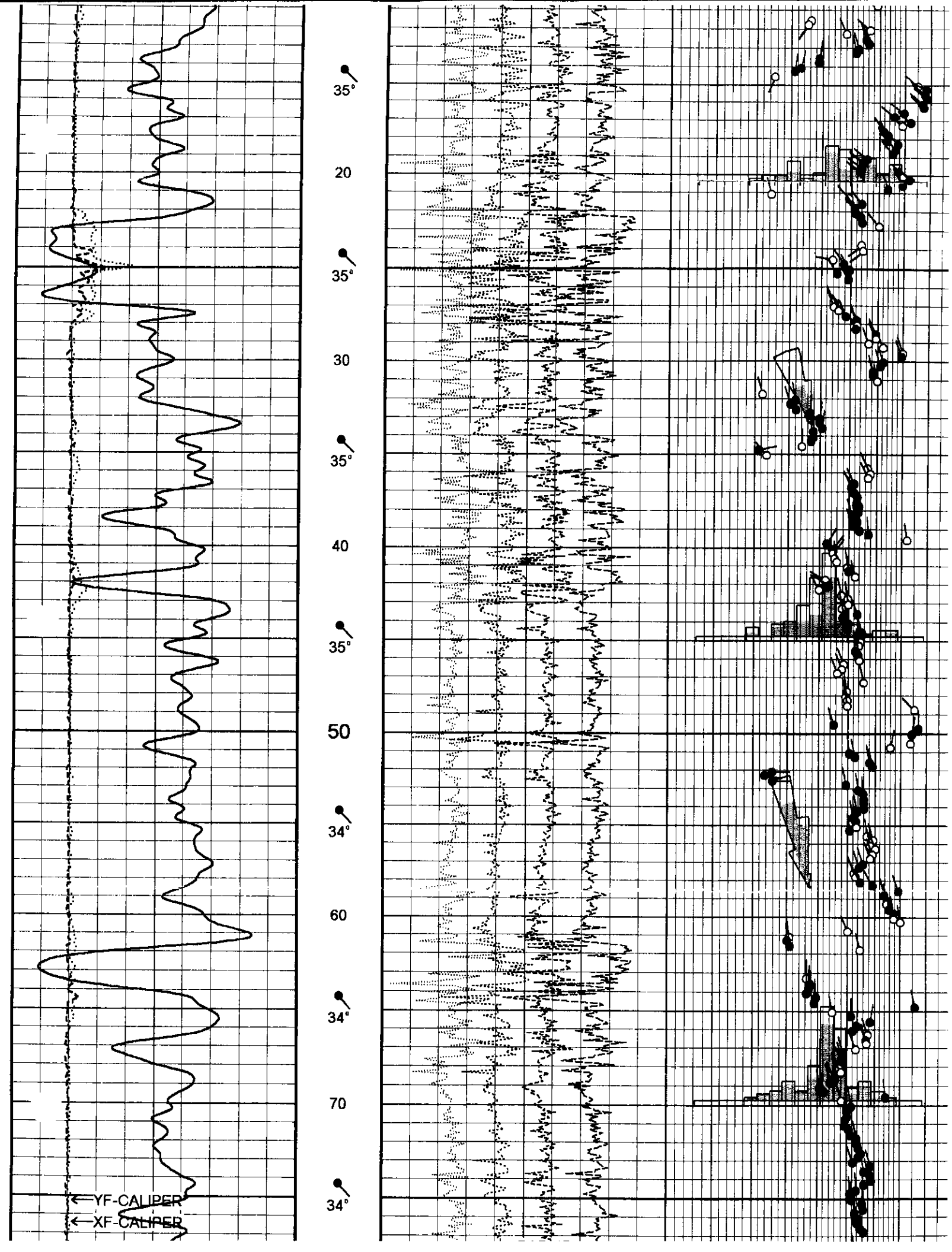
WATER LEVEL: 5.6 M

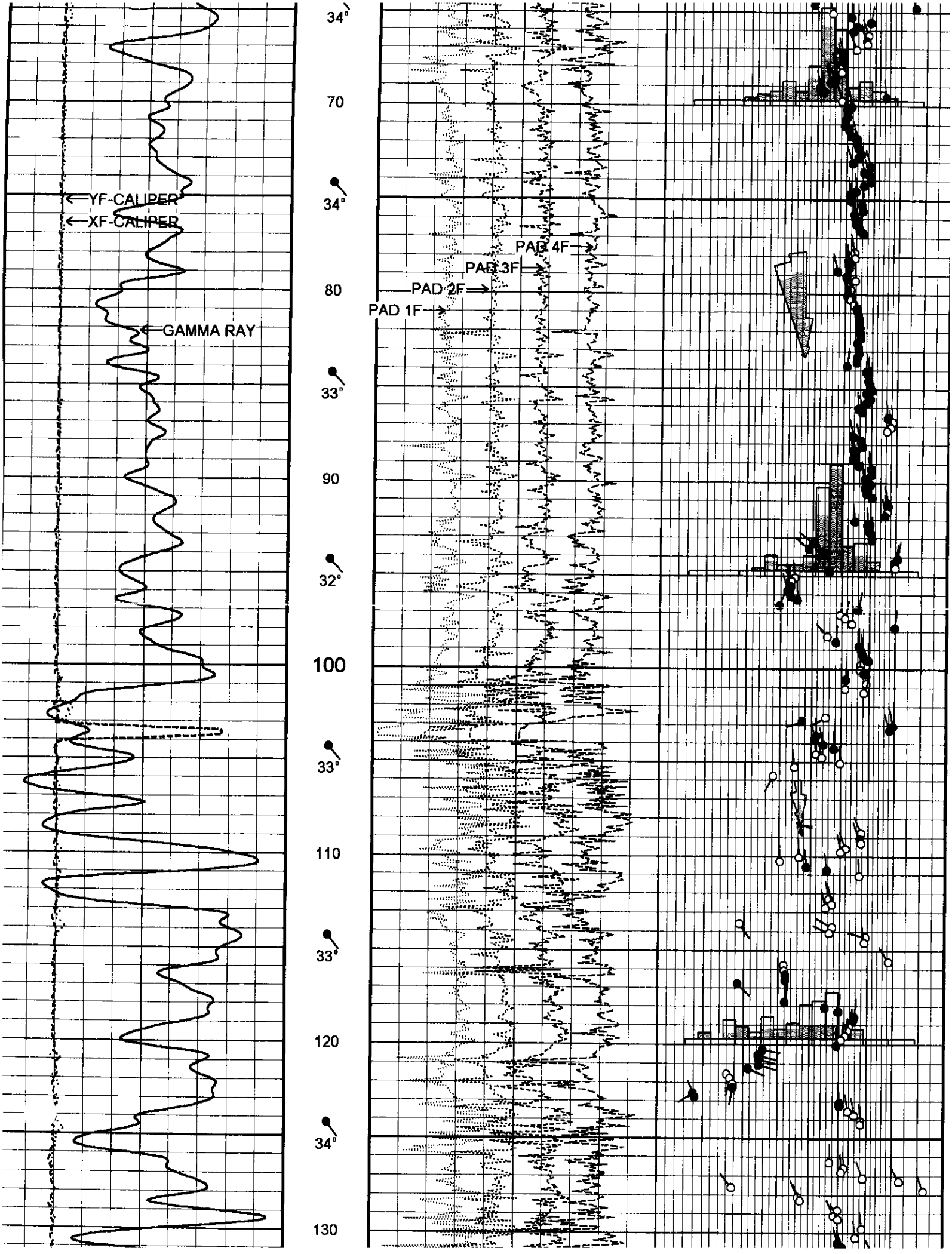
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions in our price schedule.

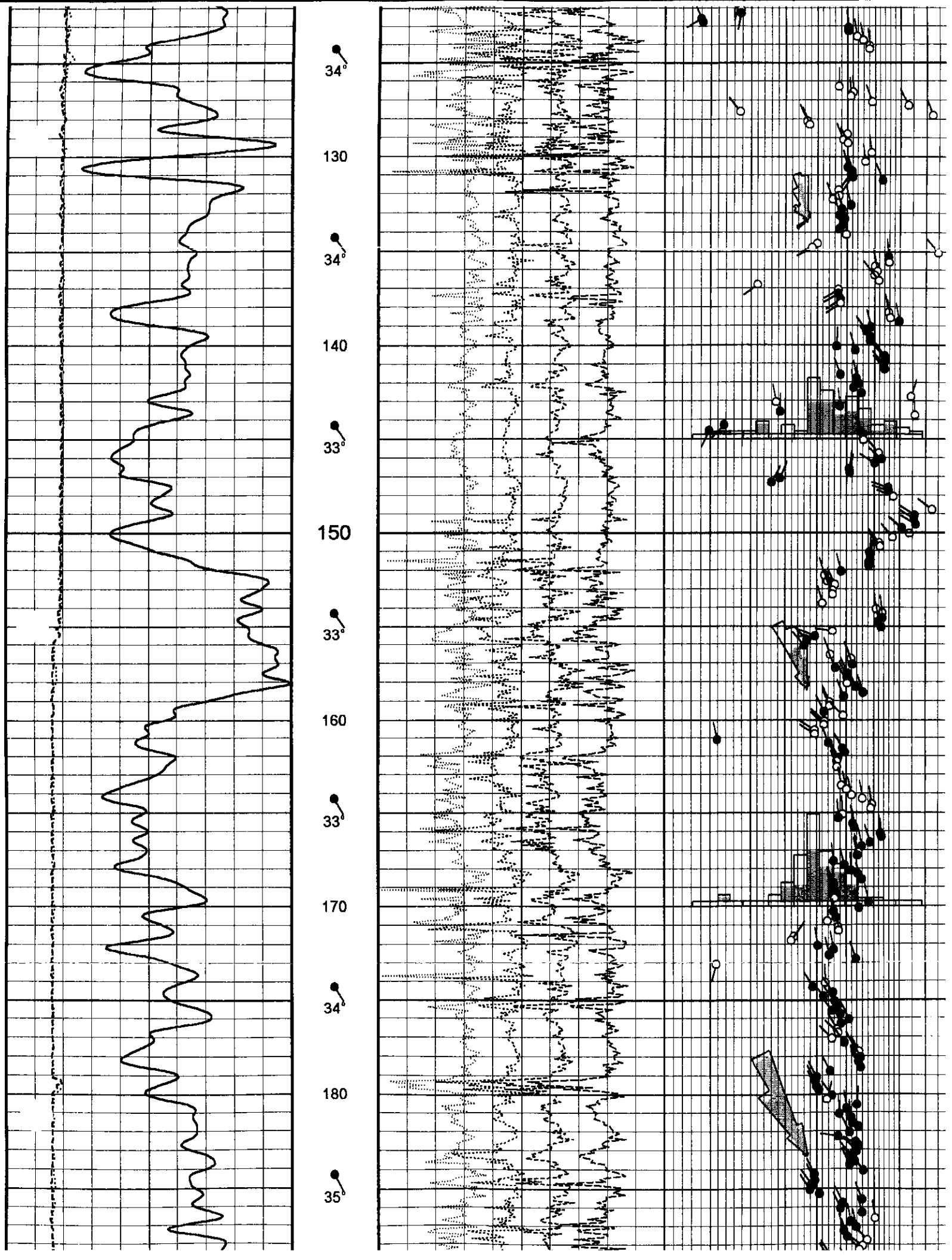
MAIN LOG 1:240

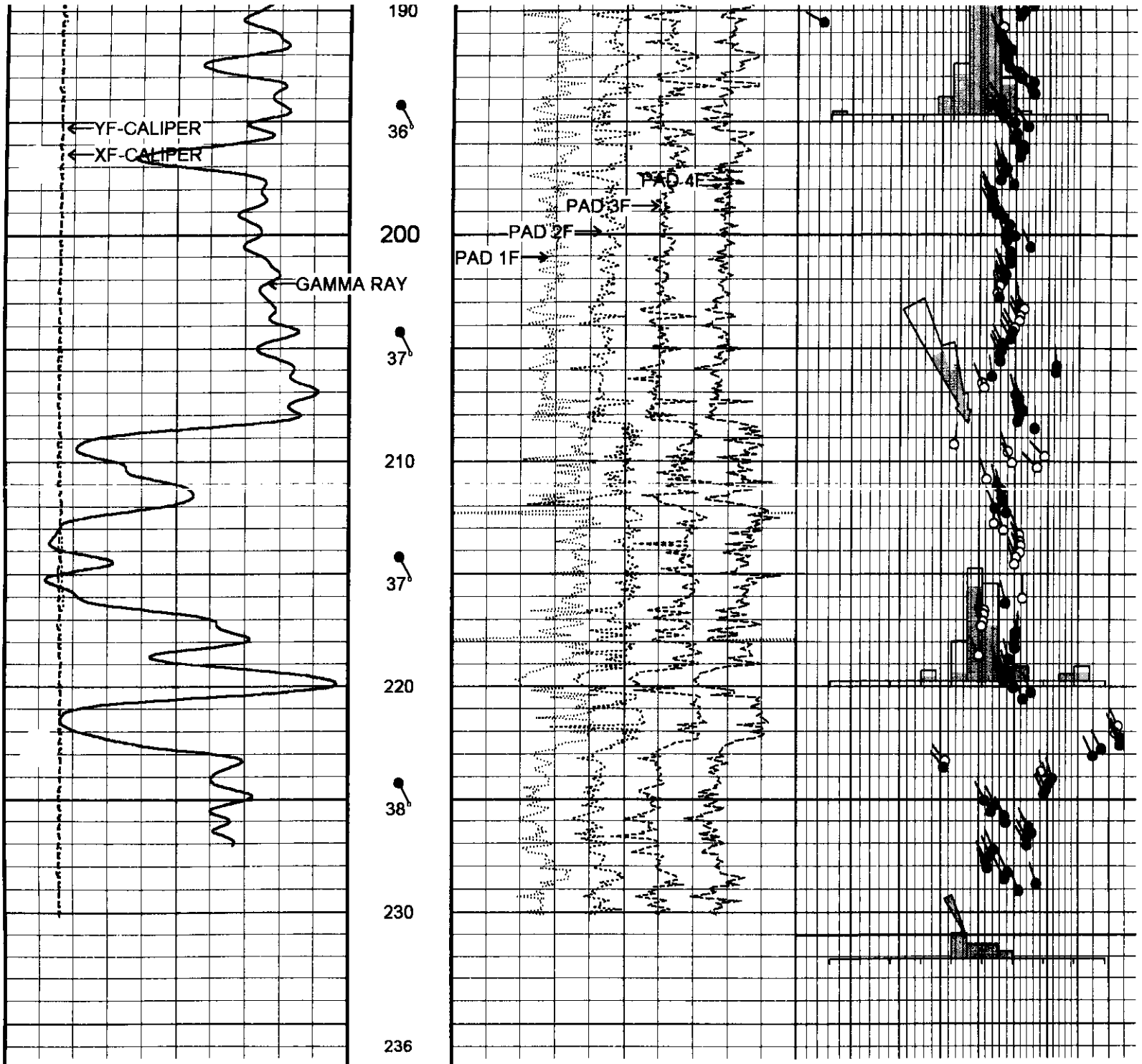
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 01-APR-2005 12:33
Filename: C:\logs\Elkford\Bg-08a\DIP408AM.dta
System Configuration Dates: Logged : Plotted 18-MAY-2004:




35°
20
35°
30
35°
40
35°
50
34°
60
34°
70
34°
←YF-CALIPER
←XF-CALIPER


34°
70
34°
YF-CALIPER
XF-CALIPER
PAD 4F
PAD 3F
80
PAD 2F
PAD 1F
GAMMA RAY
33°
90
32°
100
33°
110
33°
120
34°
130


34°
130
34°
140
33°
150
33°
160
33°
170
34°
180
35°



Depth in Metres

Timing Marks
every 60.0 sec

GAMMA RAY
API
0 75 150

XF-CALIPER
MILLIMETRES
100 200 300

Verticality
Tadpole
Declination
18.00
deg East

PAD 1F
ohms
1500 3000 4500

PAD 2F
ohms
1000 2500 4000

PAD 3F
ohms
500 2000 3500

Rose Diagram

Formation Dip
Solid>0.40 Hollow>0.20
Dip Parameters
0 ---- 90

1:240

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\logs\Elkford\Bg-08a\DIP408AM.dta
System Configuration Dates: Logged : Plotted 18-MAY-2004:
Plotted on 01-APR-2005 12:34

MAIN LOG 1:240

REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\logs\Elkford\Bg-08a\DIP408AR.dta
System Configuration Dates: Logged : Plotted 18-MAY-2004:
Plotted on 01-APR-2005 12:34

Timing Marks
every 60.0 sec

GAMMA RAY
API
0 75 150

XF-CALIPER
MILLIMETRES
100 200 300

YF-CALIPER
MILLIMETRES
100 200 300

Depth in Metres

Verticality
Tadpole
Declination
18.00
deg East

Replay Scale 1:240

PAD 1F
ohms
1500 3000 4500

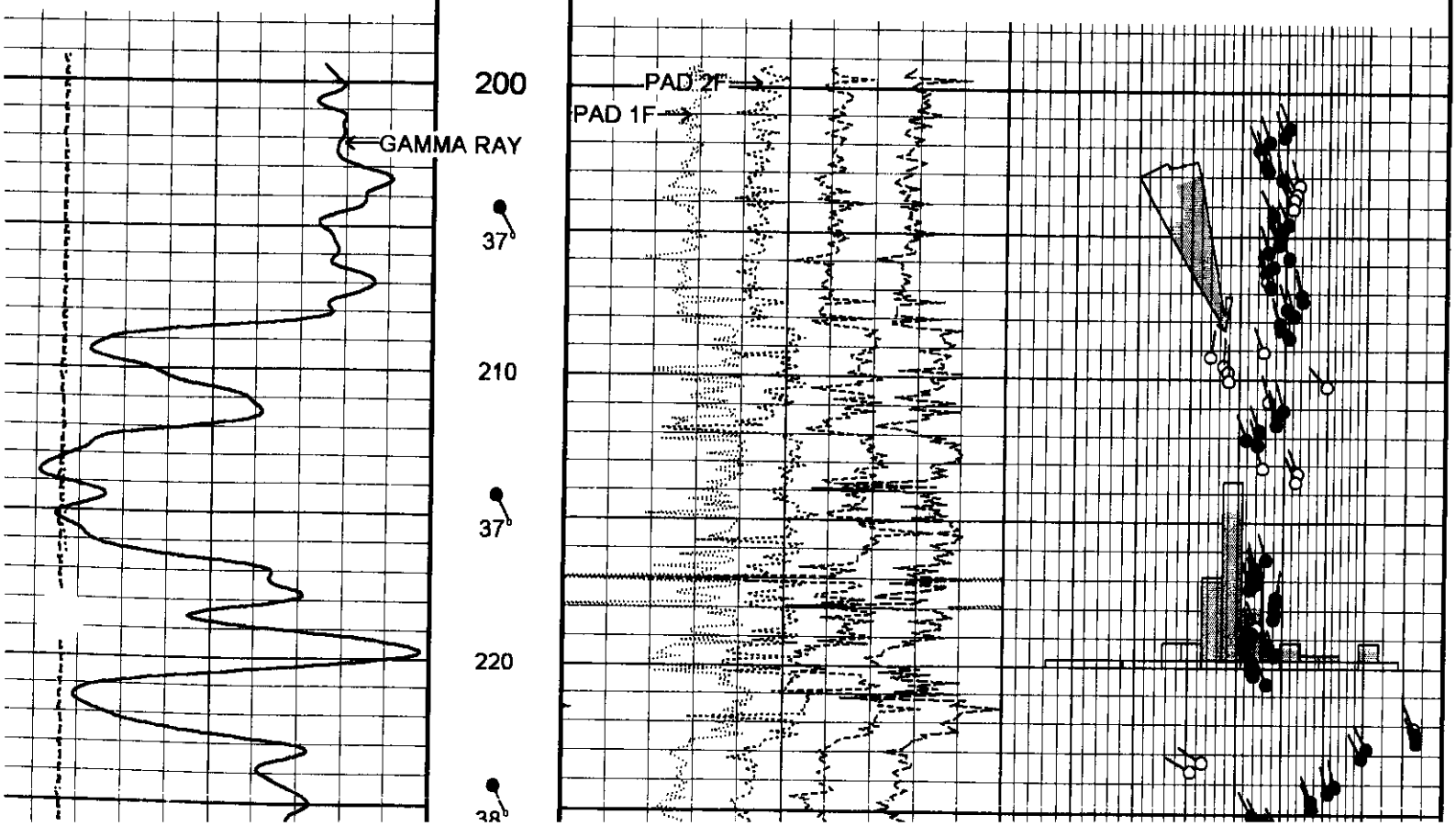
PAD 2F
ohms
1000 2500 4000

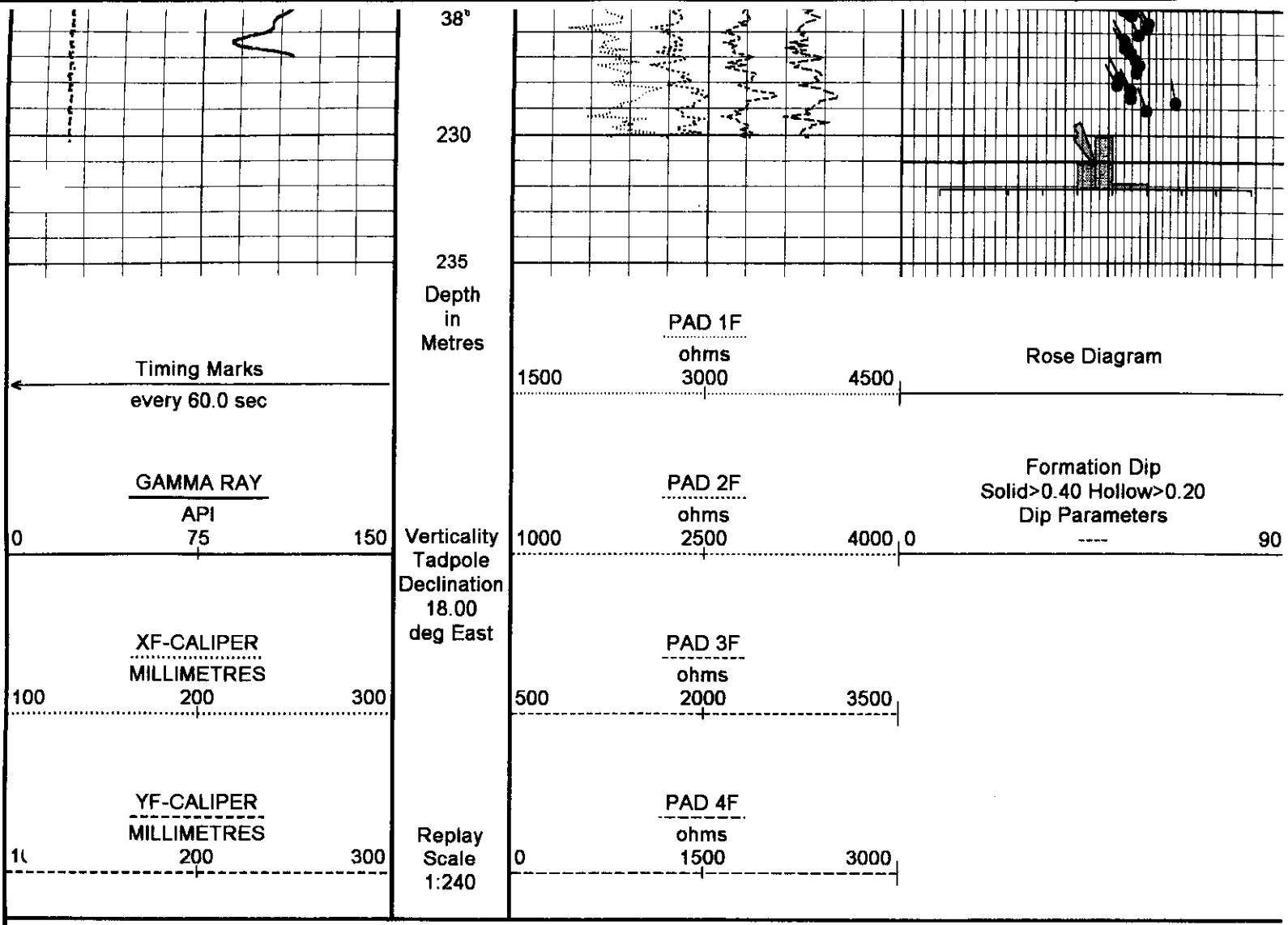
PAD 3F
ohms
500 2000 3500

PAD 4F
ohms
0 1500 3000

Rose Diagram

Formation Dip
Solid>0.40 Hollow>0.20
Dip Parameters
---- 0 90





Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 01-APR-2005 12:34

Filename: C:\logs\Elkford\Bg-08a\DIP408AR.dta

System Configuration Dates: Logged : Plotted 18-MAY-2004:

REPEAT SECTION

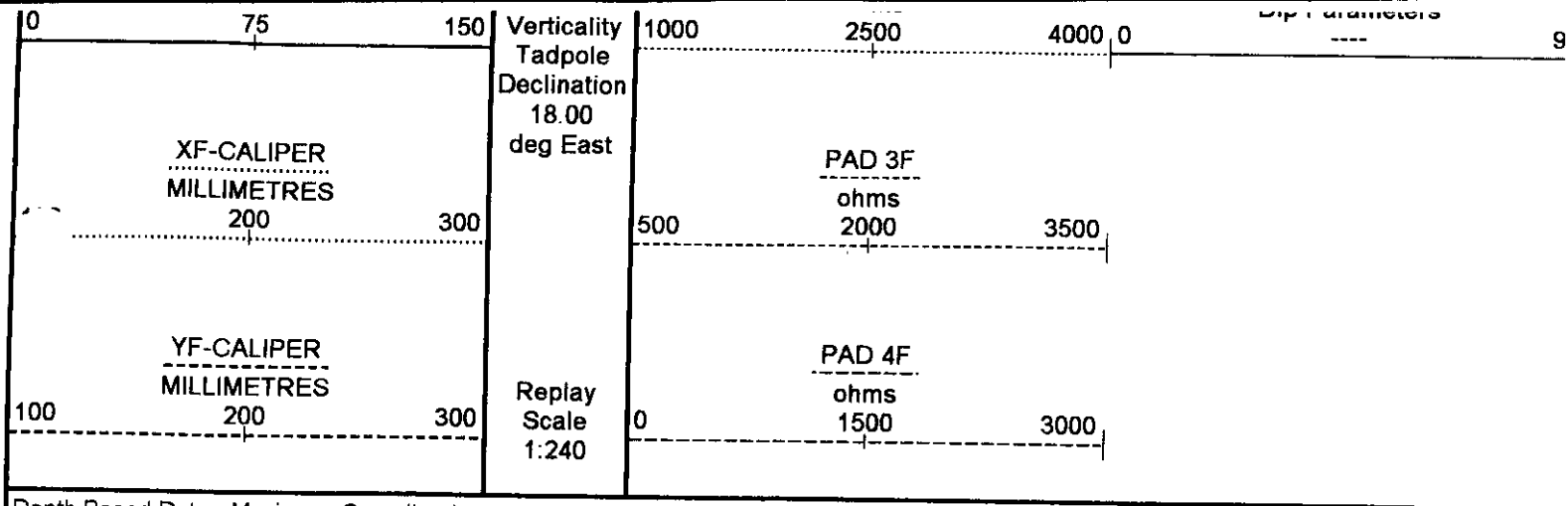
BEFORE SURVEY CALIBRATION

C:\logs\Elkford\Bg-08a\Dip4m08a.dta

LOGGING CONSTANTS & GAMMA CALIBRATION

Correlation step (m.)	.25	Correlation interval (m.)	1.00
Bit size #1 (mm)	0.00	Bit depth #1 (m)	0.00
Bit size #2 (mm)	0.00	Bit depth #2 (m)	0.00
Bit size #3 (mm)	0.00	Bit depth #3 (m)	0.00
Bit size #4 (mm)	0.00	Bit depth #4 (m)	0.00
Bit size #5 (mm)	0.00	Bit depth #5 (m)	0.00
Gamma calibrator (API)	0.00	Gamma counts	0.00
Pad penetration (mm)	3.81	Search angle (degrees)	60.00
Structural dip angle (degrees)	.00	Structural dip azi. (degrees)	.00
Declination (degrees)	18.00 E	Detail pad data	NO
Correlate	YES	Caliper units	MM
De units	METRIC	Caliper used in calculations	YES

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-08A
FIELD	BINGAY CREEK
PROVINCE/COUNTY	BRITISH COLUMBIA



Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\logs\Elkford\Bg-08a\DIP408AR.dta
System Configuration Dates: Logged : Plotted 18-MAY-2004:
Plotted on 01-APR-2005 12:3

REPEAT SECTION

BEFORE SURVEY CALIBRATION

C:\logs\Elkford\Bg-08a\Dip4m08a.dta

LOGGING CONSTANTS & GAMMA CALIBRATION

Correlation step (m.)	.25	Correlation interval (m.)	1.00
Bit size #1 (mm)	0.00	Bit depth #1 (m)	0.00
Bit size #2 (mm)	0.00	Bit depth #2 (m)	0.00
Bit size #3 (mm)	0.00	Bit depth #3 (m)	0.00
Bit size #4 (mm)	0.00	Bit depth #4 (m)	0.00
Bit size #5 (mm)	0.00	Bit depth #5 (m)	0.00
Gamma calibrator (API)	0.00	Gamma counts	0.00
Pad penetration (mm)	3.81	Search angle (degrees)	60.00
Structural dip angle (degrees)	.00	Structural dip azi. (degrees)	.00
Declination (degrees)	18.00 E	Detail pad data	NO
Correlate	YES	Caliper units	MM
Depth units	METRIC	Caliper used in calculations	YES

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-08A
FIELD	BINGAY CREEK
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

Elevation Kelly Bushing		metres	First Reading	230.00	metres
Elevation Drill Floor		metres	Depth Driller	230.00	metres
Elevation Ground Level	1402.11	metres	Depth Logger	230.49	metres

PRECISION ENERGY SERVICES

DIPMETER ANALYSIS

SCALE 1:240

VERTICALITY ANALYSIS

LOCN. 5562986N 644299E
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG-05-08A
COMPANY: HILLSBOROUGH RESOURCES LTD.

COMPANY HILLSBOROUGH RESOURCES LTD.
WELL BG-05-08A
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION				OTHER SERVICES
5562986N 644299E				SFE CDL
LSD	SEC	TWP	RGE	
N/A				

PERMANENT DATUM GROUND LEVEL ELEVATION 1402.109M
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1402.109M

DATE	25-MAR-05			
RUN NUMBER	1			
DEPTH-DRILLER	230.00M			
DEPTH-LOGGER	230.49M			
FIRST READING	229.30M			
LAST READING	0.00M			
CASING-DRILLER	6.00M			
CASING-LOGGER	5.90M			
BIT SIZE	133.35MM			
HOLE FLUID TYPE	WATER			
DENS./VISC.	1000 N/A			
PH/FLUID LOSS	N/A N/A			
SAMPLE SOURCE	NONE			
RM @ MEAS TEMP	2.00 @ 20.0C			
RMF @ MEAS TEMP	N/A			
RMC @ MEAS TEMP	N/A			
SOURCE: RMF/RMC	N/A N/A			
RM @ BHT	N/A			
TIME SINCE CIRC	N/A			
MAX REC TEMP	N/A			
EQUIPMENT/BASE	V3405 RDR			
RECORDED BY	ROBB RACZ			
WITNESSED BY	G. BICKFORD			
DRILL DONE	13-MAR-05			

VERTICALITY ANALYSIS INTERPRETATION NOTES

1. ALL PLOTTED OUTPUT IS AUTOMATICALLY SCALED TO OBTAIN THE BEST VISUAL EFFECT WITHIN THE PHYSICAL SPACE AVAILABLE. THE MAXIMUM SCALES BEING 1:50000 (METRIC) AND 1:48000 (IMPERIAL), AND THE MINIMUM 1:1.

2. THE ANALYSIS IS DERIVED BY INTEGRATING 10CM. SAMPLED DATA DOWN THE BOREHOLE. THE LISTING SUPPLIED WILL CONTAIN A MAXIMUM OF 200 POINTS IN MULTIPLES OF 1, 2, 5, 10, 20, 50 OR 100 METRES/FEET DEPENDING ON THE TOTAL RANGE OF THE ANALYSIS. HOWEVER THE ANALYSIS IS CALCULATED FOR THE ENTIRE RANGE OF THE BOREHOLE AND THE FINAL BOREHOLE POSITION IS INCLUDED IN THE LISTING.

3. COMPUTED VERTICALITY MAY ONLY BE FULLY DERIVED IN OPEN SECTIONS OF THE BOREHOLE, AWAY FROM THE INFLUENCE OF ANY UNUSUAL MAGNETIC EFFECTS (AS THE AZIMUTH CALCULATIONS ARE DERIVED FROM THREE SOLID STATE MAGNETOMETERS). SO THE ANALYSIS WILL GENERALLY BEGIN AT THE END OF THE CASING AND ALL BOREHOLE POSITIONAL INFORMATION WILL RELATE TO THIS DEPTH.

4. UP TO TEN CROSS SECTIONS MAY BE REQUESTED FOR ANY BOREHOLE TO BE DISPLAYED AT ANY SCALE (THE DEFAULT SCALE IS THAT OF THE CROSS-SECTION FOR THE ENTIRE HOLE).

5. BOREHOLE POSITIONAL ERROR IS DERIVED ASSUMING THE FOLLOWING PARAMETERS.

	TILT(DEGREES)	AZIMUTH(DEGREES)
TYPICAL ERROR	+/- .3333	+/- 10.00
MAXIMUM ERROR	+/- .5000	+/- 15.00

6. ERROR ANALYSIS MAY BE CALCULATED AND PLOTTED FROM THE DATA LISTING AS FOLLOWS:

A) PLOT THE FOUR COORDINATES FROM THE ERROR LISTING (BASED UPON ZERO AZIMUTH ERROR) ON A TARGET PLOT. ORIGIN AT THE START OF THE ANALYSIS.
B) DESCRIBE ARCS OF +/- 10.00 DEGREES AND +/- 15.00 DEGREES (CENTRE AT THE ORIGIN) THROUGH THE INNER AND OUTER POINTS RESPECTIVELY.
C) CONNECT THE RESPECTIVE ARCS TOGETHER WITH STRAIGHT LINES TO GIVE THE TYPICAL AND MAXIMUM BOREHOLE POSITIONAL ERROR.

7. GIVEN BELOW IS A FULL DESCRIPTION OF THE PARAMETERS DISPLAYED ON THE ENSUING LISTING:

LOG DEPTH	THE DEPTH RECORDED ON THE FIELD LOGS FOR THE BOREHOLE.
TRUE DEPTH	THE TRUE VERTICAL DEPTH CORESPONDING TO THE ABOVE DEPTH. CORRECTED FROM THE START OF THE ANALYSIS.
HOLE TILT AND AZIMUTH	THE SAMPLED BOREHOLE ORIENTATION.
AXIAL COORDINATES	THE COORDINATES NORTH AND EAST FROM THE TARGET ORIGIN.
POLAR COORDINATES	THE POLAR, OR RADIAL COORDINATES OF THE BOREHOLE.
ERROR COORDINATES	THE POLAR COORDINATES CORRESPONDING TO THE TYPICAL AND MAXIMUM TILT ERROR.

N.B. THE REFERENCE POINT FOR ALL BEARING ANGLES ON THIS LISTING IS GIVEN AT THE TOP OF EACH SHEET.

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

BG-05-08A VERTICALITY DATA LISTING FOR DIP408AB.CIB DATE PROCESSED: 31-MAR-
ALL CO-ORDINATES WITH RESPECT TO TRUE NORTH DATE LOGGED: 25-MAR-

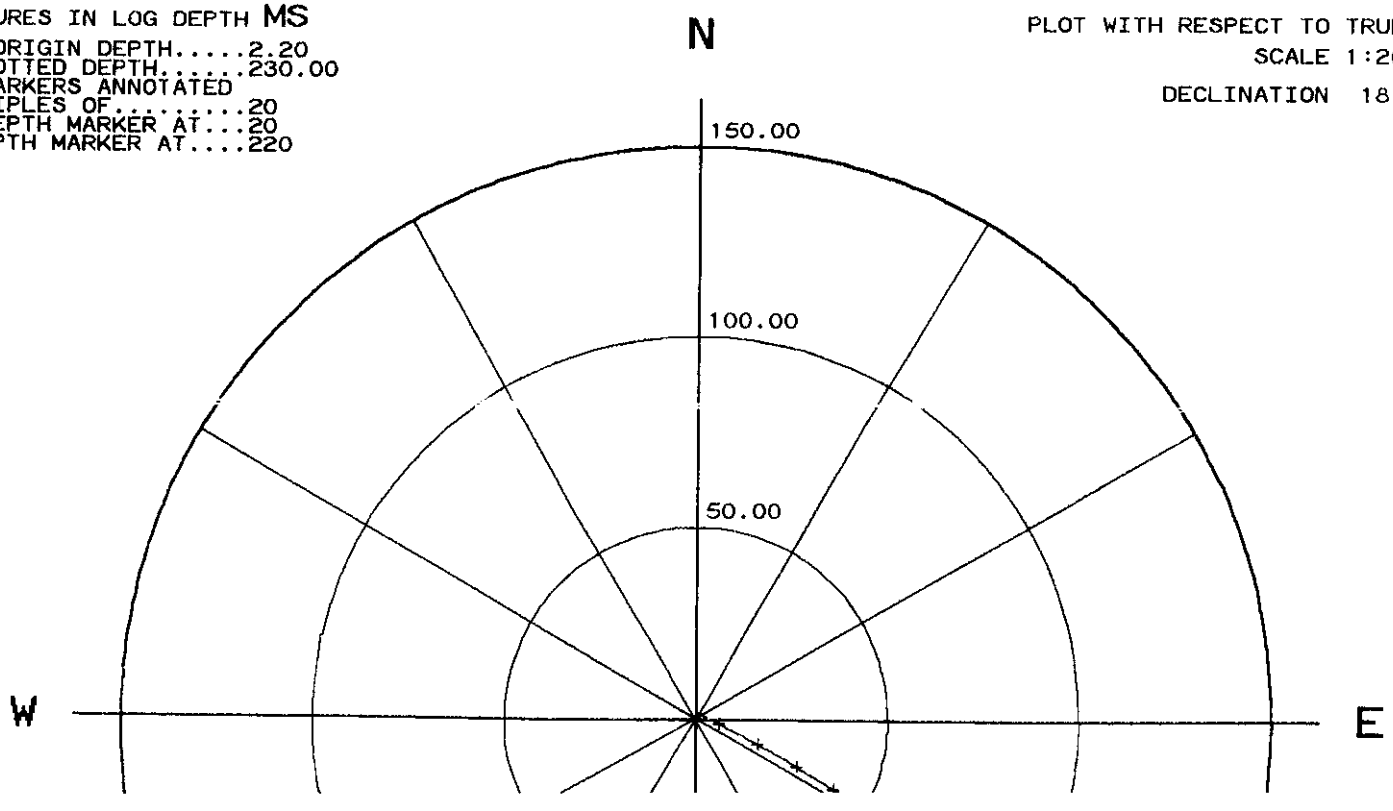
DEPTHS LOG	DEPTHS TRUE	BOREHOLE TILT	BOREHOLE AZI	AXIAL CO-ORDS NORTH	AXIAL CO-ORDS EAST	POLAR BRG	POLAR RADIUS	POLAR ERROR CO-ORDINATES (MAXIMUM & TYPICA BRG	RADIUS	BRG	RADIUS	BRD	RA
4.00	3.66	35.5	29	0.78	-0.30	339	0.83	339	0.84	339	0.82	339	0.84	339	
6.00	5.28	35.5	19	0.99	0.04	2	0.99	2	1.00	2	0.98	2	1.00	2	
8.00	6.91	36.1	331	2.09	0.34	9	2.12	9	2.15	9	2.10	9	2.14	9	
10.00	8.52	35.6	123	1.30	0.99	37	1.63	37	1.65	37	1.61	37	1.65	37	
12.00	10.14	35.7	116	0.76	2.03	69	2.17	69	2.19	69	2.14	69	2.18	69	
14.00	11.77	35.4	118	0.23	3.06	86	3.07	86	3.11	86	3.03	86	3.10	86	
16.00	13.40	35.4	118	-0.31	4.09	94	4.10	94	4.15	94	4.05	94	4.14	94	
18.00	15.03	34.9	119	-0.86	5.11	100	5.18	100	5.24	100	5.12	100	5.22	100	
20.00	16.67	35.0	121	-1.41	6.11	103	6.28	103	6.35	103	6.20	103	6.33	103	
22.00	18.31	34.8	118	-1.98	7.11	106	7.38	106	7.47	106	7.29	106	7.44	106	
24.00	19.94	35.4	119	-2.54	8.12	107	8.51	107	8.61	107	8.40	107	8.58	107	
26.00	21.56	35.8	116	-3.06	9.17	108	9.67	108	9.78	108	9.55	108	9.75	108	
28.00	23.18	35.5	119	-3.60	10.21	109	10.83	109	10.96	109	10.70	109	10.92	109	1
30.00	24.80	35.9	119	-4.14	11.25	110	11.99	110	12.13	110	11.84	110	12.08	110	1
32.00	26.43	35.6	118	-4.70	12.28	111	13.14	111	13.30	111	12.98	111	13.25	111	1
34.00	28.05	35.2	120	-5.28	13.28	112	14.29	112	14.46	112	14.12	112	14.41	112	1
36.00	29.68	35.6	119	-5.83	14.30	112	15.45	112	15.63	112	15.26	112	15.57	112	1
38.00	31.31	35.5	119	-6.39	15.32	113	16.60	113	16.81	113	16.40	113	16.74	113	1
40.00	32.94	35.6	119	-6.97	16.32	113	17.75	113	17.97	113	17.53	113	17.90	113	1
42.00	34.57	35.2	120	-7.57	17.31	114	18.89	114	19.12	114	18.66	114	19.05	114	1
44.00	36.20	35.1	121	-8.14	18.32	114	20.04	114	20.29	114	19.80	114	20.21	114	1
46.00	37.83	35.4	121	-8.72	19.32	114	21.20	114	21.45	114	20.94	114	21.37	114	2
48.00	39.46	35.6	118	-9.28	20.33	115	22.35	115	22.63	115	22.08	115	22.53	115	2

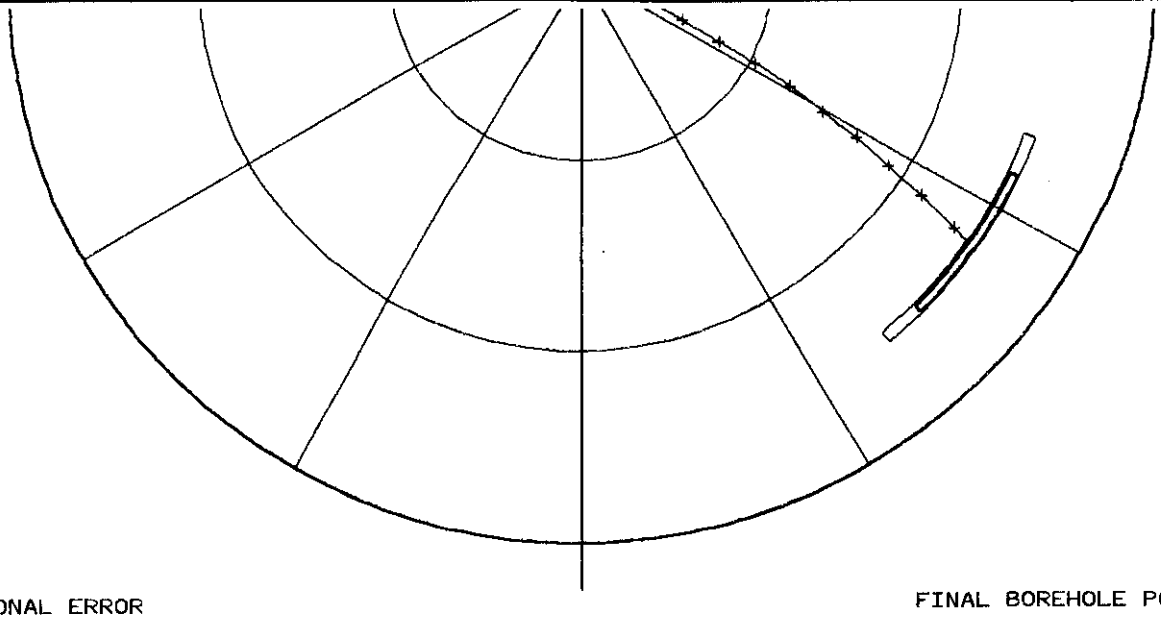
16.00	13.40	35.4	118	-0.31	4.09	94	4.10	94	4.15	94	4.05	94	4.14	94	4.
18.00	15.03	34.9	119	-0.86	5.11	100	5.18	100	5.24	100	5.12	100	5.22	100	5.
20.00	16.67	35.0	121	-1.41	6.11	103	6.28	103	6.35	103	6.20	103	6.33	103	6.
22.00	18.31	34.8	118	-1.98	7.11	106	7.38	106	7.47	106	7.29	106	7.44	106	7.
24.00	19.94	35.4	119	-2.54	8.12	107	8.51	107	8.61	107	8.40	107	8.58	107	8.
26.00	21.56	35.8	116	-3.06	9.17	108	9.67	108	9.78	108	9.55	108	9.75	108	9.
28.00	23.18	35.5	119	-3.60	10.21	109	10.83	109	10.96	109	10.70	109	10.92	109	10.
30.00	24.80	35.9	119	-4.14	11.25	110	11.99	110	12.13	110	11.84	110	12.08	110	11.
32.00	26.43	35.6	118	-4.70	12.28	111	13.14	111	13.30	111	12.98	111	13.25	111	13.
34.00	28.05	35.2	120	-5.28	13.28	112	14.29	112	14.46	112	14.12	112	14.41	112	14.
36.00	29.68	35.6	119	-5.83	14.30	112	15.45	112	15.63	112	15.26	112	15.57	112	15.
38.00	31.31	35.5	119	-6.39	15.32	113	16.60	113	16.81	113	16.40	113	16.74	113	16.
40.00	32.94	35.6	119	-6.97	16.32	113	17.75	113	17.97	113	17.53	113	17.90	113	17.
42.00	34.57	35.2	120	-7.57	17.31	114	18.89	114	19.12	114	18.66	114	19.05	114	18.
44.00	36.20	35.1	121	-8.14	18.32	114	20.04	114	20.29	114	19.80	114	20.21	114	19.
46.00	37.83	35.4	121	-8.72	19.32	114	21.20	114	21.45	114	20.94	114	21.37	114	21.
48.00	39.46	35.6	118	-9.28	20.33	115	22.35	115	22.63	115	22.08	115	22.53	115	22.
50.00	41.09	35.6	117	-9.83	21.36	115	23.51	115	23.80	115	23.22	115	23.70	115	23.
52.00	42.73	35.3	118	-10.39	22.36	115	24.66	115	24.96	115	24.35	115	24.86	115	24.
54.00	44.37	34.6	122	-10.97	23.35	115	25.80	115	26.11	115	25.48	115	26.01	115	25.
56.00	46.01	35.0	120	-11.57	24.32	115	26.93	115	27.26	115	26.60	115	27.15	115	26.
58.00	47.65	34.8	120	-12.14	25.31	116	28.07	116	28.41	116	27.72	116	28.30	116	27.
60.00	49.30	34.5	123	-12.74	26.27	116	29.20	116	29.56	116	28.84	116	29.44	116	28.
62.00	50.94	34.7	122	-13.34	27.24	116	30.33	116	30.70	116	29.95	116	30.58	116	30.
64.00	52.59	34.6	123	-13.96	28.19	116	31.46	116	31.84	116	31.07	116	31.71	116	31.
66.00	54.24	35.0	119	-14.56	29.16	117	32.59	117	32.99	117	32.18	117	32.85	117	32.
68.00	55.88	34.8	121	-15.15	30.13	117	33.72	117	34.14	117	33.31	117	34.00	117	33.
70.00	57.52	34.9	120	-15.73	31.11	117	34.86	117	35.29	117	34.43	117	35.15	117	34.
72.00	59.17	34.4	123	-16.32	32.08	117	35.99	117	36.44	117	35.55	117	36.29	117	35.
74.00	60.82	34.7	120	-16.90	33.05	117	37.12	117	37.58	117	36.66	117	37.43	117	36.
76.00	62.47	34.4	122	-17.49	34.02	117	38.25	117	38.72	117	37.77	117	38.56	117	37.
78.00	64.12	34.5	121	-18.07	34.98	117	39.37	117	39.85	117	38.88	117	39.69	117	39.
80.00	65.78	34.1	122	-18.66	35.93	117	40.48	117	40.98	117	39.98	117	40.82	117	40.
82.00	67.44	33.7	122	-19.24	36.88	118	41.59	118	42.11	118	41.08	118	41.94	118	41.
84.00	69.11	33.6	124	-19.84	37.81	118	42.70	118	43.23	118	42.16	118	43.05	118	42.
86.00	70.78	33.4	124	-20.42	38.75	118	43.80	118	44.34	118	43.25	118	44.16	118	43.
88.00	72.45	33.3	121	-20.99	39.69	118	44.90	118	45.45	118	44.33	118	45.27	118	44.
90.00	74.12	33.5	122	-21.56	40.63	118	45.99	118	46.57	118	45.42	118	46.38	118	45.
92.00	75.79	32.9	124	-22.13	41.57	118	47.09	118	47.68	118	46.50	118	47.48	118	46.
94.00	77.46	32.9	122	-22.70	42.50	118	48.18	118	48.79	118	47.58	118	48.59	118	47.
96.00	79.14	33.0	121	-23.25	43.44	118	49.28	118	49.89	118	48.66	118	49.69	118	48.
98.00	80.81	33.0	120	-23.82	44.37	118	50.36	118	50.99	118	49.73	118	50.78	118	49.
100.00	82.49	33.1	121	-24.38	45.31	118	51.45	118	52.10	118	50.80	118	51.89	118	51.
102.00	84.16	33.6	120	-24.93	46.26	118	52.55	118	53.21	118	51.89	118	52.99	118	52.
104.00	85.83	32.9	124	-25.49	47.21	118	53.65	118	54.32	118	52.97	118	54.10	118	53.
106.00	87.51	33.1	124	-26.08	48.12	118	54.73	118	55.42	118	54.04	118	55.19	118	54.
108.00	89.19	33.3	123	-26.69	49.02	119	55.81	119	56.52	119	55.11	119	56.28	119	55.
110.00	90.87	33.2	122	-27.31	49.91	119	56.89	119	57.61	119	56.17	119	57.37	119	56.
112.00	92.55	33.3	125	-27.93	50.81	119	57.98	119	58.71	119	57.24	119	58.47	119	57.
114.00	94.22	33.2	127	-28.55	51.71	119	59.07	119	59.82	119	58.32	119	59.57	119	58.
116.00	95.89	33.5	128	-29.21	52.59	119	60.16	119	60.92	119	59.39	119	60.66	119	59.
118.00	97.56	33.4	127	-29.87	53.46	119	61.24	119	62.02	119	60.46	119	61.76	119	60.
120.00	99.23	33.2	128	-30.53	54.34	119	62.33	119	63.12	119	61.54	119	62.86	119	61.
122.00	100.90	33.8	125	-31.18	55.23	119	63.43	119	64.23	119	62.62	119	63.96	119	62.
124.00	102.56	34.0	126	-31.83	56.14	120	64.53	120	65.35	120	63.71	120	65.08	120	63.
126.00	104.22	33.6	129	-32.51	57.02	120	65.64	120	66.47	120	64.80	120	66.19	120	65.
128.00	105.89	33.3	130	-33.19	57.89	120	66.73	120	67.58	120	65.88	120	67.30	120	66.
130.00	107.55	34.1	128	-33.88	58.77	120	67.83	120	68.70	120	66.97	120	68.41	120	67.
132.00	109.21	33.8	130	-34.56	59.65	120	68.94	120	69.82	120	68.06	120	69.53	120	68.
134.00	110.87	34.2	130	-35.24	60.54	120	70.05	120	70.94	120	69.16	120	70.65	120	69.
136.00	112.52	34.2	127	-35.93	61.42	120	71.16	120	72.06	120	70.25	120	71.76	120	70.
138.00	114.18	33.6	128	-36.62	62.30	120	72.27	120	73.19	120	71.34	120	72.88	120	71.
140.00	115.85	33.2	130	-37.32	63.16	121	73.36	121	74.29	121	72.42	121	73.98	121	72.
142.00	117.52	33.2	130	-38.01	64.01	121	74.44	121	75.39	121	73.49	121	75.08	121	73.
144.00	119.19	33.5	129	-38.71	64.86	121	75.53	121	76.49	121	74.56	121	76.17	121	74.
146.00	120.86	33.5	128	-39.39	65.72	121	76.62	121	77.60	121	75.64	121	77.27	121	75.
148.00	122.53	33.8	128	-40.08	66.59	121	77.72	121	78.71	121	76.72	121	78.38	121	77.
150.00	124.20	34.0	127	-40.76	67.46	121	78.82	121	79.82	121	77.80	121	79.49	121	78.
152.00	125.85	33.9	127	-41.43	68.36	121	79.93	121	80.95	121	78.90	121	80.61	121	79.
154.00	127.51	33.8	127	-42.10	69.24	121	81.04	121	82.07	121	80.00	121	81.73	121	80.
156.00	129.18	33.8	129	-42.78	70.12	121	82.14	121	83.19	121	81.09	121	82.84	121	81.
158.00	130.84	33.8	129	-43.48	70.98	121	83.24	121	84.31	121	82.17	121	83.95	121	82.
160.00	132.50	34.0	129	-44.18	71.86	122	84.35	122	85.43	122	83.27	122	85.07	122	83.
162.00	134.16	34.2	128	-44.89	72.73	122	85.46	122	86.56	122	84.36	122	86.19	122	84.
164.00	135.82	33.7	131	-45.60	73.58	122	86.57	122	87.67	122	85.45	122	87.30	122	85.
166.00	137.48	33.9	131	-46.33	74.43	122	87.67	122	88.79	122	86.54	122	88.41	122	86.
168.00	139.14	33.8	131	-47.06	75.27	122	88.77	122	89.91	122	87.63	122	89.53	122	88.
170.00	140.80	33.8	131	-47.80	76.10	122	89.86	122	91.01	122	88.71	122	90.63	122	89.
172.00	142.46	34.0	133	-48.55	76.93	122	90.96	122	92.13	122	89.79	122	91.74	122	90.
174.00	144.11	34.3	132	-49.30	77.76	122	92.07	122	93.25	122	90.88	122	92.86	122	91.
176.00	145.76	34.5	130	-50.06	78.59	122	93.18	122	94.37	122	91.98	122	93.98	122	92.
178.00	147.41	35.0	132	-50.83	79.43	123	94.30	123	95.51	123	93.09	123	95.11	123	93.
180.00	149.05	34.6	134	-51.61	80.26	123	95.42	123	96.64	123	94.20	123	96.24	123	94.
182.00	150.69	35.7	134	-52.41	81.10	123	96.56	123	97.79	123	95.32	123	97.38	123	95.
184.00	152.31	35.5	135	-53.22	81.92	123	97.69	123	98.94	123	96.44	123	98.53	123	96.
186.00	153.94	36.2	133	-54.03	82.77	123	98.84	123	100.10	123	97.57	123	99.69	123	98.
188.00	155.55	36.2	135	-54.84	83.62	123	100.00	123	101.28	123	98.72	123	100.86	123	99.
190.00	157.16	36.7	134	-55.66	84.48	123	101.17	123	102.46	123	99.87	123	102.03	123	100.
192.00	158.77	36.8	132	-56.47	85.36	123	102.35	123	103.65	123	101.04	123	103.22	123	101.
194.00	160.37	36.8	131	-57.27	86.25	124	103.53	124	104.85	124	102.21	124	104.41	124	102.
196.00	161.97	37.0	131	-58.07	87.15	124	104.72	124	106.05	124	103.39	124	105.61	124	103.
198.00	163.56	37.0	133	-58.88	88.04	124	105.92	124	107.26	124	104.58	124	106.81	124	104.

138.00	114.18	33.6	128	-36.62	62.30	120	72.27	120	73.19	120	71.34	120	72.88	120	71
140.00	115.85	33.2	130	-37.32	63.16	121	73.36	121	74.29	121	72.42	121	73.98	121	72
142.00	117.52	33.2	130	-38.01	64.01	121	74.44	121	75.39	121	73.49	121	75.08	121	73
144.00	119.19	33.5	129	-38.71	64.86	121	75.53	121	76.49	121	74.56	121	76.17	121	74
146.00	120.86	33.5	128	-39.39	65.72	121	76.62	121	77.60	121	75.64	121	77.27	121	75
148.00	122.53	33.8	128	-40.08	66.59	121	77.72	121	78.71	121	76.72	121	78.38	121	77
150.00	124.20	34.0	127	-40.76	67.46	121	78.82	121	79.82	121	77.80	121	79.49	121	78
152.00	125.85	33.9	127	-41.43	68.36	121	79.93	121	80.95	121	78.90	121	80.61	121	79
154.00	127.51	33.8	127	-42.10	69.24	121	81.04	121	82.07	121	80.00	121	81.73	121	80
156.00	129.18	33.8	129	-42.78	70.12	121	82.14	121	83.19	121	81.09	121	82.84	121	81
158.00	130.84	33.8	129	-43.48	70.98	121	83.24	121	84.31	121	82.17	121	83.95	121	82
160.00	132.50	34.0	129	-44.18	71.86	122	84.35	122	85.43	122	83.27	122	85.07	122	83
162.00	134.16	34.2	128	-44.89	72.73	122	85.46	122	86.56	122	84.36	122	86.19	122	84
164.00	135.82	33.7	131	-45.60	73.58	122	86.57	122	87.67	122	85.45	122	87.30	122	85
166.00	137.48	33.9	131	-46.33	74.43	122	87.67	122	88.79	122	86.54	122	88.41	122	86
168.00	139.14	33.8	131	-47.06	75.27	122	88.77	122	89.91	122	87.63	122	89.53	122	88
170.00	140.80	33.8	131	-47.80	76.10	122	89.86	122	91.01	122	88.71	122	90.63	122	89
172.00	142.46	34.0	133	-48.55	76.93	122	90.96	122	92.13	122	89.79	122	91.74	122	90
174.00	144.11	34.3	132	-49.30	77.76	122	92.07	122	93.25	122	90.88	122	92.86	122	91
176.00	145.76	34.5	130	-50.06	78.59	122	93.18	122	94.37	122	91.98	122	93.98	122	92
178.00	147.41	35.0	132	-50.83	79.43	123	94.30	123	95.51	123	93.09	123	95.11	123	93
180.00	149.05	34.6	134	-51.61	80.26	123	95.42	123	96.64	123	94.20	123	96.24	123	94
182.00	150.69	35.7	134	-52.41	81.10	123	96.56	123	97.79	123	95.32	123	97.38	123	95
184.00	152.31	35.5	135	-53.22	81.92	123	97.69	123	98.94	123	96.44	123	98.53	123	96
186.00	153.94	36.2	133	-54.03	82.77	123	98.84	123	100.10	123	97.57	123	99.69	123	98
188.00	155.55	36.2	135	-54.84	83.62	123	100.00	123	101.28	123	98.72	123	100.86	123	99
190.00	157.16	36.7	134	-55.66	84.48	123	101.17	123	102.46	123	99.87	123	102.03	123	100
192.00	158.77	36.8	132	-56.47	85.36	123	102.35	123	103.65	123	101.04	123	103.22	123	101
194.00	160.37	36.8	131	-57.27	86.25	124	103.53	124	104.85	124	102.21	124	104.41	124	102.
196.00	161.97	37.0	131	-58.07	87.15	124	104.72	124	106.05	124	103.39	124	105.61	124	103.
198.00	163.56	37.0	133	-58.88	88.04	124	105.92	124	107.26	124	104.57	124	106.82	124	105.
200.00	165.15	37.0	134	-59.71	88.92	124	107.11	124	108.47	124	105.74	124	108.02	124	106.
202.00	166.75	37.0	135	-60.55	89.79	124	108.30	124	109.67	124	106.92	124	109.21	124	107.
204.00	168.34	37.0	135	-61.41	90.64	124	109.48	124	110.87	124	108.09	124	110.41	124	108.
206.00	169.94	37.4	134	-62.27	91.49	124	110.67	124	112.07	124	109.26	124	111.60	124	109.
208.00	171.53	37.4	134	-63.12	92.35	124	111.86	124	113.27	124	110.44	124	112.80	124	110.
210.00	173.11	37.6	135	-63.98	93.21	124	113.06	124	114.48	124	111.62	124	114.01	124	112.
212.00	174.70	37.9	135	-64.85	94.07	125	114.26	125	115.70	125	112.81	125	115.22	125	113.
214.00	176.28	37.9	135	-65.72	94.93	125	115.46	125	116.91	125	114.00	125	116.43	125	114.
216.00	177.85	38.2	133	-66.59	95.80	125	116.67	125	118.14	125	115.20	125	117.65	125	115.
218.00	179.43	38.3	134	-67.45	96.70	125	117.89	125	119.37	125	116.40	125	118.88	125	116.
220.00	180.99	38.5	136	-68.34	97.56	125	119.12	125	120.61	125	117.61	125	120.11	125	118.
222.00	182.55	38.7	137	-69.24	98.43	125	120.34	125	121.85	125	118.83	125	121.35	125	119.
224.00	184.11	38.9	136	-70.13	99.31	125	121.58	125	123.10	125	120.05	125	122.59	125	120.
226.00	185.67	39.0	136	-71.04	100.18	125	122.81	125	124.34	125	121.27	125	123.83	125	121.
228.00	187.22	39.0	135	-71.94	101.05	125	124.05	125	125.59	125	122.49	125	125.08	125	123.
230.00	188.78	39.0	136	-72.84	101.94	126	125.28	126	126.84	126	123.72	126	126.33	126	124.

CROSS SECTION

ALL FIGURES IN LOG DEPTH MS
TARGET ORIGIN DEPTH.....2.20
LAST PLOTTED DEPTH.....230.00
DEPTH MARKERS ANNOTATED
IN MULTIPLES OF.....20
FIRST DEPTH MARKER AT...20
LAST DEPTH MARKER AT....220





BOREHOLE POSITIONAL ERROR

THE TWO BOXES SURROUNDING THE LAST PLOTTED DEPTH SHOW THE TYPICAL, AND MAXIMUM, POSITIONAL ERROR AT THAT DEPTH.

S

FINAL BOREHOLE POSITION

THE LAST PLOTTED DEPTH IS A
72.84 MS SOUTH, 101.94 M
EAST IE. 125.28 MS FROM TH
ORIGIN. 126 DEG FROM TRUE N

VERTICAL SECTIONS

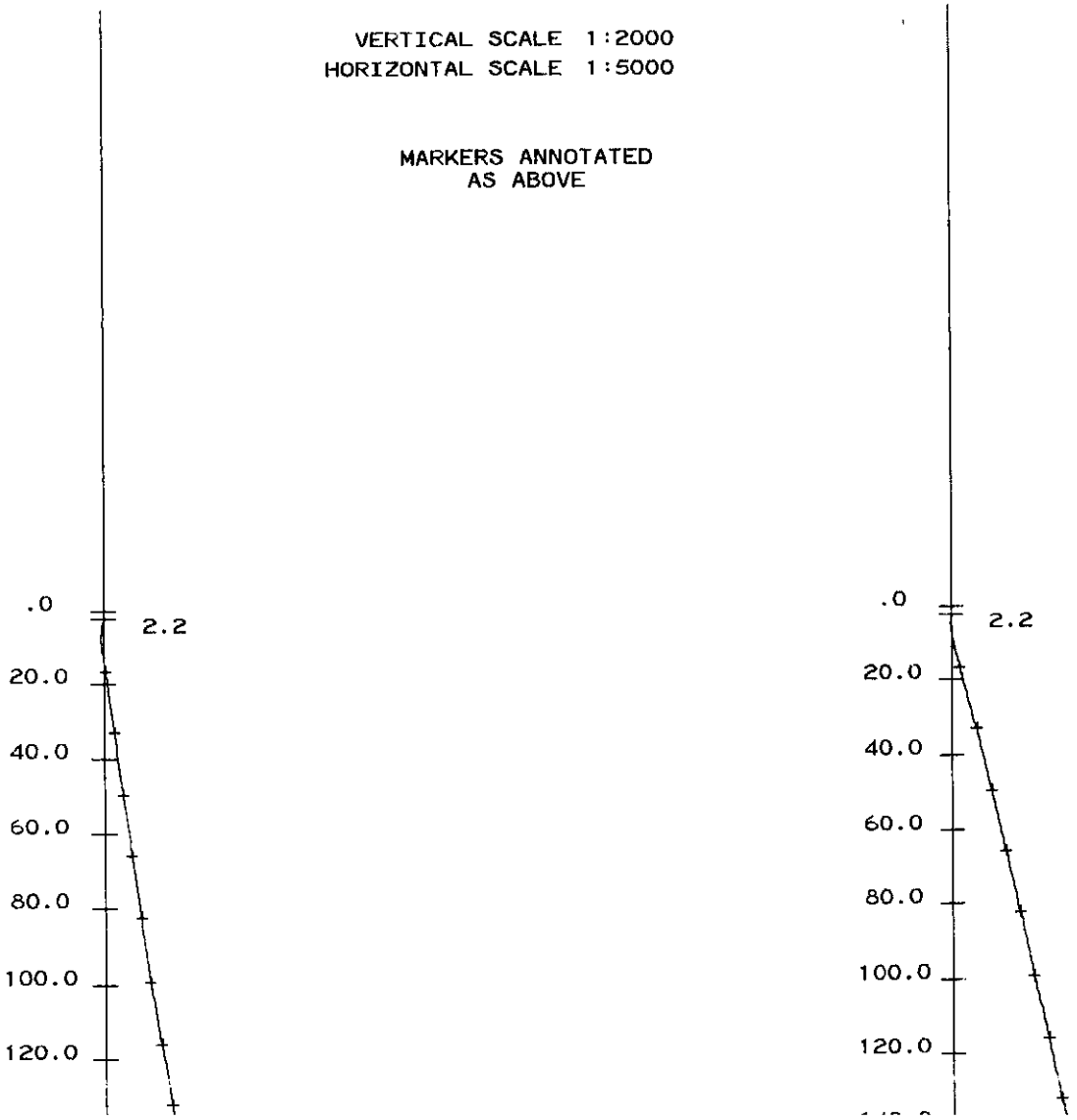
N-S SECTION

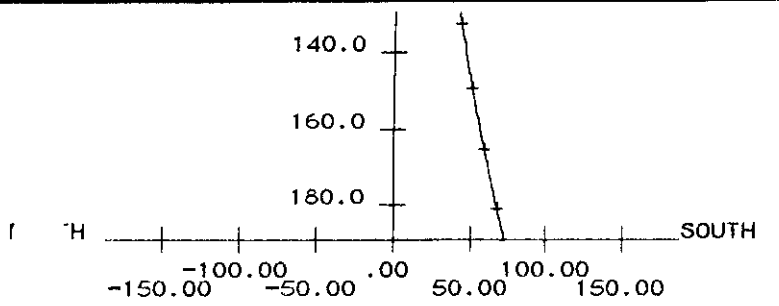
E-W SECTION

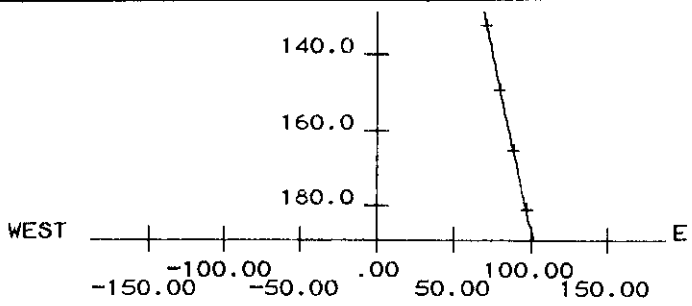
(TRUE DEPTH VS DISPLACEMENT)

VERTICAL SCALE 1:2000
HORIZONTAL SCALE 1:5000

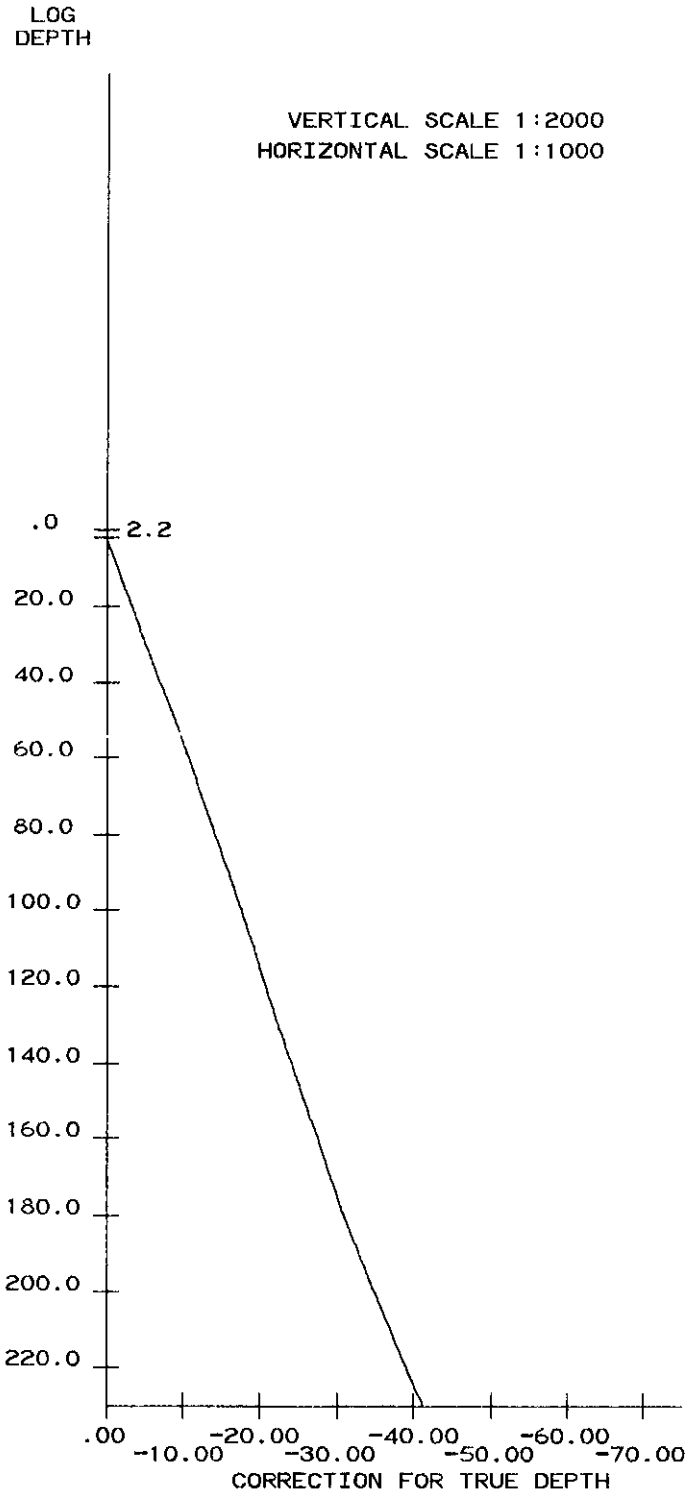
MARKERS ANNOTATED
AS ABOVE



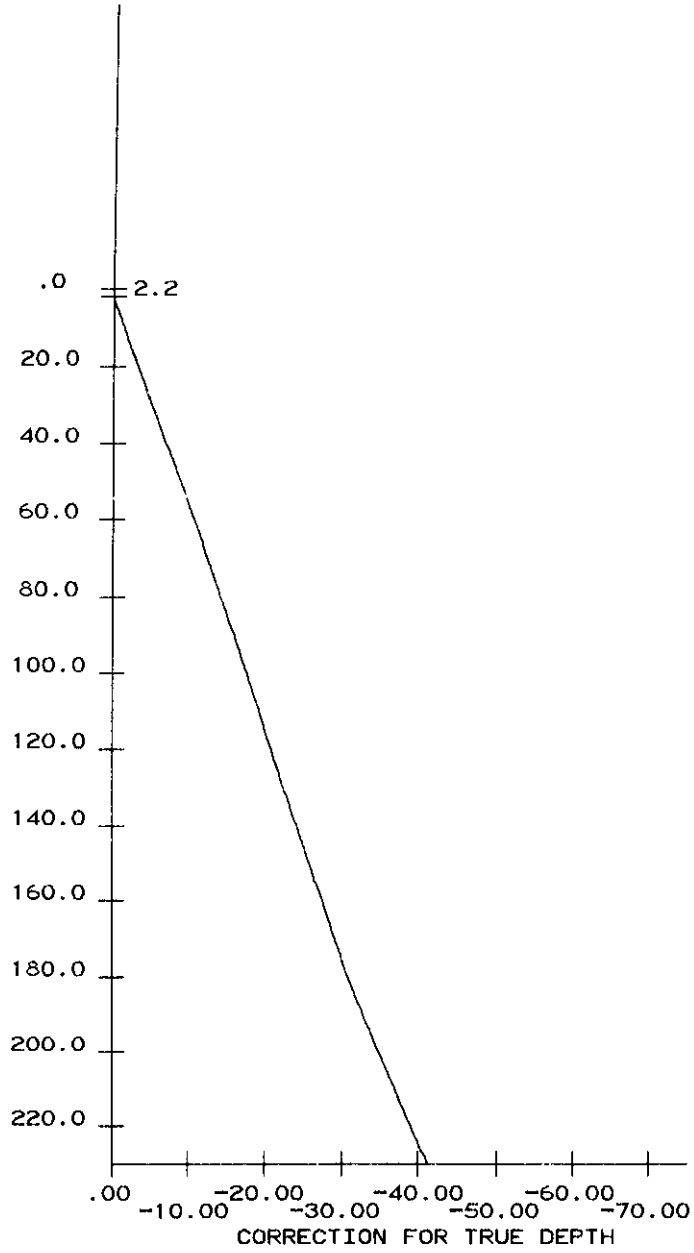




DEPTH CORRECTION ANALYSIS



DEPTHS: LOG	TRUE	DEPTHS LOG	TRUE
4.00	3.66	144.00	119.1
6.00	5.28	146.00	120.8
8.00	6.91	148.00	122.5
10.00	8.52	150.00	124.2
12.00	10.14	152.00	125.8
14.00	11.77	154.00	127.5
16.00	13.40	156.00	129.1
18.00	15.03	158.00	130.8
20.00	16.67	160.00	132.5
22.00	18.31	162.00	134.1
24.00	19.94	164.00	135.8
26.00	21.56	166.00	137.4
28.00	23.18	168.00	139.1
30.00	24.80	170.00	140.8
32.00	26.43	172.00	142.4
34.00	28.05	174.00	144.1
36.00	29.68	176.00	145.7
38.00	31.31	178.00	147.4
40.00	32.94	180.00	149.0
42.00	34.57	182.00	150.6
44.00	36.20	184.00	152.3
46.00	37.83	186.00	153.9
48.00	39.46	188.00	155.5
50.00	41.09	190.00	157.1
52.00	42.73	192.00	158.7
54.00	44.37	194.00	160.3
56.00	46.01	196.00	161.9
58.00	47.65	198.00	163.5
60.00	49.30	200.00	165.1
62.00	50.94	202.00	166.7
64.00	52.59	204.00	168.3
66.00	54.24	206.00	169.9
68.00	55.88	208.00	171.5
70.00	57.52	210.00	173.1
72.00	59.17	212.00	174.7
74.00	60.82	214.00	176.2
76.00	62.47	216.00	177.8
78.00	64.12	218.00	179.4
80.00	65.78	220.00	180.9
82.00	67.44	222.00	182.5
84.00	69.11	224.00	184.1
86.00	70.78	226.00	185.6
88.00	72.45	228.00	187.2
90.00	74.12	230.00	188.7
92.00	75.79		
94.00	77.46		
96.00	79.14		
98.00	80.81		
100.00	82.49		
102.00	84.16		
104.00	85.83		
106.00	87.51		
108.00	89.19		
110.00	90.87		
112.00	92.55		
114.00	94.22		
116.00	95.89		
118.00	97.56		
120.00	99.23		
122.00	100.90		
124.00	102.56		
126.00	104.22		
128.00	105.89		
130.00	107.55		
132.00	109.21		
134.00	110.87		
136.00	112.52		
138.00	114.18		
140.00	115.85		
142.00	117.52		



14.00	11.77	154.00	127.51
16.00	13.40	156.00	129.18
18.00	15.03	158.00	130.84
20.00	16.67	160.00	132.50
22.00	18.31	162.00	134.16
24.00	19.94	164.00	135.82
26.00	21.56	166.00	137.48
28.00	23.18	168.00	139.14
30.00	24.80	170.00	140.80
32.00	26.43	172.00	142.46
34.00	28.05	174.00	144.11
36.00	29.68	176.00	145.76
38.00	31.31	178.00	147.41
40.00	32.94	180.00	149.05
42.00	34.57	182.00	150.69
44.00	36.20	184.00	152.31
46.00	37.83	186.00	153.94
48.00	39.46	188.00	155.55
50.00	41.09	190.00	157.16
52.00	42.73	192.00	158.77
54.00	44.37	194.00	160.37
56.00	46.01	196.00	161.97
58.00	47.65	198.00	163.56
60.00	49.30	200.00	165.15
62.00	50.94	202.00	166.75
64.00	52.59	204.00	168.34
66.00	54.24	206.00	169.94
68.00	55.88	208.00	171.53
70.00	57.52	210.00	173.11
72.00	59.17	212.00	174.70
74.00	60.82	214.00	176.28
76.00	62.47	216.00	177.86
78.00	64.12	218.00	179.43
80.00	65.78	220.00	180.99
82.00	67.44	222.00	182.56
84.00	69.11	224.00	184.11
86.00	70.78	226.00	185.67
88.00	72.45	228.00	187.22
90.00	74.12	230.00	188.78
92.00	75.79		
94.00	77.46		
96.00	79.14		
98.00	80.81		
100.00	82.49		
102.00	84.16		
104.00	85.83		
106.00	87.51		
108.00	89.19		
110.00	90.87		
112.00	92.55		
114.00	94.22		
116.00	95.89		
118.00	97.56		
120.00	99.23		
122.00	100.90		
124.00	102.56		
126.00	104.22		
128.00	105.89		
130.00	107.55		
132.00	109.21		
134.00	110.87		
136.00	112.52		
138.00	114.18		
140.00	115.85		
142.00	117.52		

COMPANY	HILLSBOROUGH RESOURCES LTD.
WELL	BG-05-08A
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

LOCN.	5562913N 644179E
PRVNC	BRITISH COLUMBIA
FIELD	BINGAY CREEK
WELL:	BG-05-09A
COMPANY:	HILLSBOROUGH RESOURCES LTD

PRECISION ENERGY SERVICES

FOCUSSED ELECTRIC GAMMA RAY, CALIPER SCALE 1:240

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-09A
FIELD	BINGAY CREEK
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA
PERMIT NUMBER	N/A

LOCATION: 5562913N 644179E

LSD	SEC	TWP	RGE
N/A			

OTHER SERVICES: CDL, DIP/VERT

PERMANENT DATUM GROUND LEVEL, ELEVATION 1416.022M
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS: KB N/A, DF N/A, GL 1416.022M

DATE	28-MAR-05			
RUN NUMBER	1			
DEPTH-DRILLER	225.00M			
DEPTH-LOGGER	225.18M			
FIRST READING	222.30M			
LAST READING	9.40M			
CASING-DRILLER	9.00M			
CASING-LOGGER	9.40M			
BIT SIZE	133.35MM			
HOLE FLUID TYPE	WATER			
DENS./VISC.	1000 / N/A			
PH/FLUID LOSS	N/A / N/A			
SAMPLE SOURCE	NONE			
RM @ MEAS TEMP	2.00 @ 20.0C			
RMF @ MEAS TEMP	N/A			
RMC @ MEAS TEMP	N/A			
SOURCE: RMF/RMC	N/A / N/A			
RM @ BHT	N/A			
TIME SINCE CIRC	N/A			
MAX REC TEMP	N/A			
EQUIPMENT/BASE	V3405 / RDR			
RECORDED BY	ROBB RACZ			
WITNESSED BY	G. BICKFORD			
DRILL DONE	16-MAR-05			

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	133.35MM	123.10M	TD	159.00MM	N/A	SURFACE	9.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
SFE	103			

REMARKS

FOCUSSED ELECTRIC GAMMA RAY, CALIPER SCALE 1:240

NORTHING: 5562913.834 ELEVATION: 1416.022M SURVEYED ON MARCH 26/2005
EASTING : 644179.225

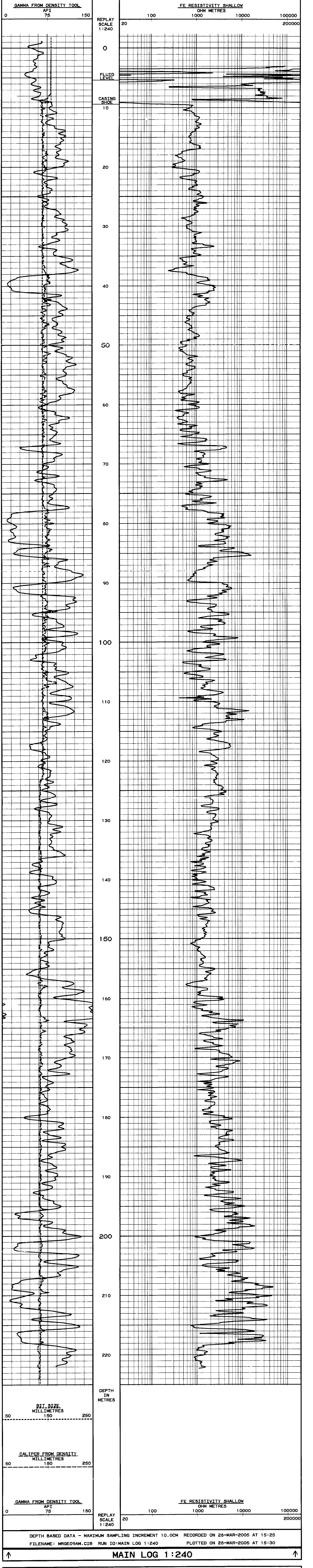
ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS IN OUR PRICE SCHEDULE

MAIN LOG 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 15:25
FILENAME: MRGE09AM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 28-MAR-2005 AT 15:30

DEPTH IN METRES

BIT SIZE MILLIMETRES 50 150 250
CALIPER FROM DENSITY MILLIMETRES 50 150 250
GAMMA FROM DENSITY TOOL API 0 75 150
REPLAY SCALE 1:240
FE RESISTIVITY SHALLOW OHM METRES 20 100 1000 10000 100000 200000



DEPTH IN METRES

BIT SIZE MILLIMETRES 50 150 250
CALIPER FROM DENSITY MILLIMETRES 50 150 250
GAMMA FROM DENSITY TOOL API 0 75 150
REPLAY SCALE 1:240
FE RESISTIVITY SHALLOW OHM METRES 100 1000 10000 100000 20 200000

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 15:25
FILENAME: MRGE09AM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 28-MAR-2005 AT 15:30

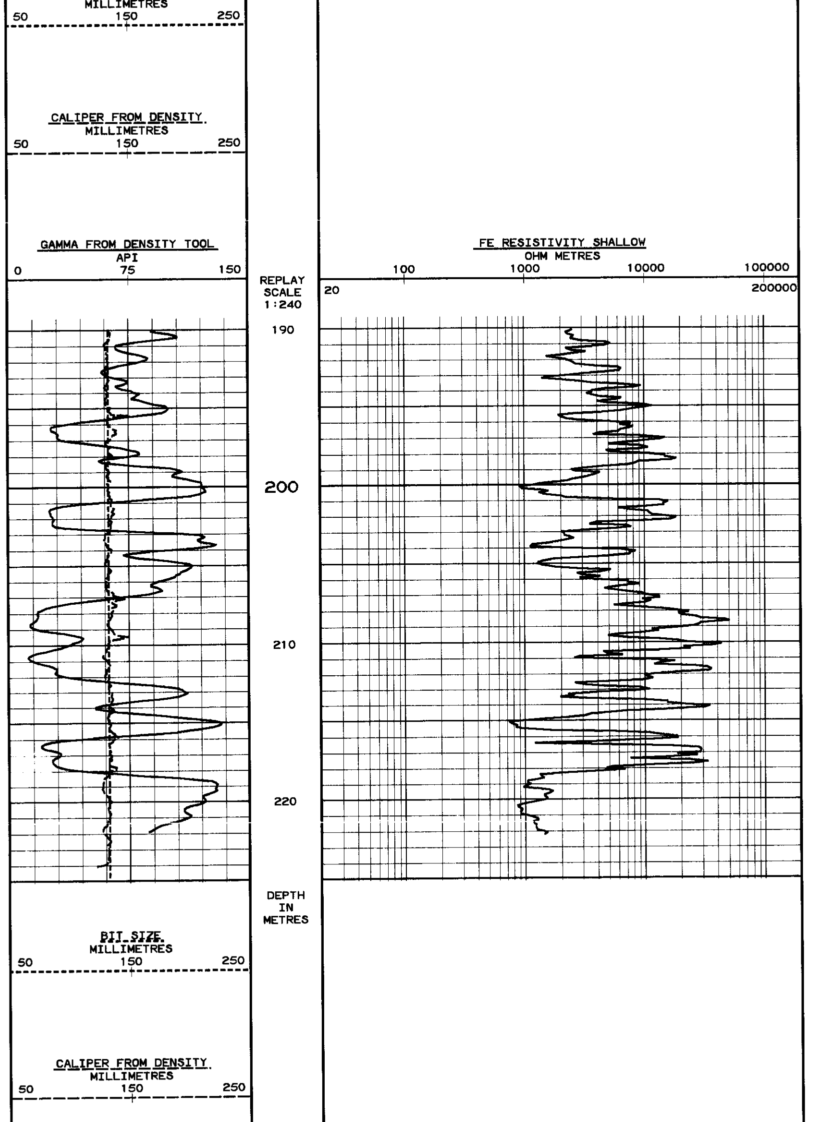
MAIN LOG 1:240

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 15:24
FILENAME: MRGE09AR.CIB RUN ID:REPEAT SECTION PLOTTED ON 28-MAR-2005 AT 15:30

DEPTH IN METRES

BIT SIZE MILLIMETRES 50 150 250
CALIPER FROM DENSITY MILLIMETRES 50 150 250
GAMMA FROM DENSITY TOOL API 0 75 150
REPLAY SCALE 1:240
FE RESISTIVITY SHALLOW OHM METRES 100 1000 10000 100000 20 200000



DEPTH IN METRES

BIT SIZE MILLIMETRES 50 150 250
CALIPER FROM DENSITY MILLIMETRES 50 150 250
GAMMA FROM DENSITY TOOL API 0 75 150
REPLAY SCALE 1:240
FE RESISTIVITY SHALLOW OHM METRES 100 1000 10000 100000 20 200000

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 15:24
FILENAME: MRGE09AR.CIB RUN ID:REPEAT SECTION PLOTTED ON 28-MAR-2005 AT 15:30

REPEAT SECTION

LOGGING/CALIBRATION CONSTANTS

CONSTANTS LAST EDITED: 28-MAR-2005 AT 15:23

LOGGING CONSTANTS AND BIT SIZE MEASUREMENTS

RESISTIVITY SONDE TYPE	DUAL RR1	MUD RESISTIVITY (OHM METRES)	2.000
BIT SIZE UNITS (INS/MM)	MILLIMTR	BIT DEPTH UNITS (M/FT)	METRES
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	9.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	123.10
BIT SIZS 4	0.00	FROM BIT DEPTH 4	225.00
BIT SIZE 5	0.00	FROM BIT DEPTH 5	0.00
TEMPERATURE UNITS	DEG. C		

CALIBRATION CONSTANTS

FE1 CALIBRATOR VALUE 1	2.0000	FE1 COUNT RATE 1	4496.0000
FE1 CALIBRATOR VALUE 2	2000.0000	FE1 COUNT RATE 2	2972.0000
FE2 CALIBRATOR VALUE 1	2.0000	FE2 COUNT RATE 1	4492.0000
FE2 CALIBRATOR VALUE 2	2000.0000	FE2 COUNT RATE 2	3010.0000
GRFE CALIBRATOR VALUE 1	490.0000	GRFE COUNT RATE 1	315.0000
SP CALIBRATOR VALUE 1	1.0000	SP COUNT RATE 1	1.0000
SP CALIBRATOR VALUE 2	0.0000	SP COUNT RATE 2	0.0000

LOGGING CONSTANTS

SONDE TYPE (DD3,CCS,DDI,DDS,DDL	DDS	SONDE MODE (WET,DRY,STD)	STD
MUD WEIGHT	1.00	STRIP COEFFICIENT	0.50
ANNULAR VOLUME DIAMETER	133.35	WATER LEVEL	.00
CALIPER ARM LENGTH (CMS)	22.60	MATRIX DENSITY	2.65
CALIPER UNITS(INS,MMS)	MMS	DENSITY OF MUD FILTRATE	1.00
BRD POINT ONE	1.00	BRD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
LSD POINT ONE	1.00	LSD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
DENSITY SCALAR	1.50	BRD SCALAR	-.50
BIT DEPTHS & WATER LEVEL (FT,M)	METRES	CALIPER SOURCE FOR PROCESSING	CAL
BIT SIZE 1	159.00	FROM BIT DEPTH 1	.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	9.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	123.10
BIT SIZE 4	.00	FROM BIT DEPTH 4	225.00
BIT SIZE 5	.00	FROM BIT DEPTH 5	.00

CALIBRATION CONSTANTS

GAMMA CALIBRATOR VALUE 1	436.00	GAMMA COUNT RATE 1	237.72
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
CALIPER RING SIZE 1	76.20	CALIPER COUNT FOR RING 1	1834.00
CALIPER RING SIZE 2	101.60	CALIPER COUNT FOR RING 2	2258.00
CALIPER RING SIZE 3	127.00	CALIPER COUNT FOR RING 3	2690.00
CALIPER RING SIZE 4	152.40	CALIPER COUNT FOR RING 4	3162.00
CALIPER RING SIZE 5	203.20	CALIPER COUNT FOR RING 5	4224.00
CALIPER RING SIZE 6	254.00	CALIPER COUNT FOR RING 6	5030.00
DRY HOLE CORRECTION...			
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
DRY HOLE BRD NEW (1) GM/CC	0.00	DRY HOLE BRD LOG (1) GM/CC	0.00
DRY HOLE BRD NEW (2) GM/CC	1.00	DRY HOLE BRD LOG (2) GM/CC	1.00
DRY HOLE LSD NEW (1) GM/CC	0:00	DRY HOLE LSD LOG (1) GM/CC	0.00
DRY HOLE LSD NEW (2) GM/CC	1.00	DRY HOLE LSD LOG (2) GM/CC	1.00

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-09A
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

PRECISION ENERGY SERVICES

DIPMETER ANALYSIS
SCALE 1:240

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-09A
FIELD	BINGAY CREEK
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA
LOCATION	5562913 N 644179 E

LSD	SEC	TWP	RGE	Other Services
				CDL
				SFE

API Number
License Numbe

Permanent Datum G.L. , Elevation 1416.022 metres
Log Measured From GROUND LEVEL above Permanent Datum
Drilling Measured From GROUND LEVEL

Elevations:
KB metres
DF metres
GL 1416.02 metres

Date	28-MAR-2005			
Run Number	1			
Depth Driller	225.00	metres		
Depth Logger	225.18	metres		
First Reading	225.00	metres		
Last Reading	9.30	metres		
Casing Driller	9.00	metres		
Casing Logger	9.30	metres		
Bit Size	139.70	mm	133.35	mm
Hole Fluid Type	WATER			
Density / Viscosity	1.00 g/c3			
PH / Fluid Loss				
Sample Source	NONE			
Rm @ Measured Temp	2.0 @ 20.0	ohm-m		
Rmf @ Measured Temp				
Rmc @ Measured Temp				
Source Rmf / Rmc				
Rm @ BHT				
Time Since Circulation	N/A			
Max Recorded Temp	7.00	deg C		
Equipment Name	SQD/VO3		013/231	
Equipment / Base	3405	RDR		
Recorded By	ROBB RACZ			
Witnessed By	G. BICKFORD			

BOREHOLE RECORD

Bit Size millimetres	Depth From metres	Depth To metres
139.700	9.00	123.10
133.350	123.10	225.00

CASING RECORD

ype	Size millimetres	Depth From metres	Shoe Depth metres	Weight Kg/metre
	159.000	0.00	9.00	0.00

REMARKS

CE CO-ORDINATES:

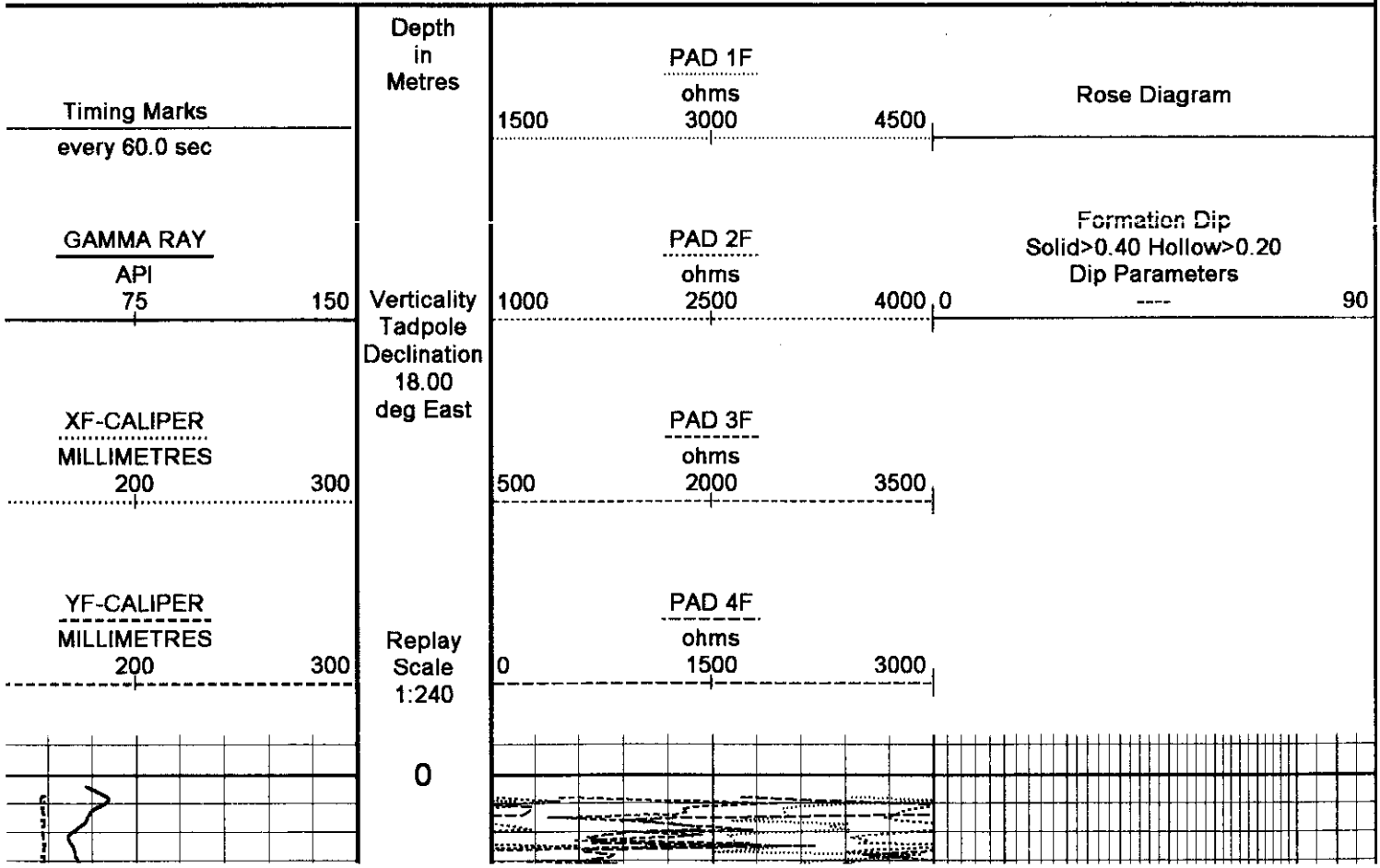
NG: 5562913.834
G: 644179.225

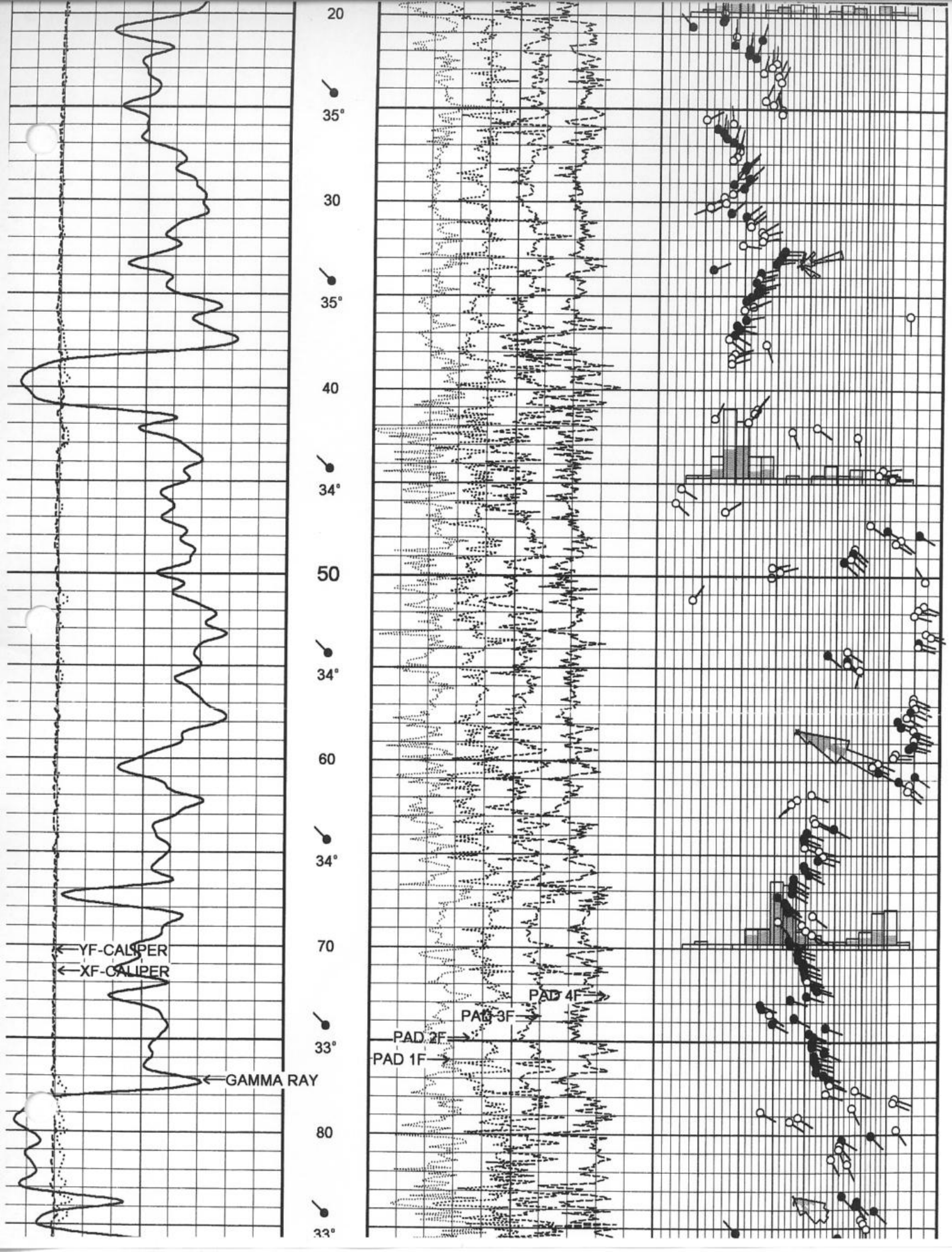
ION: 1416.022 M SURVEYED ON MARCH 26/2005

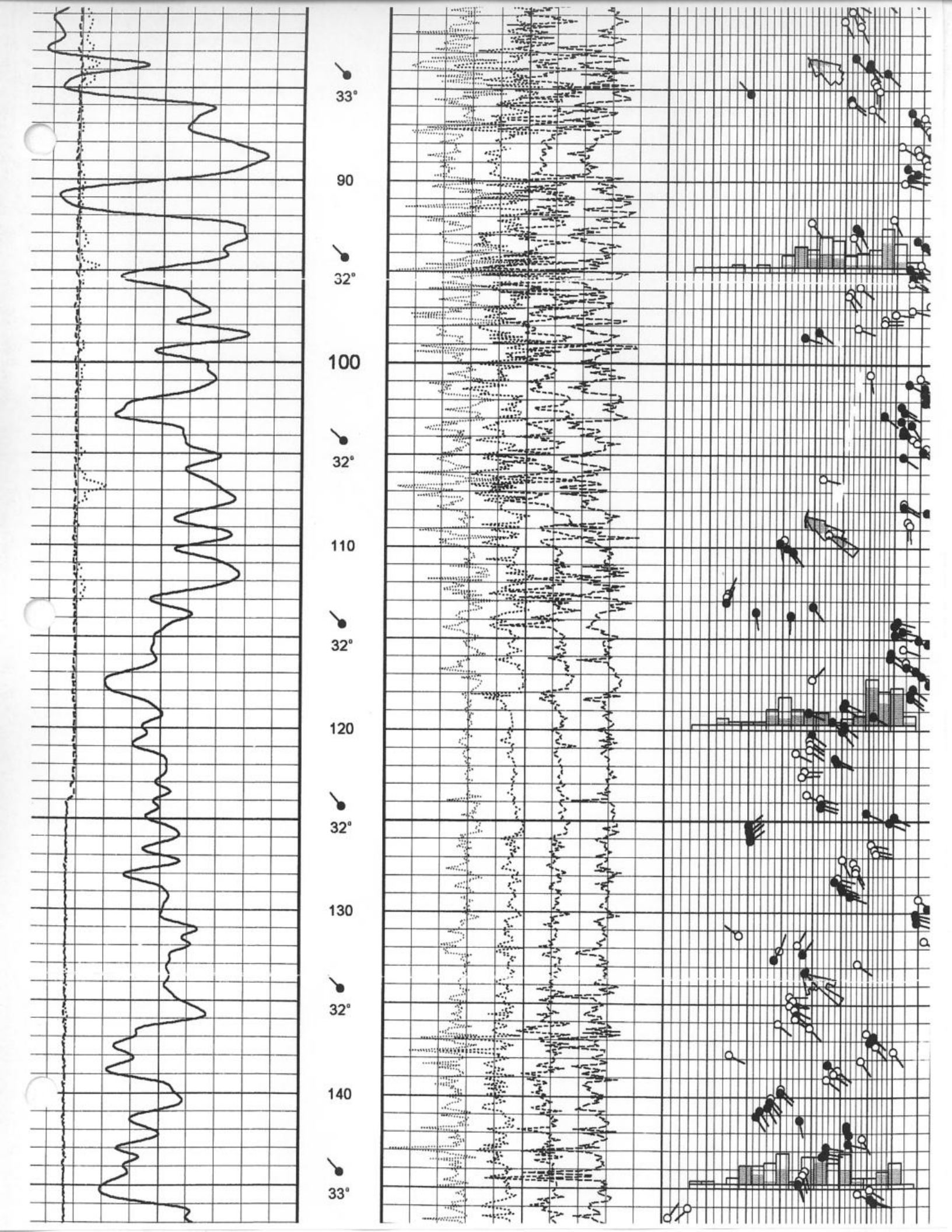
retations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or ess of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any ts, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or es. These interpretations are also subject to our general terms and conditions in our price schedule.

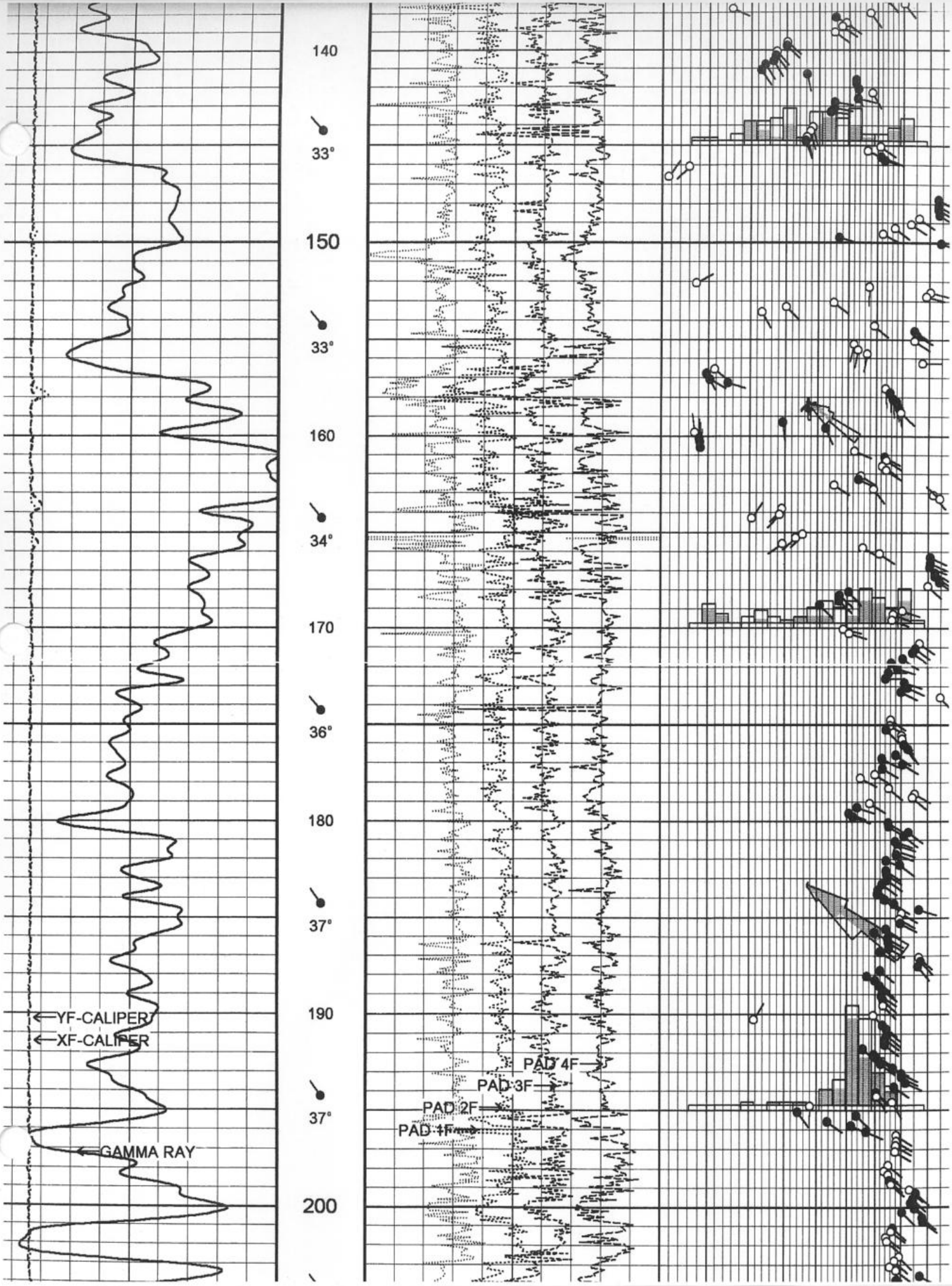
MAIN LOG 1:240

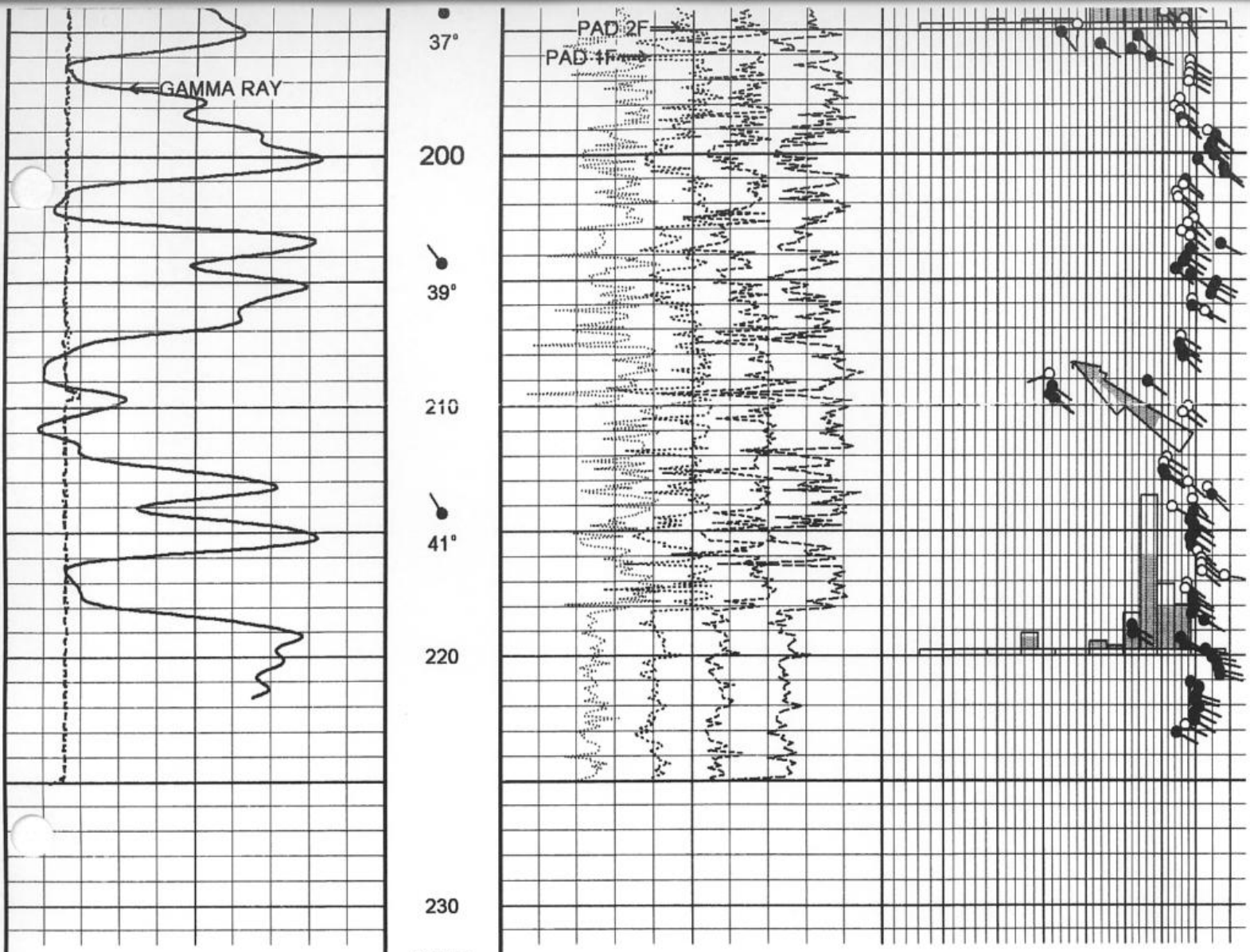
ased Data - Maximum Sampling Increment 10.0cm
Plotted on 01-APR-2005 13:28
e: C:\logs\Elkford\Bg-09a\DIP409AM.dta
Configuration Dates: Logged : Plotted 18-MAY-2004:




20
35°
30
35°
40
34°
50
34°
60
34°
70
33°
80
33°
YF-CALIPER
XF-CALIPER
GAMMA RAY
PAD 4F
PAD 3F
PAD 2F
PAD 1F


33°
90
32°
100
32°
110
32°
120
32°
130
32°
140
33°


140
33°
150
33°
160
34°
170
36°
180
37°
190
37°
200
YF-CALIPER
XF-CALIPER
GAMMA RAY
PAD 4F
PAD 3F
PAD 2F
PAD 1F



Timing Marks
every 60.0 sec

GAMMA RAY
API
0 75 150

XF-CALIPER
MILLIMETRES
100 200 300

YF-CALIPER
MILLIMETRES
100 200 300

Depth in Metres

Verticality
Tadpole
Declination
18.00
deg East

Replay
Scale
1:240

PAD 1F
ohms
1500 3000 4500

PAD 2F
ohms
1000 2500 4000

PAD 3F
ohms
500 2000 3500

PAD 4F
ohms
0 1500 3000

Rose Diagram

Formation Dip
Solid>0.40 Hollow>0.20
Dip Parameters
---- 0 9

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\logs\Elkford\Bg-09a\DIP409AM.dta
System Configuration Dates: Logged : Plotted 18-MAY-2004:

Plotted on 01-APR-2005 13:2

YF-CALIPER
MILLIMETRES
100 200 300

Replay Scale 1:240

PAD 4F
ohms
0 1500 3000

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 01-APR-2005 13:2
ame: C:\logs\Elkford\Bg-09a\DIP409AM.dta
System Configuration Dates: Logged : Plotted 18-MAY-2004:

MAIN LOG 1:240

REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 01-APR-2005 13:2
Filename: C:\logs\Elkford\Bg-09a\DIP409AR.dta
System Configuration Dates: Logged : Plotted 18-MAY-2004:

Timing Marks
every 60.0 sec

GAMMA RAY
API
0 75 150

XF-CALIPER
MILLIMETRES
200 300

YF-CALIPER
MILLIMETRES
100 200 300

Replay Scale 1:240

Depth in Metres

Verticality
Tadpole
Declination
18.00
deg East

PAD 1F
ohms
1500 3000 4500

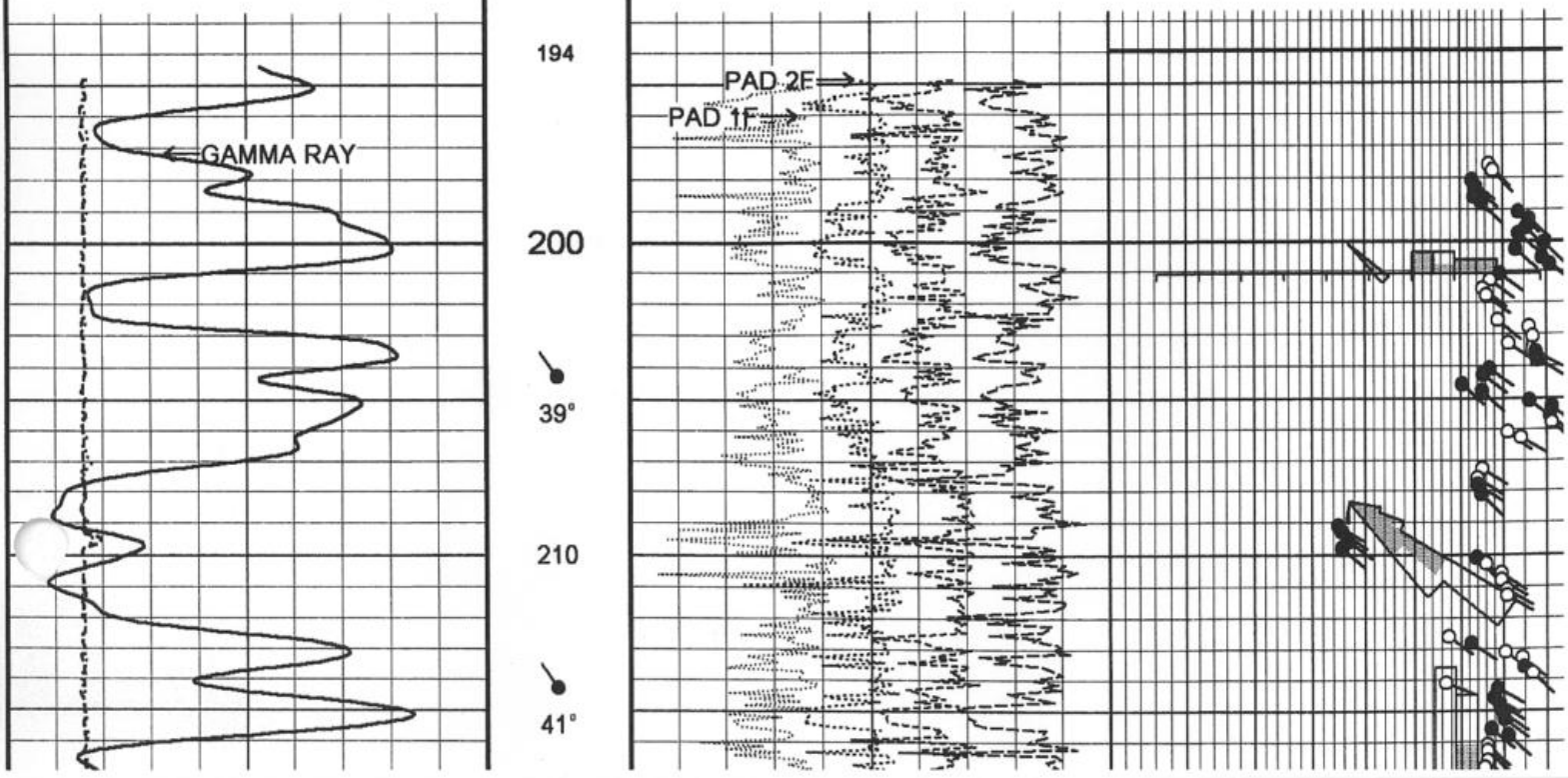
PAD 2F
ohms
1000 2500 4000

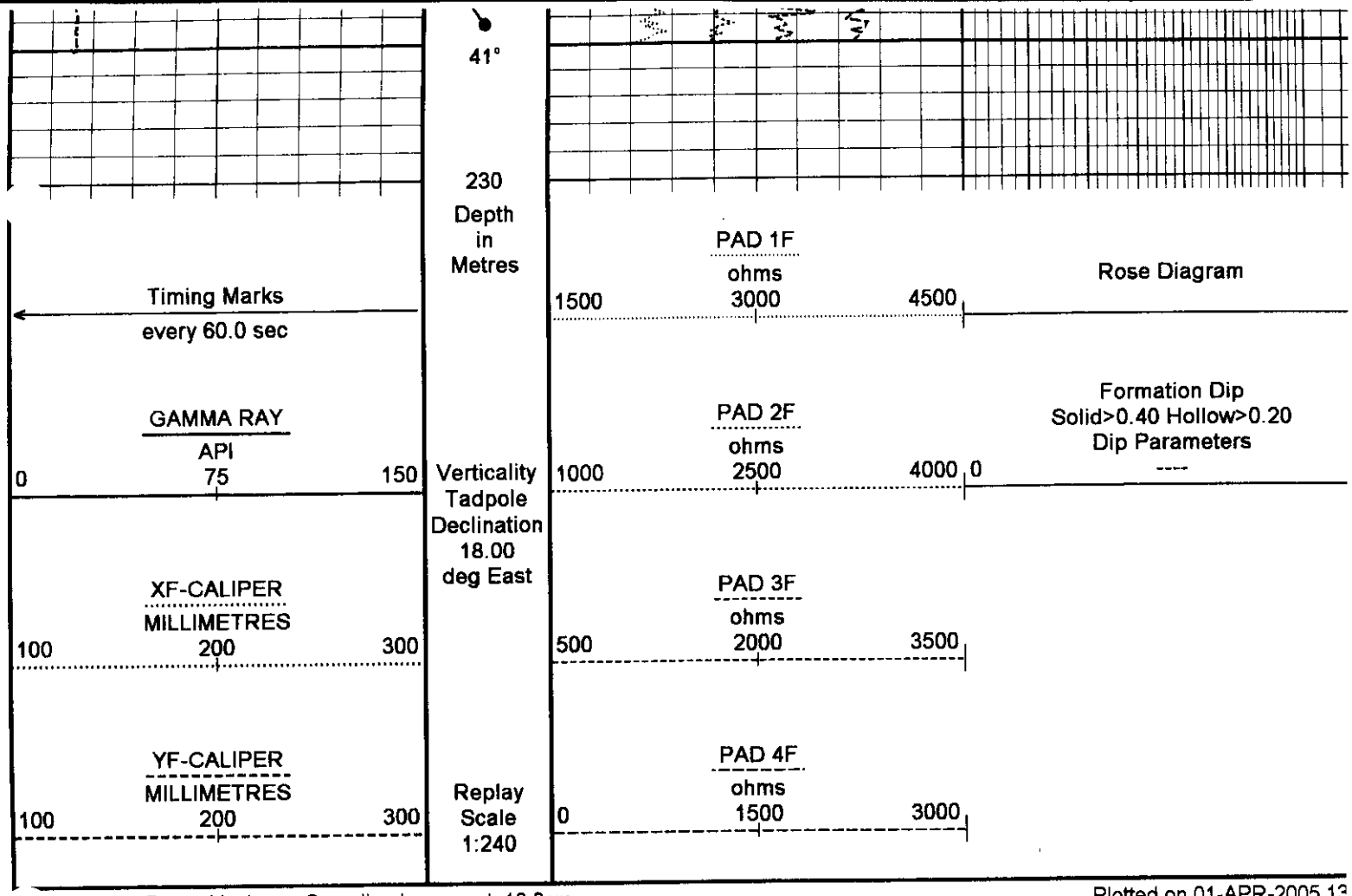
PAD 3F
ohms
500 2000 3500

PAD 4F
ohms
0 1500 3000

Rose Diagram

Formation Dip
Solid>0.40 Hollow>0.20
Dip Parameters
---- 0 9





Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 01-APR-2005 13

Filename: C:\logs\Elkford\Bg-09a\DIP409AR.dta

System Configuration Dates: Logged : Plotted 18-MAY-2004:

REPEAT SECTION

BEFORE SURVEY CALIBRATION

C:\logs\Elkford\Bg-09a\dip4m09a.

LOGGING CONSTANTS & GAMMA CALIBRATION

Correlation step (m.)	.25	Correlation interval (m.)	1.00
Bit size #1 (mm)	0.00	Bit depth #1 (m)	0.00
Bit size #2 (mm)	0.00	Bit depth #2 (m)	0.00
Bit size #3 (mm)	0.00	Bit depth #3 (m)	0.00
Bit size #4 (mm)	0.00	Bit depth #4 (m)	0.00
Bit size #5 (mm)	0.00	Bit depth #5 (m)	0.00
Gamma calibrator (API)	0.00	Gamma counts	0.00
Pad penetration (mm)	3.81	Search angle (degrees)	60.00
Structural dip angle (degrees)	.00	Structural dip azi. (degrees)	.00
Declination (degrees)	18.00 E	Detail pad data	NO
Correlate	YES	Caliper units	MM
Depth units	METRIC	Caliper used in calculations	YES

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-09A
FIELD	BINGAY CREEK
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

Elevation Kelly Bushing	metres	First Reading	225.00	metres

LOGGING CONSTANTS & GAMMA CALIBRATION

Correlation step (m.)	.25	Correlation interval (m.)	1.00
Bit size #1 (mm)	0.00	Bit depth #1 (m)	0.00
Bit size #2 (mm)	0.00	Bit depth #2 (m)	0.00
Bit size #3 (mm)	0.00	Bit depth #3 (m)	0.00
Bit size #4 (mm)	0.00	Bit depth #4 (m)	0.00
Bit size #5 (mm)	0.00	Bit depth #5 (m)	0.00
Gamma calibrator (API)	0.00	Gamma counts	0.00
Pad penetration (mm)	3.81	Search angle (degrees)	60.00
Structural dip angle (degrees)	.00	Structural dip azi. (degrees)	.00
Declination (degrees)	18.00 E	Detail pad data	NO
Correlate	YES	Caliper units	MM
Depth units	METRIC	Caliper used in calculations	YES

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-09A
FIELD	BINGAY CREEK
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

Elevation Kelly Bushing		metres	First Reading	225.00	metres
Elevation Drill Floor		metres	Depth Driller	225.00	metres
Elevation Ground Level	1416.02	metres	Depth Logger	225.18	metres

PRECISION ENERGY SERVICES

DIPMETER ANALYSIS

SCALE 1:240

VERTICALITY ANALYSIS

LOCN. 5562913N 644179E
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG-05-09A
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG-05-09A
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION				OTHER SERVICES
5562913N 644179E				SFE CDL
LSD	SEC	TWP	RGE	
N/A				

PERMANENT DATUM GROUND LEVEL ,ELEVATION 1416.022M
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1416.022M

DATE	28-MAR-05			
RUN NUMBER	1			
DEPTH-DRILLER	225.00M			
DEPTH-LOGGER	225.18M			
FIRST READING	225.00M			
LAST READING	9.40M			
CASING-DRILLER	9.00M			
CASING-LOGGER	9.40M			
BIT SIZE	133.35MM			
HOLE FLUID TYPE	WATER			
DENS./VISC.	1000 N/A			
PH/FLUID LOSS	N/A N/A			
SAMPLE SOURCE	NONE			
RM @ MEAS TEMP	2.00 @ 20.0C			
RMF @ MEAS TEMP	N/A			
RMC @ MEAS TEMP	N/A			
SOURCE: RMF/RMC	N/A N/A			
RM @ BHT	N/A			
TIME SINCE CIRC	N/A			
MAX REC TEMP	N/A			
EQUIPMENT/BASE	V3405 RDR			
RECORDED BY	ROBB RACZ			
WITNESSED BY	G. BICKFORD			
DRILL DONE	16-MAR-05			

VERTICALITY ANALYSIS INTERPRETATION NOTES

ALL PLOTTED OUTPUT IS AUTOMATICALLY SCALED TO OBTAIN THE BEST VISUAL EFFECT WITHIN THE PHYSICAL SPACE AVAILABLE. THE MAXIMUM SCALES BEING 1:50000 (METRIC) AND 1:48000 (IMPERIAL), AND THE MINIMUM 1:1.

2. THE ANALYSIS IS DERIVED BY INTEGRATING 10CM. SAMPLED DATA DOWN THE BOREHOLE. THE LISTING SUPPLIED WILL CONTAIN A MAXIMUM OF 200 POINTS IN MULTIPLES OF 1, 2, 5, 10, 20, 50 OR 100 METRES/FEET DEPENDING ON THE TOTAL RANGE OF THE ANALYSIS. HOWEVER THE ANALYSIS IS CALCULATED FOR THE ENTIRE RANGE OF THE BOREHOLE AND THE FINAL BOREHOLE POSITION IS INCLUDED IN THE LISTING.

3. COMPUTED VERTICALITY MAY ONLY BE FULLY DERIVED IN OPEN SECTIONS OF THE BOREHOLE, AWAY FROM THE INFLUENCE OF ANY UNUSUAL MAGNETIC EFFECTS (AS THE AZIMUTH CALCULATIONS ARE DERIVED FROM THREE SOLID STATE MAGNETOMETERS). SO THE ANALYSIS WILL GENERALLY BEGIN AT THE END OF THE CASING AND ALL BOREHOLE POSITIONAL INFORMATION WILL RELATE TO THIS DEPTH.

4. UP TO TEN CROSS SECTIONS MAY BE REQUESTED FOR ANY BOREHOLE TO BE DISPLAYED AT ANY SCALE (THE DEFAULT SCALE IS THAT OF THE CROSS-SECTION FOR THE ENTIRE HOLE).

5. BOREHOLE POSITIONAL ERROR IS DERIVED ASSUMING THE FOLLOWING PARAMETERS.

	TILT(DEGREES)	AZIMUTH(DEGREES)
TYPICAL ERROR	+/- .3333	+/- 10.00
MAXIMUM ERROR	+/- .5000	+/- 15.00

6. ERROR ANALYSIS MAY BE CALCULATED AND PLOTTED FROM THE DATA LISTING AS FOLLOWS:

A) PLOT THE FOUR COORDINATES FROM THE ERROR LISTING (BASED UPON ZERO AZIMUTH ERROR) ON A TARGET PLOT. ORIGIN AT THE START OF THE ANALYSIS.
B) DESCRIBE ARCS OF +/- 10.00 DEGREES AND +/- 15.00 DEGREES (CENTRE AT THE ORIGIN) THROUGH THE INNER AND OUTER POINTS RESPECTIVELY.
C) CONNECT THE RESPECTIVE ARCS TOGETHER WITH STRAIGHT LINES TO GIVE THE TYPICAL AND MAXIMUM BOREHOLE POSITIONAL ERROR.

7. GIVEN BELOW IS A FULL DESCRIPTION OF THE PARAMETERS DISPLAYED ON THE ENSUING LISTING:

LOG DEPTH	THE DEPTH RECORDED ON THE FIELD LOGS FOR THE BOREHOLE.
TRUE DEPTH	THE TRUE VERTICAL DEPTH CORESPONDING TO THE ABOVE DEPTH. CORRECTED FROM THE START OF THE ANALYSIS.
HOLE TILT AND AZIMUTH	THE SAMPLED BOREHOLE ORIENTATION.
AXIAL COORDINATES	THE COORDINATES NORTH AND EAST FROM THE TARGET ORIGIN.
POLAR COORDINATES	THE POLAR, OR RADIAL COORDINATES OF THE BOREHOLE.
ERROR COORDINATES	THE POLAR COORDINATES CORRESPONDING TO THE TYPICAL AND MAXIMUM TILT ERROR.

N.B. THE REFERENCE POINT FOR ALL BEARING ANGLES ON THIS LISTING IS GIVEN AT THE TOP OF EACH SHEET.

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

BG-05-09A VERTICALITY DATA LISTING FOR DIP409AB.CIB DATE PROCESSED: 31-MAR-20
ALL CO-ORDINATES WITH RESPECT TO TRUE NORTH DATE LOGGED: 28-MAR-20

DEPTHS LOG	DEPTHS TRUE	BOREHOLE TILT	BOREHOLE AZI	AXIAL CO-ORDS NORTH	AXIAL CO-ORDS EAST	POLAR BRG	POLAR RADIUS	POLAR ERROR CO-ORDINATES (MAXIMUM & TYPICAL) BRG	RADIUS	BRG	RADIUS	BRD	RADI
2.00	1.75	37.3	46	0.61	-0.19	343	0.64	343	0.65	343	0.64	343	0.
4.00	3.34	36.8	27	0.97	-0.33	341	1.02	341	1.03	341	1.01	341	1.
6.00	4.94	37.3	214	0.94	-0.38	338	1.01	338	1.02	338	1.00	338	1.
8.00	6.53	37.0	250	-0.03	-0.71	268	0.71	268	0.72	268	0.70	268	0.
10.00	8.13	37.1	18	0.98	-0.33	341	1.03	341	1.04	341	1.02	341	1.
12.00	9.72	36.9	293	1.62	-0.66	338	1.75	338	1.77	338	1.73	338	1.
14.00	11.32	37.0	299	2.16	-1.73	321	2.76	321	2.80	321	2.73	321	2.
16.00	12.93	36.7	298	2.69	-2.79	314	3.88	314	3.93	314	3.84	314	3.
18.00	14.53	36.6	298	3.23	-3.86	310	5.03	310	5.09	310	4.97	310	4.
20.00	16.14	36.2	297	3.77	-4.92	308	6.20	308	6.27	308	6.12	308	6.
22.00	17.76	36.3	297	4.30	-5.97	306	7.36	306	7.45	306	7.27	306	7.
24.00	19.37	36.3	294	4.82	-7.03	304	8.52	304	8.62	304	8.42	304	8.
26.00	20.99	35.7	295	5.33	-8.08	303	9.68	303	9.80	303	9.57	303	9.
28.00	22.62	35.4	295	5.85	-9.13	303	10.84	303	10.97	303	10.71	303	10.
30.00	24.24	35.5	294	6.37	-10.17	302	12.00	302	12.14	302	11.86	302	11.
32.00	25.87	35.6	296	6.87	-11.22	301	13.15	301	13.31	301	13.00	301	13.
34.00	27.50	35.2	295	7.37	-12.26	301	14.31	301	14.48	301	14.14	301	14.
36.00	29.14	35.1	294	7.87	-13.30	301	15.45	301	15.64	301	15.27	301	15.
38.00	30.78	35.2	298	8.38	-14.32	300	16.59	300	16.79	300	16.39	300	16.
40.00	32.41	35.2	296	8.90	-15.35	300	17.75	300	17.96	300	17.53	300	17.
42.00	34.04	35.1	297	9.43	-16.38	300	18.90	300	19.13	300	18.67	300	18.
44.00	35.69	34.5	296	9.95	-17.40	300	20.04	300	20.28	300	19.80	300	20.20	300	19.

22.00	17.76	36.3 297	4.30	-5.97 306	7.36 306	7.45 306	7.27 306	7.42 306	
24.00	19.37	36.3 294	4.82	-7.03 304	8.52 304	8.62 304	8.42 304	8.59 304	
26.00	20.99	35.7 295	5.33	-8.08 303	9.68 303	9.80 303	9.57 303	9.76 303	
28.00	22.62	35.4 295	5.85	-9.13 303	10.84 303	10.97 303	10.71 303	10.93 303	10
30.00	24.24	35.5 294	6.37	-10.17 302	12.00 302	12.14 302	11.86 302	12.10 302	11
32.00	25.87	35.6 296	6.87	-11.22 301	13.15 301	13.31 301	13.00 301	13.26 301	13
34.00	27.50	35.2 295	7.37	-12.26 301	14.31 301	14.48 301	14.14 301	14.42 301	14
36.00	29.14	35.1 294	7.87	-13.30 301	15.45 301	15.64 301	15.27 301	15.57 301	15
38.00	30.78	35.2 298	8.38	-14.32 300	16.59 300	16.79 300	16.39 300	16.73 300	16
40.00	32.41	35.2 296	8.90	-15.35 300	17.75 300	17.96 300	17.53 300	17.89 300	17
42.00	34.04	35.1 297	9.43	-16.38 300	18.90 300	19.13 300	18.67 300	19.05 300	18
44.00	35.69	34.5 296	9.95	-17.40 300	20.04 300	20.28 300	19.80 300	20.20 300	19
46.00	37.34	34.3 295	10.42	-18.42 299	21.16 299	21.42 299	20.91 299	21.33 299	20
48.00	38.99	34.2 295	10.90	-19.44 299	22.29 299	22.56 299	22.02 299	22.47 299	22
50.00	40.64	34.0 296	11.38	-20.46 299	23.41 299	23.69 299	23.12 299	23.60 299	23
52.00	42.30	34.2 295	11.85	-21.47 299	24.53 299	24.82 299	24.22 299	24.72 299	24
54.00	43.96	33.7 293	12.31	-22.49 299	25.64 299	25.95 299	25.32 299	25.85 299	25
56.00	45.62	33.7 294	12.78	-23.51 299	26.75 299	27.08 299	26.42 299	26.97 299	26
58.00	47.27	34.0 296	13.27	-24.52 298	27.88 298	28.22 298	27.53 298	28.10 298	27
60.00	48.93	34.5 297	13.75	-25.53 298	29.00 298	29.35 298	28.64 298	29.23 298	28
62.00	50.58	33.9 294	14.24	-26.54 298	30.12 298	30.49 298	29.75 298	30.37 298	29
64.00	52.24	34.1 295	14.71	-27.56 298	31.24 298	31.62 298	30.85 298	31.49 298	30
66.00	53.90	34.2 296	15.19	-28.57 298	32.36 298	32.76 298	31.95 298	32.62 298	32
68.00	55.56	33.8 297	15.68	-29.57 298	33.47 298	33.89 298	33.06 298	33.75 298	33
70.00	57.22	33.6 295	16.14	-30.58 298	34.58 298	35.01 298	34.15 298	34.87 298	34
72.00	58.89	33.2 295	16.60	-31.59 298	35.68 298	36.15 298	35.24 298	35.98 298	35
74.00	60.56	33.4 295	17.04	-32.59 298	36.78 298	37.23 298	36.32 298	37.08 298	36
76.00	62.24	33.0 294	17.49	-33.59 298	37.87 298	38.34 298	37.39 298	38.18 298	37
78.00	63.91	32.9 293	17.92	-34.59 297	38.96 297	39.44 297	38.47 297	39.28 297	38
80.00	65.58	33.2 294	18.37	-35.59 297	40.05 297	40.55 297	39.55 297	40.38 297	39
82.00	67.26	33.1 296	18.81	-36.59 297	41.14 297	41.66 297	40.62 297	41.48 297	40
84.00	68.93	33.4 294	19.26	-37.59 297	42.24 297	42.76 297	41.70 297	42.59 297	41
86.00	70.61	33.1 294	19.72	-38.58 297	43.33 297	43.87 297	42.78 297	43.69 297	42
88.00	72.28	32.8 295	20.17	-39.57 297	44.42 297	44.98 297	43.85 297	44.79 297	44
90.00	73.96	33.2 296	20.63	-40.56 297	45.51 297	46.08 297	44.93 297	45.89 297	45
92.00	75.64	32.9 296	21.09	-41.54 297	46.59 297	47.18 297	46.00 297	46.98 297	46
94.00	77.32	32.9 296	21.56	-42.52 297	47.68 297	48.28 297	47.07 297	48.08 297	47
96.00	79.00	32.5 295	22.03	-43.50 297	48.76 297	49.38 297	48.14 297	49.17 297	48
98.00	80.68	32.4 295	22.49	-44.48 297	49.84 297	50.47 297	49.21 297	50.26 297	49
100.00	82.37	32.5 295	22.94	-45.45 297	50.91 297	51.56 297	50.26 297	51.35 297	50
102.00	84.06	32.5 295	23.40	-46.42 297	51.99 297	52.65 297	51.32 297	52.43 297	51
104.00	85.75	32.2 294	23.86	-47.39 297	53.06 297	53.73 297	52.38 297	53.51 297	52
106.00	87.44	32.5 295	24.31	-48.36 297	54.13 297	54.82 297	53.43 297	54.59 297	53
108.00	89.12	33.1 297	24.79	-49.33 297	55.21 297	55.91 297	54.50 297	55.68 297	54
110.00	90.80	32.5 297	25.27	-50.30 297	56.29 297	57.01 297	55.56 297	56.77 297	55
112.00	92.49	32.4 295	25.72	-51.26 297	57.35 297	58.09 297	56.62 297	57.84 297	56
114.00	94.18	32.5 297	26.21	-52.22 297	58.43 297	59.18 297	57.68 297	58.93 297	57
116.00	95.87	32.3 296	26.69	-53.18 297	59.50 297	60.27 297	58.73 297	60.01 297	58
118.00	97.56	32.2 297	27.16	-54.13 297	60.57 297	61.35 297	59.78 297	61.09 297	60
120.00	99.25	32.3 298	27.66	-55.08 297	61.63 297	62.43 297	60.83 297	62.16 297	61
122.00	100.94	32.6 300	28.16	-56.02 297	62.70 297	63.51 297	61.89 297	63.24 297	62
124.00	102.63	32.7 299	28.69	-56.96 297	63.78 297	64.60 297	62.95 297	64.33 297	63
126.00	104.31	32.7 297	29.22	-57.91 297	64.86 297	65.70 297	64.02 297	65.42 297	64
128.00	105.99	33.2 298	29.75	-58.86 297	65.95 297	66.80 297	65.09 297	66.52 297	65
130.00	107.66	32.9 297	30.25	-59.82 297	67.03 297	67.90 297	66.16 297	67.61 297	66
132.00	109.35	32.6 297	30.73	-60.79 297	68.11 297	69.00 297	67.23 297	68.70 297	67
134.00	111.03	32.7 296	31.20	-61.76 297	69.19 297	70.09 297	68.29 297	69.79 297	68
136.00	112.71	33.2 297	31.67	-62.74 297	70.28 297	71.19 297	69.36 297	70.88 297	69
138.00	114.38	33.6 298	32.18	-63.71 297	71.38 297	72.30 297	70.45 297	71.99 297	70
140.00	116.05	33.8 299	32.71	-64.68 297	72.48 297	73.42 297	71.54 297	73.11 297	71
142.00	117.71	34.0 300	33.25	-65.66 297	73.60 297	74.55 297	72.64 297	74.23 297	72
144.00	119.37	33.9 300	33.80	-66.63 297	74.71 297	75.68 297	73.74 297	75.36 297	74
146.00	121.04	33.2 296	34.31	-67.60 297	75.81 297	76.79 297	74.82 297	76.47 297	75
148.00	122.71	33.5 297	34.82	-68.57 297	76.91 297	77.91 297	75.90 297	77.57 297	76
150.00	124.38	33.4 298	35.34	-69.54 297	78.01 297	79.02 297	76.99 297	78.68 297	77
152.00	126.05	34.2 303	35.87	-70.51 297	79.11 297	80.14 297	78.08 297	79.80 297	78
154.00	127.71	34.1 302	36.45	-71.47 297	80.23 297	81.27 297	79.18 297	80.92 297	79
156.00	129.36	34.0 297	37.01	-72.44 297	81.34 297	82.40 297	80.28 297	82.05 297	80
158.00	131.03	34.3 300	37.53	-73.42 297	82.45 297	83.52 297	81.38 297	83.17 297	81
160.00	132.68	34.4 302	38.11	-74.38 297	83.58 297	84.66 297	82.49 297	84.30 297	82
162.00	134.34	33.6 298	38.67	-75.35 297	84.69 297	85.79 297	83.59 297	85.43 297	83
164.00	136.00	34.7 300	39.20	-76.33 297	85.81 297	86.92 297	84.69 297	86.55 297	85
166.00	137.64	34.9 304	39.80	-77.30 297	86.94 297	88.07 297	85.81 297	87.70 297	86
168.00	139.28	35.1 303	40.42	-78.27 297	88.09 297	89.23 297	86.94 297	88.85 297	87
170.00	140.91	35.5 304	41.04	-79.24 297	89.24 297	90.40 297	88.08 297	90.01 297	88
172.00	142.54	35.7 304	41.67	-80.22 297	90.40 297	91.57 297	89.22 297	91.18 297	89
174.00	144.16	35.8 304	42.32	-81.20 298	91.56 298	92.75 298	90.37 298	92.35 298	90
176.00	145.77	36.2 303	42.96	-82.18 298	92.74 298	93.93 298	91.53 298	93.53 298	91
178.00	147.39	36.1 302	43.60	-83.17 298	93.91 298	95.12 298	92.69 298	94.72 298	93
180.00	149.00	36.3 302	44.24	-84.17 298	95.09 298	96.31 298	93.85 298	95.91 298	94
182.00	150.61	36.6 303	44.89	-85.17 298	96.27 298	97.51 298	95.02 298	97.10 298	95
184.00	152.21	36.9 304	45.55	-86.16 298	97.46 298	98.71 298	96.20 298	98.30 298	96
186.00	153.81	37.1 305	46.23	-87.16 298	98.66 298	99.92 298	97.38 298	99.50 298	97
188.00	155.41	36.9 304	46.90	-88.15 298	99.85 298	101.13 298	98.56 298	100.71 298	98
190.00	157.00	37.4 306	47.59	-89.14 298	101.05 298	102.35 298	99.75 298	101.92 298	100
192.00	158.59	37.4 306	48.29	-90.14 298	102.26 298	103.57 298	100.94 298	103.13 298	101
194.00	160.17	37.8 306	49.00	-91.14 298	103.48 298	104.80 298	102.15 298	104.36 298	102
196.00	161.74	38.4 306	49.72	-92.14 298	104.70 298	106.04 298	103.36 298	105.59 298	103
198.00	163.31	38.5 305	50.42	-93.17 298	105.93 298	107.28 298	104.58 298	106.83 298	105
200.00	164.88	38.8 305	51.12	-94.20 298	107.18 298	108.54 298	105.80 298	108.08 298	106
202.00	166.43	39.0 305	51.82	-95.24 299	108.42 299	109.80 299	107.04 299	109.34 299	107
204.00	167.98	39.4 304	52.54	-96.28 299	109.68 299	111.07 299	108.30 299	110.61 299	108

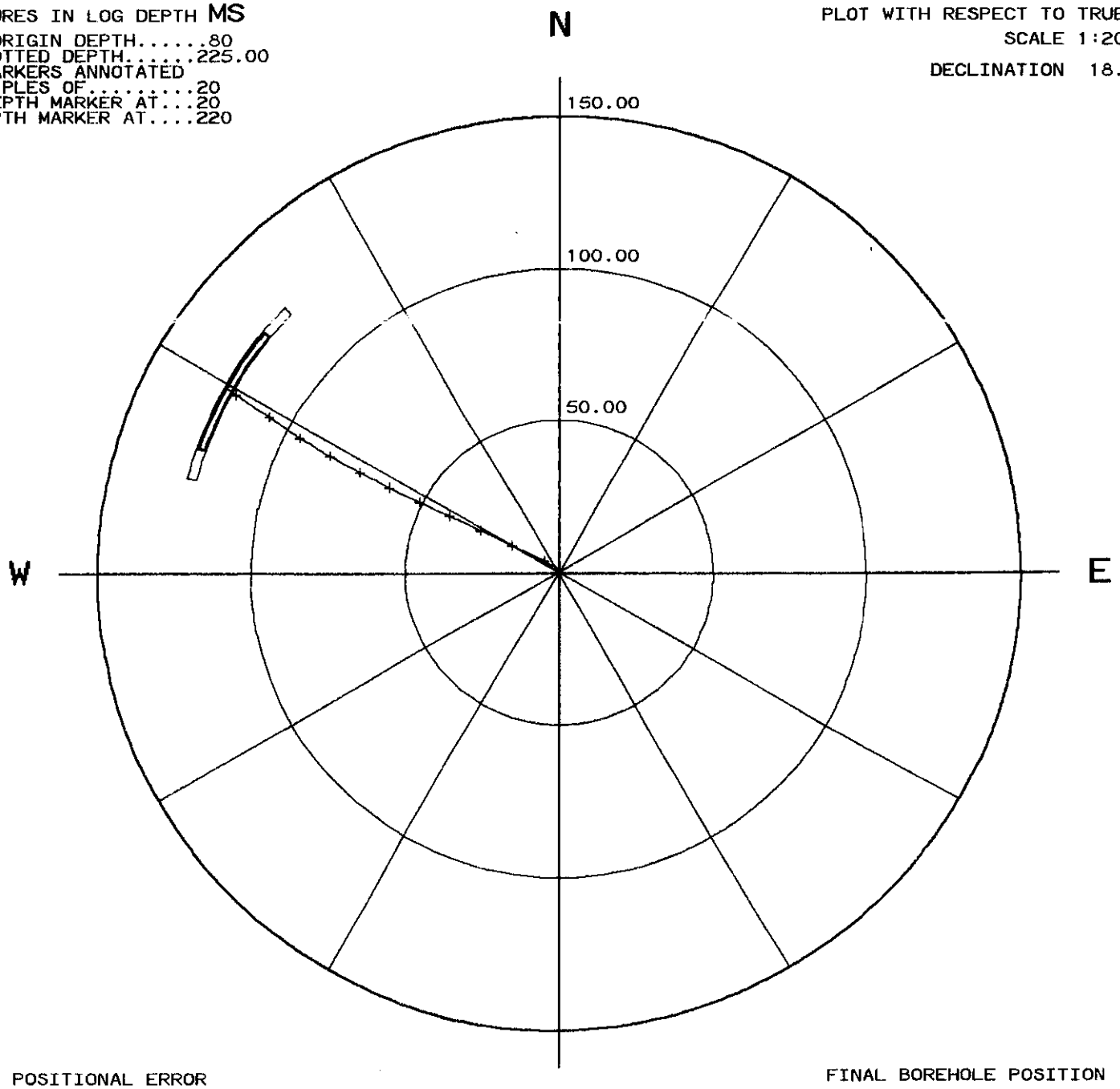
190.00	157.00	37.4 306	47.59	-89.14 298	101.05 298	102.35 298	99.75 298	101.92 298	100
192.00	158.59	37.4 306	48.29	-90.14 298	102.26 298	103.57 298	100.94 298	103.13 298	101
194.00	160.17	37.8 306	49.00	-91.14 298	103.48 298	104.80 298	102.15 298	104.36 298	102
196.00	161.74	38.4 306	49.72	-92.14 298	104.70 298	106.04 298	103.36 298	105.59 298	103
198.00	163.31	38.5 305	50.42	-93.17 298	105.93 298	107.28 298	104.58 298	106.83 298	105
200.00	164.88	38.8 305	51.12	-94.20 298	107.18 298	108.54 298	105.80 298	108.08 298	106
202.00	166.43	39.0 305	51.82	-95.24 299	108.42 299	109.80 299	107.04 299	109.34 299	107
204.00	167.98	39.4 304	52.54	-96.28 299	109.68 299	111.07 299	108.28 299	110.61 299	108
206.00	169.53	39.6 306	53.24	-97.33 299	110.94 299	112.35 299	109.53 299	111.88 299	110
208.00	171.07	40.0 304	53.96	-98.39 299	112.22 299	113.63 299	110.79 299	113.16 299	111
210.00	172.60	40.0 305	54.68	-99.45 299	113.50 299	114.93 299	112.06 299	114.45 299	112
212.00	174.13	39.9 304	55.41	-100.52 299	114.78 299	116.22 299	113.33 299	115.74 299	113
214.00	175.66	40.7 302	56.13	-101.59 299	116.06 299	117.52 299	114.60 299	117.04 299	115
216.00	177.16	41.3 306	56.92	-102.65 299	117.37 299	118.84 299	115.89 299	118.35 299	116
218.00	178.66	40.8 307	57.71	-103.71 299	118.68 299	120.17 299	117.19 299	119.67 299	117
220.00	180.17	40.9 303	58.44	-104.80 299	119.99 299	121.48 299	118.48 299	120.99 299	118
222.00	181.68	41.0 303	59.17	-105.89 299	121.30 299	122.81 299	119.78 299	122.31 299	120
224.00	183.18	41.6 304	59.91	-106.99 299	122.62 299	124.14 299	121.09 299	123.63 299	121
225.00	183.84	****** ***	60.23	-107.38 299	123.12 299	124.65 299	121.58 299	124.14 299	122

CROSS SECTION

ALL FIGURES IN LOG DEPTH MS

TARGET ORIGIN DEPTH.....80
LAST PLOTTED DEPTH.....225.00
DEPTH MARKERS ANNOTATED
IN MULTIPLES OF.....20
FIRST DEPTH MARKER AT...20
LAST DEPTH MARKER AT....220

PLOT WITH RESPECT TO TRUE NO
SCALE 1:2000
DECLINATION 18.0 E



BOREHOLE POSITIONAL ERROR

THE TWO BOXES SURROUNDING
THE LAST PLOTTED DEPTH SHOW
THE TYPICAL AND MAXIMUM

FINAL BOREHOLE POSITION

THE LAST PLOTTED DEPTH IS A
60.23 MS NORTH, 107.38 M

BOREHOLE POSITIONAL ERROR

TWO BOXES SURROUNDING
LAST PLOTTED DEPTH SHOW
THE TYPICAL, AND MAXIMUM,
POSITIONAL ERROR AT THAT
DEPTH.

S

FINAL BOREHOLE POSITION

THE LAST PLOTTED DEPTH IS A
60.23 MS NORTH, 107.38 M
WEST IE. 123.12 MS FROM TH
ORIGIN, 299 DEG FROM TRUE N

VERTICAL SECTIONS

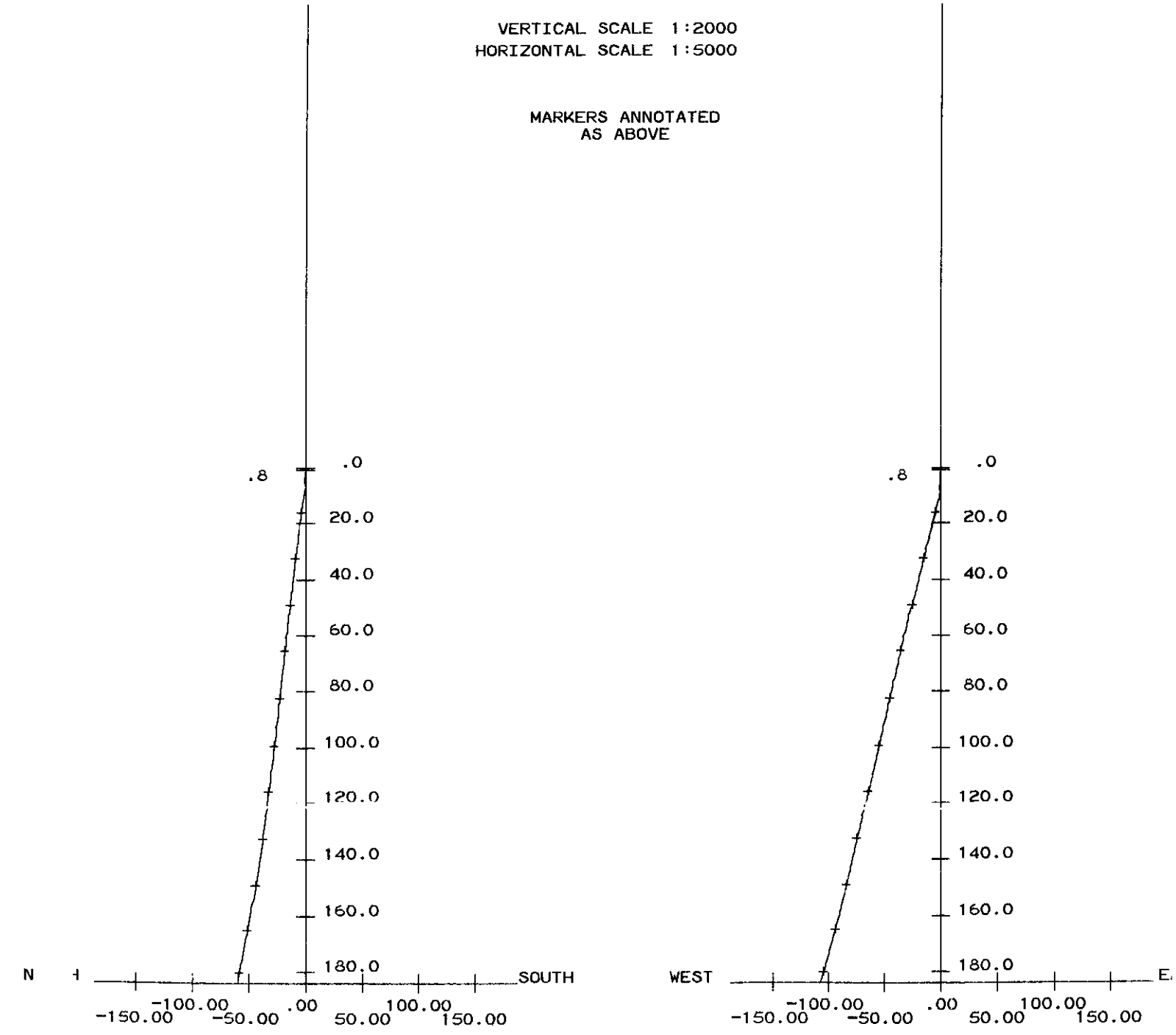
N-S SECTION

E-W SECTION

(TRUE DEPTH VS DISPLACEMENT)

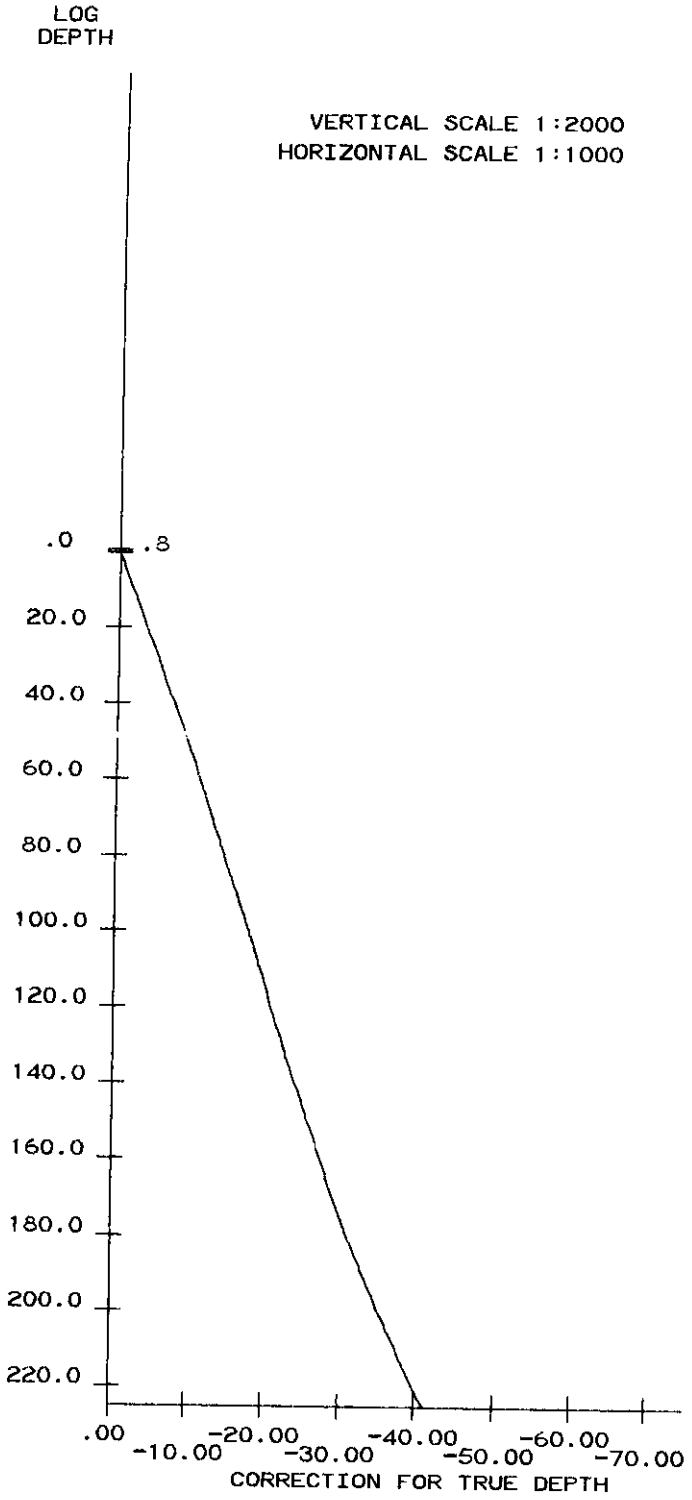
VERTICAL SCALE 1:2000
HORIZONTAL SCALE 1:5000

MARKERS ANNOTATED
AS ABOVE



DEPTH CORRECTION ANALYSIS

DEPTH CORRECTION ANALYSIS



DEPTHS: LOG	TRUE	DEPTHS LOG	TRUE
2.00	1.75	142.00	117.71
4.00	3.34	144.00	119.37
6.00	4.94	146.00	121.04
8.00	6.53	148.00	122.71
10.00	8.13	150.00	124.38
12.00	9.72	152.00	126.05
14.00	11.32	154.00	127.71
16.00	12.93	156.00	129.36
18.00	14.53	158.00	131.03
20.00	16.14	160.00	132.68
22.00	17.76	162.00	134.34
24.00	19.37	164.00	136.00
26.00	20.99	166.00	137.64
28.00	22.62	168.00	139.28
30.00	24.24	170.00	140.91
32.00	25.87	172.00	142.54
34.00	27.50	174.00	144.16
36.00	29.14	176.00	145.77
38.00	30.78	178.00	147.39
40.00	32.41	180.00	149.00
42.00	34.04	182.00	150.61
44.00	35.69	184.00	152.21
46.00	37.34	186.00	153.81
48.00	38.99	188.00	155.41
50.00	40.64	190.00	157.00
52.00	42.30	192.00	158.59
54.00	43.96	194.00	160.17
56.00	45.62	196.00	161.74
58.00	47.27	198.00	163.31
60.00	48.93	200.00	164.88
62.00	50.58	202.00	166.43
64.00	52.24	204.00	167.98
66.00	53.90	206.00	169.53
68.00	55.56	208.00	171.07
70.00	57.22	210.00	172.60
72.00	58.89	212.00	174.13
74.00	60.56	214.00	175.66
76.00	62.24	216.00	177.16
78.00	63.91	218.00	178.66
80.00	65.58	220.00	180.17
82.00	67.26	222.00	181.68
84.00	68.93	224.00	183.18
86.00	70.61	225.00	183.84
88.00	72.28		
90.00	73.96		
92.00	75.64		
94.00	77.32		
96.00	79.00		
98.00	80.68		
100.00	82.37		
102.00	84.06		
104.00	85.75		
106.00	87.44		
108.00	89.12		
110.00	90.80		
112.00	92.49		
114.00	94.18		
116.00	95.87		
118.00	97.56		
120.00	99.25		
122.00	100.94		
124.00	102.63		
126.00	104.31		
128.00	105.99		
130.00	107.66		
132.00	109.35		
134.00	111.03		
136.00	112.71		
138.00	114.38		
140.00	116.05		

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-09A
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

PRECISION ENERGY SERVICES

COMPENSATED DENSITY GAMMA RAY, CALIPER SCALE 1:240

LOCN. 5562913N 644179E
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG-05-09A
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG-05-09A
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION 5562913N 644179E

LSD	SEC	TWP	RGE
N/A			

OTHER SERVICES
SFE
DIP/VERT

PERMANENT DATUM GROUND LEVEL .ELEVATION 1416.022M
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1416.022M

DATE	28-MAR-05			
RUN NUMBER	1			
DEPTH-DRILLER	225.00M			
DEPTH-LOGGER	225.18M			
FIRST READING	222.30M			
LAST READING	9.40M			
CASING-DRILLER	9.00M			
CASING-LOGGER	9.40M			
BIT SIZE	133.35MM			
HOLE FLUID TYPE	WATER			
DENS./VISC.	1000 N/A			
PH/FLUID LOSS	N/A N/A			
SAMPLE SOURCE	NONE			
RM @ MEAS TEMP	2.00 @ 20.0C			
RMF @ MEAS TEMP	N/A			
RMC @ MEAS TEMP	N/A			
SOURCE: RMF/RMC	N/A N/A			
RM @ BHT	N/A			
TIME SINCE CIRC	N/A			
MAX REC TEMP	N/A			
EQUIPMENT/BASE	V3405 RDR			
RECORDED BY	ROBB RACZ			
WITNESSED BY	G. BICKFORD			
DRILL DONE	16-MAR-05			

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	133.35MM	123.10M	TD	159.00MM	N/A	SURFACE	9.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
DD6	629			

REMARKS

COMPENSATED DENSITY GAMMA RAY, CALIPER SCALE 1:240

NORTHING: 5562913.834 ELEVATION: 1416.022M SURVEYED ON MARCH 26/2005

EASTING : 644179.225

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS IN OUR PRICE SCHEDULE

MAIN LOG 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 15:25

FILENAME: MRGE09AM.CTB RUN TD:MAIN LOG 1:240 PLOTTED ON 28-MAR-2005 AT 15:41

BIT SIZE
MILLIMETRES
50 150 250

CALIPER FROM DENSITY
MILLIMETRES
50 150 250

GAMMA FROM DENSITY TOOL
API
0 75 150

DEPTH IN METRES

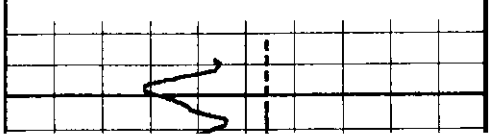
REPLAY SCALE 1:240

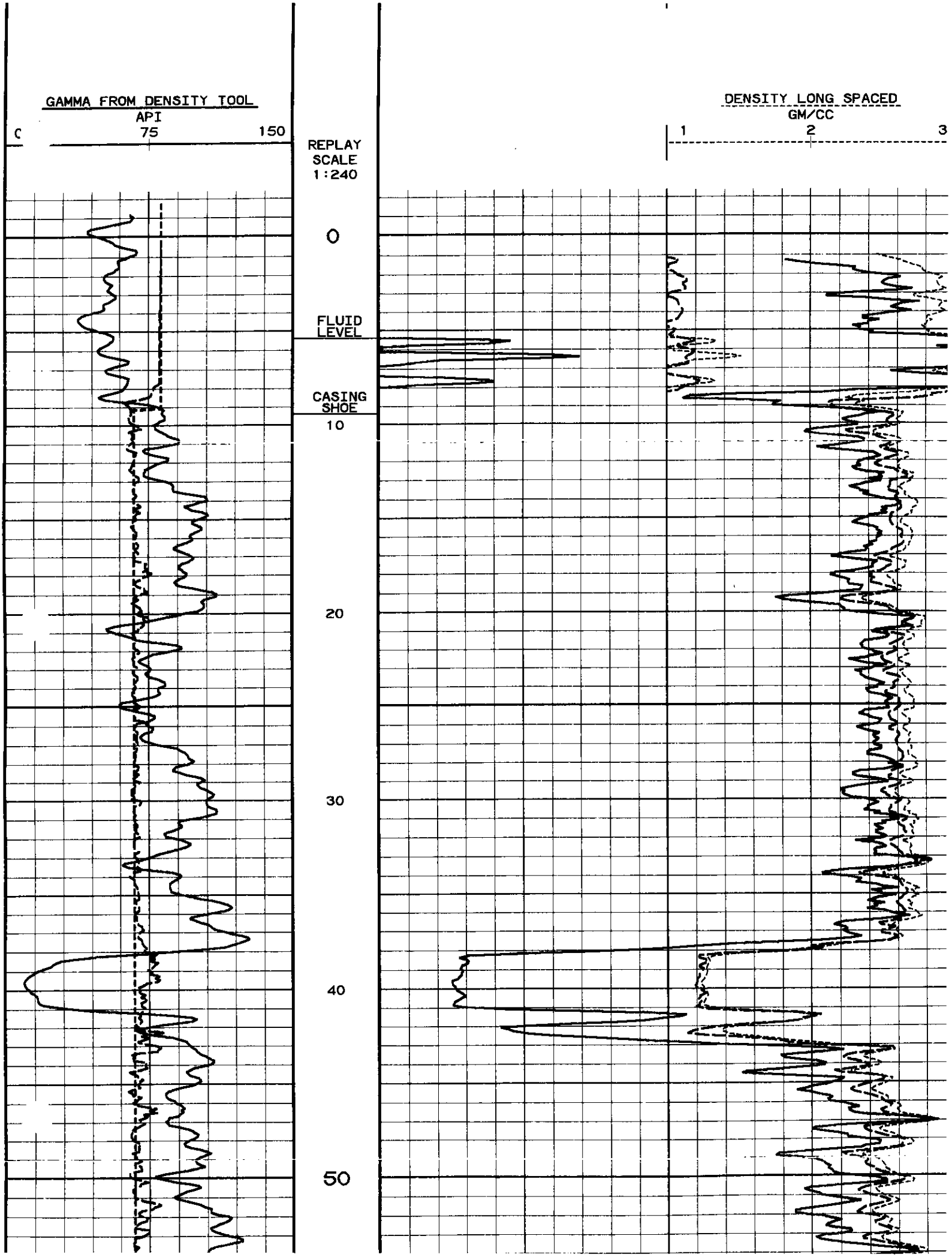
0

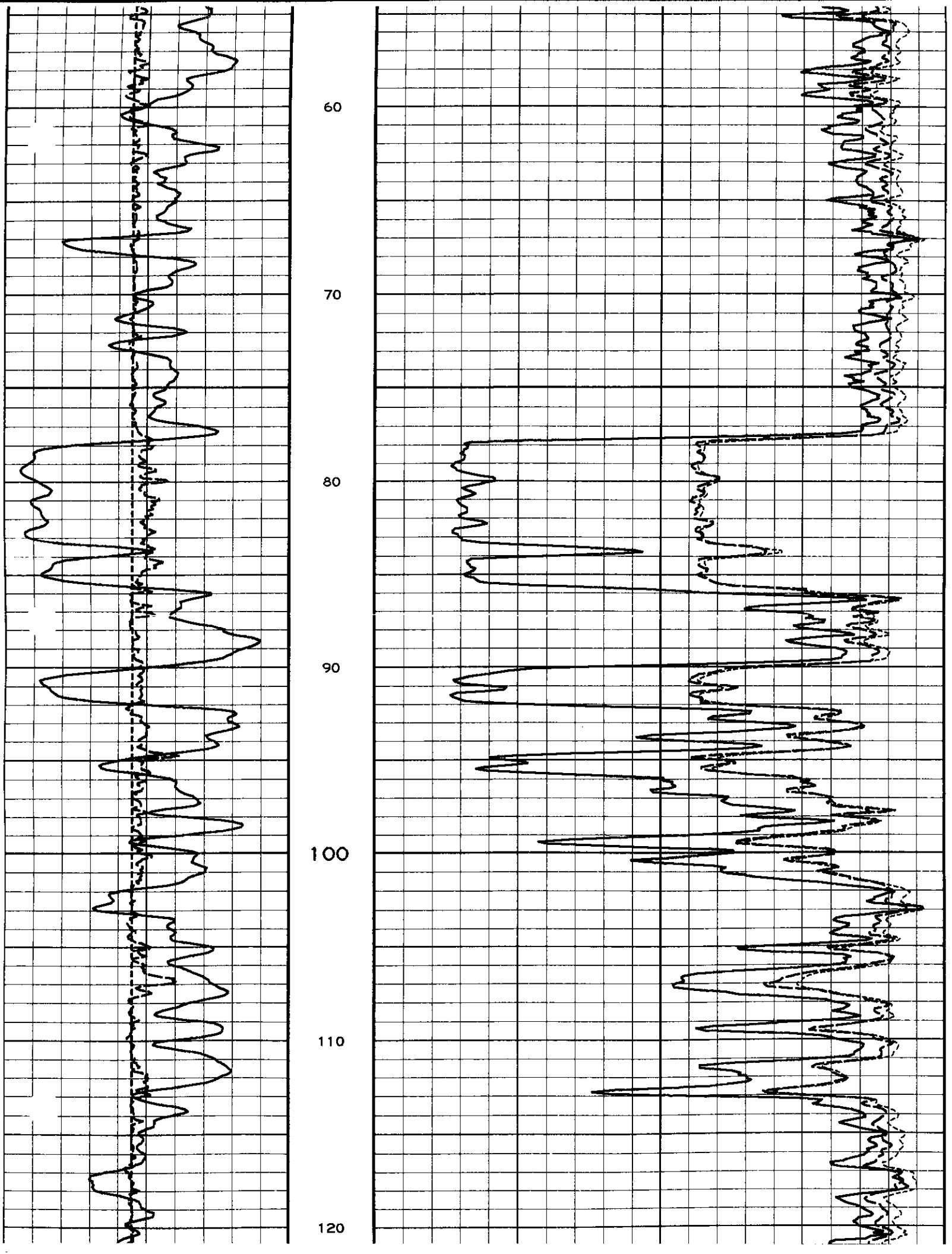
COMPENSATED DENSITY
GM/CC
1 1.50 2 2.50 3

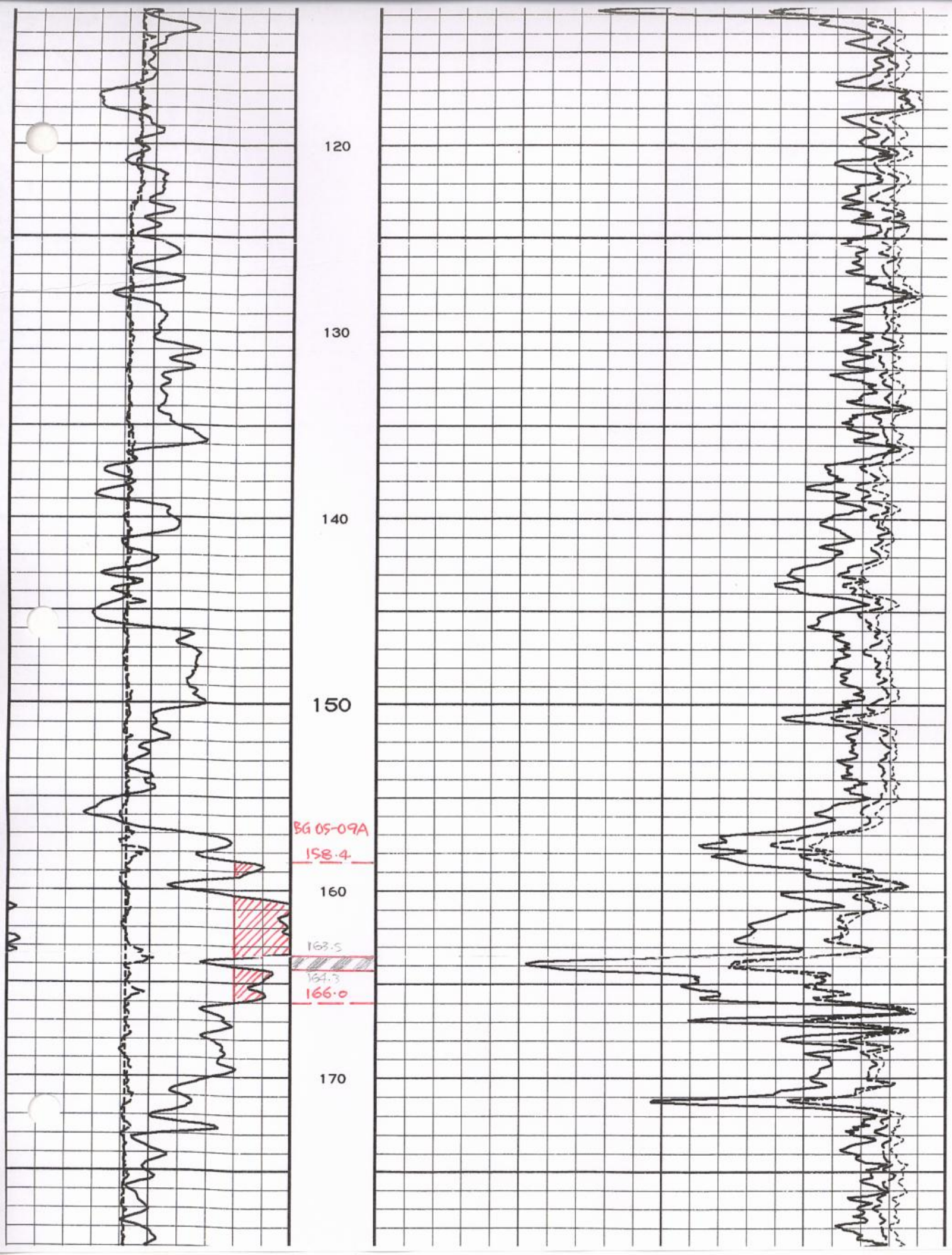
DENSITY SHORT SPACED
GM/CC
1 2 3

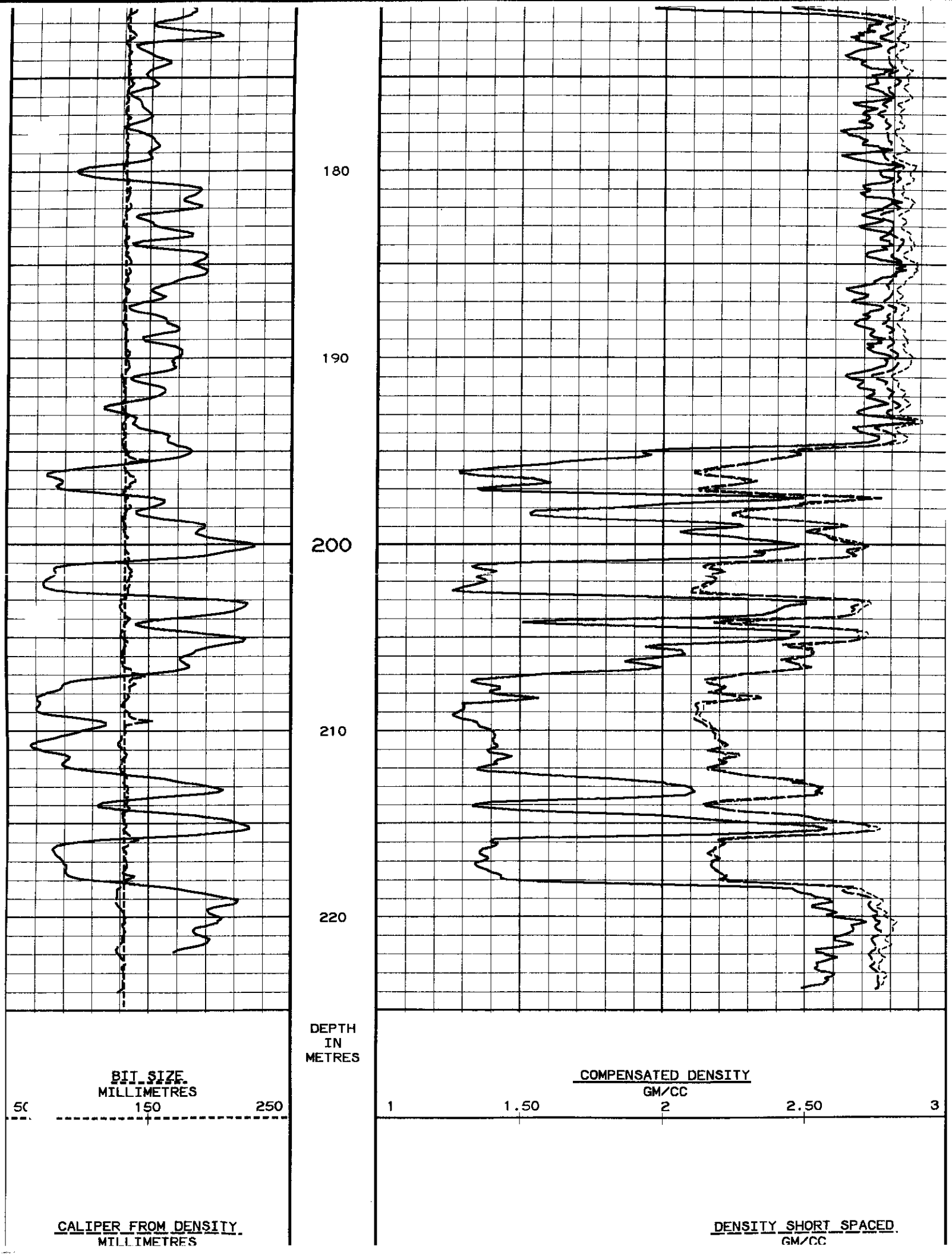
DENSITY LONG SPACED
GM/CC
1 2 3

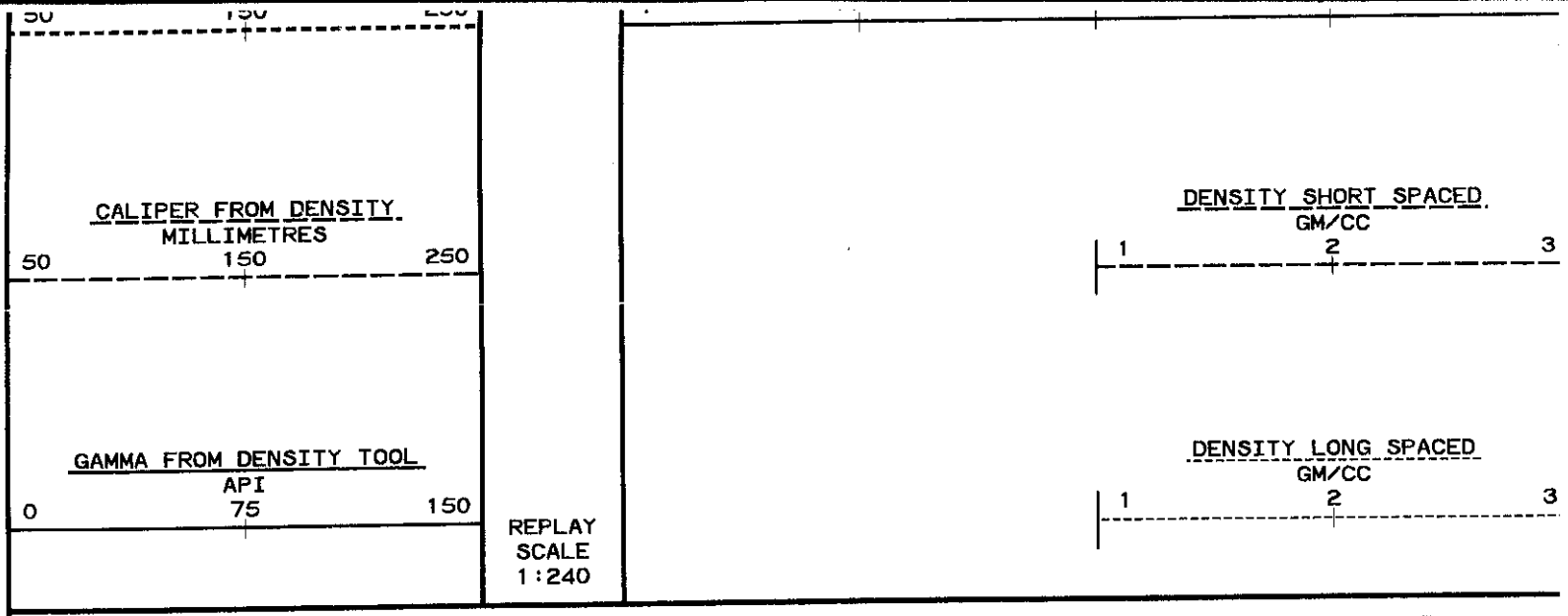



GAMMA FROM DENSITY TOOL
API
0
75
150
REPLAY
SCALE
1:240
0
FLUID
LEVEL
CASING
SHOE
10
20
30
40
50
DENSITY LONG SPACED
GM/CC
1
2
3


60
70
80
90
100
110
120


120
130
140
150
BG 05-09A
158.4
160
163.5
164.3
166.0
170


180
190
200
210
220
DEPTH
IN
METRES
BIT SIZE
MILLIMETRES
5C
150
250
CALIPER FROM DENSITY
MILLIMETRES
COMPENSATED DENSITY
GM/CC
1
1.50
2
2.50
3
DENSITY SHORT SPACED
GM/CC



DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 15:25

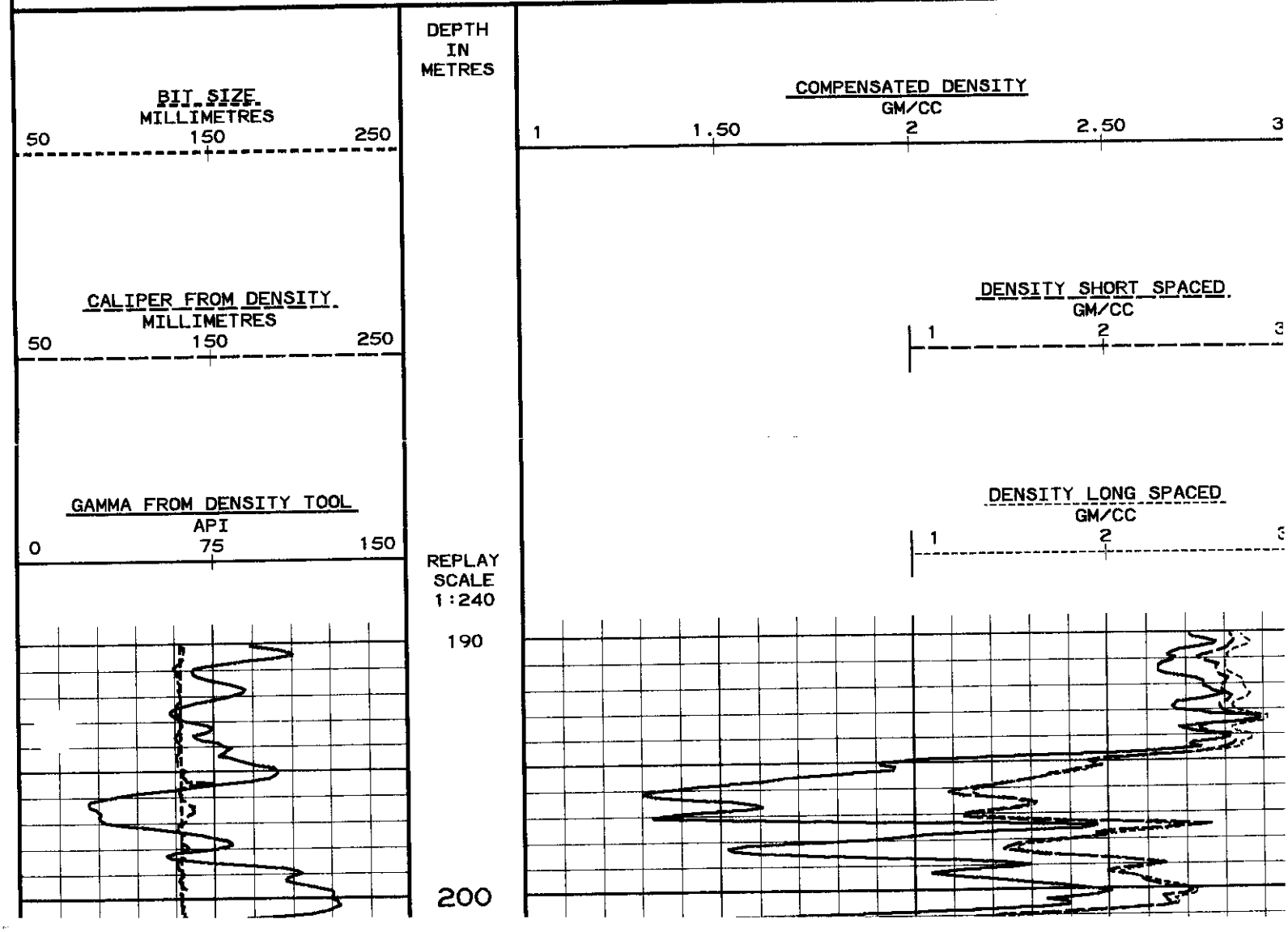
FILENAME: MRGE09AM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 28-MAR-2005 AT 15:41

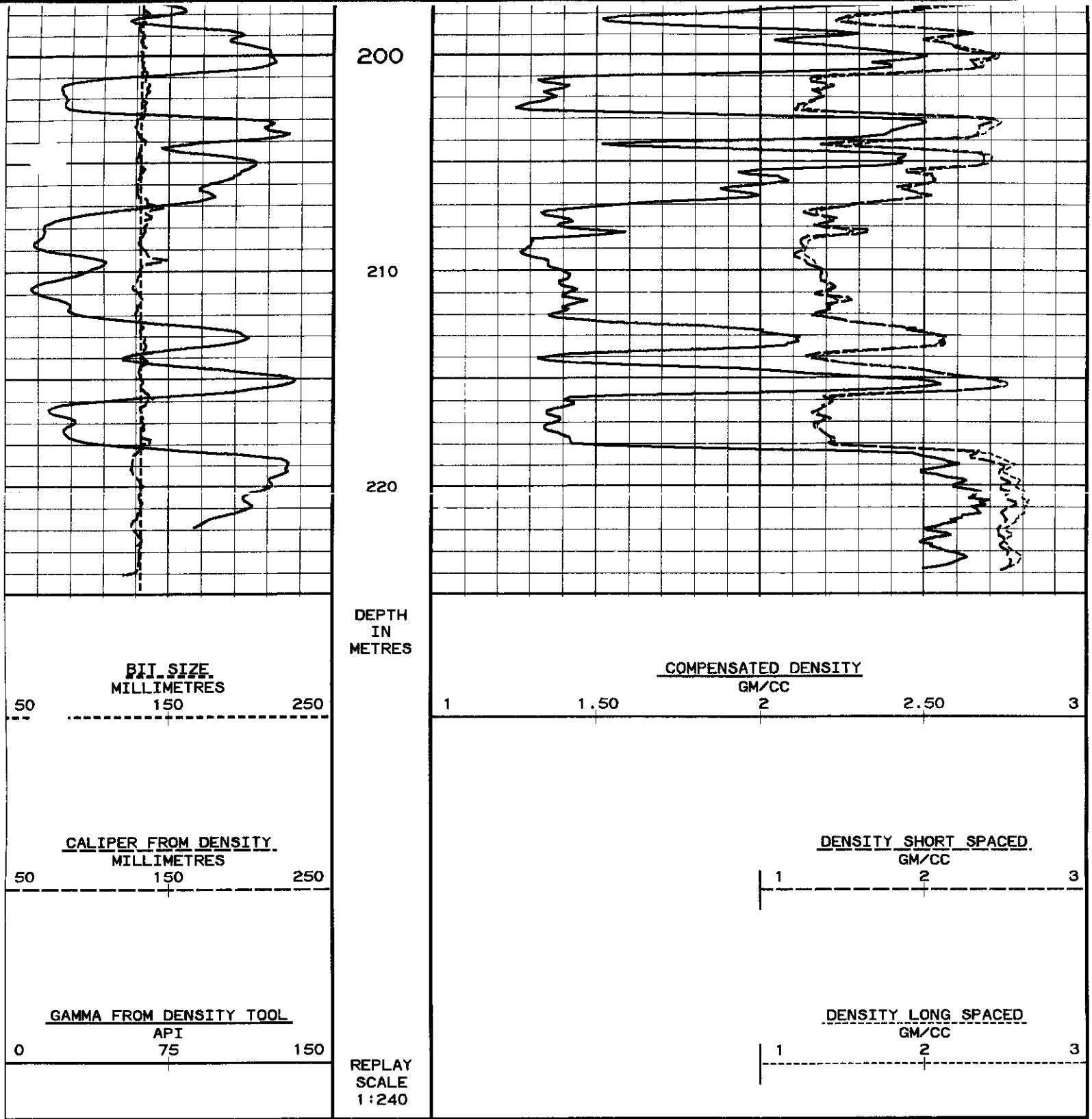
MAIN LOG 1:240

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 15:24

FILENAME: MRGE09AR.CIB RUN ID:REPEAT SECTION PLOTTED ON 28-MAR-2005 AT 15:40





DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 15:24

FILENAME: MRGE09AR.CIB RUN ID:REPEAT SECTION PLOTTED ON 28-MAR-2005 AT 15:40

REPEAT SECTION

LOGGING/CALIBRATION CONSTANTS

CONSTANTS LAST EDITED: 28-MAR-2005 AT 15:23

LOGGING CONSTANTS AND BIT SIZE MEASUREMENTS

RESISTIVITY SONDE TYPE	DUAL RR1	MUD RESISTIVITY (OHM METRES)	2.000

RESISTIVITY SONDE TYPE	DUAL RR1	MUD RESISTIVITY (OHM METRES)	2.000
BIT SIZE UNITS (INS/MM)	MILLIMTR	BIT DEPTH UNITS (M/FT)	METRES
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	9.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	123.10
BIT SIZS 4	0.00	FROM BIT DEPTH 4	225.00
BIT SIZE 5	0.00	FROM BIT DEPTH 5	0.00
MPERATURE UNITS	DEG. C		

CALIBRATION CONSTANTS

FE1	CALIBRATOR VALUE 1	2.0000	FE1	COUNT RATE 1	4496.0000
FE1	CALIBRATOR VALUE 2	2000.0000	FE1	COUNT RATE 2	2972.0000
FE2	CALIBRATOR VALUE 1	2.0000	FE2	COUNT RATE 1	4492.0000
FE2	CALIBRATOR VALUE 2	2000.0000	FE2	COUNT RATE 2	3010.0000
GRFE	CALIBRATOR VALUE 1	490.0000	GRFE	COUNT RATE 1	315.0000
SP	CALIBRATOR VALUE 1	1.0000	SP	COUNT RATE 1	1.0000
SP	CALIBRATOR VALUE 2	0.0000	SP	COUNT RATE 2	0.0000

LOGGING CONSTANTS

SONDE TYPE (DD3,CCS,DDI,DDS,DDL	DDS	SONDE MODE (WET,DRY,STD)	STD
MUD WEIGHT	1.00	STRIP COEFFICIENT	0.50
ANNULAR VOLUME DIAMETER	133.35	WATER LEVEL	.00
CALIPER ARM LENGTH (CMS)	22.60	MATRIX DENSITY	2.65
CALIPER UNITS(INS,MMS)	MMS	DENSITY OF MUD FILTRATE	1.00
BRD POINT ONE	1.00	BRD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
LSD POINT ONE	1.00	LSD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
DENSITY SCALAR	1.50	BRD SCALAR	-.50
BIT DEPTHS & WATER LEVEL (FT,M)	METRES	CALIPER SOURCE FOR PROCESSING	CAL
BIT SIZE 1	159.00	FROM BIT DEPTH 1	.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	9.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	123.10
BIT SIZE 4	.00	FROM BIT DEPTH 4	225.00
BIT SIZE 5	.00	FROM BIT DEPTH 5	.00

CALIBRATION CONSTANTS

MA CALIBRATOR VALUE 1	436.00	GAMMA COUNT RATE 1	237.72
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
CALIPER RING SIZE 1	76.20	CALIPER COUNT FOR RING 1	1834.00
CALIPER RING SIZE 2	101.60	CALIPER COUNT FOR RING 2	2258.00
CALIPER RING SIZE 3	127.00	CALIPER COUNT FOR RING 3	2690.00
CALIPER RING SIZE 4	152.40	CALIPER COUNT FOR RING 4	3162.00
CALIPER RING SIZE 5	203.20	CALIPER COUNT FOR RING 5	4224.00
CALIPER RING SIZE 6	254.00	CALIPER COUNT FOR RING 6	5030.00
DRY HOLE CORRECTION...			
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
DRY HOLE BRD NEW (1) GM/CC	0.00	DRY HOLE BRD LOG (1) GM/CC	0.00
DRY HOLE BRD NEW (2) GM/CC	1.00	DRY HOLE BRD LOG (2) GM/CC	1.00
DRY HOLE LSD NEW (1) GM/CC	0.00	DRY HOLE LSD LOG (1) GM/CC	0.00
DRY HOLE LSD NEW (2) GM/CC	1.00	DRY HOLE LSD LOG (2) GM/CC	1.00

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-09A
FIELD	BINGAY CREEK
. RVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

PRECISION ENERGY SERVICES

DIPMETER ANALYSIS
SCALE 1:240

LOCN. 5562916N 644187E
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG-05-10A
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG-05-10A
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION 5562916N 644187E

LSD	SEC	TWP	RGE
N/A			

OTHER SERVICES
SFE
CDL

PERMANENT DATUM GROUND LEVEL ,ELEVATION 1415.988M
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1415.988M

DATE	26-MAR-05							
RUN NUMBER	1							
DEPTH-DRILLER	135.0M							
DEPTH-LOGGER	135.0M							
FIRST READING	134.6M							
LAST READING	8.30M							
CASING-DRILLER	6.00M							
CASING-LOGGER	5.80M							
BIT SIZE	139.70MM							
HOLE FLUID TYPE	WATER							
DENS./VISC.	1000	N/A						
PH/FLUID LOSS	N/A	N/A						
SAMPLE SOURCE	NONE							
RM @ MEAS TEMP	2.00 @ 20.0C							
RMF @ MEAS TEMP	N/A							
RMC @ MEAS TEMP	N/A							
SOURCE: RMF/RMC	N/A	N/A						
RM @ BHT	N/A							
TIME SINCE CIRC	N/A							
MAX REC TEMP	N/A							
EQUIPMENT/BASE	V3405	RDR						
RECORDED BY	ROBB RACZ							
WITNESSED BY	G. BICKFORD							
DRILL DONE	18-MAR-05							

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	139.70MM	6.00M	TD	159.00MM	N/A	SURFACE	6.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
SQD/V03	013/231			

REMARKS

DIPMETER ANALYSIS SCALE 1:240

NORTHING: 5562916.633 ELEVATION: 1415.988M SURVEYED ON MARCH 29/2005
EASTING : 644187.690

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MAIN LOG 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 26-MAR-2005 AT 14:24
FILENAME: DIP410AM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 27-MAR-2005 AT 20:31

GAMMA RAY API 0 75 150
Y CALIPER MILLIMETRES 50 150 250
X CALIPER MILLIMETRES 50 150 250
DEPTH IN METRES
TIMING MARKS EVERY 60 SEC
REPLAY SCALE 1:240
PAD 4 OHMS 1500 3000 4500
PAD 3 OHMS 1000 2500 4000
PAD 2 OHMS 500 2000 3500
PAD 1 OHMS 0 1500 3000
FORMATION DIP (LIMIT 90) SOLID >.40 HOLLOW >.20 DEGREES 0 90

GAMMA RAY API 0 75 150
Y CALIPER MILLIMETRES 50 150 250
X CALIPER MILLIMETRES 50 150 250
DEPTH IN METRES
TIMING MARKS EVERY 60 SEC
REPLAY SCALE 1:240
PAD 4 OHMS 1500 3000 4500
PAD 3 OHMS 1000 2500 4000
PAD 2 OHMS 500 2000 3500
PAD 1 OHMS 0 1500 3000
FORMATION DIP (LIMIT 90) SOLID >.40 HOLLOW >.20 DEGREES 0 90

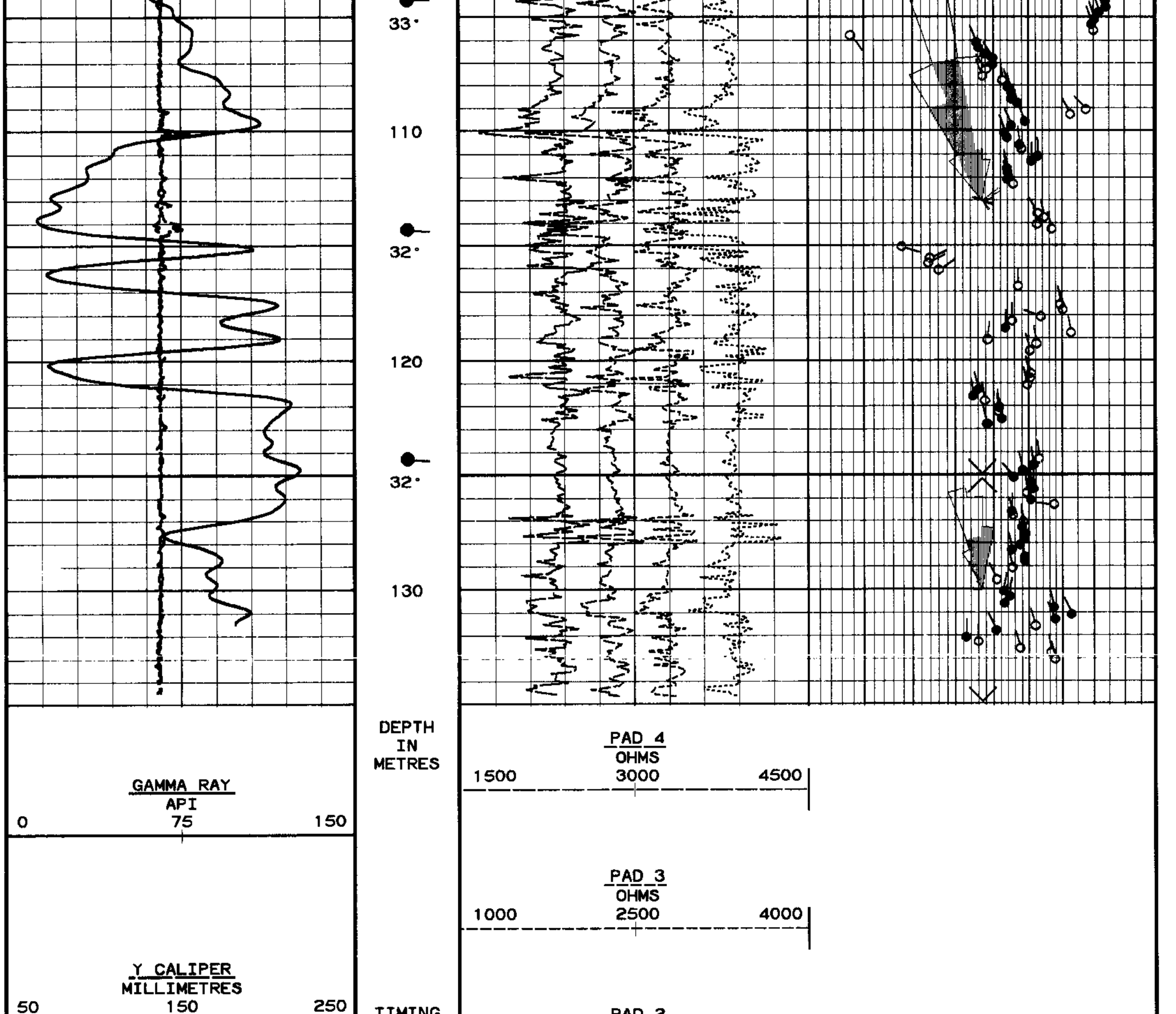
DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 26-MAR-2005 AT 14:24
FILENAME: DIP410AM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 27-MAR-2005 AT 20:31

MAIN LOG 1:240

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 26-MAR-2005 AT 14:08
FILENAME: DIP410AR.CIB RUN ID:REPEAT SECTION PLOTTED ON 27-MAR-2005 AT 20:31

GAMMA RAY API 0 75 150
Y CALIPER MILLIMETRES 50 150 250
X CALIPER MILLIMETRES 50 150 250
DEPTH IN METRES
TIMING MARKS EVERY 60 SEC
REPLAY SCALE 1:240
PAD 4 OHMS 1500 3000 4500
PAD 3 OHMS 1000 2500 4000
PAD 2 OHMS 500 2000 3500
PAD 1 OHMS 0 1500 3000
FORMATION DIP (LIMIT 90) SOLID >.40 HOLLOW >.20 DEGREES 0 90



GAMMA RAY API 0 75 150
Y CALIPER MILLIMETRES 50 150 250
X CALIPER MILLIMETRES 50 150 250
DEPTH IN METRES
TIMING MARKS EVERY 60 SEC
REPLAY SCALE 1:240
PAD 4 OHMS 1500 3000 4500
PAD 3 OHMS 1000 2500 4000
PAD 2 OHMS 500 2000 3500
PAD 1 OHMS 0 1500 3000
FORMATION DIP (LIMIT 90) SOLID >.40 HOLLOW >.20 DEGREES 0 90

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 26-MAR-2005 AT 14:08
FILENAME: DIP410AR.CIB RUN ID:REPEAT SECTION PLOTTED ON 27-MAR-2005 AT 20:31

REPEAT SECTION

LOGGING/CALIBRATION CONSTANTS

DATA LAST REPROCESSED: 26-MAR-2005 AT 16:29

LOGGING CONSTANTS & GAMMA CALIBRATION

CORRELATION STEP (M.)	.25	CORRELATION INTERVAL (M.)	1.00
BIT SIZE #1 (MM)	0.00	BIT DEPTH #1 (M)	0.00
BIT SIZE #2 (MM)	0.00	BIT DEPTH #2 (M)	0.00
BIT SIZE #3 (MM)	0.00	BIT DEPTH #3 (M)	0.00
BIT SIZE #4 (MM)	0.00	BIT DEPTH #4 (M)	0.00
BIT SIZE #5 (MM)	0.00	BIT DEPTH #5 (M)	0.00
GAMMA CALIBRATOR (API)	0.00	GAMMA COUNTS	0.00
PAD PENETRATION (MM)	3.81	SEARCH ANGLE (DEGREES)	60.00
STRUCTURAL DIP ANGLE (DEGREES)	.00	STRUCTURAL DIP AZI. (DEGREES)	.00
DECLINATION (DEGREES)	18.00 E	DETAIL PAD DATA	NO
CORRELATE	YES	CALIPER UNITS	MM
DEPTH UNITS	METRIC	CALIPER USED IN CALCULATIONS	YES

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-10A
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

PRECISION ENERGY SERVICES

FOCUSSED ELECTRIC GAMMA RAY, CALIPER SCALE 1:240

LOCN. 5562916N 644187E
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG-05-10A
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG-05-10A
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION			
5562916N 644187E			
LSD	SEC	TWP	RGE
N/A			

OTHER SERVICES
CDL
DIP/VERT

PERMANENT DATUM GROUND LEVEL ,ELEVATION 1415.988M
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1415.988M

DATE	27-MAR-05							
RUN NUMBER	1							
DEPTH-DRILLER	135.0M							
DEPTH-LOGGER	135.0M							
FIRST READING	132.0M							
LAST READING	6.40M							
CASING-DRILLER	6.00M							
CASING-LOGGER	5.80M							
BIT SIZE	139.70MM							
HOLE FLUID TYPE	WATER							
DENS./VISC.	1000	N/A						
PH/FLUID LOSS	N/A	N/A						
SAMPLE SOURCE	NONE							
RM @ MEAS TEMP	2.00 @ 20.0C							
RMF @ MEAS TEMP	N/A							
RMC @ MEAS TEMP	N/A							
SOURCE: RMF/RMC	N/A	N/A						
RM @ BHT	N/A							
TIME SINCE CIRC	N/A							
MAX REC TEMP	N/A							
EQUIPMENT/BASE	V3405	RDR						
RECORDED BY	ROBB RACZ							
WITNESSED BY	G. BICKFORD							
DRILL DONE	18-MAR-05							

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	139.70MM	6.00M	TD	159.00MM	N/A	SURFACE	6.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
SFE	103			

REMARKS

FOCUSSED ELECTRIC GAMMA RAY, CALIPER SCALE 1:240

NORTHING: 5562916.633 ELEVATION: 1415.988M SURVEYED ON MARCH 29/2005

EASTING : 644187.690

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MAIN LOG 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 27-MAR-2005 AT 19:52

FILENAME: MRGE10AM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 27-MAR-2005 AT 20:09

BIT SIZE
MILLIMETRES
50 150 250

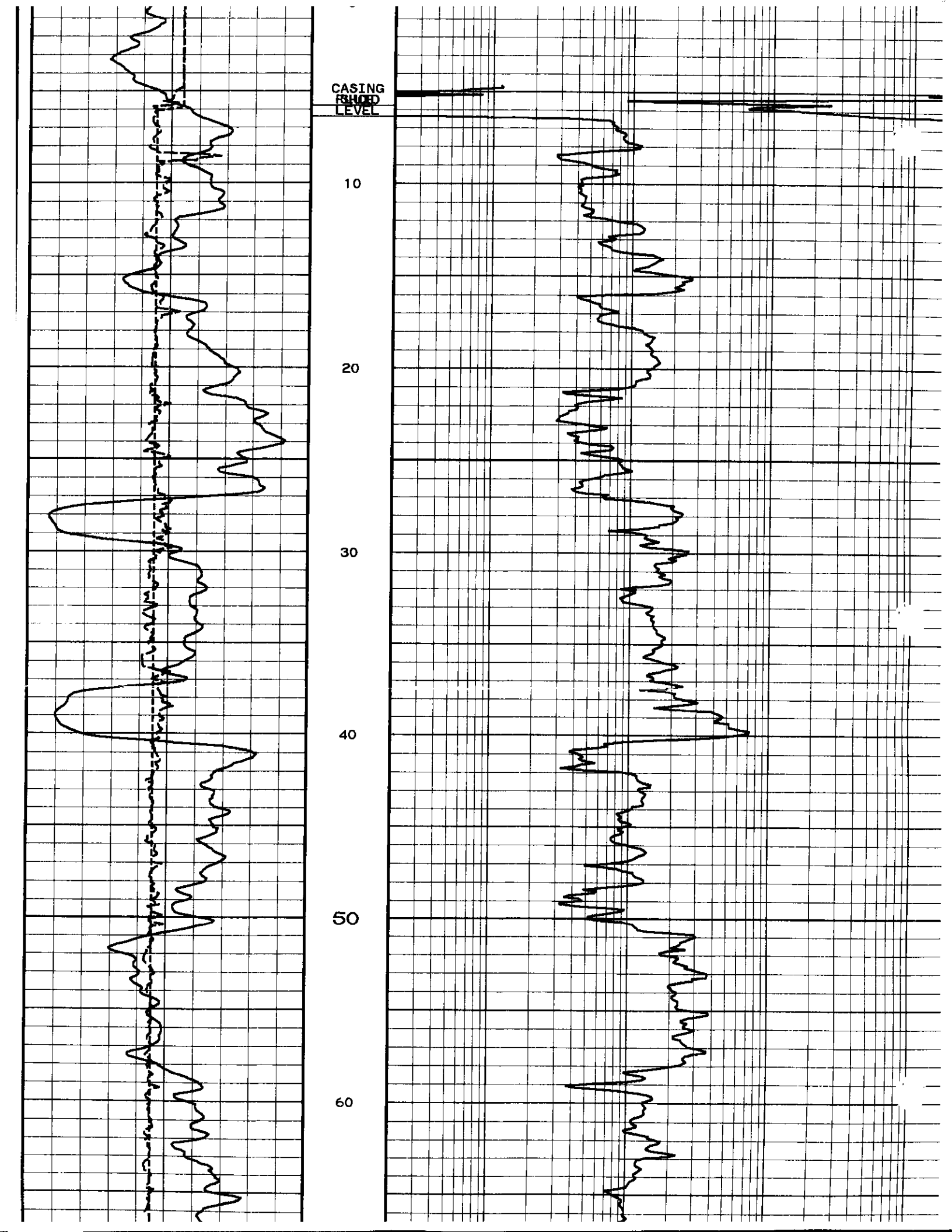
CALIPER FROM DENSITY
MILLIMETRES
50 150 250

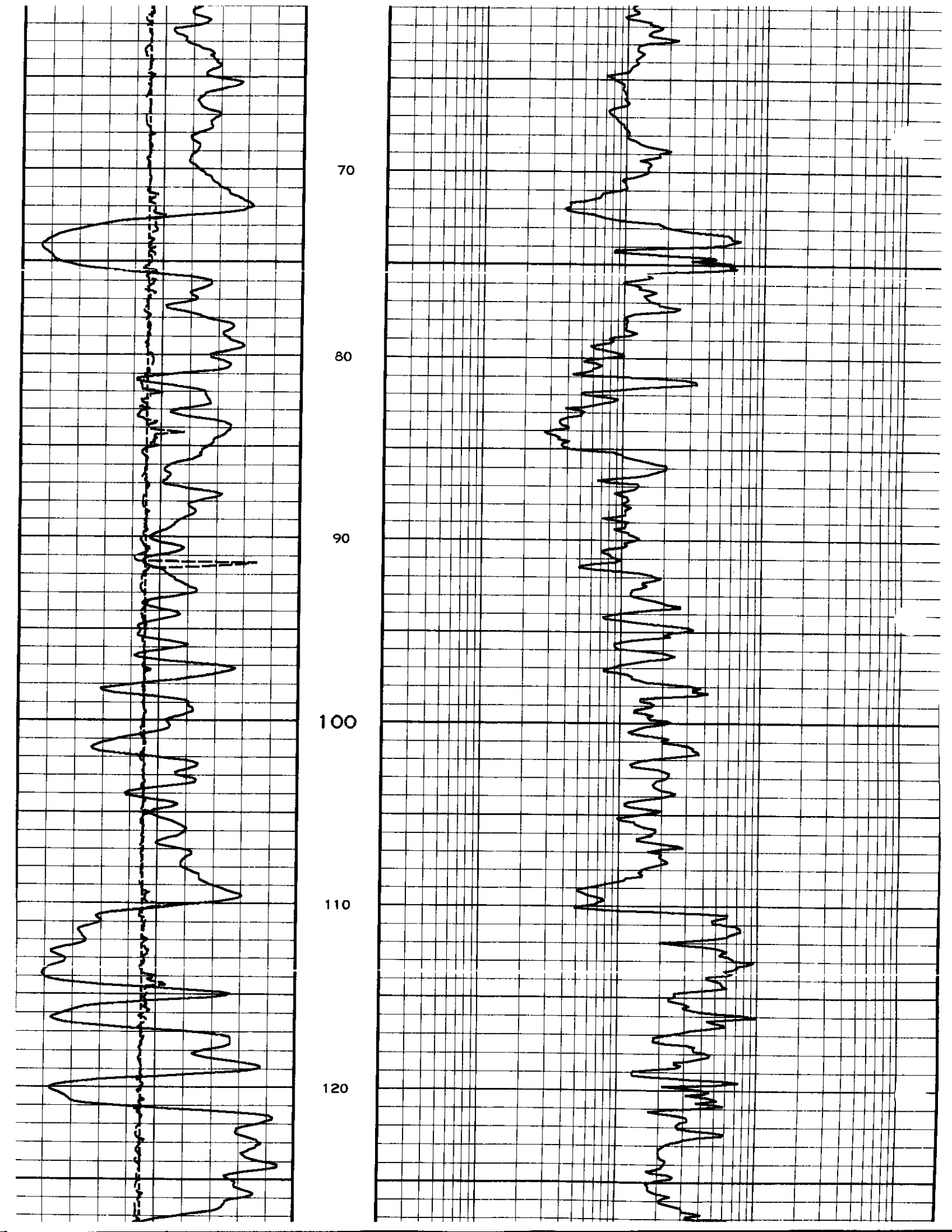
GAMMA FROM DENSITY TOOL
API
0 75 150

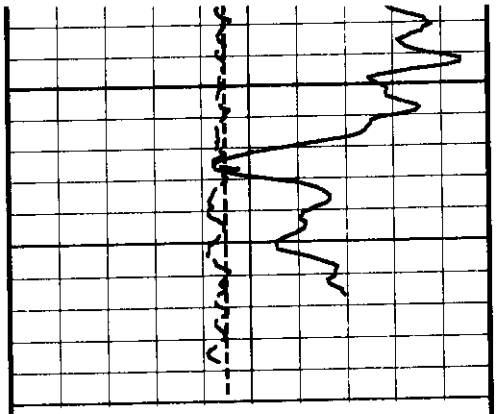
DEPTH IN METRES

REPLAY SCALE 1:240

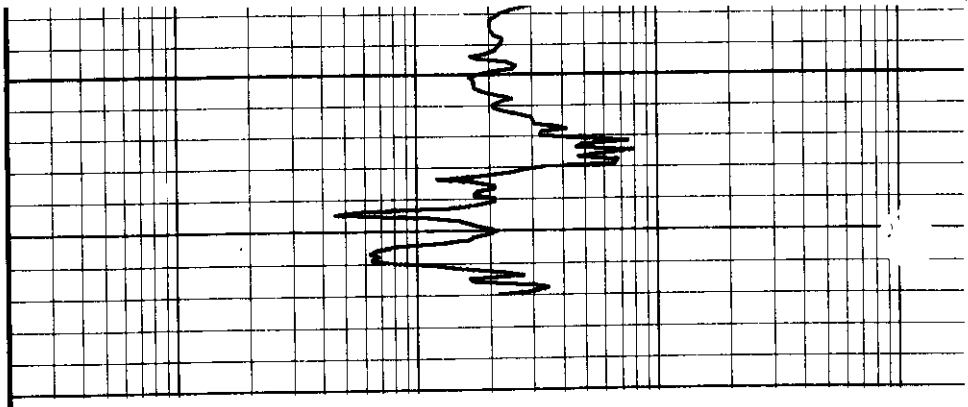
FE RESISTIVITY SHALLOW
OHM METRES
100 1000 10000 100000
20 200000


CASING
SHOED
LEVEL
10
20
30
40
50
60


70
80
90
100
110
120



130



DEPTH
IN
METRES

BIT SIZE
MILLIMETRES
50 150 250

CALIPER FROM DENSITY
MILLIMETRES
50 150 250

GAMMA FROM DENSITY TOOL
API
0 75 150

REPLAY
SCALE
1:240

FE RESISTIVITY SHALLOW
OHM METRES
20 100 1000 10000 1 00
200000

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 27-MAR-2005 AT 19:52

FILENAME: MRGE10AM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 27-MAR-2005 AT 20:09

MAIN LOG 1:240

REPEAT SECTION

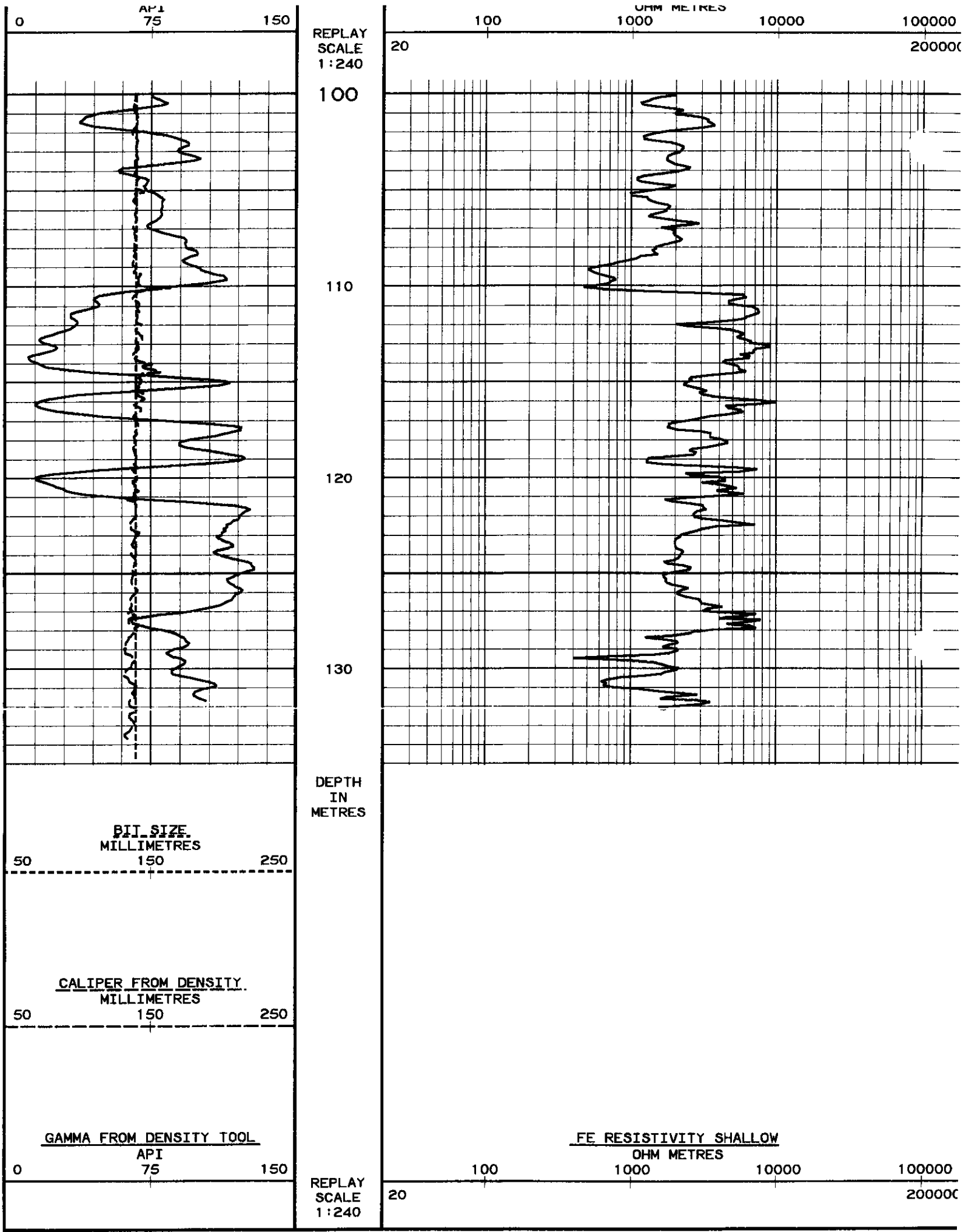
DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 27-MAR-2005 AT 19:51

FILENAME: MRGE10AR.CIB RUN ID:REPEAT SECTION PLOTTED ON 27-MAR-2005 AT 20:09

DEPTH
IN
METRES

BIT SIZE
MILLIMETRES
50 150 250

CALIPER FROM DENSITY
MILLIMETRES
50 150 250



DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 27-MAR-2005 AT 19:51

SCALE 1:240 | 20

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 27-MAR-2005 AT 19:51

FILENAME: MRGE10AR.CIB RUN ID:REPEAT SECTION PLOTTED ON 27-MAR-2005 AT 20:09

REPEAT SECTION

LOGGING/CALIBRATION CONSTANTS

CONSTANTS LAST EDITED: 27-MAR-2005 AT 19:41

LOGGING CONSTANTS AND BIT SIZE MEASUREMENTS

RESISTIVITY SONDE TYPE	DUAL RR1	MUD RESISTIVITY (OHM METRES)	2.000
BIT SIZE UNITS (INS/MM)	MILLIMTR	BIT DEPTH UNITS (M/FT)	METRES
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	6.00
BIT SIZE 3	0.00	FROM BIT DEPTH 3	0.00
BIT SIZS 4	0.00	FROM BIT DEPTH 4	0.00
BIT SIZE 5	0.00	FROM BIT DEPTH 5	0.00
TEMPERATURE UNITS	DEG. C		

CALIBRATION CONSTANTS

FE1 CALIBRATOR VALUE 1	2.0000	FE1 COUNT RATE 1	4496.0000
FE1 CALIBRATOR VALUE 2	2000.0000	FE1 COUNT RATE 2	2972.0000
FE2 CALIBRATOR VALUE 1	2.0000	FE2 COUNT RATE 1	4492.0000
FE2 CALIBRATOR VALUE 2	2000.0000	FE2 COUNT RATE 2	3010.0000
GRFE CALIBRATOR VALUE 1	490.0000	GRFE COUNT RATE 1	315.0000
SP CALIBRATOR VALUE 1	1.0000	SP COUNT RATE 1	1.0000
SP CALIBRATOR VALUE 2	0.0000	SP COUNT RATE 2	0.0000

LOGGING CONSTANTS

SONDE TYPE (DD3,CCS,DDI,DDS,DDL	DDS	SONDE MODE (WET,DRY,STD)	STD
MUD WEIGHT	1.00	STRIP COEFFICIENT	0.50
ANNULAR VOLUME DIAMETER	139.70	WATER LEVEL	.00
CALIPER ARM LENGTH (CMS)	22.60	MATRIX DENSITY	2.65
CALIPER UNITS(INS,MMS)	MMS	DENSITY OF MUD FILTRATE	1.00
BRD POINT ONE	1.00	BRD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
LSD POINT ONE	1.00	LSD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
DENSITY SCALAR	1.50	BRD SCALAR	-.50
BIT DEPTHS & WATER LEVEL (FT,M)	METRES	CALIPER SOURCE FOR PROCESSING	CAL
BIT SIZE 1	159.00	FROM BIT DEPTH 1	.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	6.00
BIT SIZE 3	.00	FROM BIT DEPTH 3	.00
BIT SIZE 4	.00	FROM BIT DEPTH 4	.00
BIT SIZE 5	.00	FROM BIT DEPTH 5	.00

CALIBRATION CONSTANTS

GAMMA CALIBRATOR VALUE 1	436.00	GAMMA COUNT RATE 1	237.72
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
CALIPER RING SIZE 1	76.20	CALIPER COUNT FOR RING 1	1834.00
CALIPER RING SIZE 2	101.60	CALIPER COUNT FOR RING 2	2258.00
CALIPER RING SIZE 3	127.00	CALIPER COUNT FOR RING 3	2690.00
CALIPER RING SIZE 4	152.40	CALIPER COUNT FOR RING 4	3162.00
CALIPER RING SIZE 5	203.20	CALIPER COUNT FOR RING 5	4224.00
CALIPER RING SIZE 6	254.00	CALIPER COUNT FOR RING 6	5030.00
DRY HOLE CORRECTION...			
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
DRY HOLE BRD NEW (1) GM/CC	0.00	DRY HOLE BRD LOG (1) GM/CC	0.00
DRY HOLE BRD NEW (2) GM/CC	1.00	DRY HOLE BRD LOG (2) GM/CC	1.00
DRY HOLE LSD NEW (1) GM/CC	0.00	DRY HOLE LSD LOG (1) GM/CC	0.00
DRY HOLE LSD NEW (2) GM/CC	1.00	DRY HOLE LSD LOG (2) GM/CC	1.00

CALIPER RING SIZE 1	76.20	CALIPER COUNT FOR RING 1	1654.00
CALIPER RING SIZE 2	101.60	CALIPER COUNT FOR RING 2	2258.00
CALIPER RING SIZE 3	127.00	CALIPER COUNT FOR RING 3	2690.00
CALIPER RING SIZE 4	152.40	CALIPER COUNT FOR RING 4	3162.00
CALIPER RING SIZE 5	203.20	CALIPER COUNT FOR RING 5	4224.00
CALIPER RING SIZE 6	254.00	CALIPER COUNT FOR RING 6	5030.00
DRY HOLE CORRECTION...			
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
DRY HOLE BRD NEW (1) GM/CC	0.00	DRY HOLE BRD LOG (1) GM/CC	0.00
DRY HOLE BRD NEW (2) GM/CC	1.00	DRY HOLE BRD LOG (2) GM/CC	1.00
DRY HOLE LSD NEW (1) GM/CC	0.00	DRY HOLE LSD LOG (1) GM/CC	0.00
DRY HOLE LSD NEW (2) GM/CC	1.00	DRY HOLE LSD LOG (2) GM/CC	1.00

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-10A
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

COMPENSATED DENSITY
GAMMA RAY, CALIPER
SCALE 1:240

PRECISION ENERGY SERVICES

LOCN. 5562916N 644187E
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG-05-10A
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG-05-10A
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION 5562916N 644187E

LSD	SEC	TWP	RGE
N/A			

OTHER SERVICES
SFE
DIP/VERT

PERMANENT DATUM GROUND LEVEL ,ELEVATION 1415.988M
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1415.988M

DATE	27-MAR-05		
RUN NUMBER	1		
DEPTH-DRILLER	135.00M		
DEPTH-LOGGER	135.00M		
FIRST READING	132.00M		
LAST READING	0.00M		
CASING-DRILLER	6.00M		
CASING-LOGGER	5.80M		
BIT SIZE	139.70MM		
HOLE FLUID TYPE	WATER		
DENS./VISC.	1000 N/A		
PH/FLUID LOSS	N/A N/A		
SAMPLE SOURCE	NONE		
RM @ MEAS TEMP	2.00 @ 20.0C		
RMF @ MEAS TEMP	N/A		
RMC @ MEAS TEMP	N/A		
SOURCE: RMF/RMC	N/A N/A		
RM @ BHT	N/A		
TIME SINCE CIRC	N/A		
MAX REC TEMP	N/A		
EQUIPMENT/BASE	V3405 RDR		
RECORDED BY	ROBB RACZ		
WITNESSED BY	G. BICKFORD		
DRILL DONE	18-MAR-05		

RUN	BOREHOLE RECORD			CASING RECORD			
UMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	139.70MM	6.00M	TD	159.00MM	N/A	SURFACE	6.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
DD6	629			

REMARKS

COMPENSATED DENSITY GAMMA RAY, CALIPER SCALE 1:240

NORTHING: 5562916.633 ELEVATION: 1415.988M SURVEYED ON MARCH 29/2005

EASTING : 644187.690

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MAIN LOG 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 27-MAR-2005 AT 19:52

FILENAME: MRGE10AM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 27-MAR-2005 AT 20:17

BIT SIZE
MILLIMETRES
50 150 250

CALIPER FROM DENSITY
MILLIMETRES
50 150 250

GAMMA FROM DENSITY TOOL
API
0 75 150

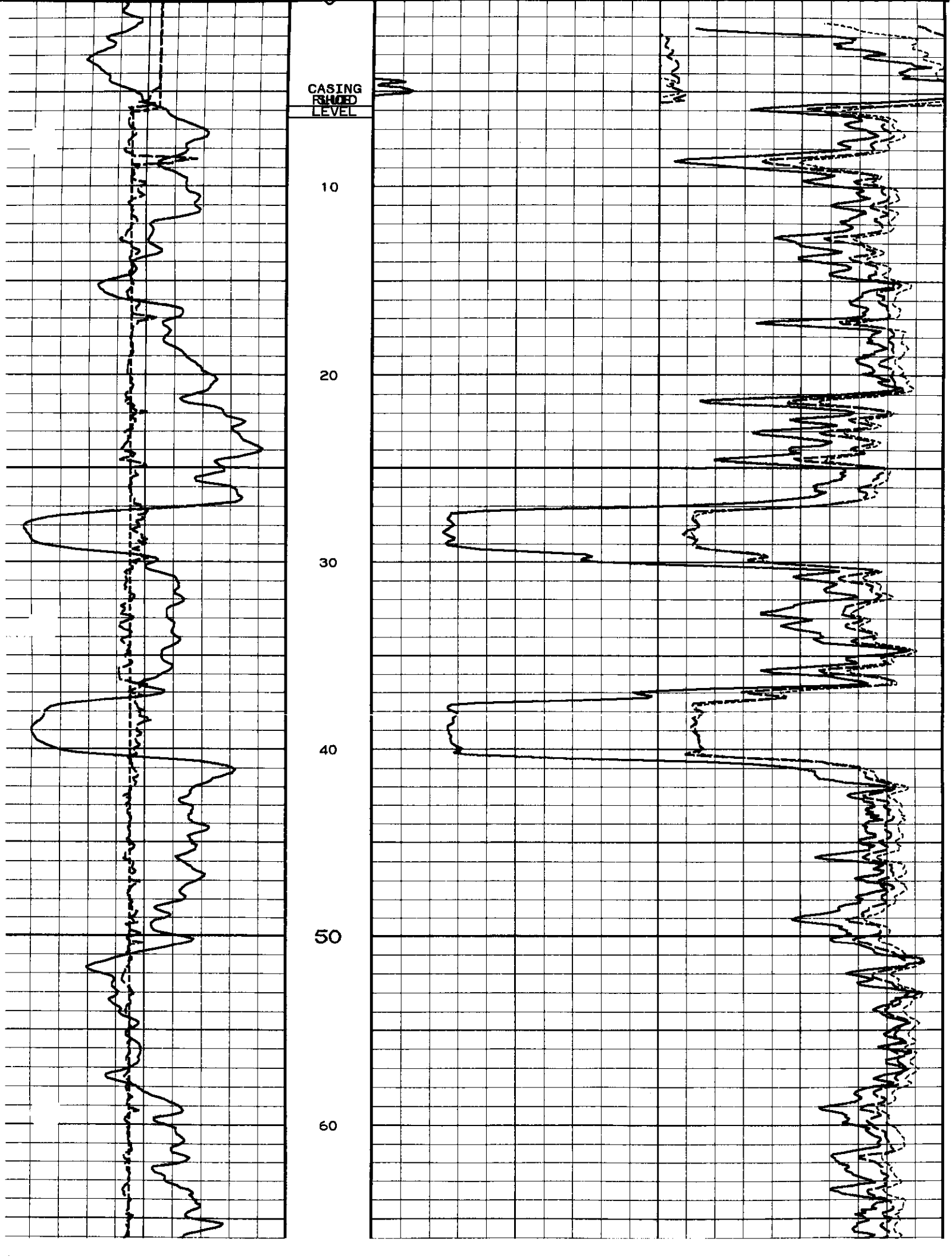
DEPTH IN METRES

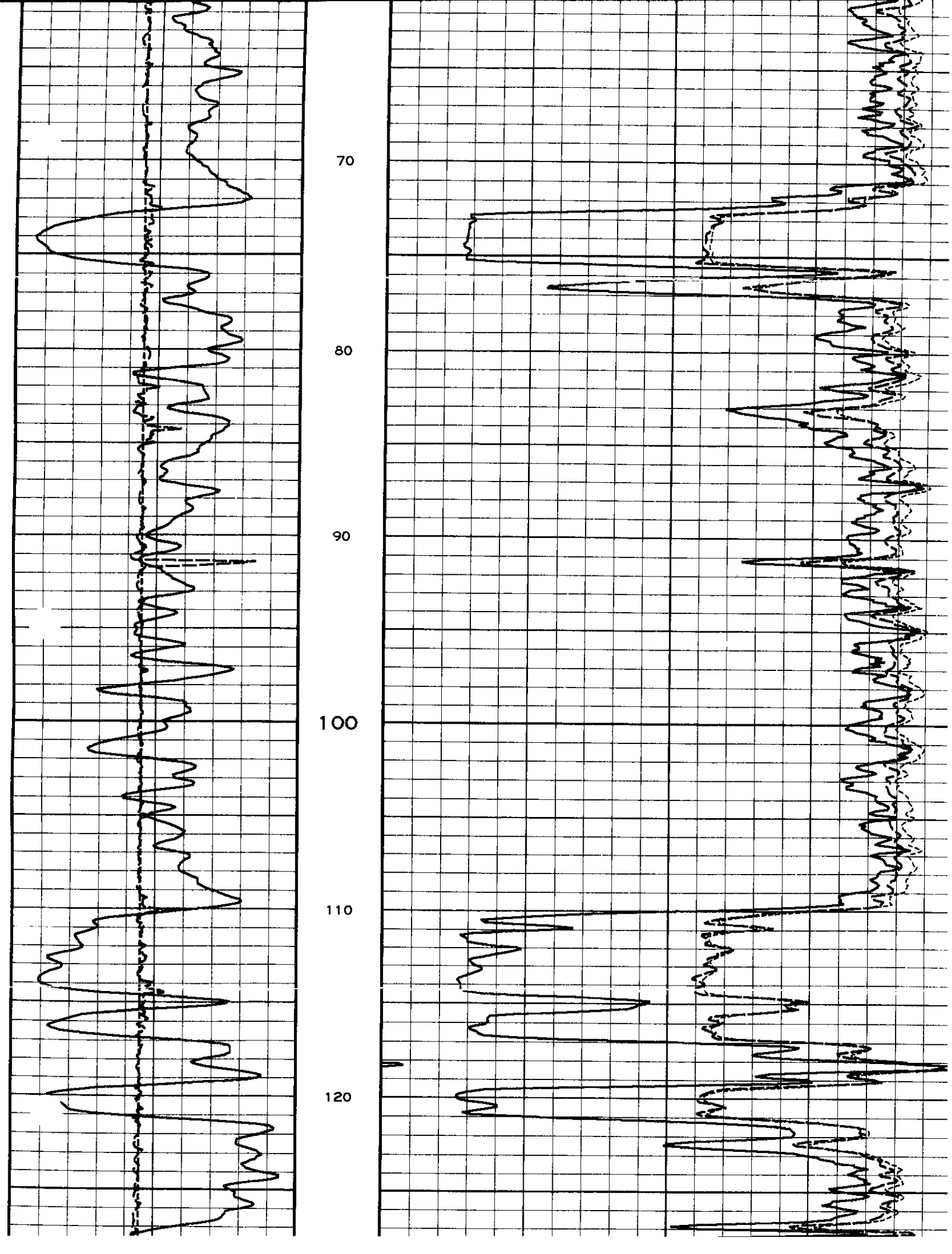
REPLAY SCALE 1:240

COMPENSATED DENSITY
GM/CC
1 1.50 2 2.50 3

DENSITY SHORT SPACED
GM/CC
1 2 3

DENSITY LONG SPACED
GM/CC
1 2


CASING
FLUID
LEVEL
10
20
30
40
50
60


70
80
90
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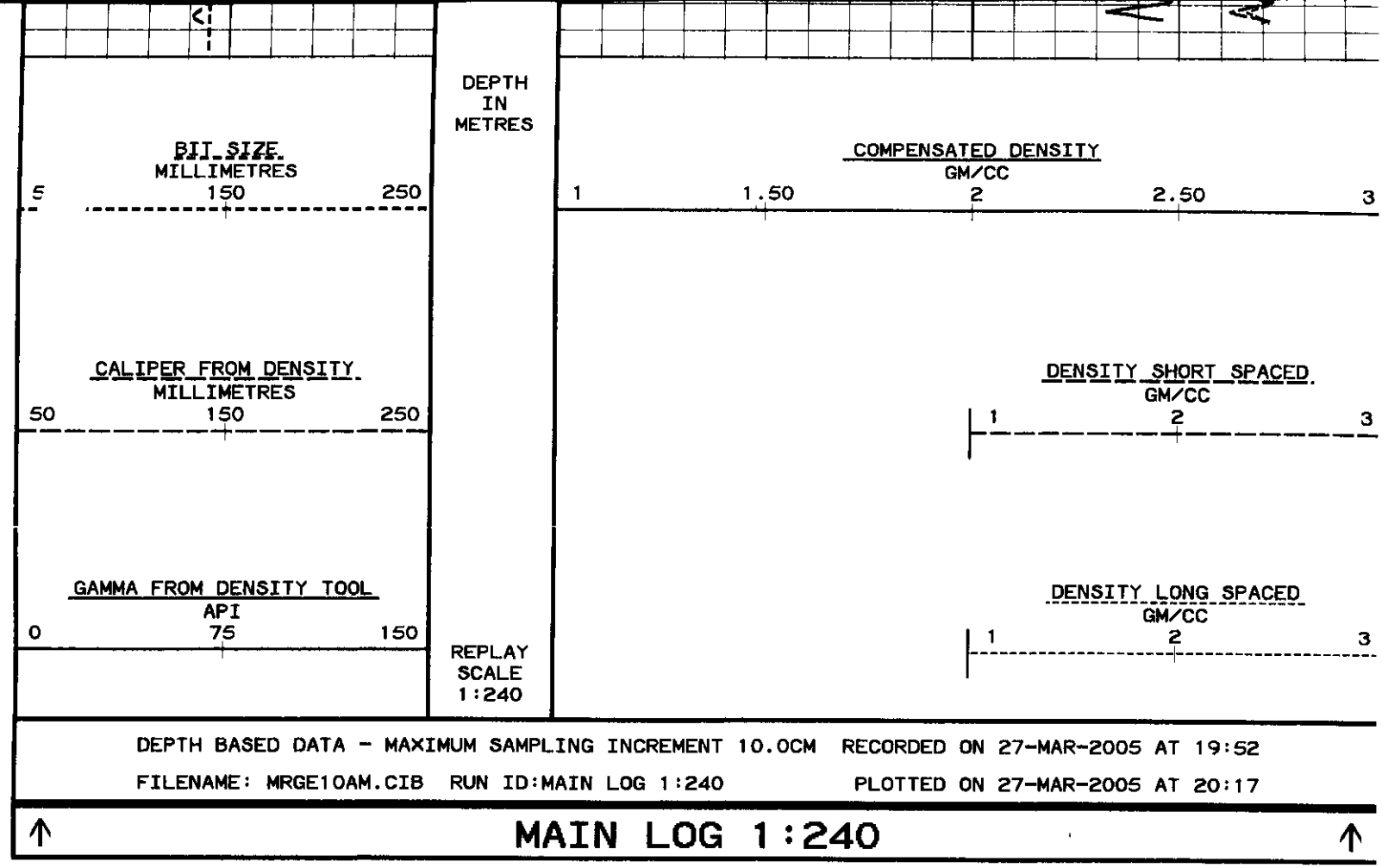
120



DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 27-MAR-2005 AT 19:52

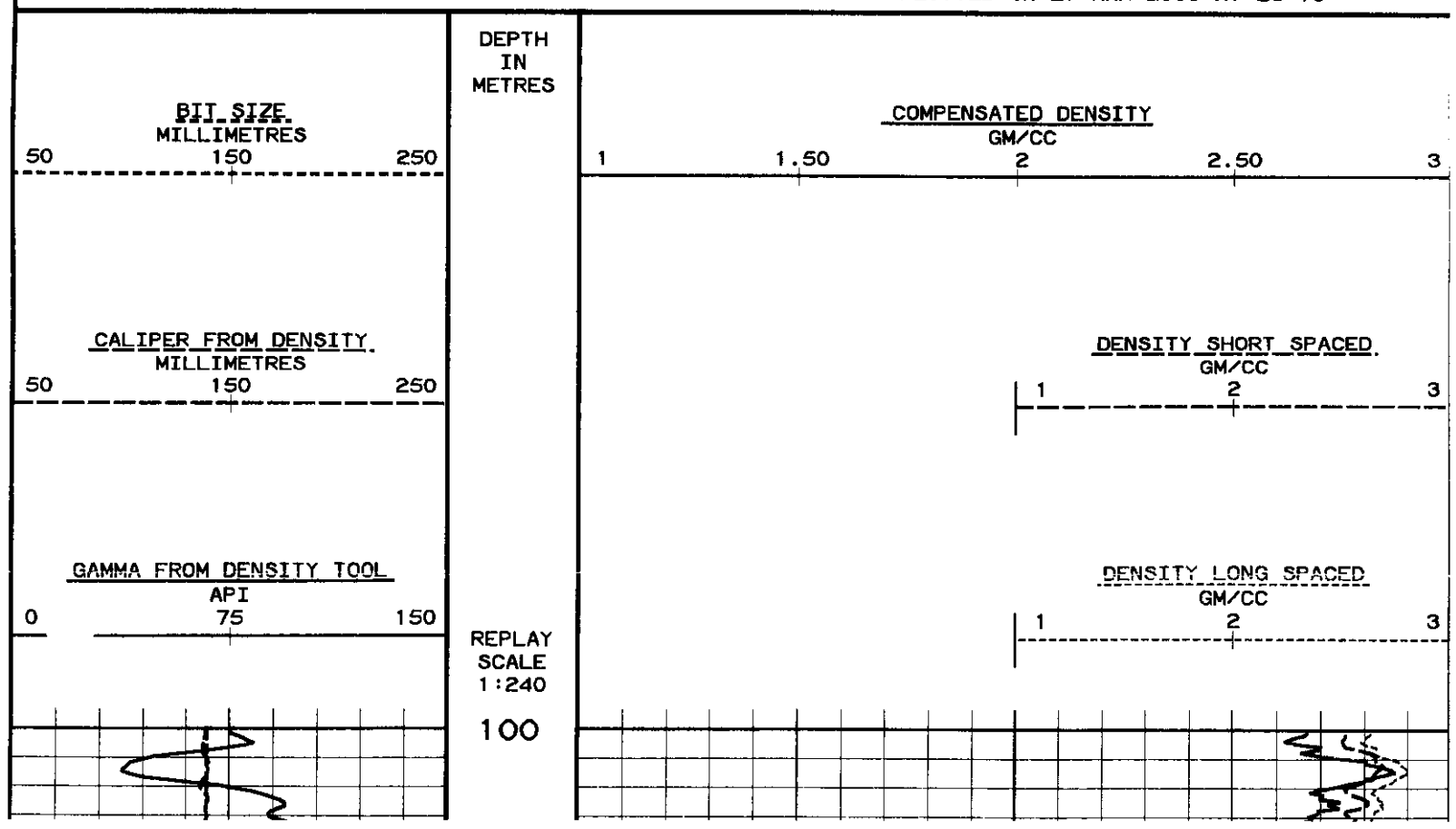
FILENAME: MRGE10AM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 27-MAR-2005 AT 20:17

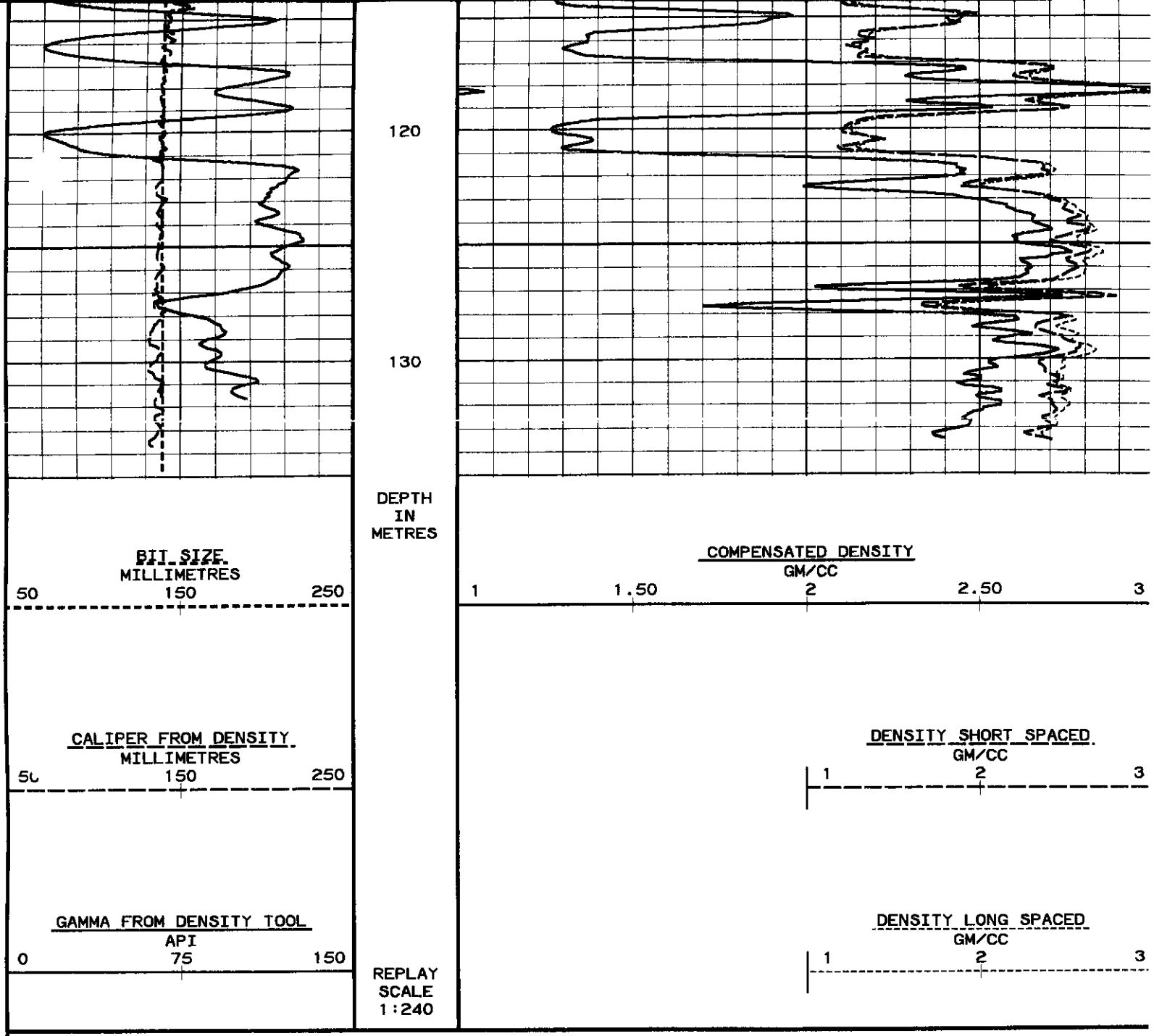
MAIN LOG 1:240

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 27-MAR-2005 AT 19:51

FILENAME: MRGE10AR.CIB RUN ID:REPEAT SECTION PLOTTED ON 27-MAR-2005 AT 20:16





DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 27-MAR-2005 AT 19:51

FILENAME: MRGE10AR.CIB RUN ID:REPEAT SECTION PLOTTED ON 27-MAR-2005 AT 20:16

REPEAT SECTION

LOGGING/CALIBRATION CONSTANTS

CONSTANTS LAST EDITED: 27-MAR-2005 AT 19:41

LOGGING CONSTANTS AND BIT SIZE MEASUREMENTS

ISTIVITY SONDE TYPE	DUAL RR1	MUD RESISTIVITY (OHM METRES)	2.000
bit SIZE UNITS (INS/MM)	MILLIMTR	BIT DEPTH UNITS (M/FT)	METRES
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	6.00
BIT SIZE 3	0.00	FROM BIT DEPTH 3	0.00
BIT SIZS 4	0.00	FROM BIT DEPTH 4	0.00
BIT SIZE 5	0.00	FROM BIT DEPTH 5	0.00
TEMPERATURE UNITS	DEG. C		

CALIBRATION CONSTANTS

CALIBRATION CONSTANTS

FE1	CALIBRATOR VALUE 1	2.0000	FE1	COUNT RATE 1	4496.0000
FE1	CALIBRATOR VALUE 2	2000.0000	FE1	COUNT RATE 2	2972.0000
FE2	CALIBRATOR VALUE 1	2.0000	FE2	COUNT RATE 1	4492.0000
FE2	CALIBRATOR VALUE 2	2000.0000	FE2	COUNT RATE 2	3010.0000
GRFE	CALIBRATOR VALUE 1	490.0000	GRFE	COUNT RATE 1	315.0000
SP	CALIBRATOR VALUE 1	1.0000	SP	COUNT RATE 1	1.0000
	CALIBRATOR VALUE 2	0.0000	SP	COUNT RATE 2	0.0000

LOGGING CONSTANTS

SONDE TYPE (DD3,CCS,DDI,DDS,DDL	DDS	SONDE MODE (WET,DRY,STD)	STD
MUD WEIGHT	1.00	STRIP COEFFICIENT	0.50
ANNULAR VOLUME DIAMETER	139.70	WATER LEVEL	.00
CALIPER ARM LENGTH (CMS)	22.60	MATRIX DENSITY	2.65
CALIPER UNITS(INS,MMS)	MMS	DENSITY OF MUD FILTRATE	1.00
BRD POINT ONE	1.00	BRD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
LSD POINT ONE	1.00	LSD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
DENSITY SCALAR	1.50	BRD SCALAR	-.50
BIT DEPTHS & WATER LEVEL (FT,M)	METRES	CALIPER SOURCE FOR PROCESSING	CAL
BIT SIZE 1	159.00	FROM BIT DEPTH 1	.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	6.00
BIT SIZE 3	.00	FROM BIT DEPTH 3	.00
BIT SIZE 4	.00	FROM BIT DEPTH 4	.00
BIT SIZE 5	.00	FROM BIT DEPTH 5	.00

CALIBRATION CONSTANTS

GAMMA CALIBRATOR VALUE 1	436.00	GAMMA COUNT RATE 1	237.72
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
CALIPER RING SIZE 1	76.20	CALIPER COUNT FOR RING 1	1834.00
CALIPER RING SIZE 2	101.60	CALIPER COUNT FOR RING 2	2258.00
CALIPER RING SIZE 3	127.00	CALIPER COUNT FOR RING 3	2690.00
CALIPER RING SIZE 4	152.40	CALIPER COUNT FOR RING 4	3162.00
CALIPER RING SIZE 5	203.20	CALIPER COUNT FOR RING 5	4224.00
CALIPER RING SIZE 6	254.00	CALIPER COUNT FOR RING 6	5030.00
L HOLE CORRECTION...			
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
DRY HOLE BRD NEW (1) GM/CC	0.00	DRY HOLE BRD LOG (1) GM/CC	0.00
DRY HOLE BRD NEW (2) GM/CC	1.00	DRY HOLE BRD LOG (2) GM/CC	1.00
DRY HOLE LSD NEW (1) GM/CC	0.00	DRY HOLE LSD LOG (1) GM/CC	0.00
DRY HOLE LSD NEW (2) GM/CC	1.00	DRY HOLE LSD LOG (2) GM/CC	1.00

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-10A
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

VERTICALITY ANALYSIS

LOCN. 5562916N 644187E
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG-05-10A
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG-05-10A
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION				OTHER SERVICES
5562916N 644187E				SFE CDL
LSD	SEC	TWP	RGE	
N/A				

PERMANENT DATUM GROUND LEVEL ,ELEVATION 1415.988M
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1415.988M

DATE	26-MAR-05			
RUN NUMBER	1			
DEPTH-DRILLER	135.00M			
DEPTH-LOGGER	135.00M			
FIRST READING	132.00M			
LAST READING	0.00M			
CASING-DRILLER	6.00M			
CASING-LOGGER	5.80M			
BIT SIZE	139.70MM			
HOLE FLUID TYPE	WATER			
DENS./VISC.	1000 N/A			
PH/FLUID LOSS	N/A N/A			
SAMPLE SOURCE	NONE			
RM @ MEAS TEMP	2.00 @ 20.0C			
RMF @ MEAS TEMP	N/A			
RMC @ MEAS TEMP	N/A			
SOURCE: RMF/RMC	N/A N/A			
RM @ BHT	N/A			
TIME SINCE CIRC	N/A			
MAX REC TEMP	N/A			
EQUIPMENT/BASE	V3405 RDR			
RECORDED BY	ROBB RACZ			
WITNESSED BY	G. BICKFORD			
DRILL DONE	18-MAR-05			

VERTICALITY ANALYSIS INTERPRETATION NOTES

1. ALL PLOTTED OUTPUT IS AUTOMATICALLY SCALED TO OBTAIN THE BEST VISUAL EFFECT WITHIN THE PHYSICAL SPACE AVAILABLE. THE MAXIMUM SCALES BEING 1:50000 (METRIC) AND 1:48000 (IMPERIAL), AND THE MINIMUM 1:1.

2. THE ANALYSIS IS DERIVED BY INTEGRATING 10CM. SAMPLED DATA DOWN THE BOREHOLE. THE LISTING SUPPLIED WILL CONTAIN A MAXIMUM OF 200 POINTS IN MULTIPLES OF 1, 2, 5, 10, 20, 50 OR 100 METRES/FEET DEPENDING ON THE TOTAL RANGE OF THE ANALYSIS. HOWEVER THE ANALYSIS IS CALCULATED FOR THE ENTIRE RANGE OF THE BOREHOLE AND THE FINAL BOREHOLE POSITION IS INCLUDED IN THE LISTING.

3. COMPUTED VERTICALITY MAY ONLY BE FULLY DERIVED IN OPEN SECTIONS OF THE BOREHOLE, AWAY FROM THE INFLUENCE OF ANY UNUSUAL MAGNETIC EFFECTS (AS THE AZIMUTH CALCULATIONS ARE DERIVED FROM THREE SOLID STATE MAGNETOMETERS). SO THE ANALYSIS WILL GENERALLY BEGIN AT THE END OF THE CASING AND ALL BOREHOLE POSITIONAL INFORMATION WILL RELATE TO THIS DEPTH.

4. UP TO TEN CROSS SECTIONS MAY BE REQUESTED FOR ANY BOREHOLE TO BE DISPLAYED AT ANY SCALE (THE DEFAULT SCALE IS THAT OF THE CROSS-SECTION FOR THE ENTIRE HOLE).

5. BOREHOLE POSITIONAL ERROR IS DERIVED ASSUMING THE FOLLOWING PARAMETERS.

	TILT(DEGREES)	AZIMUTH(DEGREES)
TYPICAL ERROR	+/- .3333	+/- 10.00
MAXIMUM ERROR	+/- .5000	+/- 15.00

6. ERROR ANALYSIS MAY BE CALCULATED AND PLOTTED FROM THE DATA LISTING AS FOLLOWS:

A) PLOT THE FOUR COORDINATES FROM THE ERROR LISTING (BASED UPON ZERO AZIMUTH ERROR) ON A TARGET PLOT. ORIGIN AT THE START OF THE ANALYSIS.
B) DESCRIBE ARCS OF +/- 10.00 DEGREES AND +/- 15.00 DEGREES (CENTRE AT THE ORIGIN) THROUGH THE INNER AND OUTER POINTS RESPECTIVELY.
C) CONNECT THE RESPECTIVE ARCS TOGETHER WITH STRAIGHT LINES TO GIVE THE TYPICAL AND MAXIMUM BOREHOLE POSITIONAL ERROR.

7. GIVEN BELOW IS A FULL DESCRIPTION OF THE PARAMETERS DISPLAYED ON THE ENSUING LISTING:

LOG DEPTH	THE DEPTH RECORDED ON THE FIELD LOGS FOR THE BOREHOLE.
TRUE DEPTH	THE TRUE VERTICAL DEPTH CORESPONDING TO THE ABOVE DEPTH. CORRECTED FROM THE START OF THE ANALYSIS.
HOLE TILT AND AZIMUTH	THE SAMPLED BOREHOLE ORIENTATION.
AXIAL COORDINATES	THE COORDINATES NORTH AND EAST FROM THE TARGET ORIGIN.
POLAR COORDINATES	THE POLAR, OR RADIAL COORDINATES OF THE BOREHOLE.
ERROR COORDINATES	THE POLAR COORDINATES CORRESPONDING TO THE TYPICAL AND MAXIMUM TILT ERROR.

N.B. THE REFERENCE POINT FOR ALL BEARING ANGLES ON THIS LISTING IS GIVEN AT THE TOP OF EACH SHEET.

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

BG-05-10A

VERTICALITY DATA LISTING FOR DIP410AB.CIB DATE PROCESSED: 31-MAR-2(
ALL CO-ORDINATES WITH RESPECT TO TRUE NORTH DATE LOGGED: 26-MAR-2(

DEPTHS LOG	DEPTHS TRUE	BOREHOLE TILT	BOREHOLE AZI	AXIAL CO-ORDS NORTH	AXIAL CO-ORDS EAST	POLAR BRG	POLAR RADIUS	POLAR ERROR CO-ORDINATES (MAXIMUM & TYPICAL BRG	RADIUS	BRG	RADIUS	BRD	RAD
3.00	2.96	36.8	188	-0.12	-0.02	190	0.12	190	0.12	190	0.12	190	0
4.00	3.76	36.8	192	-0.71	-0.10	188	0.71	188	0.72	188	0.71	188	0.72	188	0
5.00	4.56	36.8	252	-1.20	-0.08	184	1.20	184	1.21	184	1.18	184	1.21	184	1
6.00	5.36	36.8	13	-0.63	-0.11	190	0.64	190	0.65	190	0.63	190	0.65	190	0
7.00	6.16	36.8	4	-0.04	-0.04	224	0.05	224	0.05	224	0.05	224	0.05	224	0
8.00	6.96	37.0	23	0.54	0.13	14	0.55	14	0.56	14	0.55	14	0.56	14	0
9.00	7.76	37.0	120	0.06	0.38	82	0.38	82	0.38	82	0.38	82	0.38	82	0
10.00	8.56	36.9	109	-0.18	0.92	101	0.94	101	0.95	101	0.93	101	0.95	101	0
11.00	9.36	36.6	107	-0.36	1.49	104	1.53	104	1.55	104	1.52	104	1.55	104	1
12.00	10.16	36.5	107	-0.54	2.06	105	2.13	105	2.15	105	2.10	105	2.15	105	2
13.00	10.97	36.7	105	-0.70	2.63	105	2.73	105	2.76	105	2.69	105	2.75	105	2
14.00	11.77	36.3	108	-0.88	3.20	105	3.32	105	3.36	105	3.28	105	3.35	105	3
15.00	12.58	36.9	105	-1.05	3.77	106	3.91	106	3.96	106	3.86	106	3.94	106	3
16.00	13.38	36.6	105	-1.21	4.34	106	4.50	106	4.56	106	4.45	106	4.54	106	4
17.00	14.19	36.1	107	-1.38	4.90	106	5.09	106	5.15	106	5.03	106	5.13	106	5
18.00	15.00	35.9	109	-1.56	5.46	106	5.68	106	5.75	106	5.62	106	5.73	106	5
19.00	15.80	36.4	107	-1.74	6.03	106	6.27	106	6.35	106	6.20	106	6.32	106	6
20.00	16.61	36.3	105	-1.90	6.60	106	6.86	106	6.95	106	6.78	106	6.92	106	6
21.00	17.41	36.7	104	-2.06	7.17	106	7.46	106	7.55	106	7.37	106	7.52	106	7
22.00	18.22	36.6	104	-2.20	7.75	106	8.06	106	8.15	106	7.96	106	8.12	106	7
23.00	19.02	36.4	105	-2.35	8.33	106	8.65	106	8.75	106	8.55	106	8.72	106	8
24.00	19.82	36.6	104	-2.50	8.90	106	9.24	106	9.35	106	9.13	106	9.32	106	9
25.00	20.63	36.4	104	-2.65	9.47	106	9.84	106	9.95	106	9.72	106	9.92	106	9

14.00	11.77	36.3 108	-0.88	3.20 105	3.32 105	3.36 105	3.28 105	3.35 105	3
15.00	12.58	36.9 105	-1.05	3.77 106	3.91 106	3.96 106	3.86 106	3.94 106	3
16.00	13.38	36.6 105	-1.21	4.34 106	4.50 106	4.56 106	4.45 106	4.54 106	4
17.00	14.19	36.1 107	-1.38	4.90 106	5.09 106	5.15 106	5.03 106	5.13 106	5
18.00	15.00	35.9 109	-1.56	5.46 106	5.68 106	5.75 106	5.62 106	5.73 106	5
19.00	15.80	36.4 107	-1.74	6.03 106	6.27 106	6.35 106	6.20 106	6.32 106	6
20.00	16.61	36.3 105	-1.90	6.60 106	6.86 106	6.95 106	6.78 106	6.92 106	6
21.00	17.41	36.7 104	-2.06	7.17 106	7.46 106	7.55 106	7.37 106	7.52 106	7
22.00	18.22	36.6 104	-2.20	7.75 106	8.06 106	8.15 106	7.96 106	8.12 106	7
23.00	19.02	36.4 105	-2.35	8.33 106	8.65 106	8.75 106	8.55 106	8.72 106	8
24.00	19.82	36.6 104	-2.50	8.90 106	9.24 106	9.35 106	9.13 106	9.32 106	9
25.00	20.63	36.4 104	-2.65	9.47 106	9.84 106	9.95 106	9.72 106	9.92 106	9
26.00	21.43	36.1 107	-2.82	10.04 106	10.43 106	10.55 106	10.31 106	10.51 106	10
27.00	22.24	35.8 109	-3.01	10.60 106	11.02 106	11.15 106	10.89 106	11.10 106	10
28.00	23.05	36.1 108	-3.19	11.16 106	11.61 106	11.74 106	11.47 106	11.70 106	11
29.00	23.86	36.4 107	-3.36	11.72 106	12.20 106	12.34 106	12.05 106	12.29 106	12
30.00	24.67	36.1 109	-3.53	12.29 106	12.78 106	12.94 106	12.63 106	12.89 106	12
31.00	25.47	36.1 107	-3.71	12.85 106	13.37 106	13.53 106	13.21 106	13.48 106	13
32.00	26.28	36.3 107	-3.88	13.41 106	13.96 106	14.13 106	13.80 106	14.07 106	13
33.00	27.09	36.2 106	-4.05	13.98 106	14.55 106	14.72 106	14.38 106	14.67 106	14
34.00	27.90	36.0 107	-4.21	14.55 106	15.14 106	15.32 106	14.96 106	15.26 106	15
35.00	28.70	36.1 107	-4.38	15.11 106	15.73 106	15.92 106	15.55 106	15.86 106	15
36.00	29.51	36.4 105	-4.54	15.68 106	16.32 106	16.52 106	16.13 106	16.45 106	16
37.00	30.32	36.4 105	-4.69	16.25 106	16.92 106	17.12 106	16.72 106	17.05 106	16
38.00	31.12	36.6 104	-4.84	16.83 106	17.51 106	17.72 106	17.30 106	17.65 106	17
39.00	31.92	36.7 106	-4.99	17.41 106	18.11 106	18.32 106	17.89 106	18.25 106	17
40.00	32.73	36.4 106	-5.15	17.98 106	18.70 106	18.92 106	18.48 106	18.85 106	18
41.00	33.53	36.3 104	-5.30	18.55 106	19.29 106	19.52 106	19.06 106	19.45 106	19
42.00	34.34	36.0 110	-5.47	19.11 106	19.88 106	20.12 106	19.65 106	20.04 106	19
43.00	35.15	36.0 107	-5.64	19.68 106	20.47 106	20.71 106	20.23 106	20.63 106	20
44.00	35.96	36.2 106	-5.81	20.24 106	21.06 106	21.31 106	20.81 106	21.23 106	20
45.00	36.76	36.6 107	-5.97	20.81 106	21.65 106	21.91 106	21.39 106	21.82 106	21
46.00	37.57	36.0 109	-6.15	21.38 106	22.24 106	22.50 106	21.98 106	22.42 106	22
47.00	38.38	36.6 107	-6.31	21.94 106	22.83 106	23.10 106	22.56 106	23.01 106	22
48.00	39.18	36.7 105	-6.49	22.51 106	23.43 106	23.70 106	23.15 106	23.61 106	23
49.00	39.99	36.7 107	-6.66	23.07 106	24.02 106	24.30 106	23.73 106	24.21 106	23
50.00	40.79	36.4 106	-6.84	23.64 106	24.61 106	24.90 106	24.31 106	24.80 106	24
51.00	41.60	35.9 108	-7.02	24.20 106	25.20 106	25.50 106	24.90 106	25.40 106	25
52.00	42.41	36.0 108	-7.19	24.76 106	25.79 106	26.09 106	25.48 106	25.99 106	25
53.00	43.22	36.3 107	-7.36	25.33 106	26.38 106	26.69 106	26.06 106	26.59 106	26
54.00	44.02	36.1 107	-7.54	25.89 106	26.97 106	27.29 106	26.65 106	27.18 106	26
55.00	44.83	35.9 107	-7.71	26.46 106	27.56 106	27.89 106	27.23 106	27.78 106	27
56.00	45.64	35.9 108	-7.89	27.02 106	28.15 106	28.48 106	27.81 106	28.37 106	27
57.00	46.45	36.0 108	-8.06	27.58 106	28.73 106	29.07 106	28.39 106	28.96 106	28
58.00	47.26	35.9 107	-8.23	28.14 106	29.32 106	29.67 106	28.97 106	29.55 106	29
59.00	48.07	35.5 108	-8.41	28.70 106	29.90 106	30.26 106	29.55 106	30.14 106	29
60.00	48.88	35.5 109	-8.59	29.25 106	30.49 106	30.85 106	30.12 106	30.73 106	30
61.00	49.70	35.7 108	-8.78	29.80 106	31.07 106	31.44 106	30.70 106	31.31 106	30
62.00	50.51	35.4 110	-8.97	30.35 106	31.65 106	32.02 106	31.27 106	31.90 106	31
63.00	51.33	35.4 109	-9.15	30.90 106	32.23 106	32.61 106	31.84 106	32.48 106	31
64.00	52.14	35.5 109	-9.34	31.45 107	32.80 107	33.19 107	32.41 107	33.06 107	32
65.00	52.96	35.2 109	-9.52	31.99 107	33.38 107	33.78 107	32.98 107	33.65 107	33
66.00	53.77	35.4 109	-9.71	32.54 107	33.96 107	34.36 107	33.55 107	34.23 107	33
67.00	54.59	35.5 107	-9.88	33.10 107	34.54 107	34.95 107	34.12 107	34.81 107	34
68.00	55.40	36.1 105	-10.04	33.65 107	35.12 107	35.54 107	34.70 107	35.40 107	34
69.00	56.21	36.0 104	-10.20	34.22 107	35.70 107	36.13 107	35.28 107	35.99 107	35
70.00	57.03	35.3 108	-10.36	34.77 107	36.29 107	36.72 107	35.85 107	36.58 107	36
71.00	57.84	35.8 106	-10.53	35.33 107	36.87 107	37.31 107	36.43 107	37.16 107	36
72.00	58.65	35.8 104	-10.68	35.90 107	37.45 107	37.90 107	37.00 107	37.75 107	37
73.00	59.46	35.3 107	-10.83	36.46 107	38.04 107	38.49 107	37.58 107	38.34 107	37
74.00	60.28	35.4 107	-11.00	37.01 107	38.61 107	39.07 107	38.15 107	38.92 107	38
75.00	61.10	35.2 108	-11.17	37.56 107	39.19 107	39.66 107	38.72 107	39.50 107	38
76.00	61.92	34.9 107	-11.35	38.10 107	39.76 107	40.23 107	39.28 107	40.08 107	39
77.00	62.74	34.8 109	-11.54	38.64 107	40.33 107	40.81 107	39.85 107	40.65 107	40
78.00	63.56	35.0 108	-11.72	39.19 107	40.90 107	41.39 107	40.41 107	41.23 107	40
79.00	64.38	34.7 109	-11.90	39.73 107	41.47 107	41.97 107	40.97 107	41.80 107	41
80.00	65.20	34.6 108	-12.08	40.27 107	42.04 107	42.55 107	41.54 107	42.38 107	41
81.00	66.02	34.5 109	-12.26	40.81 107	42.61 107	43.12 107	42.10 107	42.95 107	42
82.00	66.85	34.5 110	-12.44	41.35 107	43.18 107	43.70 107	42.66 107	43.52 107	42.
83.00	67.67	34.7 109	-12.62	41.89 107	43.75 107	44.28 107	43.22 107	44.10 107	43
84.00	68.49	34.7 108	-12.80	42.43 107	44.32 107	44.85 107	43.79 107	44.68 107	43
85.00	69.31	35.1 108	-12.99	42.97 107	44.89 107	45.43 107	44.35 107	45.25 107	44
86.00	70.13	35.3 107	-13.16	43.52 107	45.46 107	46.01 107	44.91 107	45.83 107	45
87.00	70.95	35.3 104	-13.33	44.07 107	46.04 107	46.59 107	45.48 107	46.41 107	45
88.00	71.76	35.3 105	-13.48	44.62 107	46.62 107	47.18 107	46.05 107	46.99 107	46.
89.00	72.58	35.2 104	-13.63	45.18 107	47.19 107	47.76 107	46.62 107	47.57 107	46.
90.00	73.40	34.9 104	-13.78	45.74 107	47.77 107	48.34 107	47.19 107	48.15 107	47.
91.00	74.22	29.6 116	-13.93	46.28 107	48.33 107	48.92 107	47.75 107	48.72 107	47.
92.00	75.04	34.2 110	-14.11	46.82 107	48.90 107	49.49 107	48.31 107	49.29 107	48.
93.00	75.87	33.9 111	-14.30	47.35 107	49.46 107	50.06 107	48.86 107	49.86 107	49.
94.00	76.70	34.2 110	-14.50	47.87 107	50.02 107	50.62 107	49.41 107	50.42 107	49.
95.00	77.53	34.0 111	-14.69	48.40 107	50.58 107	51.19 107	49.96 107	50.99 107	50.
96.00	78.36	34.0 111	-14.89	48.92 107	51.14 107	51.75 107	50.51 107	51.55 107	50
97.00	79.19	33.6 111	-15.08	49.44 107	51.69 107	52.32 107	51.06 107	52.11 107	51
98.00	80.02	33.8 110	-15.28	49.97 107	52.25 107	52.88 107	51.61 107	52.67 107	51.
99.00	80.85	34.0 109	-15.47	50.49 107	52.81 107	53.45 107	52.16 107	53.23 107	52.
100.00	81.68	33.8 109	-15.65	51.01 107	53.36 107	54.01 107	52.71 107	53.79 107	52.
101.00	82.51	33.8 109	-15.84	51.54 107	53.92 107	54.57 107	53.26 107	54.35 107	53.
102.00	83.34	33.9 109	-16.02	52.06 107	54.47 107	55.13 107	53.80 107	54.91 107	54.
103.00	84.18	33.5 110	-16.21	52.58 107	55.02 107	55.69 107	54.35 107	55.47 107	54.
104.00	85.01	33.4 108	-16.40	53.10 107	55.57 107	56.25 107	54.89 107	56.02 107	55.
105.00	85.84	33.4 109	-16.58	53.62 107	56.13 107	56.81 107	55.44 107	56.58 107	55.

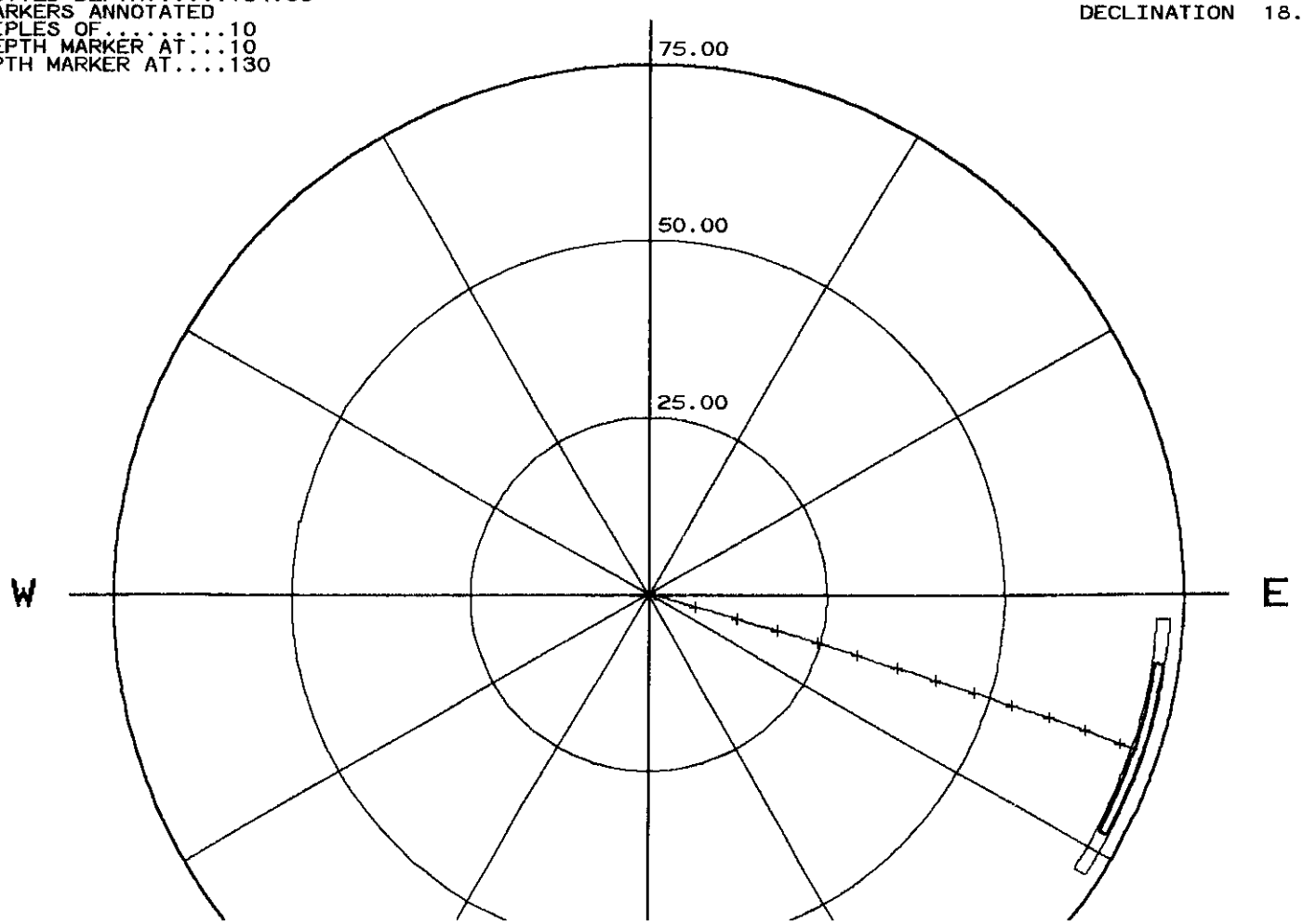
101.00	82.51	33.8 109	-15.84	51.54 107	53.92 107	54.57 107	53.26 107	54.35 107	53
102.00	83.34	33.9 109	-16.02	52.06 107	54.47 107	55.13 107	53.80 107	54.91 107	54
103.00	84.18	33.5 110	-16.21	52.58 107	55.02 107	55.69 107	54.35 107	55.47 107	54
104.00	85.01	33.4 108	-16.40	53.10 107	55.57 107	56.25 107	54.89 107	56.02 107	55
105.00	85.84	33.4 109	-16.58	53.62 107	56.13 107	56.81 107	55.44 107	56.58 107	55
106.00	86.68	33.7 108	-16.75	54.15 107	56.68 107	57.37 107	55.99 107	57.14 107	56
107.00	87.51	33.6 107	-16.92	54.68 107	57.23 107	57.93 107	56.53 107	57.70 107	56
108.00	88.34	33.5 107	-17.08	55.20 107	57.79 107	58.49 107	57.08 107	58.26 107	57
109.00	89.17	33.5 108	-17.25	55.73 107	58.34 107	59.05 107	57.62 107	58.82 107	57
110.00	90.01	32.9 110	-17.42	56.26 107	58.89 107	59.61 107	58.17 107	59.37 107	58
111.00	90.85	33.2 110	-17.61	56.77 107	59.44 107	60.16 107	58.71 107	59.92 107	58
112.00	91.68	33.1 110	-17.80	57.28 107	59.98 107	60.72 107	59.25 107	60.47 107	59
113.00	92.52	33.3 110	-17.99	57.79 107	60.53 107	61.27 107	59.78 107	61.02 107	60
114.00	93.36	32.9 111	-18.18	58.30 107	61.07 107	61.82 107	60.32 107	61.57 107	60
115.00	94.20	32.7 112	-18.37	58.81 107	61.61 107	62.37 107	60.85 107	62.12 107	61
116.00	95.04	32.7 111	-18.57	59.32 107	62.15 107	62.92 107	61.39 107	62.66 107	61
117.00	95.88	32.8 111	-18.76	59.82 107	62.69 107	63.46 107	61.92 107	63.21 107	62
118.00	96.72	32.9 110	-18.96	60.33 107	63.24 107	64.01 107	62.45 107	63.76 107	62
119.00	97.56	32.6 111	-19.15	60.83 107	63.78 107	64.56 107	62.99 107	64.30 107	63
120.00	98.40	32.7 111	-19.35	61.33 108	64.31 108	65.11 108	63.52 108	64.84 108	63
121.00	99.24	32.9 110	-19.54	61.84 108	64.85 108	65.65 108	64.05 108	65.39 108	64
122.00	100.09	32.7 112	-19.74	62.34 108	65.40 108	66.20 108	64.58 108	65.93 108	64
123.00	100.93	33.0 110	-19.94	62.85 108	65.94 108	66.75 108	65.12 108	66.48 108	65
124.00	101.77	32.8 110	-20.14	63.35 108	66.48 108	67.30 108	65.65 108	67.02 108	65
125.00	102.61	32.8 111	-20.34	63.85 108	67.01 108	67.84 108	66.18 108	67.57 108	66
126.00	103.45	32.7 111	-20.54	64.35 108	67.55 108	68.39 108	66.71 108	68.11 108	66
127.00	104.29	32.6 111	-20.74	64.85 108	68.09 108	68.93 108	67.24 108	68.65 108	67
128.00	105.14	32.7 111	-20.94	65.35 108	68.62 108	69.47 108	67.77 108	69.19 108	68
129.00	105.98	32.6 111	-21.14	65.85 108	69.16 108	70.02 108	68.30 108	69.73 108	68
130.00	106.82	32.3 112	-21.34	66.35 108	69.70 108	70.56 108	68.83 108	70.27 108	69
131.00	107.67	32.9 111	-21.55	66.85 108	70.23 108	71.11 108	69.36 108	70.82 108	69
132.00	108.51	32.8 112	-21.74	67.35 108	70.78 108	71.65 108	69.89 108	71.36 108	70
133.00	109.34	33.5 110	-21.94	67.86 108	71.32 108	72.21 108	70.43 108	71.91 108	70
134.00	110.17	33.6 109	-22.12	68.39 108	71.88 108	72.77 108	70.98 108	72.47 108	71
134.60	110.67	33.8 108	-22.22	68.70 108	72.21 108	73.11 108	71.30 108	72.81 108	71

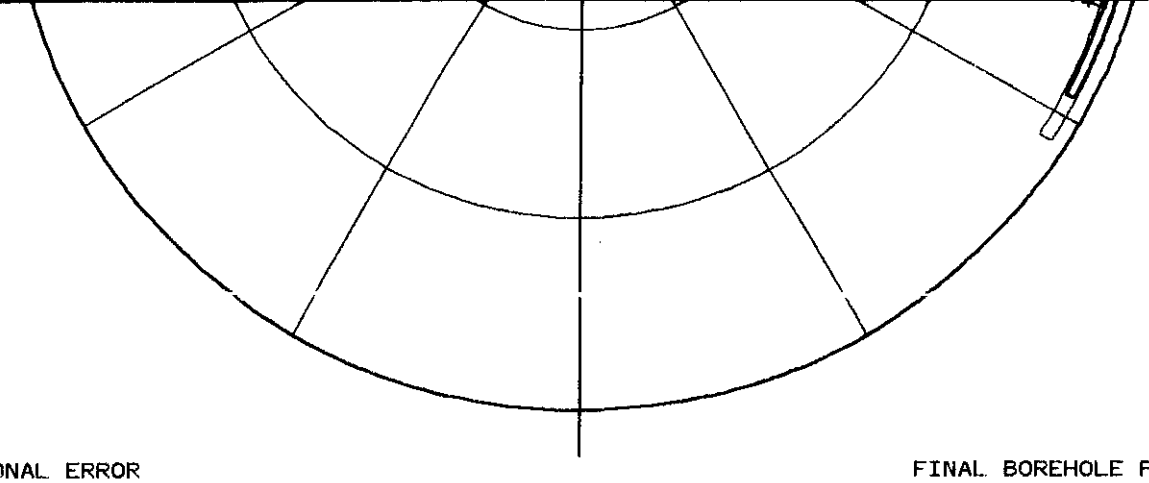
CROSS SECTION

A' FIGURES IN LOG DEPTH MS
T.. ET ORIGIN DEPTH.....2.80
LAST PLOTTED DEPTH.....134.60
DEPTH MARKERS ANNOTATED
IN MULTIPLES OF.....10
FIRST DEPTH MARKER AT...10
LAST DEPTH MARKER AT....130

N

PLOT WITH RESPECT TO TRUE NO
SCALE 1:1000
DECLINATION 18.0 D





BOREHOLE POSITIONAL ERROR

THE TWO BOXES SURROUNDING THE LAST PLOTTED DEPTH SHOW THE TYPICAL, AND MAXIMUM, POSITIONAL ERROR AT THAT DEPTH.

S

FINAL BOREHOLE POSITION

THE LAST PLOTTED DEPTH IS A
22.22 MS SOUTH, 68.70 M
EAST IE. 72.21 MS FROM TH
ORIGIN, 108 DEG FROM TRUE N

VERTICAL SECTIONS

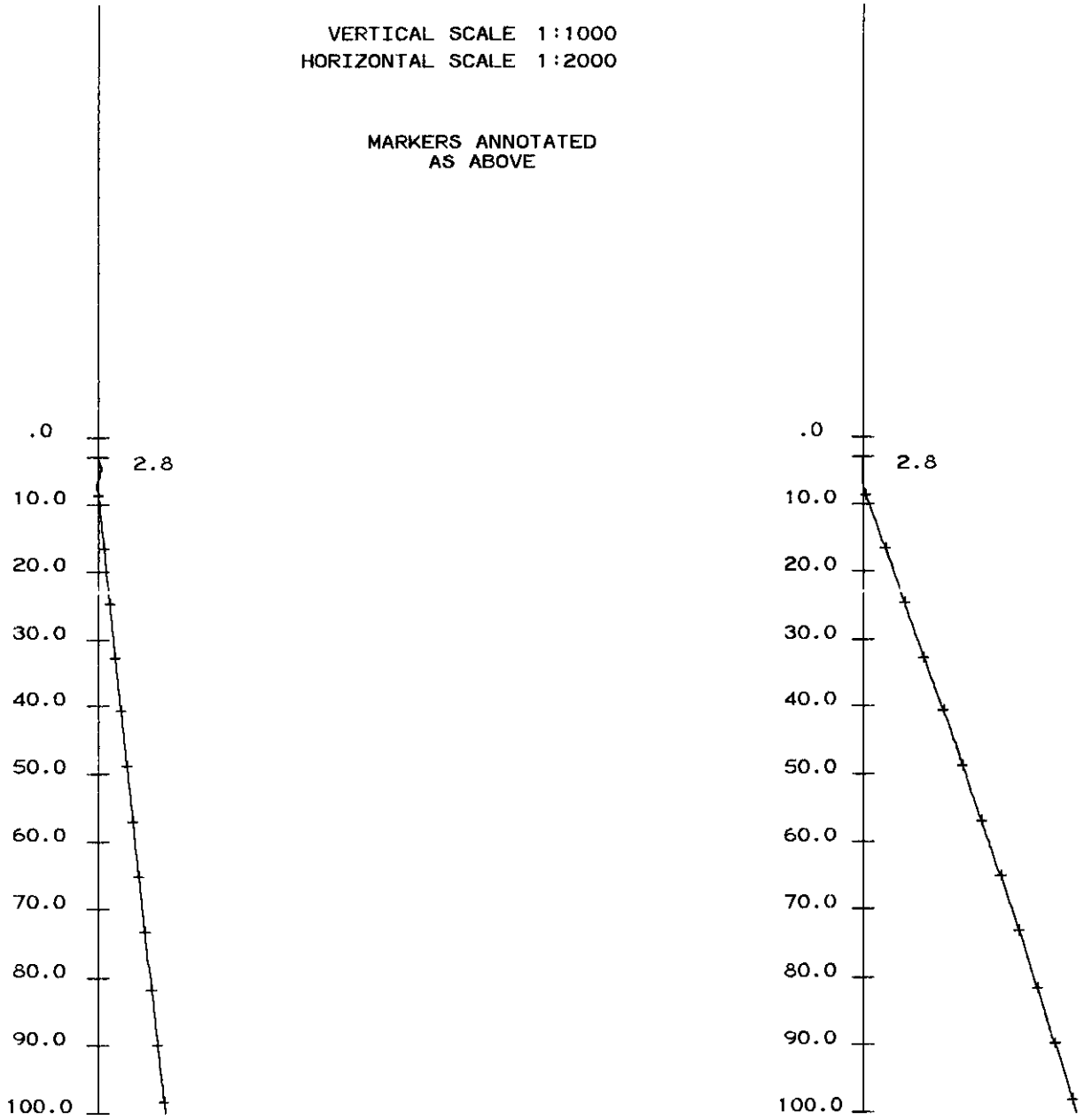
N-S SECTION

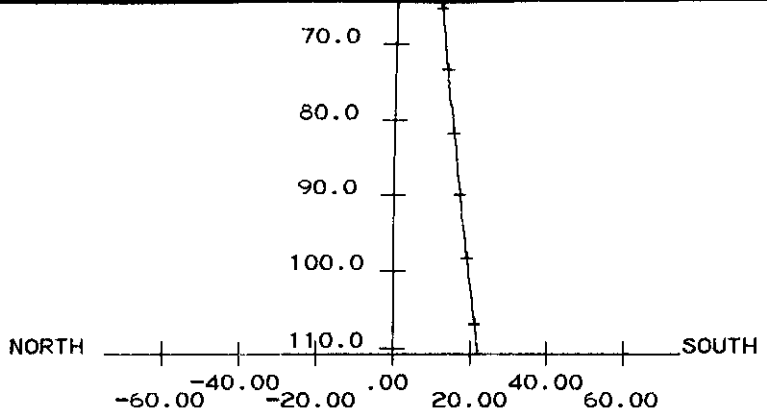
E-W SECTION

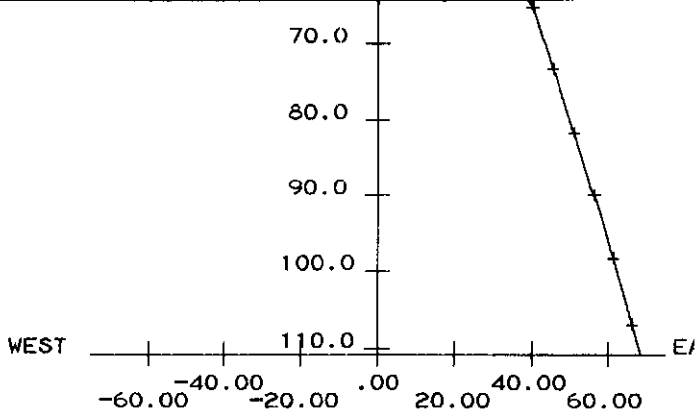
(TRUE DEPTH VS DISPLACEMENT)

VERTICAL SCALE 1:1000
HORIZONTAL SCALE 1:2000

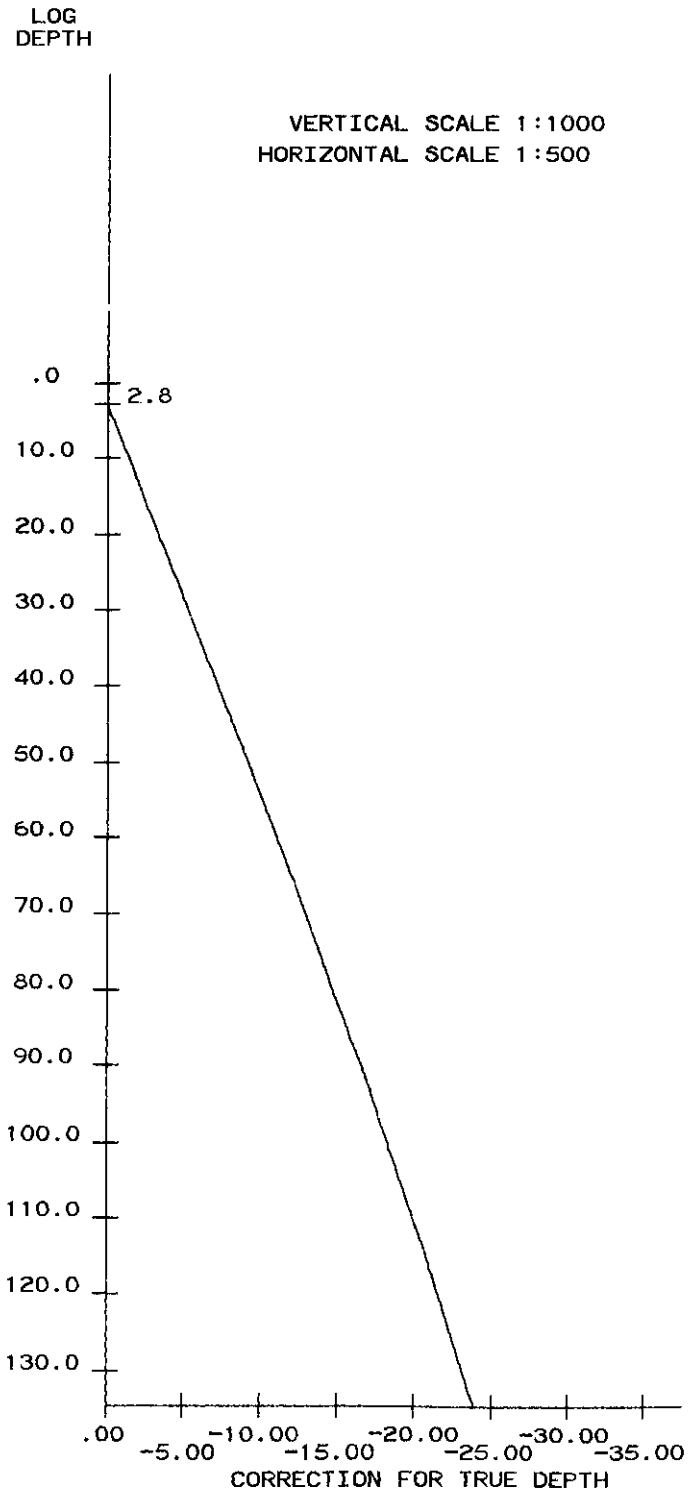
MARKERS ANNOTATED
AS ABOVE







DEPTH CORRECTION ANALYSIS



DEPTHS:		DEPTHS	
LOG	TRUE	LOG	TRUE
3.00	2.96	73.00	59.46
4.00	3.76	74.00	60.28
5.00	4.56	75.00	61.10
6.00	5.36	76.00	61.92
7.00	6.16	77.00	62.74
8.00	6.96	78.00	63.56
9.00	7.76	79.00	64.38
10.00	8.56	80.00	65.20
11.00	9.36	81.00	66.02
12.00	10.16	82.00	66.85
13.00	10.97	83.00	67.67
14.00	11.77	84.00	68.49
15.00	12.58	85.00	69.31
16.00	13.38	86.00	70.13
17.00	14.19	87.00	70.95
18.00	15.00	88.00	71.76
19.00	15.80	89.00	72.58
20.00	16.61	90.00	73.40
21.00	17.41	91.00	74.22
22.00	18.22	92.00	75.04
23.00	19.02	93.00	75.87
24.00	19.82	94.00	76.70
25.00	20.63	95.00	77.53
26.00	21.43	96.00	78.36
27.00	22.24	97.00	79.19
28.00	23.05	98.00	80.02
29.00	23.86	99.00	80.85
30.00	24.67	100.00	81.68
31.00	25.47	101.00	82.51
32.00	26.28	102.00	83.34
33.00	27.09	103.00	84.16
34.00	27.90	104.00	85.01
35.00	28.70	105.00	85.84
36.00	29.51	106.00	86.68
37.00	30.32	107.00	87.51
38.00	31.12	108.00	88.34
39.00	31.92	109.00	89.17
40.00	32.73	110.00	90.01
41.00	33.53	111.00	90.85
42.00	34.34	112.00	91.68
43.00	35.15	113.00	92.52
44.00	35.96	114.00	93.36
45.00	36.76	115.00	94.20
46.00	37.57	116.00	95.04
47.00	38.38	117.00	95.88
48.00	39.18	118.00	96.72
49.00	39.99	119.00	97.56
50.00	40.79	120.00	98.40
51.00	41.60	121.00	99.24
52.00	42.41	122.00	100.09
53.00	43.22	123.00	100.93
54.00	44.02	124.00	101.77
55.00	44.83	125.00	102.61
56.00	45.64	126.00	103.45
57.00	46.45	127.00	104.29
58.00	47.26	128.00	105.14
59.00	48.07	129.00	105.98
60.00	48.88	130.00	106.82
61.00	49.70	131.00	107.67
62.00	50.51	132.00	108.51
63.00	51.33	133.00	109.34
64.00	52.14	134.00	110.17
65.00	52.96	134.60	110.67
66.00	53.77		
67.00	54.59		
68.00	55.40		
69.00	56.21		
70.00	57.03		
71.00	57.84		
72.00	58.65		

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-10A
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

PRECISION ENERGY SERVICES

FOCUSSED ELECTRIC GAMMA RAY, CALIPER SCALE 1:240

LOCN. 5562795N 644321E
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG-05-11A
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG-05-11A
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION 5562795N 644321E

LSD	SEC	TWP	RGE
N/A			

OTHER SERVICES
CDL
DIP/VERT

PERMANENT DATUM GROUND LEVEL ,ELEVATION 1417.502M
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1417.502M

DATE	28-MAR-05	
RUN NUMBER	1	
DEPTH-DRILLER	186.00M	
DEPTH-LOGGER	186.00M	
FIRST READING	183.30M	
LAST READING	43.60M	
CASING-DRILLER	6.00M	
CASING-LOGGER	5.80M	
BIT SIZE	133.35MM	
HOLE FLUID TYPE	WATER	
DENS./VISC.	1000 N/A	
PH/FLUID LOSS	N/A N/A	
SAMPLE SOURCE	NONE	
RM @ MEAS TEMP	2.00 @ 20.0C	
RMF @ MEAS TEMP	N/A	
RMC @ MEAS TEMP	N/A	
SOURCE: RMF/RMC	N/A N/A	
RM @ BHT	N/A	
TIME SINCE CIRC	N/A	
MAX REC TEMP	N/A	
EQUIPMENT/BASE	V3405 RDR	
RECORDED BY	ROBB RACZ	
WITNESSED BY	G. BICKFORD	
DRILL DONE	20-MAR-05	

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	133.35MM	99.00M	TD	159.00MM	N/A	SURFACE	6.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
SFE	103			

REMARKS

FOCUSSED ELECTRIC GAMMA RAY, CALIPER SCALE 1:240

NORTHING: 5562795.787 ELEVATION: 1417.502M SURVEYED ON MARCH 26/2005

EASTING : 644321.950 DENSITY TOOL COULD NOT GET PASTED 174.10M DUE TO HOLE BOREWALL CONDITIONS.

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS IN OUR PRICE SCHEDULE

MAIN LOG 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 21:22

FILENAME: MRGE11AM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 28-MAR-2005 AT 21:29

BIT SIZE
MILLIMETRES
50 150 250

CALIPER FROM DENSITY
MILLIMETRES
50 150 250

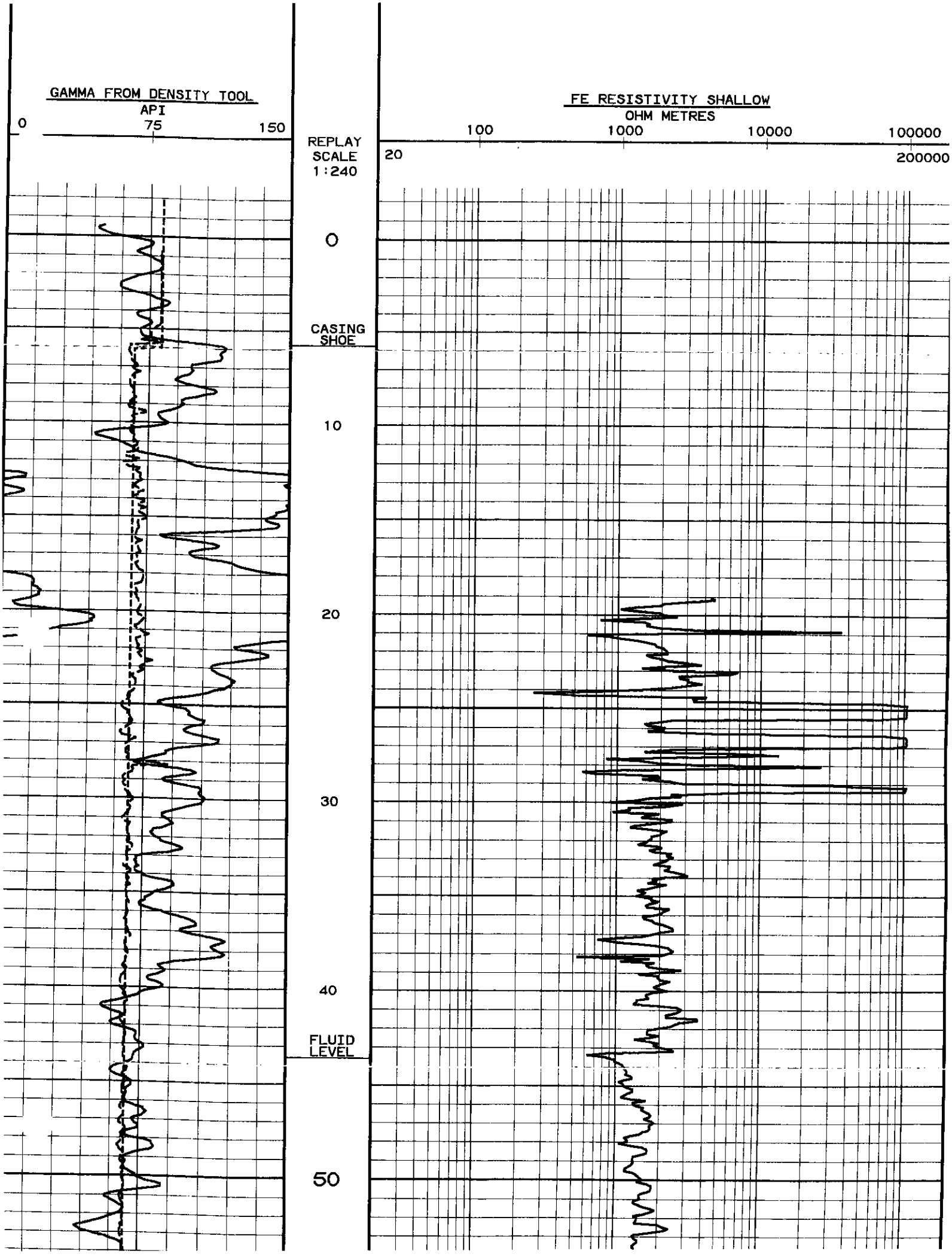
GAMMA FROM DENSITY TOOL
API
75 150

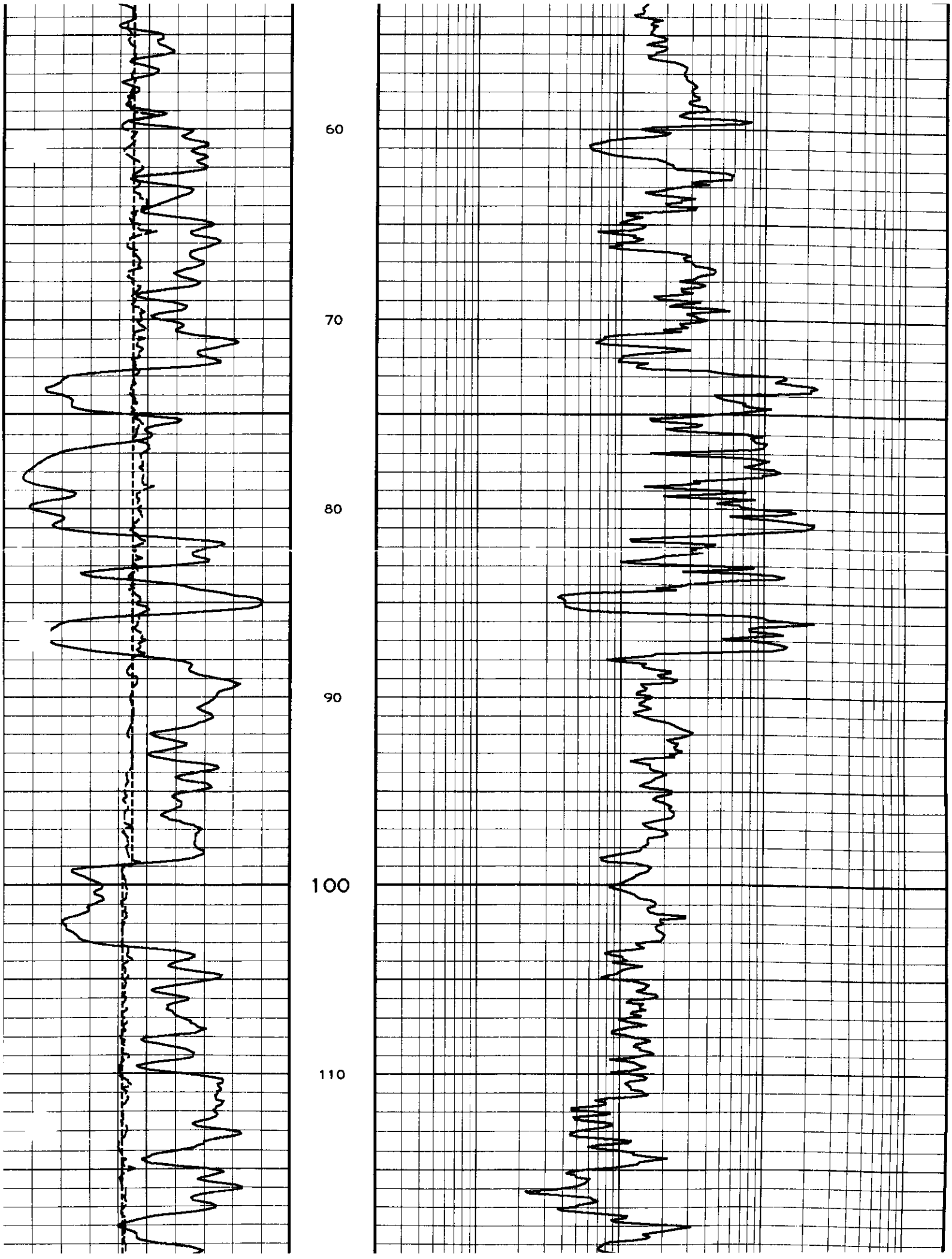
DEPTH IN METRES

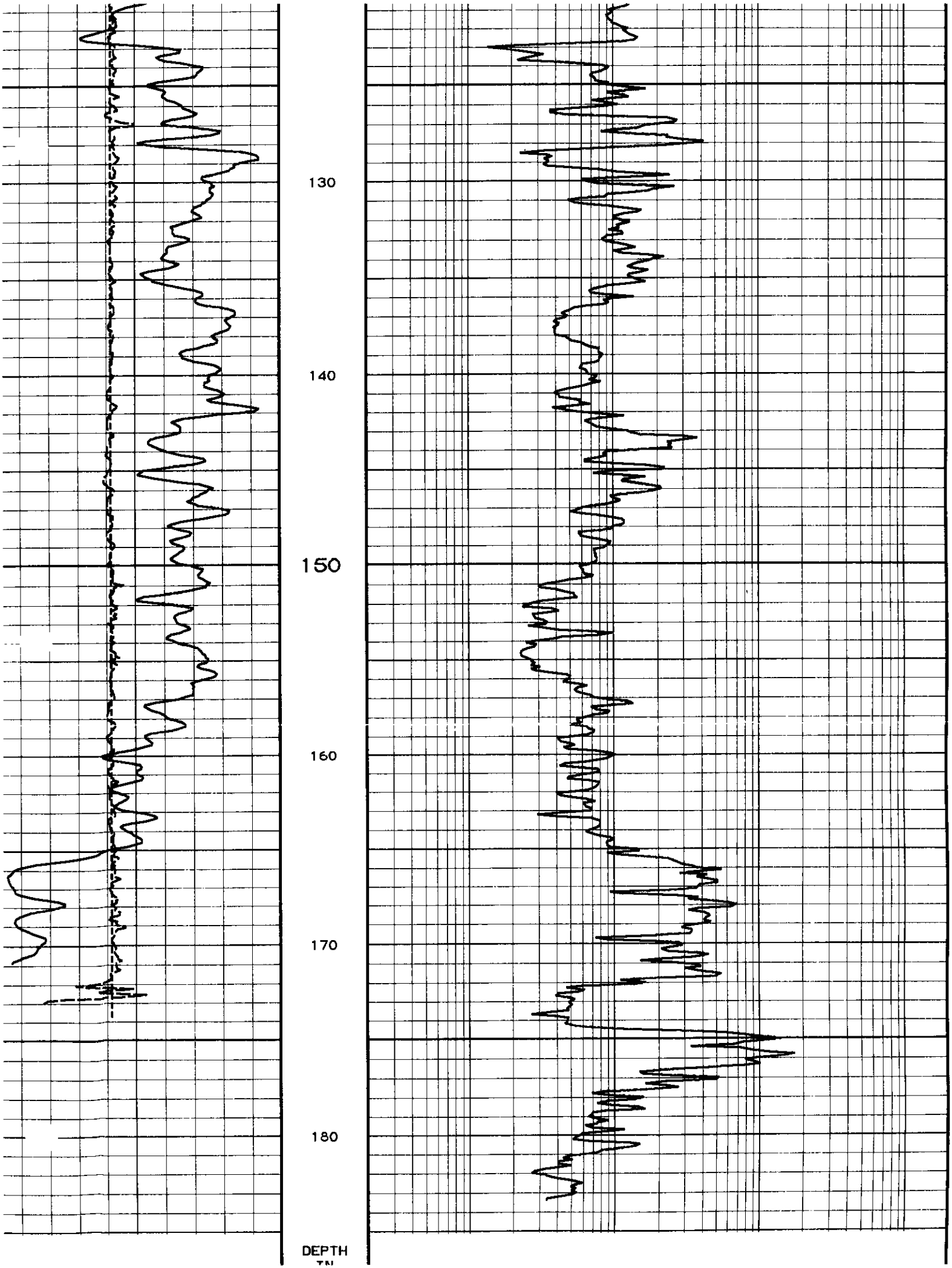
REPLAY SCALE 1:240

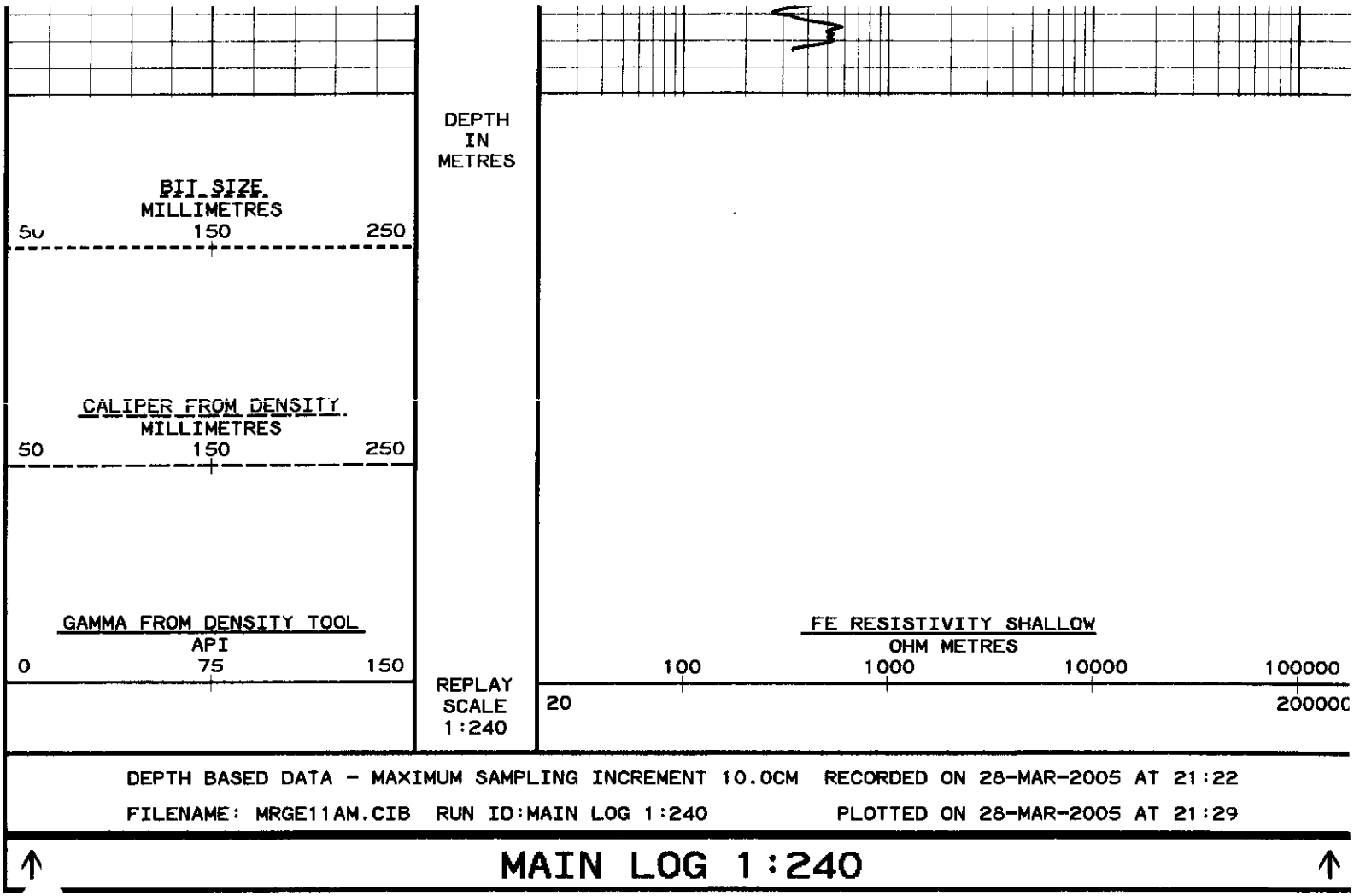
0

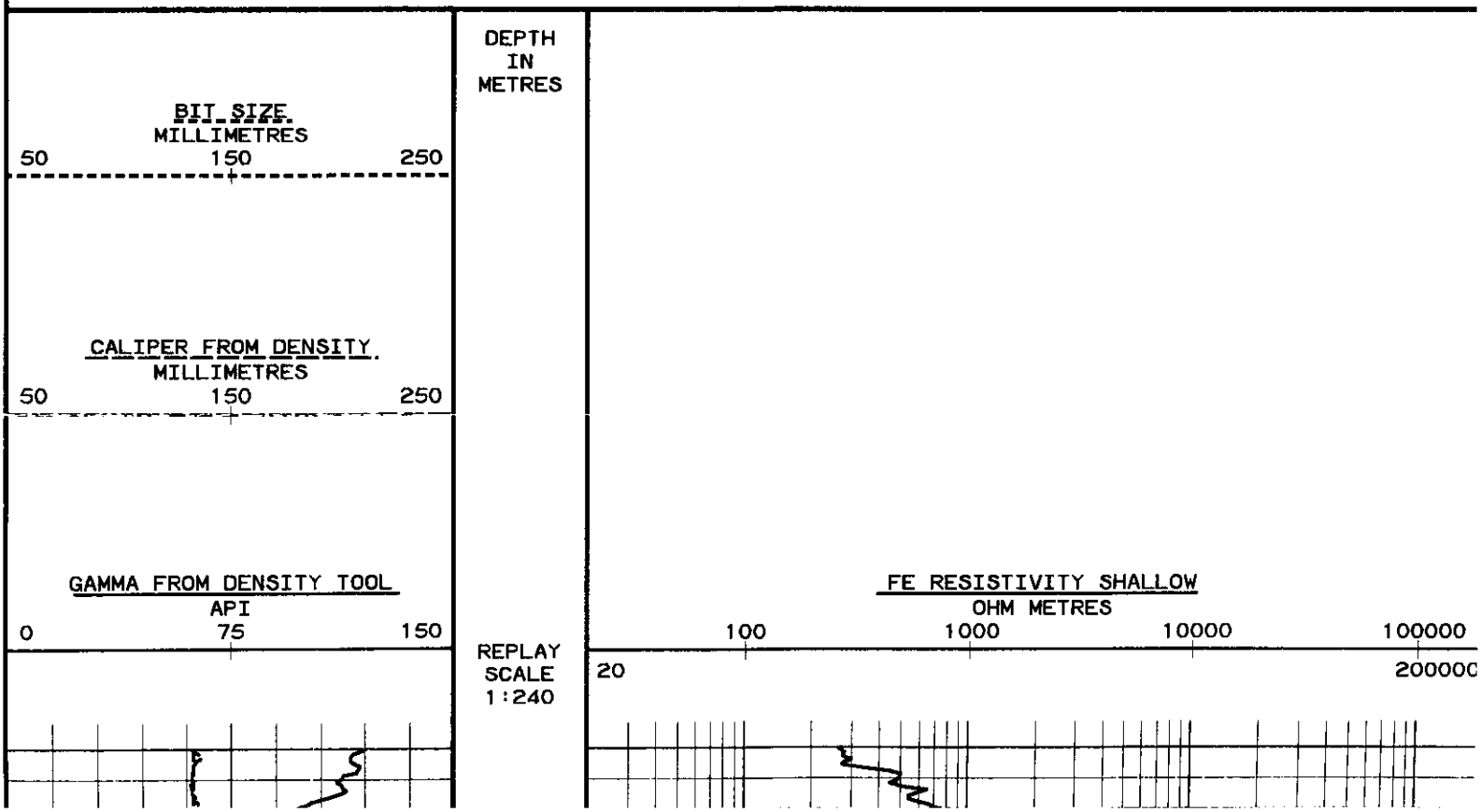
FE RESISTIVITY SHALLOW
OHM METRES
100 1000 10000 10000
20 2000

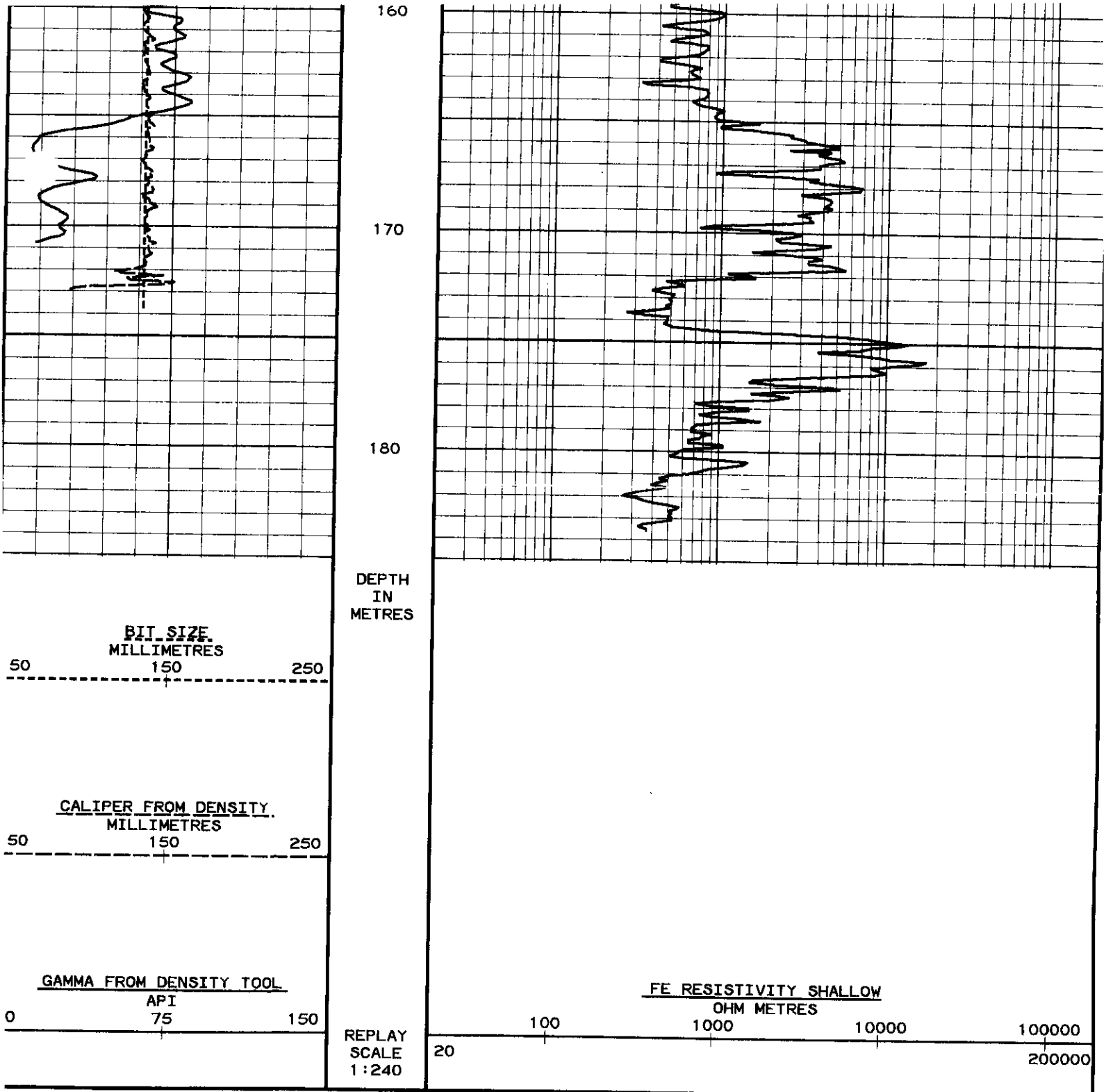

GAMMA FROM DENSITY TOOL
API
0
75
150
REPLAY
SCALE
1:240
FE RESISTIVITY SHALLOW
OHM METRES
20
100
1000
10000
100000
200000
0
CASING
SHOE
10
20
30
40
FLUID
LEVEL
50


60
70
80
90
100
110


130
140
150
160
170
180
DEPTH
IN


BII_SIZE.
MILLIMETRES
50
150
250
CALIPER FROM DENSITY.
MILLIMETRES
50
150
250
GAMMA FROM DENSITY TOOL
API
0
75
150
DEPTH
IN
METRES
REPLAY
SCALE
1:240
FE RESISTIVITY SHALLOW
OHM METRES
100
1000
10000
100000
20
200000
DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 21:22
FILENAME: MRGE11AM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 28-MAR-2005 AT 21:29
MAIN LOG 1:240


REPEAT SECTION
DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 21:21
FILENAME: MRGE11AR.CIB RUN ID:REPEAT SECTION PLOTTED ON 28-MAR-2005 AT 21:29
BII_SIZE.
MILLIMETRES
50
150
250
CALIPER FROM DENSITY.
MILLIMETRES
50
150
250
GAMMA FROM DENSITY TOOL
API
0
75
150
DEPTH
IN
METRES
REPLAY
SCALE
1:240
FE RESISTIVITY SHALLOW
OHM METRES
100
1000
10000
100000
20
200000



DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 21:21

FILENAME: MRGE11AR.CIB RUN ID:REPEAT SECTION PLOTTED ON 28-MAR-2005 AT 21:29

REPEAT SECTION

LOGGING/CALIBRATION CONSTANTS

CONSTANTS LAST EDITED: 28-MAR-2005 AT 21:03

LOGGING CONSTANTS AND BIT SIZE MEASUREMENTS

RESISTIVITY SONDE TYPE	DUAL RR1	MUD RESISTIVITY (OHM METRES)	2.000
BIT SIZE UNITS (INS/MM)	MILLIMTR	BIT DEPTH UNITS (M/FT)	METRES
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	

RESISTIVITY SONDE TYPE	DUAL RR1	MUD RESISTIVITY (OHM METRES)	2.000
BIT SIZE UNITS (INS/MM)	MILLIMTR	BIT DEPTH UNITS (M/FT)	METRES
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	6.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	99.00
BIT SIZS 4	0.00	FROM BIT DEPTH 4	186.00
BIT SIZE 5	0.00	FROM BIT DEPTH 5	0.00
TEMPERATURE UNITS	DEG. C		

CALIBRATION CONSTANTS

FE1	CALIBRATOR VALUE 1	2.0000	FE1	COUNT RATE 1	4496.0000
FE1	CALIBRATOR VALUE 2	2000.0000	FE1	COUNT RATE 2	2972.0000
FE2	CALIBRATOR VALUE 1	2.0000	FE2	COUNT RATE 1	4492.0000
FE2	CALIBRATOR VALUE 2	2000.0000	FE2	COUNT RATE 2	3010.0000
GRFE	CALIBRATOR VALUE 1	490.0000	GRFE	COUNT RATE 1	315.0000
SP	CALIBRATOR VALUE 1	1.0000	SP	COUNT RATE 1	1.0000
SP	CALIBRATOR VALUE 2	0.0000	SP	COUNT RATE 2	0.0000

LOGGING CONSTANTS

SONDE TYPE (DD3,CCS,DDI,DDS,DDL	DDS	SONDE MODE (WET,DRY,STD)	STD
MUD WEIGHT	1.00	STRIP COEFFICIENT	0.50
ANNULAR VOLUME DIAMETER	133.35	WATER LEVEL	.00
CALIPER ARM LENGTH (CMS)	22.60	MATRIX DENSITY	2.65
CALIPER UNITS(INS,MMS)	MMS	DENSITY OF MUD FILTRATE	1.00
BRD POINT ONE	1.00	BRD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
LSD POINT ONE	1.00	LSD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
DENSITY SCALAR	1.50	BRD SCALAR	-.50
BIT DEPTHS & WATER LEVEL (FT,M)	METRES	CALIPER SOURCE FOR PROCESSING	CAL
BIT SIZE 1	159.00	FROM BIT DEPTH 1	.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	6.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	99.00
BIT SIZE 4	.00	FROM BIT DEPTH 4	186.00
BIT SIZE 5	.00	FROM BIT DEPTH 5	.00

CALIBRATION CONSTANTS

GAMMA CALIBRATOR VALUE 1	436.00	GAMMA COUNT RATE 1	237.72
CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
CALIPER RING SIZE 1	76.20	CALIPER COUNT FOR RING 1	1834.00
CALIPER RING SIZE 2	101.60	CALIPER COUNT FOR RING 2	2258.00
CALIPER RING SIZE 3	127.00	CALIPER COUNT FOR RING 3	2690.00
CALIPER RING SIZE 4	152.40	CALIPER COUNT FOR RING 4	3162.00
CALIPER RING SIZE 5	203.20	CALIPER COUNT FOR RING 5	4224.00
CALIPER RING SIZE 6	254.00	CALIPER COUNT FOR RING 6	5030.00
DRY HOLE CORRECTION...			
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
DRY HOLE BRD NEW (1) GM/CC	0.00	DRY HOLE BRD LOG (1) GM/CC	0.00
DRY HOLE BRD NEW (2) GM/CC	1.00	DRY HOLE BRD LOG (2) GM/CC	1.00
DRY HOLE LSD NEW (1) GM/CC	0.00	DRY HOLE LSD LOG (1) GM/CC	0.00
DRY HOLE LSD NEW (2) GM/CC	1.00	DRY HOLE LSD LOG (2) GM/CC	1.00

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-11A
FIELD	BINGAY CREEK
PROVINCE/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

PRECISION ENERGY SERVICES

COMPENSATED DENSITY GAMMA RAY, CALIPER SCALE 1:240

LOCN. 5562795N 644321E
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG-05-11A
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG-05-11A
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION 5562795N 644321E

LSD	SEC	TWP	RGE
N/A			

OTHER SERVICES
SFE
DIP/VERT

PERMANENT DATUM GROUND LEVEL ,ELEVATION 1417.502M
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1417.502M

DATE	28-MAR-05			
RUN NUMBER	1			
DEPTH-DRILLER	186.00M			
DEPTH-LOGGER	186.00M			
FIRST READING	173.00M			
LAST READING	0.00M			
CASING-DRILLER	6.00M			
CASING-LOGGER	5.80M			
BIT SIZE	133.35MM			
HOLE FLUID TYPE	WATER			
DENS./VISC.	1000 N/A			
PH/FLUID LOSS	N/A N/A			
SAMPLE SOURCE	NONE			
RM @ MEAS TEMP	2.00 @ 20.0C			
RMF @ MEAS TEMP	N/A			
RMC @ MEAS TEMP	N/A			
SOURCE: RMF/RMC	N/A N/A			
RM @ BHT	N/A			
TIME SINCE CIRC	N/A			
MAX REC TEMP	N/A			
EQUIPMENT/BASE	V3405 RDR			
RECORDED BY	ROBB RACZ			
WITNESSED BY	G. BICKFORD			
DRILL DONE	20-MAR-05			

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	133.35MM	99.00M	TD	159.00MM	N/A	SURFACE	6.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
DD6	629			

REMARKS

COMPENSATED DENSITY GAMMA RAY, CALIPER SCALE 1:240

NORTHING: 5562795.787 ELEVATION: 1417.502M SURVEYED ON MARCH 26/2005

EASTING : 644321.950 DENSITY TOOL COULD NOT GET PASTED 174.10M DUE TO HOLE BOREWALL CONDITIONS.

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS IN OUR PRICE SCHEDULE

MAIN LOG 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 21:22

FILENAME: MRGE11AM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 28-MAR-2005 AT 21:38

BIT SIZE
MILLIMETRES
50 150 250

CALIPER FROM DENSITY
MILLIMETRES
50 150 250

GAMMA FROM DENSITY TOOL
API
0 75 150

DEPTH IN METRES

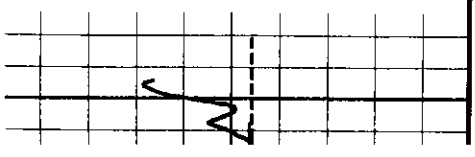
REPLAY SCALE 1:240

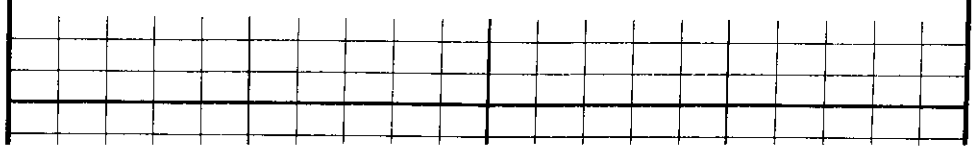
0

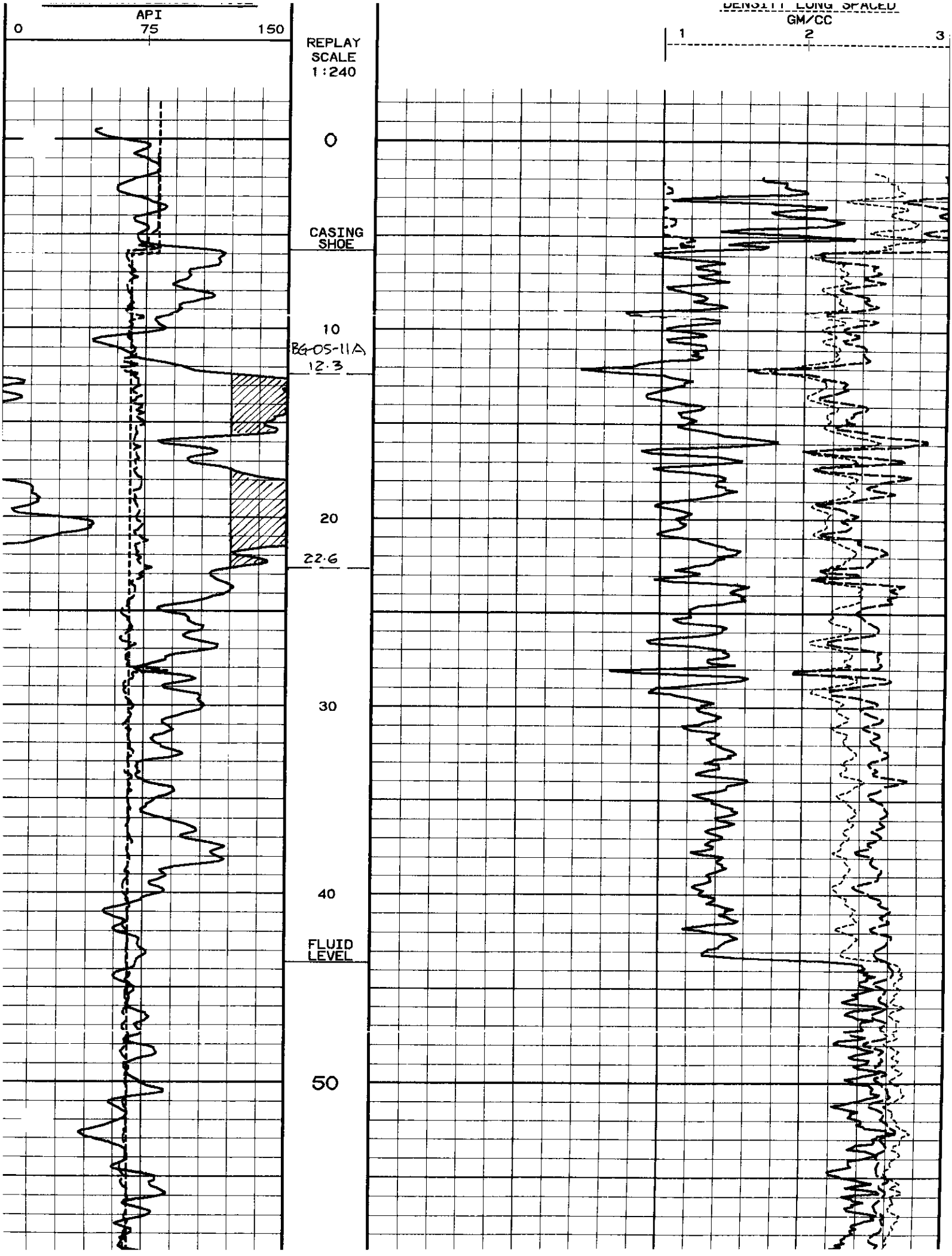
COMPENSATED DENSITY
GM/CC
1 1.50 2 2.50 3

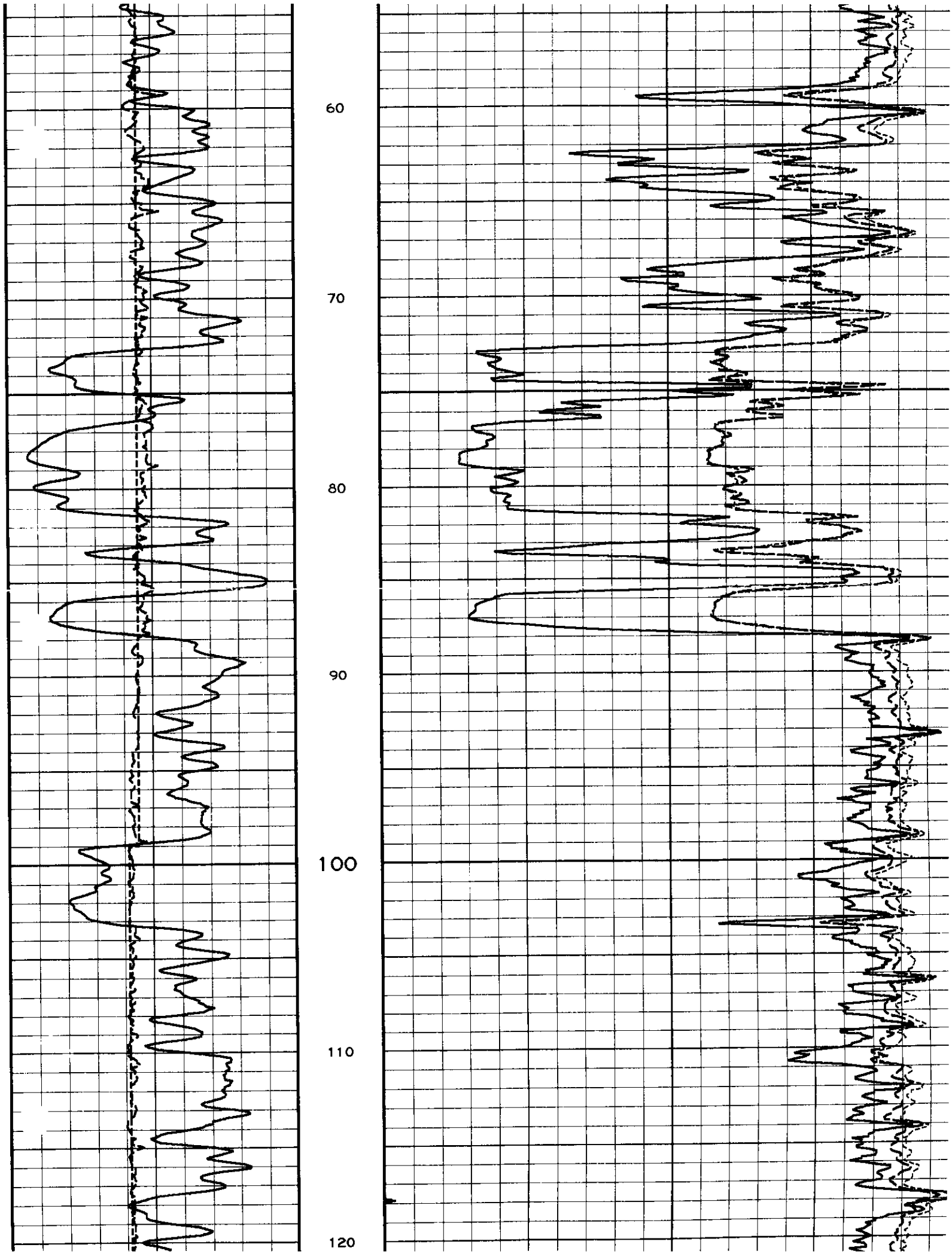
DENSITY SHORT SPACED
GM/CC
1 2 3

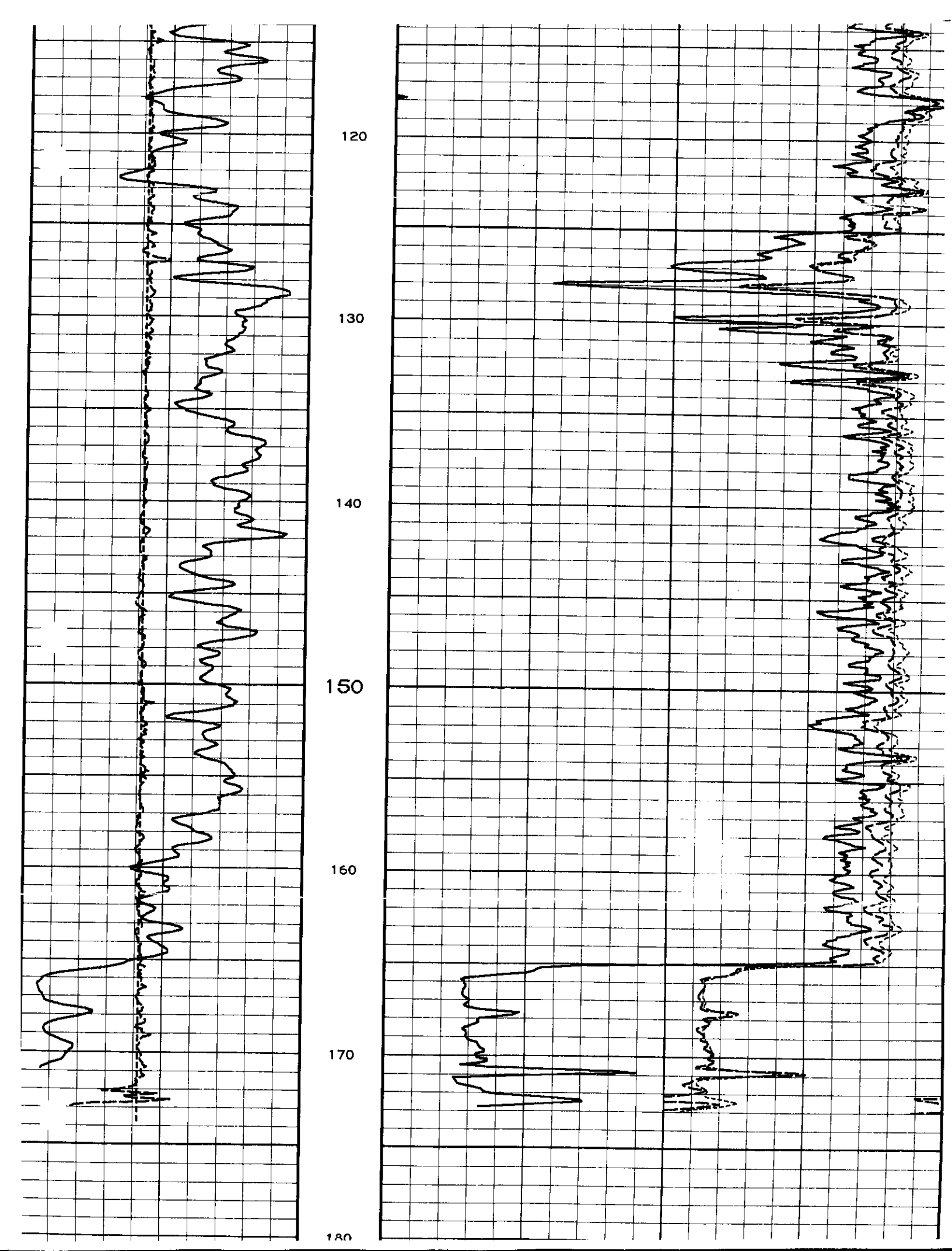
DENSITY LONG SPACED
GM/CC
1 2 3

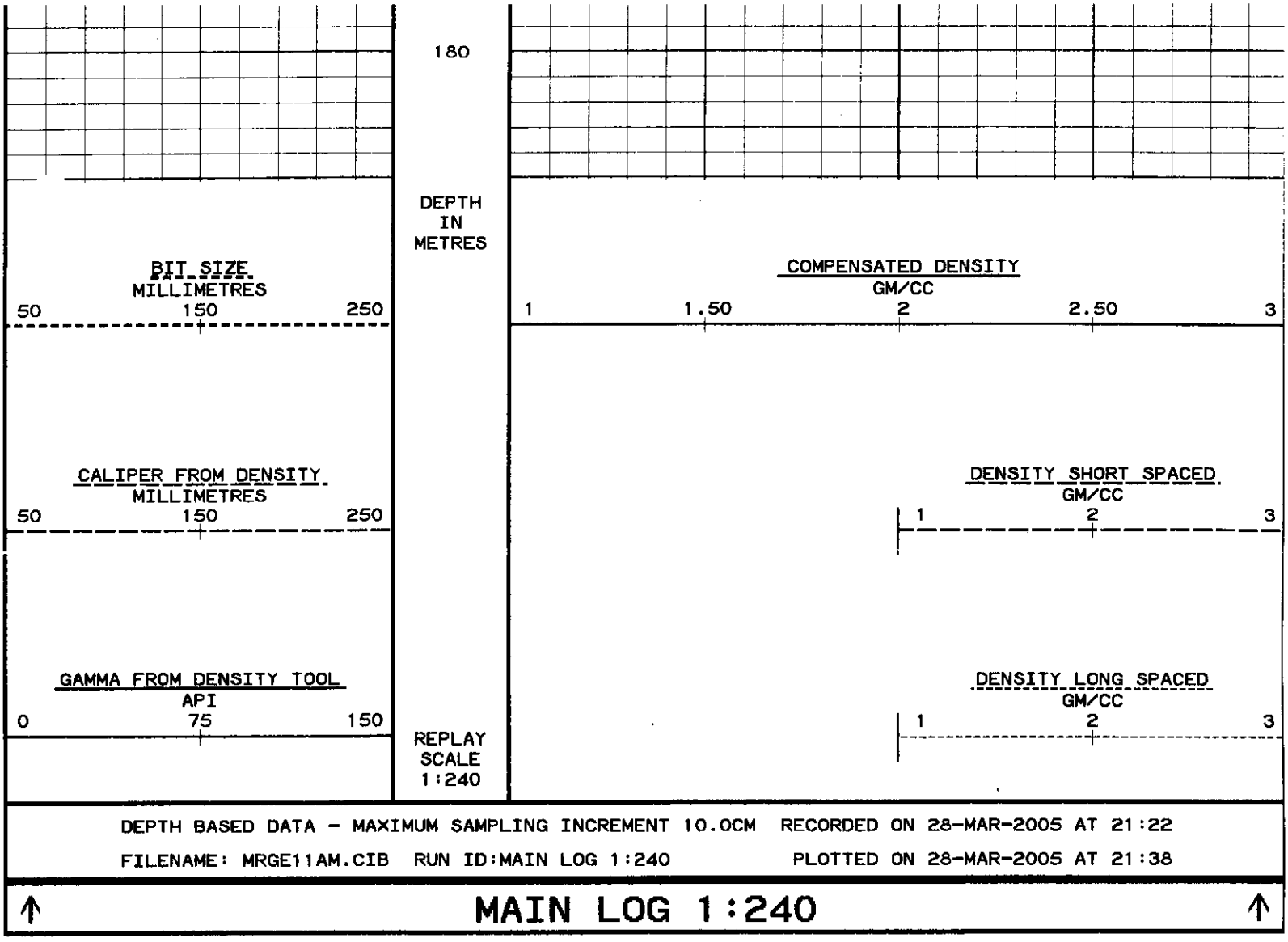


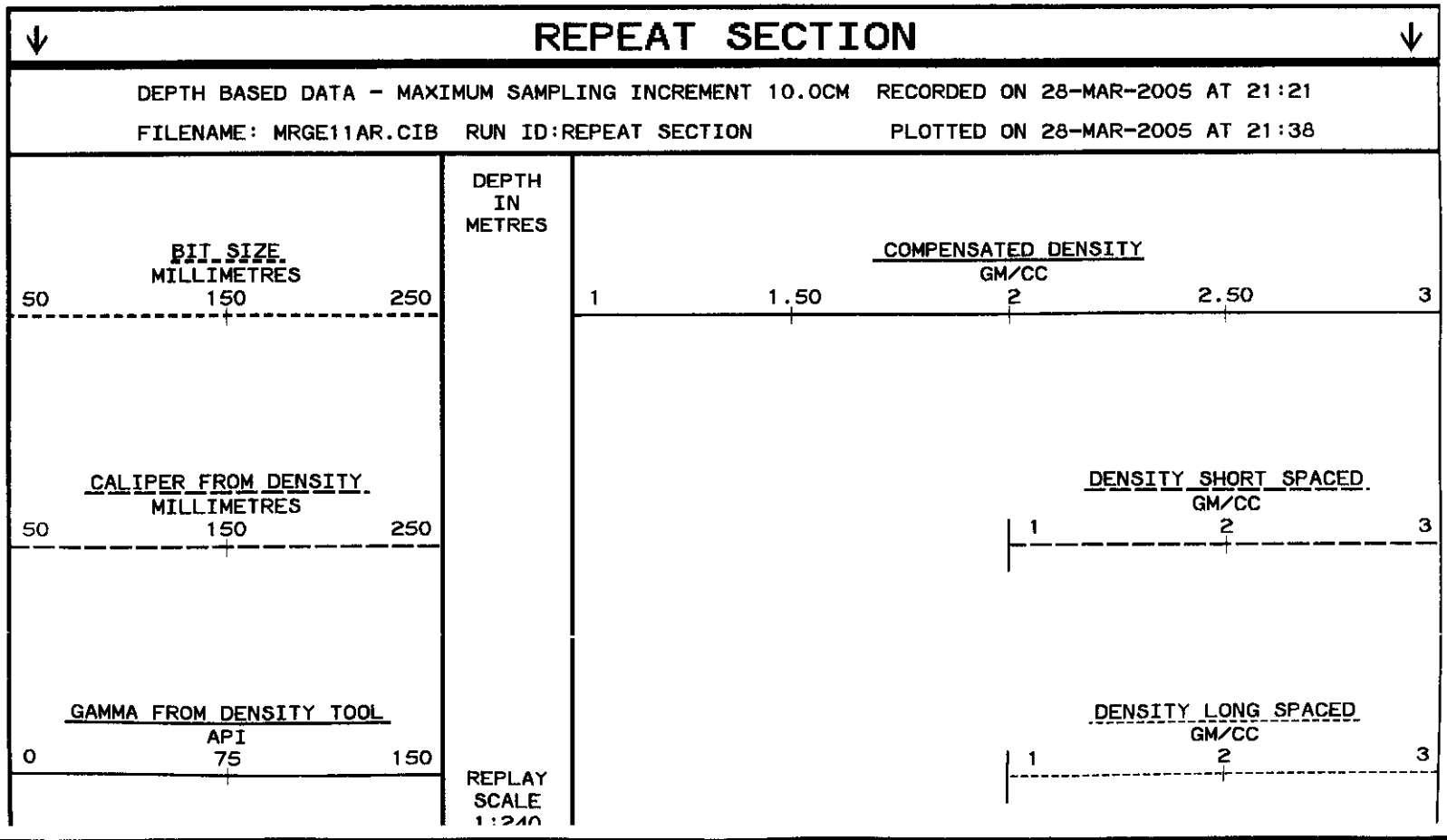


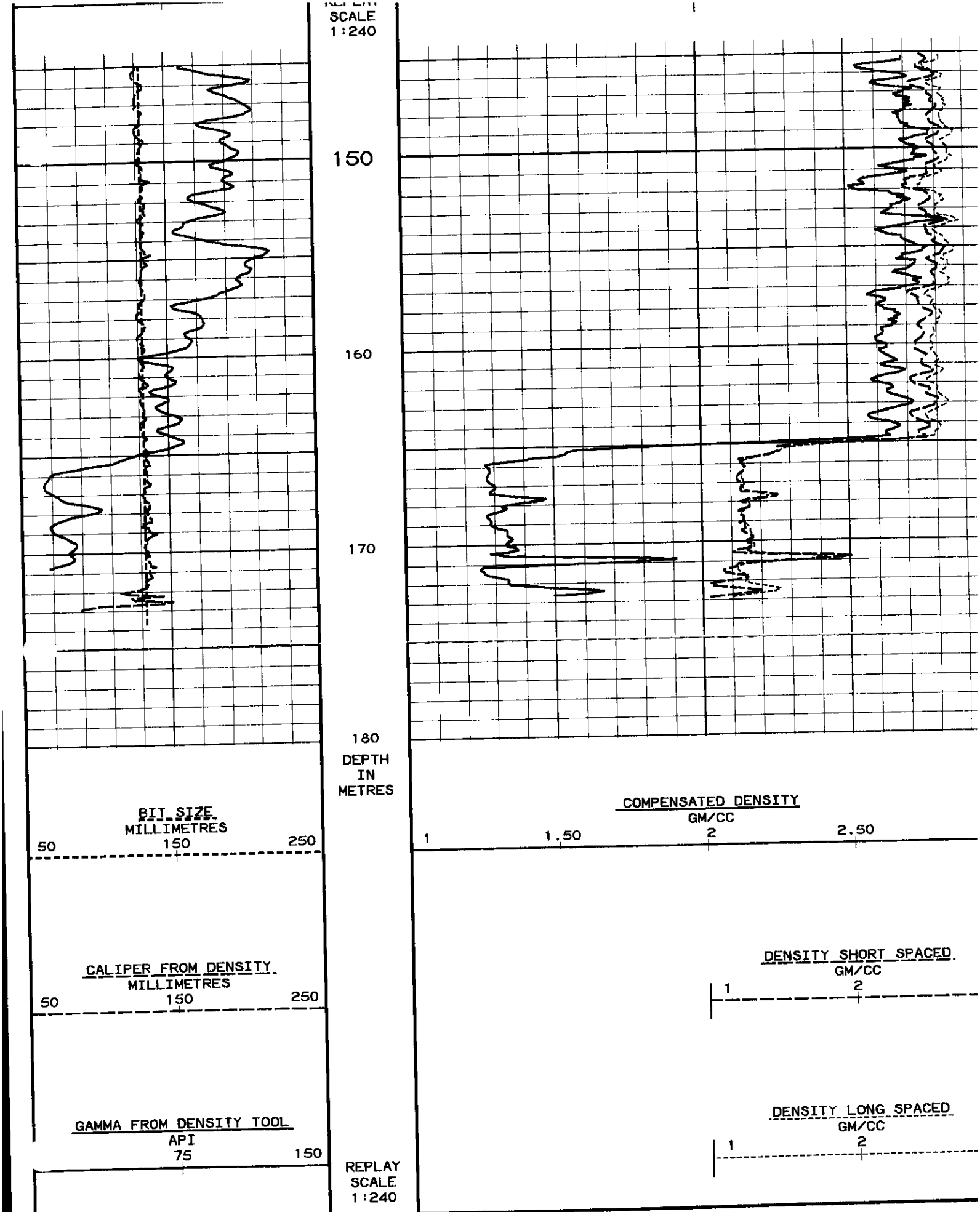

API
0
75
150
REPLAY
SCALE
1:240
0
CASING
SHOE
10
BG-OS-11A
12.3
20
22.6
30
40
FLUID
LEVEL
50
DENSITY LONG SPACED
GM/CC
1
2
3


60
70
80
90
100
110
120


120
130
140
150
160
170
180


180
DEPTH IN METRES
BIT SIZE
MILLIMETRES
50 150 250
COMPENSATED DENSITY
GM/CC
1 1.50 2 2.50 3
CALIPER FROM DENSITY
MILLIMETRES
50 150 250
DENSITY SHORT SPACED
GM/CC
1 2 3
GAMMA FROM DENSITY TOOL
API
0 75 150
DENSITY LONG SPACED
GM/CC
1 2 3
REPLAY SCALE 1:240
DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 21:22
FILENAME: MRGE11AM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 28-MAR-2005 AT 21:38
MAIN LOG 1:240


REPEAT SECTION
DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 21:21
FILENAME: MRGE11AR.CIB RUN ID:REPEAT SECTION PLOTTED ON 28-MAR-2005 AT 21:38
DEPTH IN METRES
BIT SIZE
MILLIMETRES
50 150 250
COMPENSATED DENSITY
GM/CC
1 1.50 2 2.50 3
CALIPER FROM DENSITY
MILLIMETRES
50 150 250
DENSITY SHORT SPACED
GM/CC
1 2 3
GAMMA FROM DENSITY TOOL
API
0 75 150
DENSITY LONG SPACED
GM/CC
1 2 3
REPLAY SCALE 1:240



DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 21:21

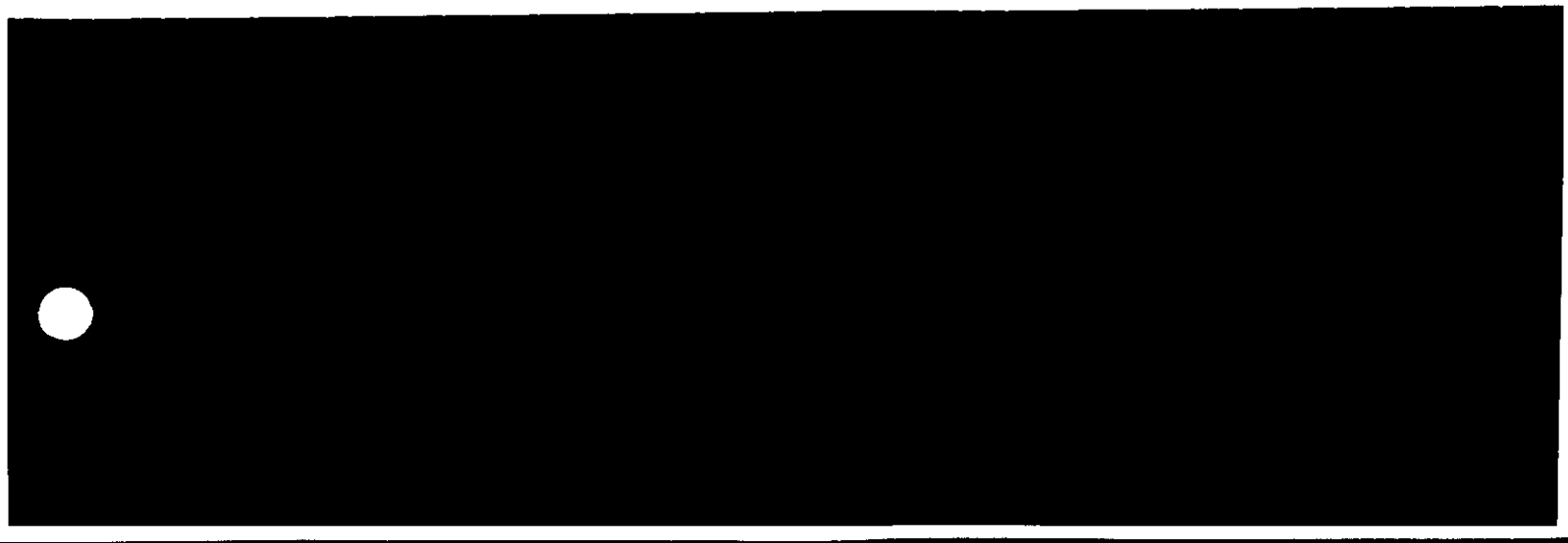
FILENAME: MRGE11AR.CIB RUN ID:REPEAT SECTION PLOTTED ON 28-MAR-2005 AT 21:38

DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
LSD POINT ONE	1.00	LSD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
DENSITY SCALAR	1.50	BRD SCALAR	-.50
BIT DEPTHS & WATER LEVEL (FT,M)	METRES	CALIPER SOURCE FOR PROCESSING	CAL
BIT SIZE 1	159.00	FROM BIT DEPTH 1	.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	6.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	99.00
BIT SIZE 4	.00	FROM BIT DEPTH 4	186.00
BIT SIZE 5	.00	FROM BIT DEPTH 5	.00

CALIBRATION CONSTANTS

GAMMA CALIBRATOR VALUE 1	436.00	GAMMA COUNT RATE 1	237.72
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
CALIPER RING SIZE 1	76.20	CALIPER COUNT FOR RING 1	1834.00
CALIPER RING SIZE 2	101.60	CALIPER COUNT FOR RING 2	2258.00
CALIPER RING SIZE 3	127.00	CALIPER COUNT FOR RING 3	2690.00
CALIPER RING SIZE 4	152.40	CALIPER COUNT FOR RING 4	3162.00
CALIPER RING SIZE 5	203.20	CALIPER COUNT FOR RING 5	4224.00
CALIPER RING SIZE 6	254.00	CALIPER COUNT FOR RING 6	5030.00
DRY HOLE CORRECTION...			
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
DRY HOLE BRD NEW (1) GM/CC	0.00	DRY HOLE BRD LOG (1) GM/CC	0.00
DRY HOLE BRD NEW (2) GM/CC	1.00	DRY HOLE BRD LOG (2) GM/CC	1.00
DRY HOLE LSD NEW (1) GM/CC	0.00	DRY HOLE LSD LOG (1) GM/CC	0.00
DRY HOLE LSD NEW (2) GM/CC	1.00	DRY HOLE LSD LOG (2) GM/CC	1.00

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-11A
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA



VERTICALITY ANALYSIS

LOCN. 5562795N 644321E
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG-05-11A
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG-05-11A
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION				OTHER SERVICES
5562795N 644321E				SFE CDL
LSD	SEC	TWP	RGE	
N/A				

PERMANENT DATUM GROUND LEVEL ,ELEVATION 1417.502M
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1417.502M

DATE	24-MAR-05			
RUN NUMBER	1			
DEPTH-DRILLER	186.00M			
DEPTH-LOGGER	186.00M			
FIRST READING	173.00M			
LAST READING	0.00M			
CASING-DRILLER	6.00M			
CASING-LOGGER	5.80M			
BIT SIZE	133.35MM			
HOLE FLUID TYPE	WATER			
DENS./VISC.	1000 N/A			
PH/FLUID LOSS	N/A N/A			
SAMPLE SOURCE	NONE			
RM @ MEAS TEMP	2.00 @ 20.0C			
RMF @ MEAS TEMP	N/A			
RMC @ MEAS TEMP	N/A			
SOURCE: RMF/RMC	N/A N/A			
RM @ BHT	N/A			
TIME SINCE CIRC	N/A			
MAX REC TEMP	N/A			
EQUIPMENT/BASE	V3405 RDR			
RECORDED BY	ROBB RACZ			
WITNESSED BY	G. BICKFORD			
DRILL DONE	20-MAR-05			

VERTICALITY ANALYSIS INTERPRETATION NOTES

1. ALL PLOTTED OUTPUT IS AUTOMATICALLY SCALED TO OBTAIN THE BEST VISUAL EFFECT WITHIN THE P `ICAL SPACE AVAILABLE. THE MAXIMUM SCALES BEING 1:50000 (METRIC) AND 1:48000 (IMPERIAL), AND 1 MINIMUM 1:1.

2. THE ANALYSIS IS DERIVED BY INTEGRATING 10CM. SAMPLED DATA DOWN THE BOREHOLE. THE LISTING SUPPLIED WILL CONTAIN A MAXIMUM OF 200 POINTS IN MULTIPLES OF 1, 2, 5, 10, 20, 50 OR 100 METRES/ FEET DEPENDING ON THE TOTAL RANGE OF THE ANALYSIS. HOWEVER THE ANALYSIS IS CALCULATED FOR THE ENTIRE RANGE OF THE BOREHOLE AND THE FINAL BOREHOLE POSITION IS INCLUDED IN THE LISTING.

3. COMPUTED VERTICALITY MAY ONLY BE FULLY DERIVED IN OPEN SECTIONS OF THE BOREHOLE, AWAY FROM THE INFLUENCE OF ANY UNUSUAL MAGNETIC EFFECTS (AS THE AZIMUTH CALCULATIONS ARE DERIVED FROM THREE SOLID STATE MAGNETOMETERS). SO THE ANALYSIS WILL GENERALLY BEGIN AT THE END OF THE CASING AND ALL BOREHOLE POSITIONAL INFORMATION WILL RELATE TO THIS DEPTH.

4. UP TO TEN CROSS SECTIONS MAY BE REQUESTED FOR ANY BOREHOLE TO BE DISPLAYED AT ANY SCALE (THE DEFAULT SCALE IS THAT OF THE CROSS-SECTION FOR THE ENTIRE HOLE).

5. BOREHOLE POSITIONAL ERROR IS DERIVED ASSUMING THE FOLLOWING PARAMETERS.

	TILT(DEGREES)	AZIMUTH(DEGREES)
TYPICAL ERROR	+/- .3333	+/- 10.00
MAXIMUM ERROR	+/- .5000	+/- 15.00

6. ERROR ANALYSIS MAY BE CALCULATED AND PLOTTED FROM THE DATA LISTING AS FOLLOWS:

A) PLOT THE FOUR COORDINATES FROM THE ERROR LISTING (BASED UPON ZERO AZIMUTH ERROR) ON A TARGET PLOT. ORIGIN AT THE START OF THE ANALYSIS.
B) DESCRIBE ARCS OF +/- 10.00 DEGREES AND +/- 15.00 DEGREES (CENTRE AT THE ORIGIN) THROUGH THE INNER AND OUTER POINTS RESPECTIVELY.
C) CONNECT THE RESPECTIVE ARCS TOGETHER WITH STRAIGHT LINES TO GIVE THE TYPICAL AND MAXIMUM BOREHOLE POSITIONAL ERROR.

7. GIVEN BELOW IS A FULL DESCRIPTION OF THE PARAMETERS DISPLAYED ON THE ENSUING LISTING:

LOG DEPTH	THE DEPTH RECORDED ON THE FIELD LOGS FOR THE BOREHOLE.
TRUE DEPTH	THE TRUE VERTICAL DEPTH CORESPONDING TO THE ABOVE DEPTH. CORRECTED FROM THE START OF THE ANALYSIS.
HOLE TILT AND AZIMUTH	THE SAMPLED BOREHOLE ORIENTATION.
AXIAL COORDINATES	THE COORDINATES NORTH AND EAST FROM THE TARGET ORIGIN.
POLAR COORDINATES	THE POLAR, OR RADIAL COORDINATES OF THE BOREHOLE.
ERROR COORDINATES	THE POLAR COORDINATES CORRESPONDING TO THE TYPICAL AND MAXIMUM TILT ERROR.

N.B. THE REFERENCE POINT FOR ALL BEARING ANGLES ON THIS LISTING IS GIVEN AT THE TOP OF EACH SHEET.

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

BG-05-11A — VERTICALITY DATA LISTING FOR DIP411AB.CIB — DATE PROCESSED: 31-MAR-2005
ALL CO-ORDINATES WITH RESPECT TO TRUE NORTH — DATE LOGGED: 24-MAR-2005

DEPTHS		BOREHOLE		AXIAL CO-ORDS		POLAR		POLAR ERROR CO-ORDINATES (MAXIMUM & TYPICAL)							
LOG	TRUE	TILT	AZI	NORTH	EAST	BRG	RADIUS	BRG	RADIUS	BRG	RADIUS	BRG	RADIUS	BRD	RADIUS
3.00	2.82	37.2	60	0.31	0.37	50	0.49	50	0.49	50	0.48	50	0.49	50	0.48
4.00	3.61	37.5	17	0.84	0.62	37	1.04	37	1.06	37	1.03	37	1.05	37	1.04
5.00	4.41	37.7	35	0.74	0.92	51	1.18	51	1.19	51	1.17	51	1.19	51	1.17
6.00	5.20	37.6	23	1.01	1.27	52	1.62	52	1.64	52	1.60	52	1.64	52	1.61
7.00	5.99	37.4	31	1.51	1.58	46	2.19	46	2.21	46	2.16	46	2.21	46	2.17
8.00	6.78	38.2	312	2.05	1.74	40	2.69	40	2.72	40	2.66	40	2.71	40	2.67
9.00	7.57	37.8	140	1.61	1.75	47	2.38	47	2.41	47	2.35	47	2.40	47	2.36
10.00	8.36	37.6	128	1.21	2.21	61	2.52	61	2.54	61	2.49	61	2.53	61	2.50
11.00	9.15	37.2	127	0.85	2.70	73	2.83	73	2.86	73	2.80	73	2.85	73	2.81
12.00	9.95	36.1	130	0.50	3.20	81	3.24	81	3.28	81	3.20	81	3.26	81	3.21
13.00	10.74	37.2	129	0.13	3.67	88	3.68	88	3.72	88	3.63	88	3.70	88	3.65
14.00	11.54	37.2	129	-0.25	4.14	93	4.15	93	4.20	93	4.10	93	4.18	93	4.12
.00	12.34	37.3	128	-0.62	4.61	98	4.66	98	4.71	98	4.60	98	4.69	98	4.62
00	13.14	37.0	128	-0.99	5.10	101	5.19	101	5.25	101	5.13	101	5.23	101	5.15
.00	13.94	37.2	125	-1.35	5.58	104	5.74	104	5.81	104	5.67	104	5.78	104	5.70
18.00	14.73	37.1	127	-1.70	6.07	106	6.30	106	6.38	106	6.23	106	6.35	106	6.26
19.00	15.53	37.1	127	-2.07	6.55	108	6.87	108	6.95	108	6.79	108	6.92	108	6.82
20.00	16.32	37.7	124	-2.41	7.05	109	7.45	109	7.54	109	7.37	109	7.51	109	7.40
21.00	17.12	37.4	124	-2.75	7.56	110	8.04	110	8.13	110	7.95	110	8.10	110	7.98
22.00	17.91	37.4	122	-3.09	8.06	111	8.63	111	8.73	111	8.53	111	8.70	111	8.56
23.00	18.71	36.7	129	-3.44	8.55	112	9.21	112	9.32	112	9.11	112	9.28	112	9.14
24.00	19.51	36.5	131	-3.82	9.01	113	9.79	113	9.90	113	9.68	113	9.86	113	9.71
25.00	20.31	36.5	130	-4.20	9.47	114	10.36	114	10.48	114	10.24	114	10.44	114	10.28

19.00	15.53	37.1	127	-2.07	6.55	108	6.87	108	6.95	108	6.79	108	6.92	108	6.
20.00	16.32	37.7	124	-2.41	7.05	109	7.45	109	7.54	109	7.37	109	7.51	109	7.
21.00	17.12	37.4	124	-2.75	7.56	110	8.04	110	8.13	110	7.95	110	8.10	110	7.
22.00	17.91	37.4	122	-3.09	8.06	111	8.63	111	8.73	111	8.53	111	8.70	111	8.
23.00	18.71	36.7	129	-3.44	8.55	112	9.21	112	9.32	112	9.11	112	9.28	112	9.
24.00	19.51	36.5	131	-3.82	9.01	113	9.79	113	9.90	113	9.68	113	9.86	113	9.
25.00	20.31	36.5	130	-4.20	9.47	114	10.36	114	10.48	114	10.24	114	10.44	114	10.
26.00	21.11	36.5	131	-4.58	9.93	115	10.94	115	11.06	115	10.81	115	11.02	115	10.
27.00	21.92	36.5	128	-4.96	10.39	116	11.52	116	11.65	116	11.38	116	11.60	116	11.
28.00	22.72	36.8	128	-5.35	10.85	116	12.09	116	12.23	116	11.95	116	12.19	116	12.
29.00	23.52	36.7	128	-5.72	11.31	117	12.68	117	12.82	117	12.53	117	12.78	117	12.
30.00	24.32	37.0	129	-6.10	11.78	117	13.26	117	13.42	117	13.11	117	13.36	117	13.
31.00	25.12	37.0	128	-6.47	12.24	118	13.85	118	14.01	118	13.69	118	13.95	118	13.
32.00	25.92	37.0	126	-6.84	12.72	118	14.44	118	14.61	118	14.27	118	14.55	118	14.
33.00	26.73	36.7	128	-7.21	13.18	119	15.03	119	15.20	119	14.85	119	15.14	119	14.
34.00	27.53	36.7	129	-7.59	13.64	119	15.61	119	15.79	119	15.43	119	15.73	119	15.
35.00	28.34	36.5	130	-7.98	14.09	120	16.19	120	16.38	120	16.00	120	16.31	120	16.
36.00	29.14	36.3	131	-8.37	14.54	120	16.77	120	16.97	120	16.58	120	16.90	120	16.
37.00	29.95	36.4	131	-8.75	14.99	120	17.36	120	17.56	120	17.16	120	17.49	120	17.
38.00	30.75	36.6	128	-9.12	15.46	121	17.95	121	18.15	121	17.74	121	18.09	121	17.
39.00	31.56	36.1	133	-9.50	15.91	121	18.55	121	18.75	121	18.32	121	18.67	121	18.
40.00	32.12	36.1	129	-9.37	16.32	120	18.82	120	19.04	120	18.60	120	18.96	120	18.
41.00	32.93	36.1	131	-9.76	16.76	120	19.40	120	19.62	120	19.17	120	19.55	120	19.
42.00	33.74	36.0	131	-10.14	17.21	121	19.97	121	20.21	120	19.74	121	20.13	120	19.
43.00	34.55	36.0	130	-10.53	17.65	121	20.55	121	20.79	121	20.31	121	20.71	121	20.
44.00	35.36	36.3	131	-10.91	18.09	121	21.13	121	21.38	121	20.88	121	21.29	121	20.
45.00	36.16	36.1	131	-11.30	18.54	121	21.71	121	21.96	121	21.46	121	21.88	121	21.
46.00	36.97	36.0	130	-11.67	18.99	122	22.29	122	22.56	122	22.03	122	22.47	122	22.
47.00	37.78	36.2	129	-12.05	19.45	122	22.88	122	23.15	122	22.61	122	23.06	122	22.
48.00	38.58	36.1	129	-12.42	19.91	122	23.47	122	23.74	122	23.19	122	23.65	122	23.
49.00	39.39	36.2	128	-12.80	20.37	122	24.05	122	24.34	122	23.77	122	24.24	122	23.
50.00	40.20	36.2	128	-13.16	20.83	122	24.64	122	24.93	122	24.35	122	24.83	122	24.
51.00	41.00	36.3	128	-13.53	21.29	122	25.23	122	25.53	122	24.93	122	25.43	122	25.
52.00	41.81	36.2	129	-13.90	21.76	123	25.82	123	26.12	123	25.51	123	26.02	123	25.
53.00	42.62	35.9	129	-14.27	22.22	123	26.41	123	26.71	123	26.09	123	26.61	123	26.
54.00	43.42	36.1	128	-14.63	22.69	123	26.99	123	27.31	123	26.68	123	27.20	123	26.
55.00	44.23	36.1	127	-14.98	23.16	123	27.58	123	27.91	123	27.26	123	27.80	123	27.
56.00	45.04	36.5	127	-15.34	23.63	123	28.17	123	28.50	123	27.84	123	28.39	123	27.
57.00	45.85	36.2	126	-15.70	24.10	123	28.76	123	29.10	123	28.42	123	28.98	123	28.
58.00	46.65	35.9	127	-16.05	24.57	123	29.35	123	29.69	123	29.00	123	29.58	123	29.
59.00	47.47	36.1	128	-16.40	25.04	123	29.93	123	30.28	123	29.58	123	30.16	123	29.
60.00	48.28	35.7	128	-16.76	25.50	123	30.51	123	30.87	123	30.15	123	30.75	123	30.
61.00	49.09	35.9	128	-17.12	25.96	123	31.10	123	31.46	123	30.73	123	31.34	123	30.
62.00	49.90	36.0	127	-17.48	26.42	123	31.68	123	32.05	123	31.31	123	31.93	123	31.
63.00	50.70	36.4	129	-17.84	26.90	124	32.27	124	32.65	124	31.89	124	32.53	124	32.
64.00	51.50	36.6	130	-18.21	27.36	124	32.87	124	33.25	124	32.48	124	33.13	124	32.
65.00	52.31	36.1	133	-18.61	27.80	124	33.45	124	33.85	124	33.06	124	33.72	124	33.
66.00	53.12	35.9	133	-19.00	28.24	124	34.04	124	34.44	124	33.63	124	34.30	124	33.
67.00	53.93	36.3	132	-19.40	28.68	124	34.62	124	35.03	124	34.21	124	34.89	124	34.
68.00	54.73	36.1	132	-19.79	29.12	124	35.21	124	35.62	124	34.79	124	35.48	124	34.
69.00	55.54	36.3	131	-20.18	29.56	124	35.79	124	36.21	124	35.37	124	36.07	124	35.
70.00	56.35	36.2	129	-20.56	30.01	124	36.38	124	36.81	124	35.95	124	36.67	124	36.
71.00	57.15	36.4	130	-20.94	30.47	125	36.97	125	37.40	124	36.53	125	37.26	124	36.
72.00	57.96	36.1	131	-21.33	30.90	125	37.55	125	37.99	125	37.11	125	37.85	125	37.
73.00	58.77	36.3	131	-21.73	31.34	125	38.13	125	38.58	125	37.68	125	38.43	125	37.
74.00	59.58	36.1	132	-22.13	31.78	125	38.72	125	39.18	125	38.26	125	39.03	125	38.
75.00	60.39	36.0	131	-22.52	32.21	125	39.30	125	39.77	125	38.84	125	39.61	125	38.
76.00	61.19	36.4	129	-22.90	32.66	125	39.89	125	40.36	125	39.42	125	40.21	125	39.
77.00	62.00	36.6	129	-23.27	33.13	125	40.48	125	40.96	125	40.00	125	40.80	125	40.
78.00	62.80	37.0	128	-23.63	33.60	125	41.08	125	41.56	125	40.59	125	41.40	125	40.
79.00	63.61	36.1	130	-24.00	34.07	125	41.67	125	42.16	125	41.18	125	42.00	125	41.
80.00	64.41	36.2	128	-24.38	34.52	125	42.26	125	42.76	125	41.76	125	42.59	125	41.
81.00	65.22	36.2	130	-24.78	34.95	125	42.84	125	43.35	125	42.33	125	43.18	125	42.
82.00	66.03	36.6	129	-25.17	35.40	125	43.43	125	43.95	125	42.92	125	43.77	125	43.
83.00	66.83	36.6	129	-25.55	35.85	125	44.03	125	44.54	125	43.50	125	44.37	125	43.
84.00	67.64	35.7	134	-25.95	36.29	126	44.61	126	45.14	126	44.08	126	44.96	126	44.
85.00	68.45	36.1	132	-26.35	36.72	126	45.19	126	45.73	126	44.66	126	45.55	126	44.
86.00	69.25	36.5	132	-26.74	37.16	126	45.78	126	46.32	126	45.24	126	46.14	126	45.
87.00	70.06	36.3	132	-27.14	37.60	126	46.37	126	46.92	126	45.82	126	46.74	126	46.
88.00	70.87	36.1	133	-27.54	38.04	126	46.96	126	47.51	126	46.40	126	47.33	126	46.
89.00	71.67	36.5	130	-27.93	38.48	126	47.55	126	48.11	126	46.98	126	47.92	126	47.
90.00	72.48	36.1	133	-28.33	38.91	126	48.13	126	48.70	126	47.56	126	48.51	126	47.
91.00	73.29	36.3	132	-28.74	39.34	126	48.72	126	49.29	126	48.14	126	49.10	126	48.
92.00	74.09	36.4	132	-29.13	39.78	126	49.31	126	49.89	126	48.72	126	49.69	126	48.
93.00	74.90	36.4	132	-29.53	40.22	126	49.89	126	50.48	126	49.30	126	50.29	126	49.
94.00	75.71	36.3	134	-29.93	40.65	126	50.48	126	51.08	126	49.88	126	50.88	126	50.
95.00	76.51	36.3	132	-30.33	41.09	126	51.07	126	51.67	126	50.46	126	51.47	126	50.
96.00	77.32	35.9	132	-30.73	41.52	127	51.65	127	52.26	127	51.04	127	52.06	127	51.
97.00	78.13	35.9	134	-31.13	41.94	127	52.23	127	52.85	127	51.61	127	52.64	127	51.
98.00	78.94	36.1	134	-31.53	42.37	127	52.82	127	53.44	127	52.19	127	53.23	127	52.
99.00	79.75	36.2	132	-31.93	42.80	127	53.40	127	54.03	127	52.77	127	53.82	127	52.
00.00	80.56	36.0	132	-32.33	43.24	127	53.99	127	54.63	127	53.35	127	54.41	127	53.
01.00	81.37	36.3	130	-32.72	43.68	127	54.58	127	55.22	127	53.93	127	55.01	127	54.
102.00	82.17	36.1	131	-33.10	44.13	127	55.16	127	55.82	127	54.51	127	55.60	127	54.
103.00	82.98	35.8	133	-33.50	44.56	127	55.75	127	56.41	127	55.09	127	56.19	127	55.
104.00	83.79	35.9	134	-33.90	44.99	127	56.33	127	57.00	127	55.66	127	56.78	127	55.
105.00	84.60	36.2	131	-34.28	45.44	127	56.92	127	57.59	127	56.24	127	57.37	127	56.
106.00	85.41	36.2	131	-34.66	45.89	127	57.51	127	58.19	127	56.82	127	57.96	127	57.
107.00	86.22	36.1	131	-35.05	46.33	127	58.10	127	58.78	127	57.40	127	58.55	127	57.
108.00	87.03	35.9	133	-35.44	46.77	127	58.68	127	59.38	127	57.98	127	59.14	127	58.
109.00	87.84	36.1	132	-35.83	47.21	127	59.27	127	59.97	127	58.56	127	59.74	127	58.

109.00	87.84	36.1	132	-35.83	47.21	127	59.27	127	59.97	127	58.56	127	59.74	127	58				
110.00	88.65	36.0	131	-36.22	47.65	127	59.85	127	60.56	127	59.14	127	60.33	127	59				
111.00	89.45	36.2	131	-36.62	48.08	127	60.44	127	61.15	127	59.72	127	60.92	127	59				
112.00	90.26	36.1	130	-36.99	48.54	127	61.03	127	61.75	127	60.30	127	61.51	127	60				
113.00	91.07	36.1	128	-37.37	48.99	127	61.62	127	62.35	127	60.88	127	62.10	127	61				
114.00	91.88	36.4	129	-37.74	49.45	127	62.21	127	62.94	127	61.47	127	62.70	127	61				
115.00	92.68	36.3	129	-38.11	49.91	127	62.80	127	63.54	127	62.05	127	63.29	127	62				
116.00	93.49	36.2	127	-38.47	50.38	127	63.39	127	64.14	127	62.63	127	63.89	127	62				
117.00	94.30	36.2	128	-38.84	50.85	127	63.98	127	64.74	127	63.22	127	64.49	127	63				
118.00	95.10	35.9	129	-39.20	51.31	127	64.57	127	65.33	127	63.80	127	65.08	127	64				
119.00	95.91	36.2	128	-39.56	51.78	127	65.16	127	65.93	127	64.38	127	65.67	127	64				
120.00	96.72	36.2	127	-39.91	52.25	127	65.75	127	66.53	127	64.97	127	66.27	127	65				
121.00	97.53	36.0	127	-40.27	52.72	127	66.34	127	67.12	127	65.55	127	66.86	127	65				
122.00	98.33	36.1	129	-40.64	53.18	127	66.93	127	67.72	127	66.13	127	67.46	127	66				
123.00	99.14	36.2	130	-41.01	53.64	127	67.52	127	68.32	127	66.72	127	68.05	127	66				
124.00	99.95	36.2	130	-41.38	54.10	127	68.11	127	68.92	127	67.30	127	68.65	127	67				
125.00	100.75	36.1	131	-41.74	54.56	127	68.70	127	69.51	127	67.88	127	69.24	127	68				
126.00	101.56	36.2	131	-42.11	55.02	127	69.29	127	70.11	127	68.47	127	69.84	127	68				
127.00	102.37	36.3	129	-42.48	55.49	127	69.88	127	70.71	127	69.05	127	70.43	127	69				
128.00	103.17	36.4	127	-42.85	55.95	127	70.47	127	71.31	127	69.63	127	71.03	127	69				
129.00	103.98	36.2	128	-43.22	56.41	127	71.06	127	71.91	127	70.22	127	71.63	127	70				
130.00	104.78	36.4	131	-43.59	56.87	127	71.66	127	72.51	127	70.80	127	72.22	127	71				
131.00	105.59	36.6	129	-43.97	57.33	127	72.25	127	73.11	127	71.39	127	72.82	127	71				
132.00	106.39	36.5	130	-44.34	57.79	127	72.85	128	73.71	127	71.98	127	73.42	127	72				
133.00	107.20	36.3	127	-44.71	58.26	128	73.44	128	74.31	127	72.57	128	74.02	127	72				
134.00	108.00	36.4	129	-45.08	58.73	128	74.03	128	74.91	128	73.15	128	74.62	128	73				
135.00	108.81	36.7	126	-45.44	59.20	128	74.63	128	75.51	128	73.74	128	75.22	128	74				
136.00	109.61	36.3	130	-45.82	59.66	128	75.22	128	76.11	128	74.33	128	75.82	128	74				
137.00	110.41	36.4	130	-46.19	60.12	128	75.82	128	76.71	128	74.91	128	76.42	128	75				
138.00	111.22	36.4	128	-46.57	60.58	128	76.41	128	77.32	128	75.50	128	77.02	128	75				
139.00	112.02	36.6	129	-46.95	61.04	128	77.01	128	77.92	128	76.09	128	77.62	128	76				
140.00	112.82	36.6	129	-47.33	61.50	128	77.60	128	78.52	128	76.68	128	78.22	128	76				
141.00	113.63	36.7	129	-47.70	61.96	128	78.20	128	79.12	128	77.27	128	78.82	128	77				
142.00	114.43	36.6	129	-48.08	62.42	128	78.79	128	79.73	128	77.86	128	79.42	128	78				
143.00	115.23	36.5	130	-48.46	62.88	128	79.39	128	80.33	128	78.44	128	80.02	128	78				
144.00	116.04	36.6	129	-48.83	63.35	128	79.99	128	80.93	128	79.03	128	80.62	128	79				
145.00	116.84	36.6	129	-49.21	63.81	128	80.58	128	81.54	128	79.62	128	81.22	128	79				
146.00	117.64	36.5	130	-49.58	64.28	128	81.18	128	82.14	128	80.21	128	81.82	128	80				
147.00	118.44	36.9	129	-49.96	64.74	128	81.78	128	82.74	128	80.80	128	82.42	128	81				
148.00	119.24	36.7	130	-50.34	65.20	128	82.37	128	83.35	128	81.39	128	83.02	128	81				
149.00	120.05	36.9	129	-50.72	65.66	128	82.97	128	83.95	128	81.98	128	83.63	128	82				
150.00	120.85	36.7	130	-51.10	66.13	128	83.57	128	84.56	128	82.58	128	84.23	128	82				
151.00	121.65	36.8	129	-51.48	66.59	128	84.17	128	85.16	128	83.17	128	84.83	128	83				
152.00	122.45	36.8	129	-51.86	67.05	128	84.77	128	85.77	128	83.76	128	85.44	128	84				
153.00	123.25	37.1	128	-52.24	67.51	128	85.37	128	86.37	128	84.35	128	86.04	128	84				
154.00	124.05	36.7	129	-52.62	67.98	128	85.96	128	86.98	128	84.94	128	86.64	128	85				
155.00	124.85	36.7	129	-53.00	68.44	128	86.56	128	87.59	128	85.53	128	87.24	128	85				
156.00	125.65	36.9	129	-53.37	68.91	128	87.16	128	88.19	128	86.12	128	87.85	128	86				
157.00	126.45	36.9	128	-53.76	69.37	128	87.76	128	88.80	128	86.72	128	88.45	128	87				
158.00	127.25	36.6	130	-54.13	69.83	128	88.36	128	89.40	128	87.31	128	89.06	128	87				
159.00	128.05	36.9	129	-54.51	70.30	128	88.96	128	90.01	128	87.90	128	89.66	128	88				
160.00	128.85	36.7	129	-54.89	70.77	128	89.56	128	90.61	128	88.49	128	90.26	128	88				
161.00	129.65	37.0	129	-55.27	71.23	128	90.16	128	91.22	128	89.09	128	90.87	128	89				
162.00	130.45	37.0	132	-55.66	71.68	128	90.76	128	91.83	128	89.68	128	91.47	128	90				
163.00	131.25	36.8	133	-56.05	72.14	128	91.36	128	92.44	128	90.27	128	92.08	128	90				
164.00	132.05	36.8	131	-56.45	72.59	128	91.96	128	93.04	128	90.86	128	92.68	128	91				
165.00	132.85	36.8	131	-56.86	73.03	128	92.55	128	93.65	128	91.45	128	93.28	128	91				
166.00	133.65	36.8	132	-57.27	73.47	128	93.15	128	94.25	128	92.04	128	93.88	128	92				
167.00	134.45	36.6	132	-57.68	73.90	128	93.75	128	94.85	128	92.63	128	94.48	128	93				
168.00	135.26	36.7	132	-58.10	74.33	128	94.34	128	95.45	128	93.22	128	95.08	128	93				
169.00	136.06	36.7	134	-58.50	74.77	128	94.94	128	96.06	128	93.81	128	95.68	128	94				
170.00	136.86	36.9	134	-58.92	75.20	128	95.53	128	96.66	128	94.40	128	96.28	128	94				
171.00	137.66	36.4	134	-59.33	75.63	128	96.12	128	97.26	128	94.98	128	96.88	128	95				
172.00	138.47	36.6	133	-59.75	76.05	128	96.72	128	97.86	128	95.57	128	97.48	128	95				
173.00	139.27	36.7	132	-60.15	76.49	128	97.31	128	98.45	128	96.15	128	98.07	128	96				
174.00	140.07	36.5	131	-60.54	76.93	128	97.90	128	99.05	128	96.74	128	98.67	128	97				
175.00	140.88	36.7	127	-60.92	77.39	128	98.49	128	99.66	128	97.32	128	99.27	128	97				
176.00	141.68	36.4	131	-61.31	77.84	128	99.09	128	100.26	128	97.91	128	99.87	128	98				
177.00	142.48	37.1	129	-61.69	78.30	128	99.69	128	100.86	128	98.50	128	100.47	128	98				
178.00	143.28	36.7	129	-62.08	78.76	128	100.29	128	101.47	128	99.10	128	101.08	128	99				
179.00	144.08	36.8	130	-62.47	79.22	128	100.88	128	102.07	128	99.69	128	101.68	128	100				
180.00	144.89	36.4	131	-62.86	79.67	128	101.48	128	102.68	128	100.28	128	102.28	128	100				
181.00	145.69	36.7	130	-63.25	80.12	128	102.08	128	103.28	128	100.87	128	102.88	128	101				
182.00	146.49	36.8	132	-63.64	80.57	128	102.68	128	103.89	128	101.46	128	103.48	128	101				
183.00	147.29	36.5	130	-64.03	81.02	128	103.27	128	104.49	128	102.05	128	104.08	128	102				
184.00	148.09	36.7	133	-64.42	81.48	128	103.87	128	105.09	128	102.64	128	104.69	128	103				
185.00	148.89	37.1	132	-64.82	81.93	128	104.47	128	105.70	128	103.23	128	105.29	128	103				
186.00	149.59	******	***	-65.19	82.44	128	105.10	128	106.34	128	103.86	128	105.93	128	104				

CROSS SECTION

LL FIGURES IN LOG DEPTH MS

RGET ORIGIN DEPTH.....2.10
AST PLOTTED DEPTH.....186.00
PTH MARKERS ANNOTATED

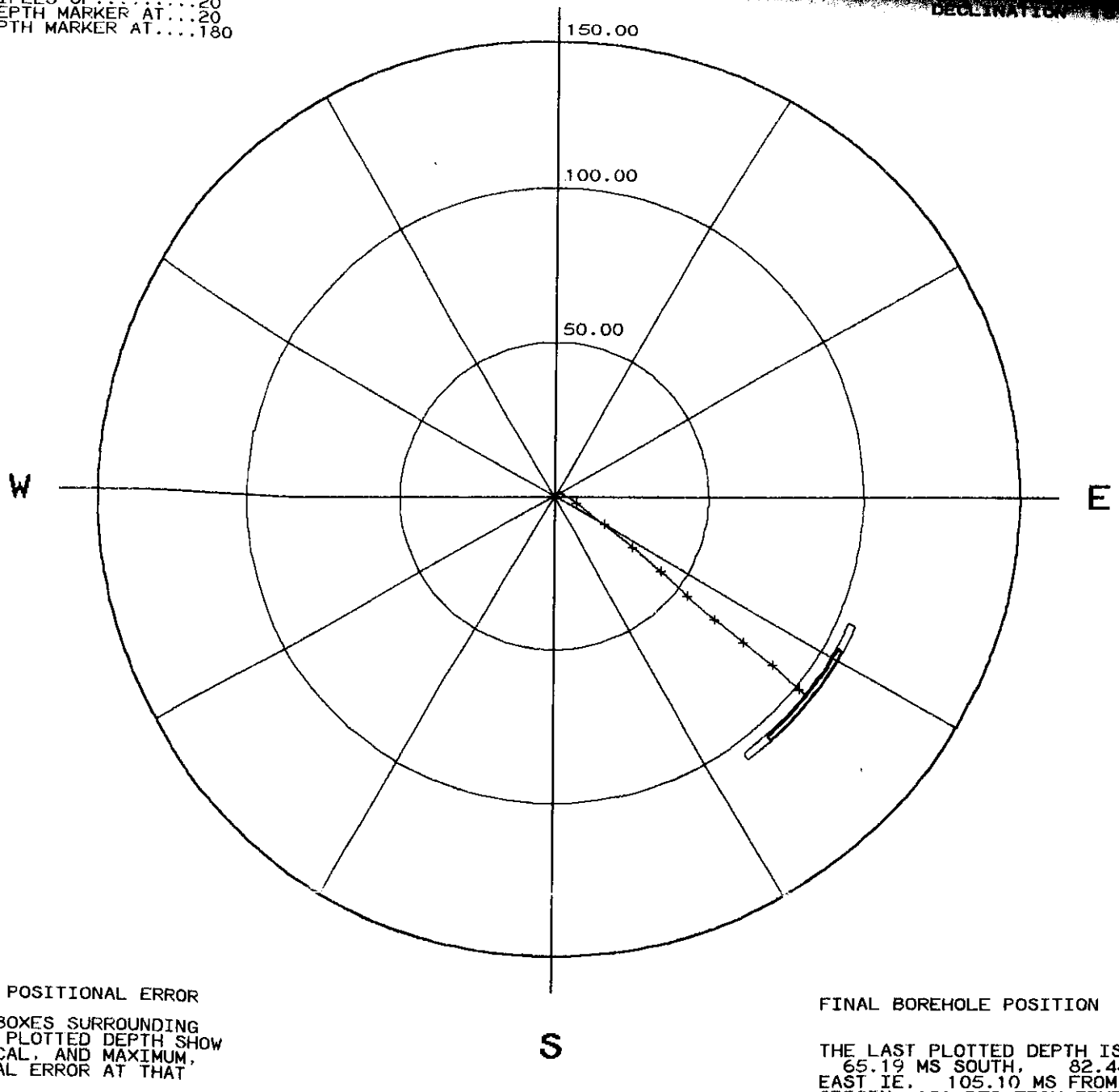
N

PLOT WITH RESPECT TO TRUE NO
SCALE 1:2000

DECLINATION 18.0 D

DEPTH MARKERS ANNOTATED
IN MULTIPLES OF.....20
FIRST DEPTH MARKER AT...20
LAST DEPTH MARKER AT....180

DECLINATION



BOREHOLE POSITIONAL ERROR

THE TWO BOXES SURROUNDING THE LAST PLOTTED DEPTH SHOW THE TYPICAL, AND MAXIMUM, POSITIONAL ERROR AT THAT DEPTH.

FINAL BOREHOLE POSITION

THE LAST PLOTTED DEPTH IS A
65.19 MS SOUTH, 82.44 M
EAST IE. 105.10 MS FROM TH
ORIGIN. 128 DEG FROM TRUE N

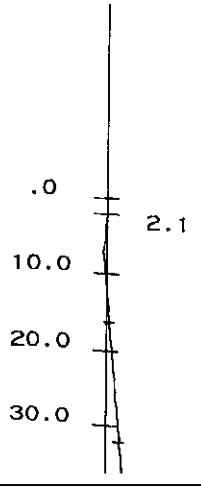
VERTICAL SECTIONS

(TRUE DEPTH VS DISPLACEMENT)

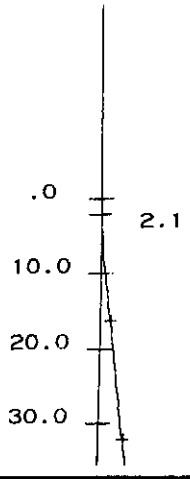
VERTICAL SCALE 1:1000
HORIZONTAL SCALE 1:5000

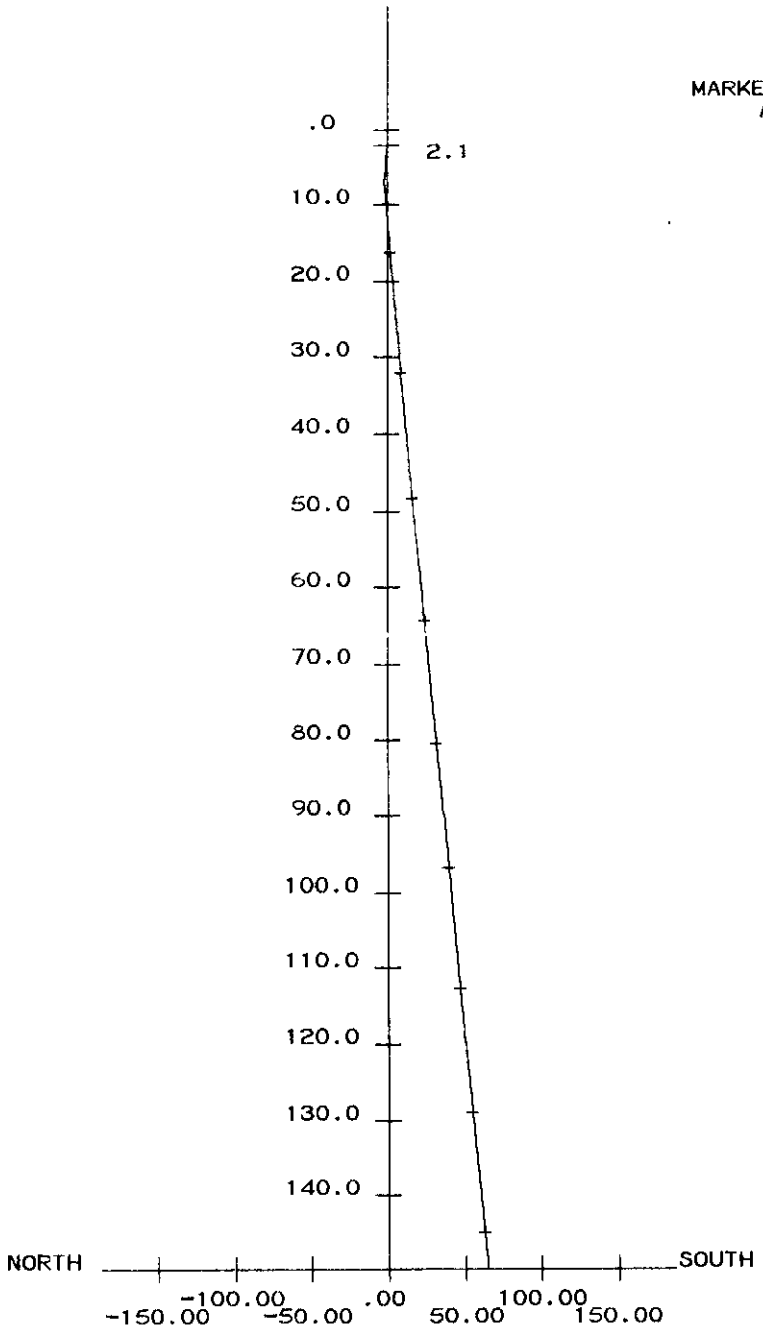
MARKERS ANNOTATED
AS ABOVE

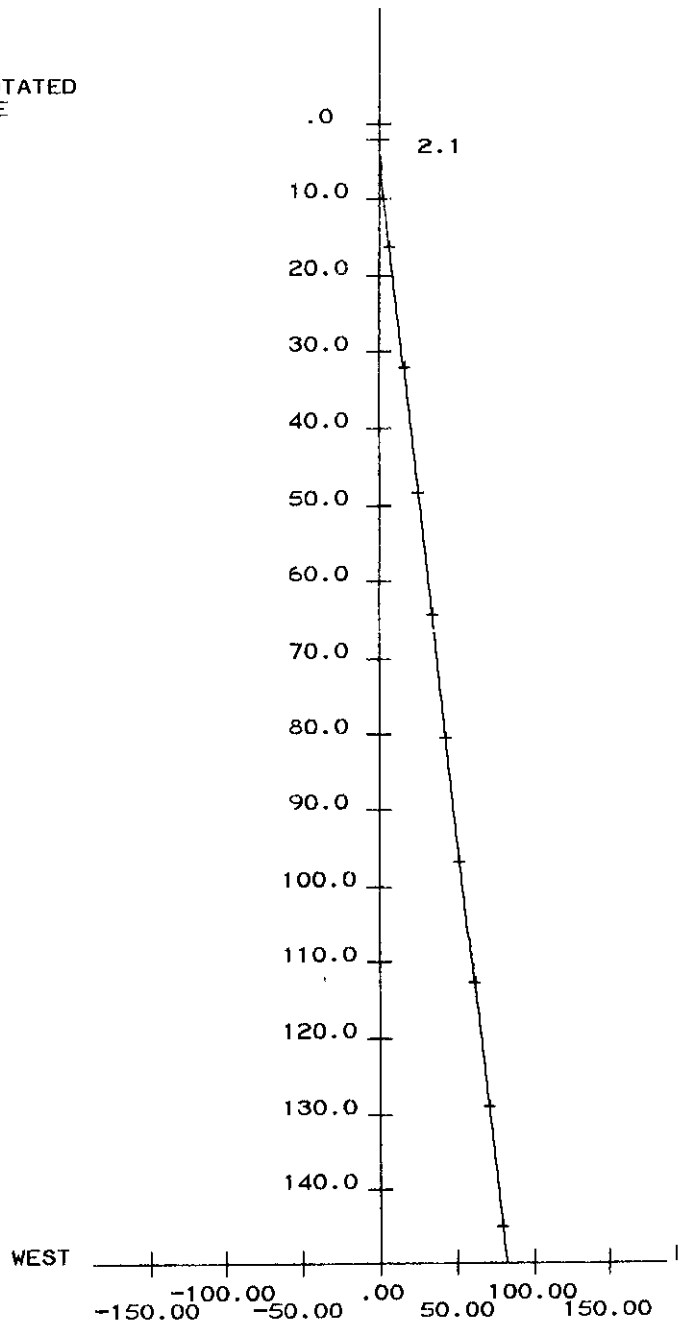
N-S SECTION



E-W SECTION





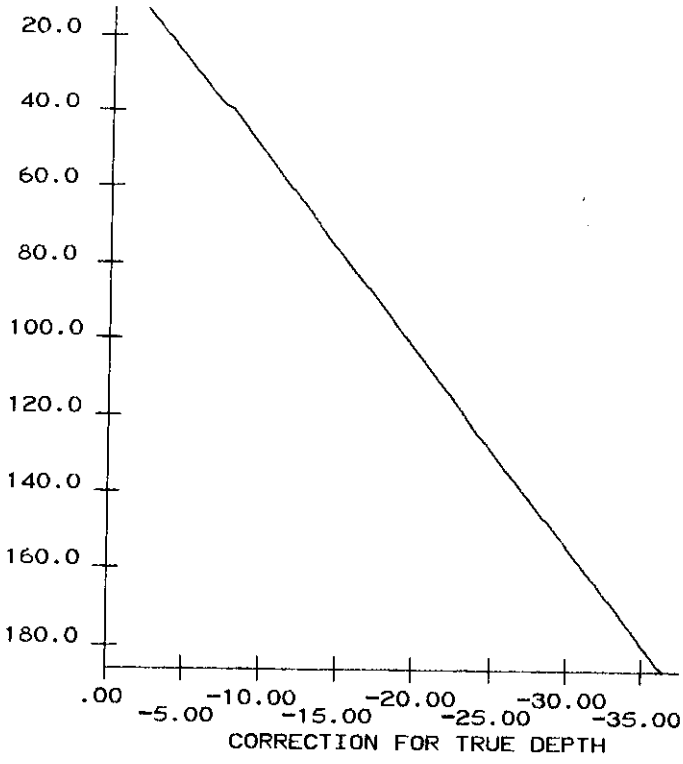


DEPTH CORRECTION ANALYSIS

LOG
DEPTH

VERTICAL SCALE 1:2000
HORIZONTAL SCALE 1:500

DEPTHS: LOG	TRUE	DEPTHS: LOG	TRUE	DEPTHS LOG	TRU
3.00	2.82	73.00	58.77	143.00	115.
4.00	3.61	74.00	59.58	144.00	116.
5.00	4.41	75.00	60.39	145.00	116.
6.00	5.20	76.00	61.19	146.00	117.
7.00	5.99	77.00	62.00	147.00	118.
8.00	6.78	78.00	62.80	148.00	119.
9.00	7.57	79.00	63.61	149.00	120.
10.00	8.36	80.00	64.41	150.00	120.
11.00	9.15	81.00	65.22	151.00	121.
12.00	9.95	82.00	66.03	152.00	122.
13.00	10.74	83.00	66.83	153.00	123.
14.00	11.54	84.00	67.64	154.00	124.
15.00	12.34	85.00	68.45	155.00	124.
16.00	13.14	86.00	69.25	156.00	125.
17.00	13.94	87.00	70.06	157.00	126.
18.00	14.73	88.00	70.87	158.00	127.
19.00	15.53	89.00	71.67	159.00	128.
20.00	16.32	90.00	72.48	160.00	128.
21.00	17.12	91.00	73.29	161.00	129.
22.00	17.91	92.00	74.09	162.00	130.
23.00	18.71	93.00	74.90	163.00	131.
24.00	19.51	94.00	75.71	164.00	132.
25.00	20.31	95.00	76.51	165.00	132.
26.00	21.11	96.00	77.32	166.00	133.
27.00	21.92	97.00	78.13	167.00	134.



35.00	28.34	105.00	84.60	175.00	140.8
36.00	29.14	106.00	85.41	176.00	141.6
37.00	29.95	107.00	86.22	177.00	142.4
38.00	30.75	108.00	87.03	178.00	143.2
39.00	31.56	109.00	87.84	179.00	144.0
40.00	32.12	110.00	88.65	180.00	144.8
41.00	32.93	111.00	89.45	181.00	145.6
42.00	33.74	112.00	90.26	182.00	146.4
43.00	34.55	113.00	91.07	183.00	147.2
44.00	35.36	114.00	91.88	184.00	148.0
45.00	36.16	115.00	92.68	185.00	148.8
46.00	36.97	116.00	93.49	186.00	149.5
47.00	37.78	117.00	94.30		
48.00	38.58	118.00	95.10		
49.00	39.39	119.00	95.91		
50.00	40.20	120.00	96.72		
51.00	41.00	121.00	97.53		
52.00	41.81	122.00	98.33		
53.00	42.62	123.00	99.14		
54.00	43.42	124.00	99.95		
55.00	44.23	125.00	100.75		
56.00	45.04	126.00	101.56		
57.00	45.85	127.00	102.37		
58.00	46.65	128.00	103.17		
59.00	47.47	129.00	103.98		
60.00	48.28	130.00	104.78		
61.00	49.09	131.00	105.59		
62.00	49.90	132.00	106.39		
63.00	50.70	133.00	107.20		
64.00	51.50	134.00	108.00		
65.00	52.31	135.00	108.81		
66.00	53.12	136.00	109.61		
67.00	53.93	137.00	110.41		
68.00	54.73	138.00	111.22		
69.00	55.54	139.00	112.02		
70.00	56.35	140.00	112.82		
71.00	57.15	141.00	113.63		
72.00	57.96	142.00	114.43		

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-11A
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

PRECISION ENERGY SERVICES

DIPMETER ANALYSIS
SCALE 1:240

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-11A
FIELD	BINGAY CREEK
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA
LOCATION	5562795 N 644321 E

LSD	SEC	TWP	RGE

Other Services
CDL
SFE

API Number
License Numbe

Permanent Datum G.L. , Elevation 1417.502 metres
Log Measured From GROUND LEVEL above Permanent Datum
Drilling Measured From GROUND LEVEL

Elevations:
KB metres
DF metres
GL 1417.50 metres

Date	24-MAR-2005			
Run Number	1			
Depth Driller	186.00	metres		
Depth Logger	186.00	metres		
First Reading	186.00	metres		
Last Reading	5.80	metres		
Casing Driller	6.00	metres		
Casing Logger	5.80	metres		
Bit Size	139.70	mm	133.35	mm
Hole Fluid Type	WATER			
Density / Viscosity	1.00 g/c3			
PH / Fluid Loss				
Sample Source	NONE			
Rm @ Measured Temp	2.0 @ 20.0	ohm-m		
Rmf @ Measured Temp				
Rmc @ Measured Temp				
Source Rmf / Rmc				
Rm @ BHT				
Time Since Circulation	N/A			
Max Recorded Temp	7.00	deg C		
Equipment Name	SQD/VO3		013/231	
Equipment / Base	3405	RDR		
Recorded By	ROBB RACZ			
Witnessed By	G. BICKFORD			
Drill Done	20-MAR-2005			

BOREHOLE RECORD

Bit Size millimetres	Depth From metres	Depth To metres
139.700	6.00	99.00
133.350	99.00	186.00

CASING RECORD

Type	Size millimetres	Depth From metres	Shoe Depth metres	Weight Kg/metre
	159.000	0.00	6.00	0.00

REMARKS

ACE CO-ORDINATES:

'HING: 5562795.787
ING: 644321.950

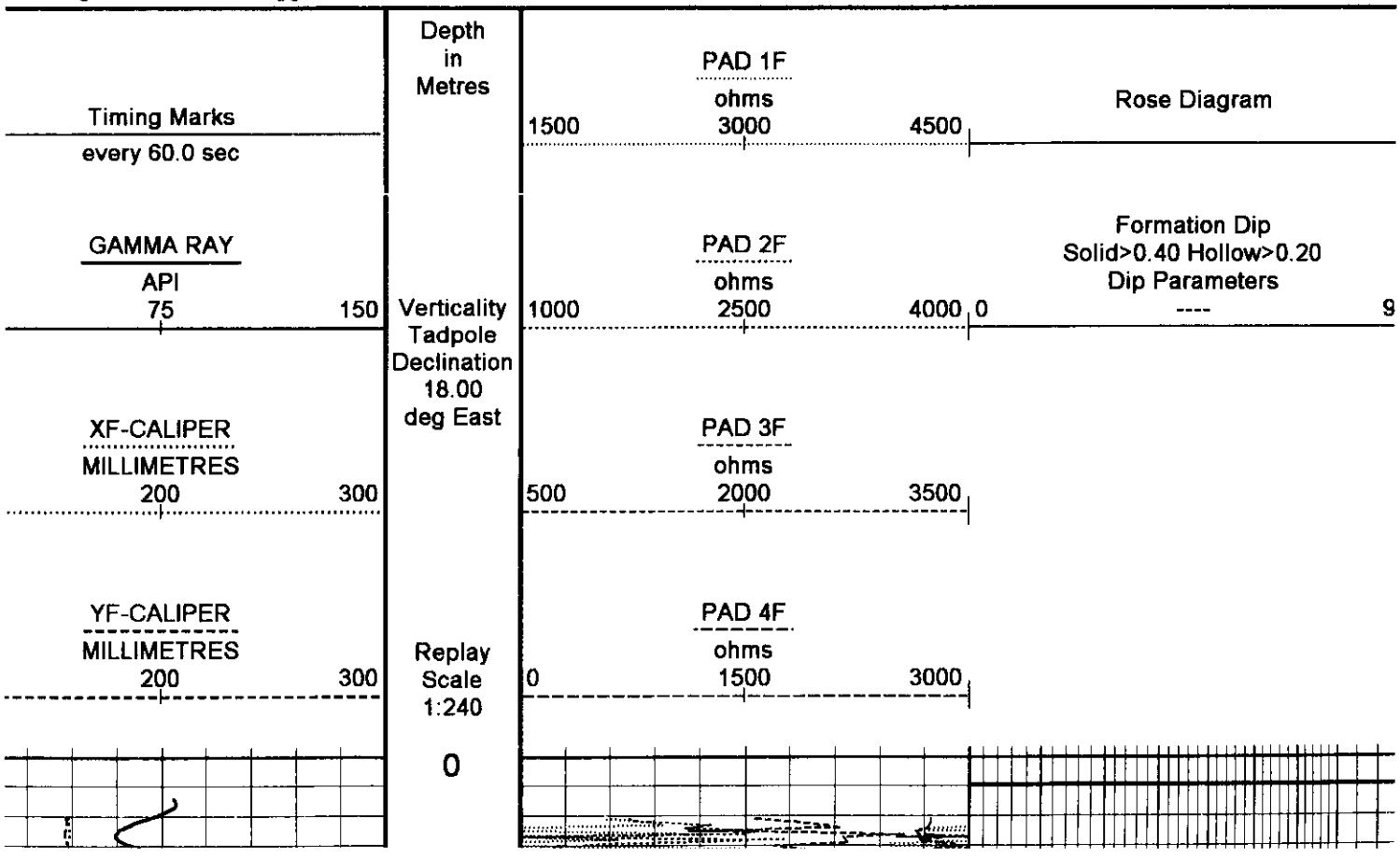
ATION: 1417.502 M SURVEYED ON MARCH 26/2005

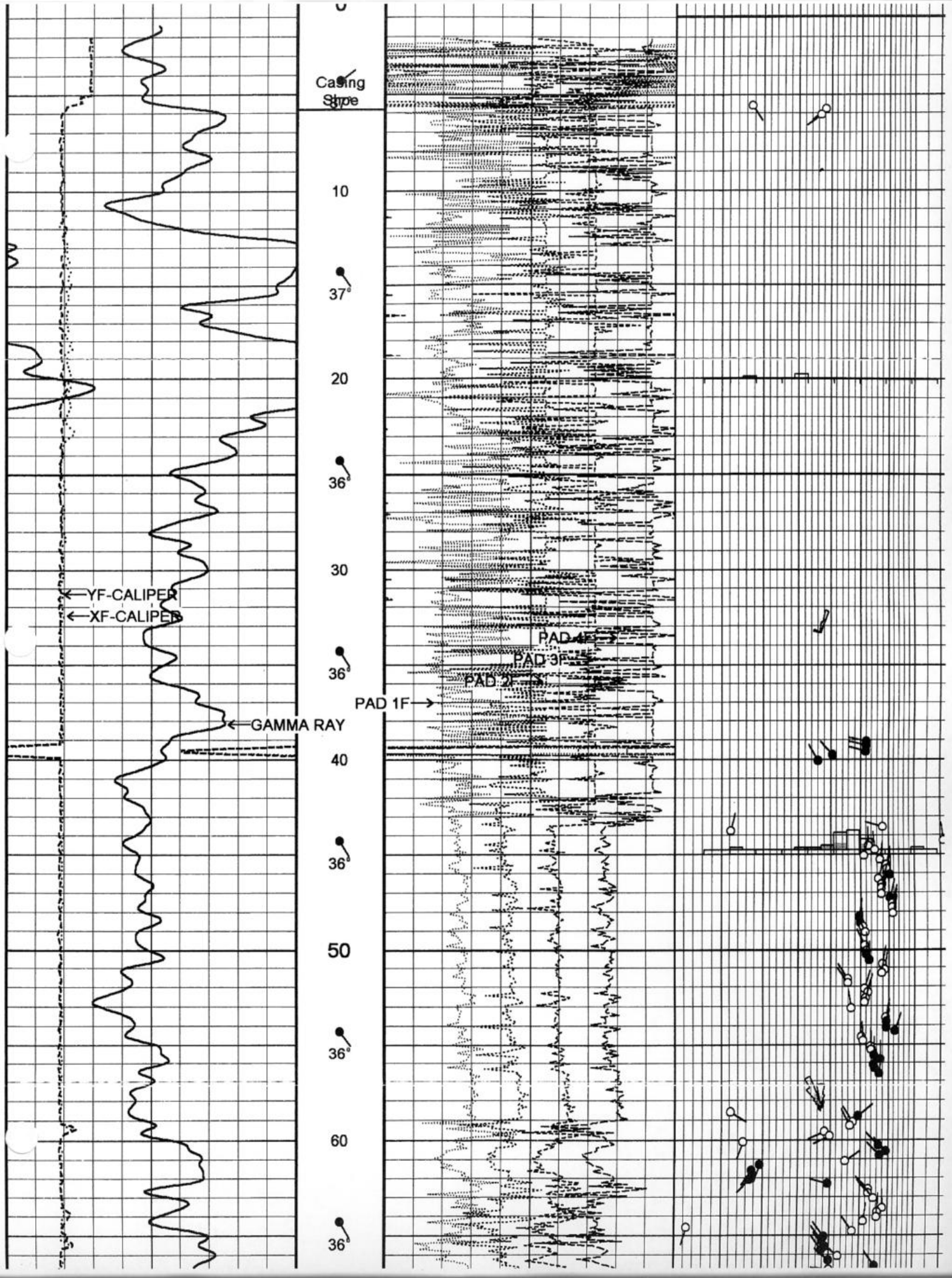
ER LEVEL: 42.90 M

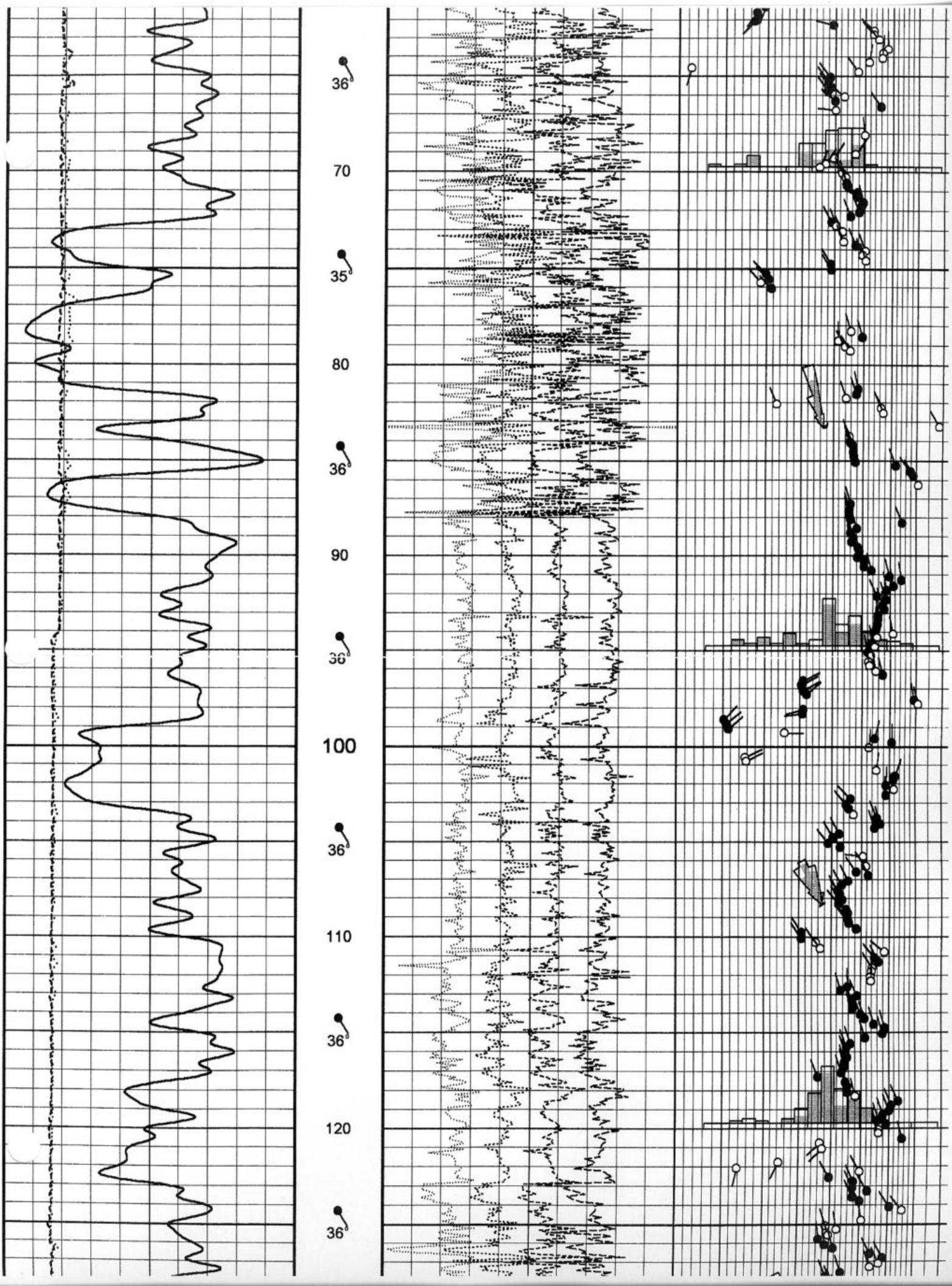
erpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or tness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any osts, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or yees. These interpretations are also subject to our general terms and conditions in our price schedule.

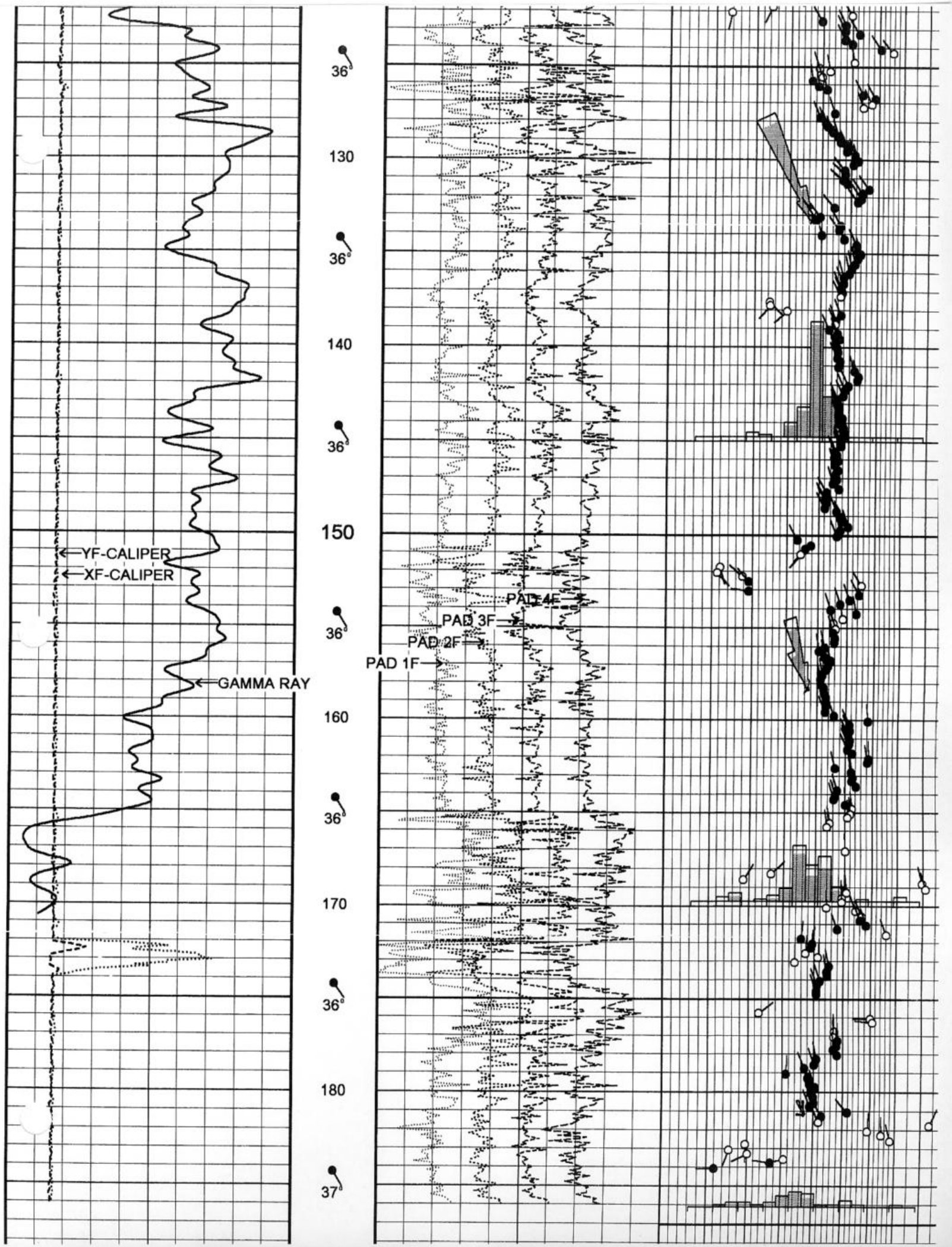
MAIN LOG 1:240

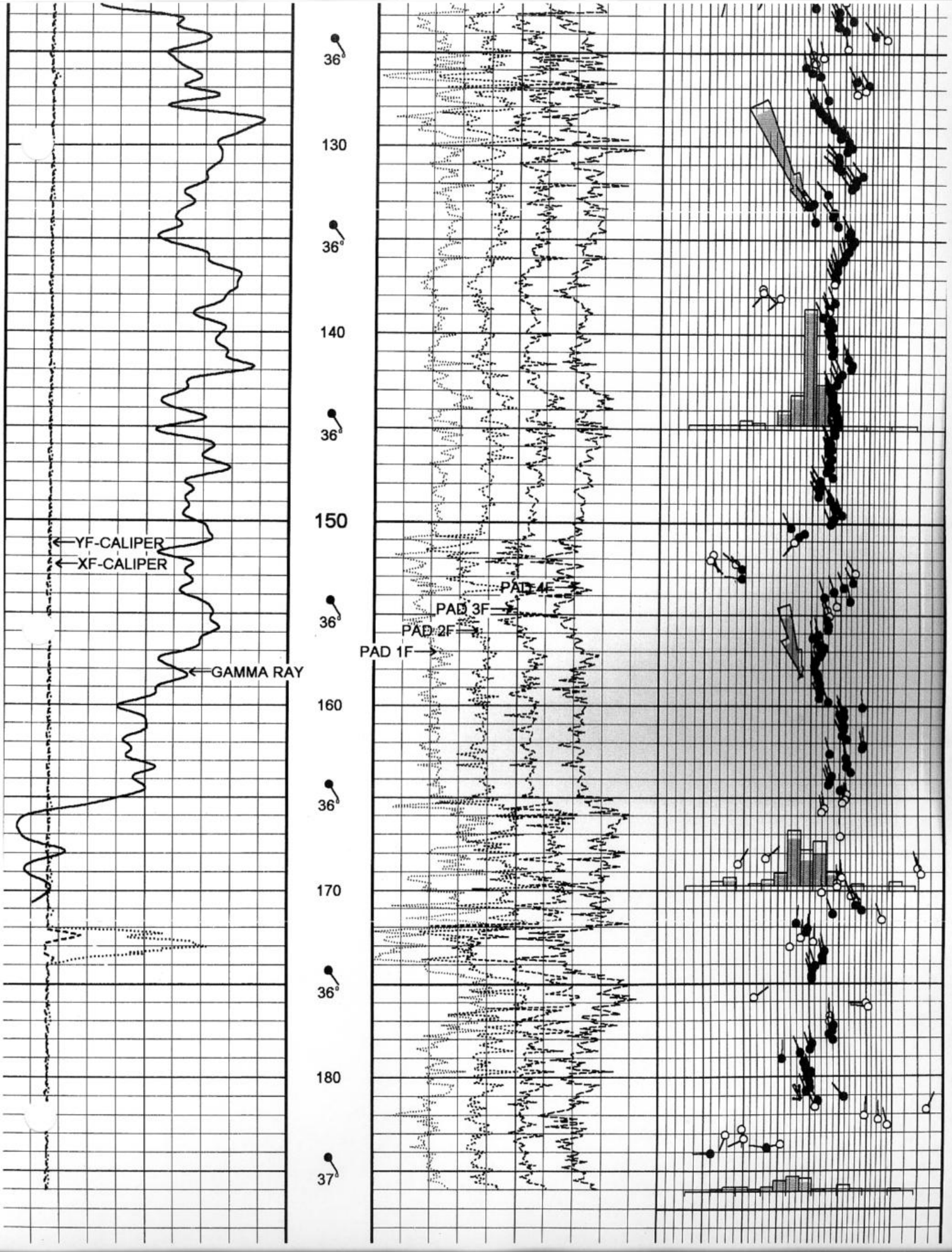
Based Data - Maximum Sampling Increment 10.0cm — Plotted on 01-APR-2005 15:0
me: C:\logs\Elkford\Bg-11a\DIP411AM.dta
n Configuration Dates: Logged : Plotted 18-MAY-2004:

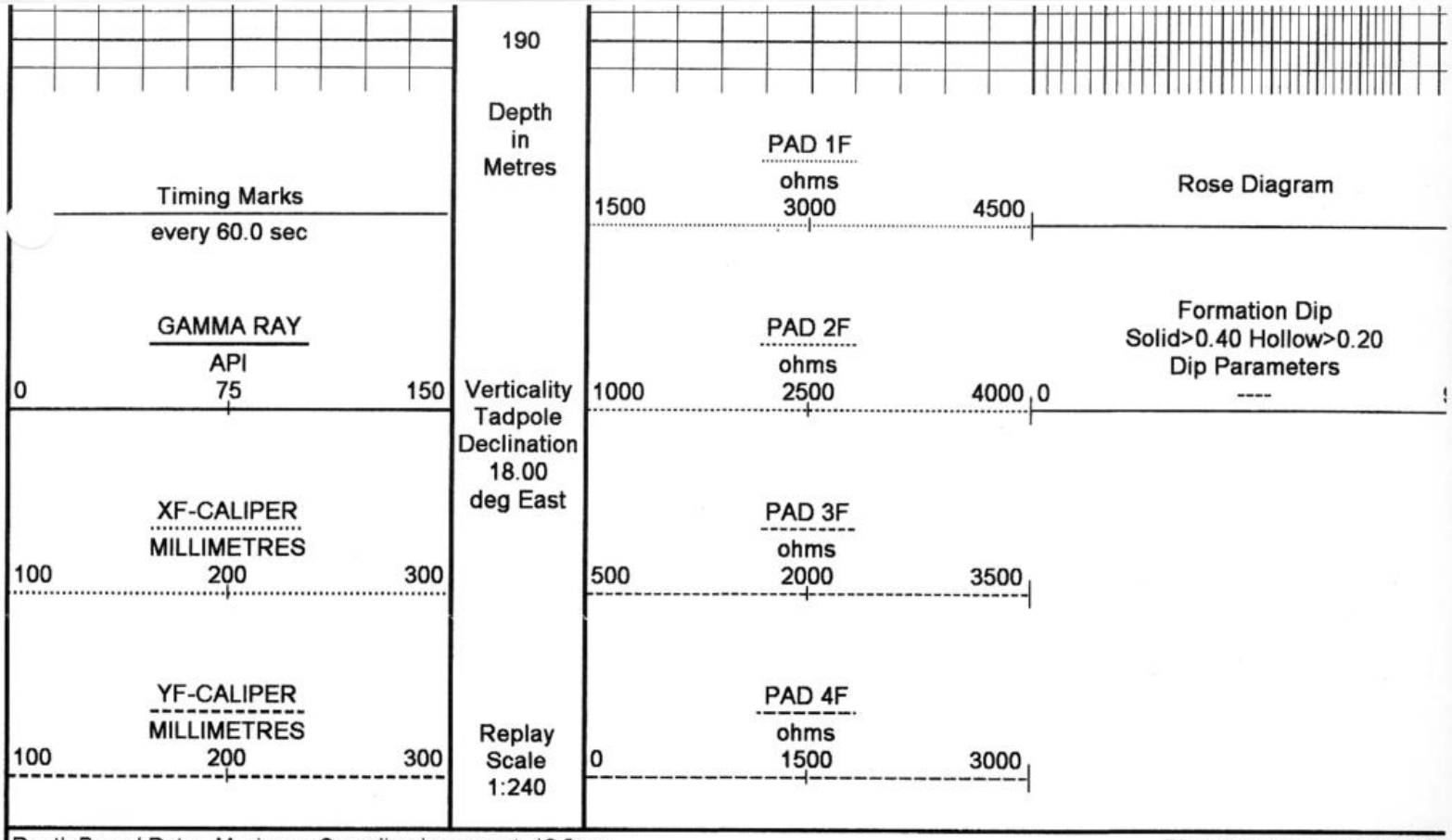



Casing Shoe
10
37°
20
36°
30
YF-CALIPER
XF-CALIPER
PAD 4F
PAD 3F
PAD 2F
36°
PAD 1F
GAMMA RAY
40
36°
50
36°
60
36°


36
70
35
80
36
90
36
100
36
110
36
120
36


36°
130
36°
140
36°
150
YF-CALIPER
XF-CALIPER
36°
PAD 4F
PAD 3F
PAD 2F
PAD 1F
GAMMA RAY
160
36°
170
36°
180
37°


36°
130
36°
140
36°
150
YF-CALIPER
XF-CALIPER
36°
PAD 4F
PAD 3F
PAD 2F
PAD 1F
GAMMA RAY
160
36°
170
36°
180
37°

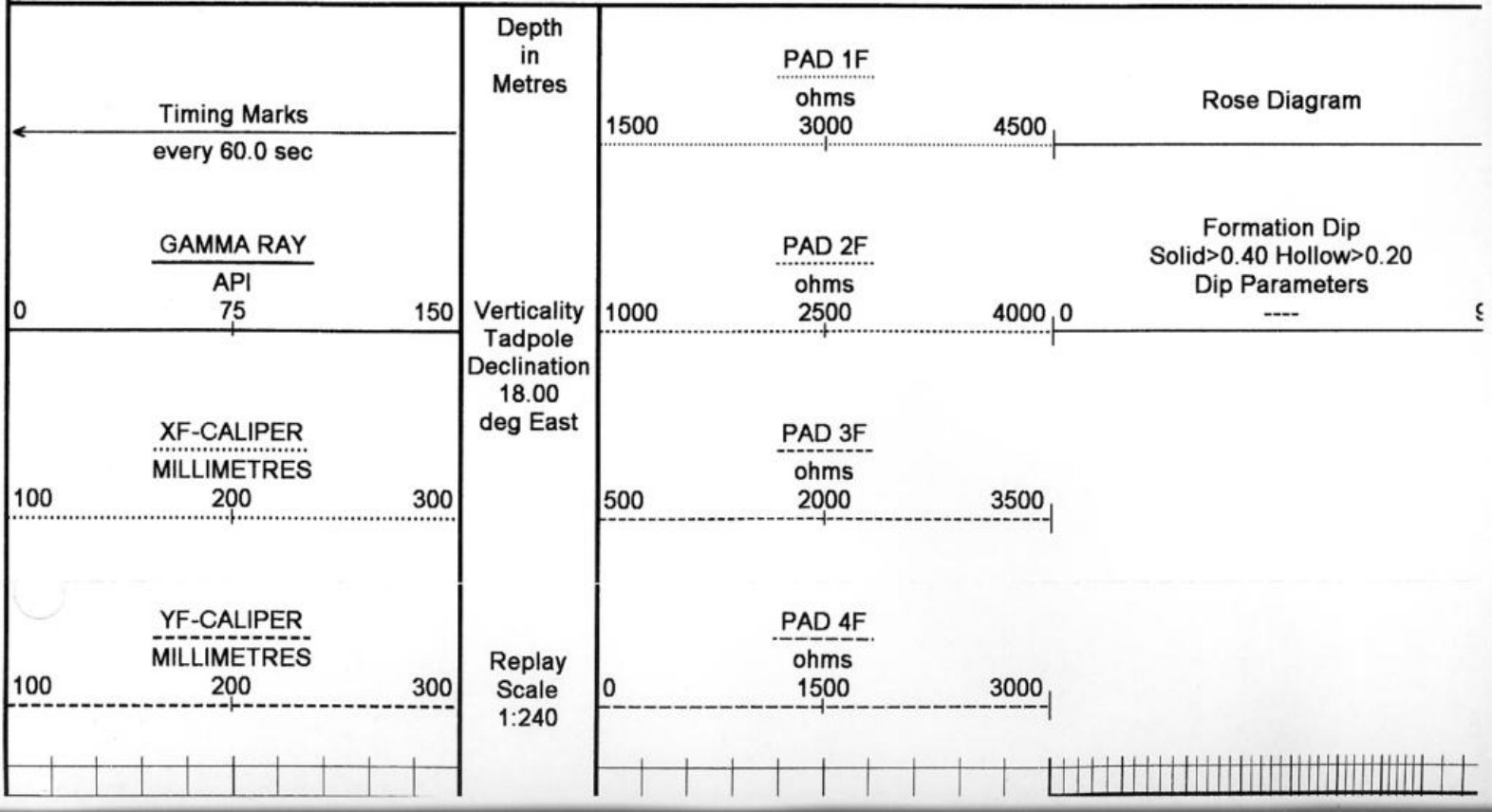


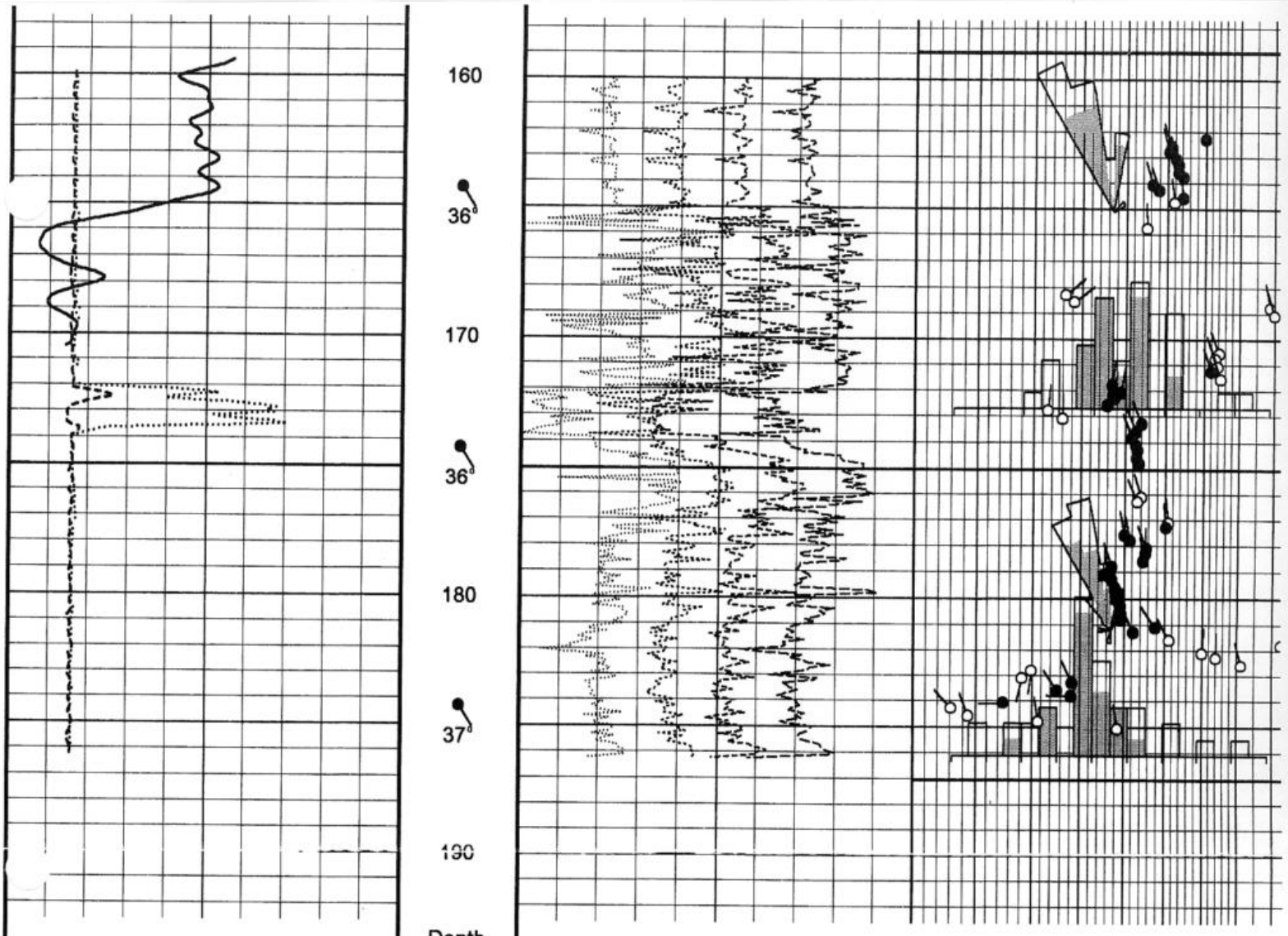
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 01-APR-2005 15:(
Filename: C:\logs\Elkford\Bg-11a\DIP411AM.dta
System Configuration Dates: Logged : Plotted 18-MAY-2004:

MAIN LOG 1:240

REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 01-APR-2005 15:(
Filename: C:\logs\Elkford\Bg-11a\DIP411AR.dta
System Configuration Dates: Logged : Plotted 18-MAY-2004:





Timing Marks
every 60.0 sec

GAMMA RAY
API
0 75 150

XF-CALIPER
MILLIMETRES
100 200 300

YF-CALIPER
MILLIMETRES
100 200 300

Depth in Metres

Verticality
Tadpole
Declination
18.00
deg East

Replay
Scale
1:240

PAD 1F
ohms
1500 3000 4500

PAD 2F
ohms
1000 2500 4000

PAD 3F
ohms
500 2000 3500

PAD 4F
ohms
0 1500 3000

Rose Diagram

Formation Dip
Solid>0.40 Hollow>0.20
Dip Parameters
---- 0 9

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\logs\Elkford\Bg-11a\DIP411AR.dta
System Configuration Dates: Logged : Plotted 18-MAY-2004:

Plotted on 01-APR-2005 15:0

REPEAT SECTION

1:240

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: C:\logs\Elkford\Bg-11a\DIP411AR.dta
System Configuration Dates: Logged : Plotted 18-MAY-2004:

Plotted on 01-APR-2005 15:(

REPEAT SECTION

BEFORE SURVEY CALIBRATION

C:\logs\Elkford\Bg-11a\dip4m11a.dt

LOGGING CONSTANTS & GAMMA CALIBRATION

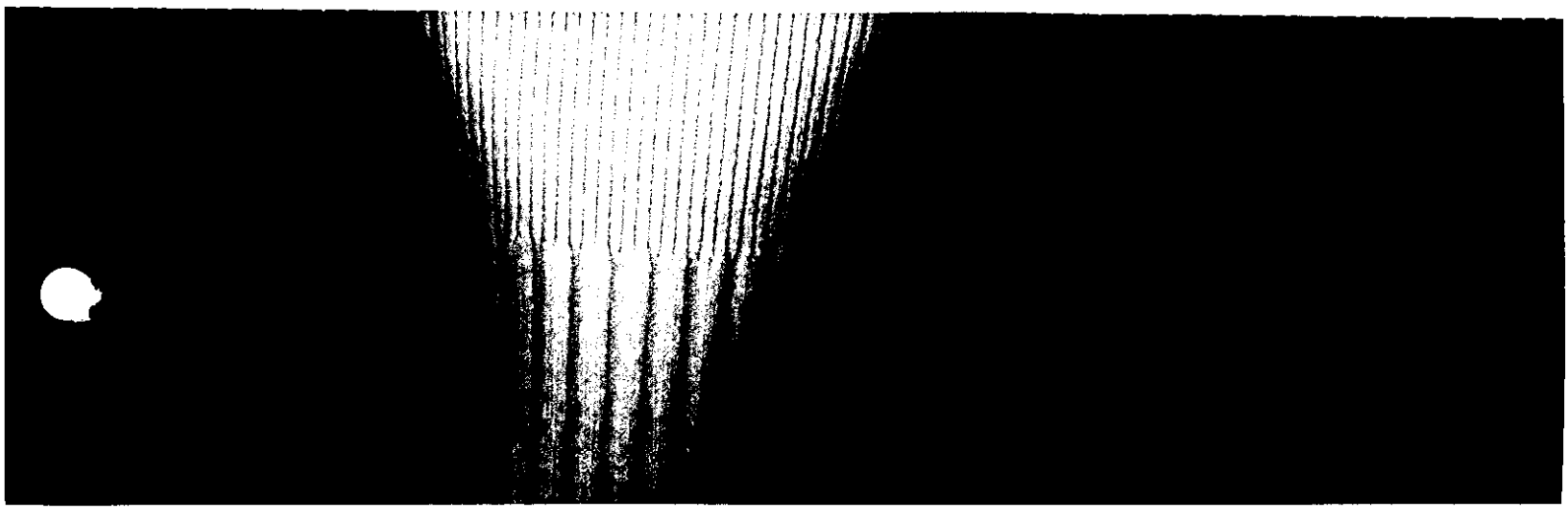
Correlation step (m.)	.25	Correlation interval (m.)	1.00
Bit size #1 (mm)	0.00	Bit depth #1 (m)	0.00
Bit size #2 (mm)	0.00	Bit depth #2 (m)	0.00
Bit size #3 (mm)	0.00	Bit depth #3 (m)	0.00
Bit size #4 (mm)	0.00	Bit depth #4 (m)	0.00
Bit size #5 (mm)	0.00	Bit depth #5 (m)	0.00
Gamma calibrator (API)	0.00	Gamma counts	0.00
Pad penetration (mm)	3.81	Search angle (degrees)	60.00
Structural dip angle (degrees)	.00	Structural dip azi. (degrees)	.00
Declination (degrees)	18.00 E	Detail pad data	NO
Correlate	YES	Caliper units	MM
Depth units	METRIC	Caliper used in calculations	YES

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-11A
FIELD	BINGAY CREEK
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

Elevation Kelly Bushing		metres	First Reading	186.00	metres
Elevation Drill Floor		metres	Depth Driller	186.00	metres
Elevation Ground Level	1417.50	metres	Depth Logger	186.00	metres

PRECISION ENERGY SERVICES

DIPMETER ANALYSIS
SCALE 1:240



VERTICALITY ANALYSIS

ENERGY SERVICES

LOCN.	5562793N 644321E
PRVNC	BRITISH COLUMBIA
FIELD	BINGAY CREEK
WELL:	BG-05-12V
COMPANY:	HILLSBOROUGH RESOURCES LTD

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-12V
FIELD	BINGAY CREEK
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA
PERMIT NUMBER	N/A
LOCATION	5562793N 644321E
LSD	N/A
SEC	
TWP	
RGE	
OTHER SERVICES	SFE CDL

PERMANENT DATUM GROUND LEVEL ,ELEVATION 1417.490M
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1417.490M

DATE	26-MAR-05	
RUN NUMBER	1	
DEPTH-DRILLER	147.00M	
DEPTH-LOGGER	95.28M	
FIRST READING	94.00M	
LAST READING	0.00M	
CASING-DRILLER	3.00M	
CASING-LOGGER	3.00M	
BIT SIZE	133.35MM	
HOLE FLUID TYPE	WATER	
DENS./VISC.	1000	N/A
PH/FLUID LOSS	N/A	N/A
SAMPLE SOURCE	NONE	
RM @ MEAS TEMP	2.00 @ 20.0C	
RMF @ MEAS TEMP	N/A	
RMC @ MEAS TEMP	N/A	
SOURCE: RMF/RMC	N/A	N/A
RM @ BHT	N/A	
TIME SINCE CIRC	N/A	
MAX REC TEMP	N/A	
EQUIPMENT/BASE	V3405	RDR
RECORDED BY	ROBB RACZ	
WITNESSED BY	G. BICKFORD	
DRILL DONE	21-MAR-05	

VERTICALITY ANALYSIS INTERPRETATION NOTES

1. ALL PLOTTED OUTPUT IS AUTOMATICALLY SCALED TO OBTAIN THE BEST VISUAL EFFECT WITHIN THE PHYSICAL SPACE AVAILABLE. THE MAXIMUM SCALES BEING 1:50000 (METRIC) AND 1:48000 (IMPERIAL), AND THE MINIMUM 1:1.

2. THE ANALYSIS IS DERIVED BY INTEGRATING 10CM. SAMPLED DATA DOWN THE BOREHOLE. THE LISTING SUPPLIED WILL CONTAIN A MAXIMUM OF 200 POINTS IN MULTIPLES OF 1, 2, 5, 10, 20, 50 OR 100 METRES/FEET DEPENDING ON THE TOTAL RANGE OF THE ANALYSIS. HOWEVER THE ANALYSIS IS CALCULATED FOR THE ENTIRE RANGE OF THE BOREHOLE AND THE FINAL BOREHOLE POSITION IS INCLUDED IN THE LISTING.

3. COMPUTED VERTICALITY MAY ONLY BE FULLY DERIVED IN OPEN SECTIONS OF THE BOREHOLE, AWAY FROM THE INFLUENCE OF ANY UNUSUAL MAGNETIC EFFECTS (AS THE AZIMUTH CALCULATIONS ARE DERIVED FROM THREE SOLID STATE MAGNETOMETERS). SO THE ANALYSIS WILL GENERALLY BEGIN AT THE END OF THE CASING AND ALL BOREHOLE POSITIONAL INFORMATION WILL RELATE TO THIS DEPTH.

4. UP TO TEN CROSS SECTIONS MAY BE REQUESTED FOR ANY BOREHOLE TO BE DISPLAYED AT ANY SCALE (THE DEFAULT SCALE IS THAT OF THE CROSS-SECTION FOR THE ENTIRE HOLE).

5. BOREHOLE POSITIONAL ERROR IS DERIVED ASSUMING THE FOLLOWING PARAMETERS.

	TILT(DEGREES)	AZIMUTH(DEGREES)
TYPICAL ERROR	+/- .3333	+/- 10.00
MAXIMUM ERROR	+/- .5000	+/- 15.00

6. ERROR ANALYSIS MAY BE CALCULATED AND PLOTTED FROM THE DATA LISTING AS FOLLOWS:

   A) PLOT THE FOUR COORDINATES FROM THE ERROR LISTING (BASED UPON ZERO AZIMUTH ERROR) ON A TARGET PLOT. ORIGIN AT THE START OF THE ANALYSIS.
   B) DESCRIBE ARCS OF +/- 10.00 DEGREES AND +/- 15.00 DEGREES (CENTRE AT THE ORIGIN) THROUGH THE INNER AND OUTER POINTS RESPECTIVELY.
   C) CONNECT THE RESPECTIVE ARCS TOGETHER WITH STRAIGHT LINES TO GIVE THE TYPICAL AND MAXIMUM BOREHOLE POSITIONAL ERROR.

7. GIVEN BELOW IS A FULL DESCRIPTION OF THE PARAMETERS DISPLAYED ON THE ENSUING LISTING:

LOG DEPTH	THE DEPTH RECORDED ON THE FIELD LOGS FOR THE BOREHOLE.
TRUE DEPTH	THE TRUE VERTICAL DEPTH CORESPONDING TO THE ABOVE DEPTH. CORRECTED FROM THE START OF THE ANALYSIS.
HOLE TILT AND AZIMUTH	THE SAMPLED BOREHOLE ORIENTATION.
AXIAL COORDINATES	THE COORDINATES NORTH AND EAST FROM THE TARGET ORIGIN.
POLAR COORDINATES	THE POLAR, OR RADIAL COORDINATES OF THE BOREHOLE.
ERROR COORDINATES	THE POLAR COORDINATES CORRESPONDING TO THE TYPICAL AND MAXIMUM TILT ERROR.

N.B. THE REFERENCE POINT FOR ALL BEARING ANGLES ON THIS LISTING IS GIVEN AT THE TOP OF EACH SHEET.

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

BG-05-12V

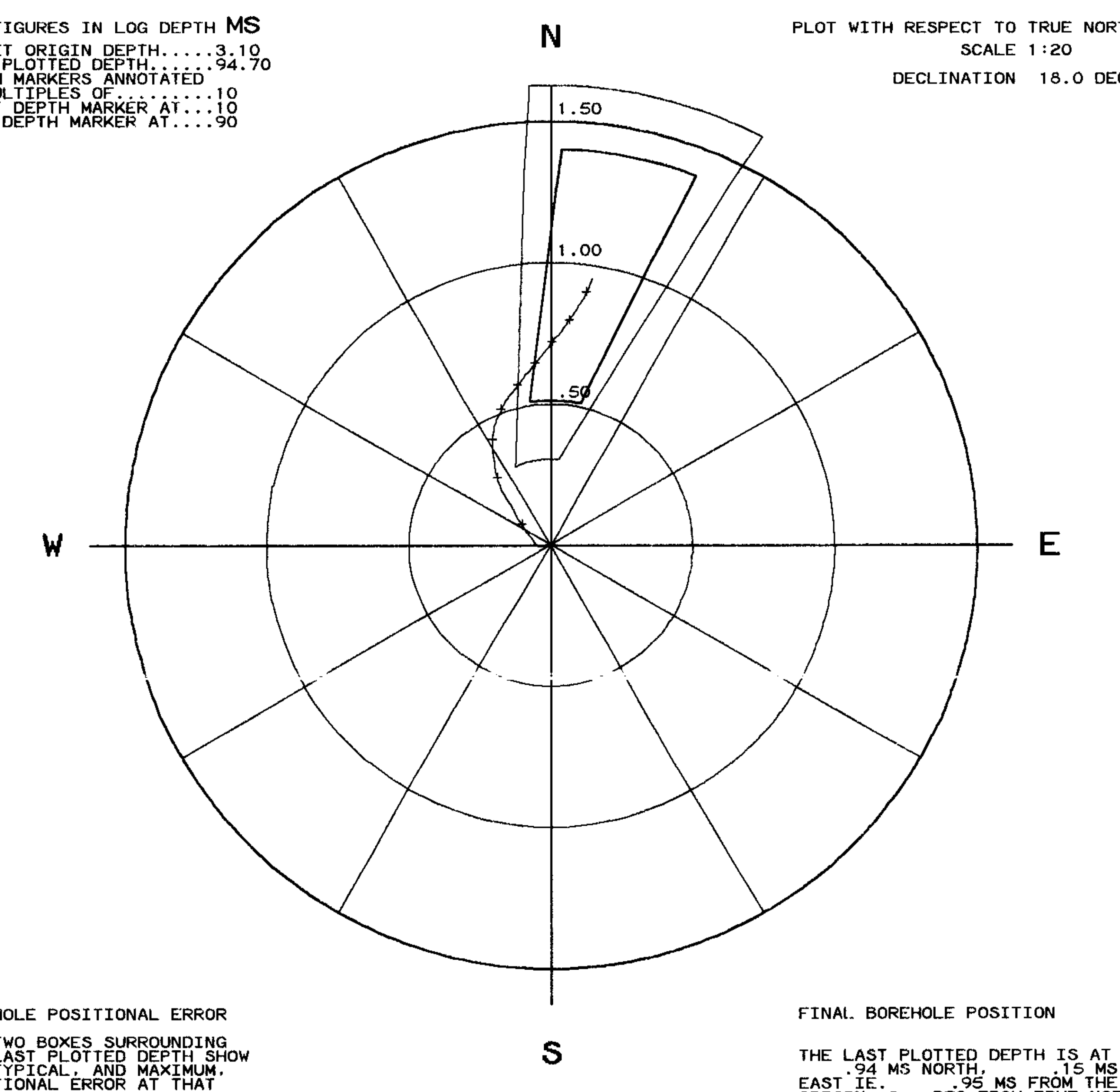
VERTICALITY DATA LISTING FOR DIP412VB.CIB — DATE PROCESSED: 31-MAR-2005
ALL CO-ORDINATES WITH RESPECT TO TRUE NORTH — DATE LOGGED: 26-MAR-2005

DEPTHS		BOREHOLE		AXIAL CO-ORDS		POLAR		POLAR ERROR CO-ORDINATES (MAXIMUM & TYPICAL)							
LOG	TRUE	TILT	AZI	NORTH	EAST	BRG	RADIUS	BRG	RADIUS	BRG	RADIUS	BRG	RADIUS	BRD	RADIUS
4.00	4.00	1.7	221	-0.01	-0.02	258	0.02	258	0.03	257	0.02	258	0.03	257	0.02
5.00	5.00	1.2	241	-0.01	-0.04	258	0.05	258	0.06	257	0.03	258	0.06	257	0.04
6.00	6.00	1.4	326	0.00	-0.05	273	0.05	274	0.07	272	0.03	274	0.07	273	0.04
7.00	7.00	1.2	316	0.02	-0.07	287	0.07	288	0.10	286	0.04	288	0.09	286	0.05
8.00	8.00	1.2	321	0.04	-0.08	295	0.09	296	0.12	294	0.06	296	0.11	294	0.07
9.00	9.00	1.2	321	0.06	-0.09	301	0.11	301	0.15	299	0.07	301	0.14	300	0.08
10.00	10.00	1.2	331	0.07	-0.10	305	0.13	305	0.18	303	0.08	305	0.16	304	0.09
11.00	11.00	1.1	319	0.09	-0.12	308	0.15	308	0.20	306	0.09	308	0.19	307	0.11
12.00	12.00	1.1	318	0.11	-0.13	310	0.16	311	0.23	309	0.10	311	0.21	310	0.12
13.00	13.00	1.2	329	0.12	-0.13	313	0.18	313	0.26	311	0.11	313	0.23	312	0.13
14.00	14.00	1.2	329	0.14	-0.14	314	0.20	315	0.28	313	0.12	315	0.26	314	0.15
15.00	15.00	1.2	329	0.16	-0.15	316	0.22	316	0.31	315	0.13	316	0.28	315	0.16
16.00	16.00	1.2	326	0.18	-0.16	317	0.24	318	0.34	316	0.14	317	0.31	316	0.17
17.00	17.00	1.0	334	0.19	-0.17	318	0.26	319	0.37	317	0.15	318	0.33	317	0.19
18.00	18.00	0.9	345	0.21	-0.18	319	0.28	320	0.39	318	0.16	320	0.35	318	0.20
19.00	19.00	0.9	345	0.22	-0.19	320	0.29	321	0.41	319	0.17	321	0.37	320	0.21
20.00	20.00	0.6	335	0.24	-0.19	321	0.30	322	0.44	320	0.17	322	0.39	321	0.22
21.00	21.00	0.9	350	0.25	-0.19	323	0.32	323	0.46	321	0.18	323	0.41	322	0.22
22.00	22.00	1.1	359	0.27	-0.20	324	0.33	325	0.48	322	0.18	324	0.43	323	0.23
23.00	23.00	0.8	2	0.28	-0.20	325	0.34	326	0.50	323	0.19	326	0.45	324	0.24
24.00	24.00	1.0	4	0.30	-0.20	326	0.36	327	0.52	323	0.19	327	0.47	325	0.25
25.00	25.00	0.8	359	0.31	-0.20	327	0.37	328	0.54	324	0.20	328	0.48	325	0.25
26.00	26.00	0.8	354	0.32	-0.20	328	0.38	329	0.56	325	0.20	329	0.50	326	0.26
27.00	27.00	0.8	351	0.34	-0.21	329	0.39	330	0.58	326	0.21	329	0.52	327	0.27
28.00	28.00	0.8	349	0.35	-0.21	330	0.41	331	0.60	326	0.21	330	0.54	328	0.28
29.00	29.00	1.0	11	0.36	-0.21	330	0.42	332	0.62	327	0.22	331	0.55	329	0.28
30.00	30.00	0.8	352	0.38	-0.21	331	0.43	333	0.64	328	0.22	332	0.57	329	0.29
31.00	31.00	0.7	16	0.39	-0.21	332	0.44	334	0.66	328	0.22	333	0.59	330	0.29
32.00	32.00	0.7	2	0.40	-0.20	333	0.45	335	0.68	329	0.22	334	0.60	331	0.30
33.00	33.00	0.7	6	0.41	-0.20	334	0.46	335	0.69	329	0.23	335	0.61	332	0.30
34.00	34.00	0.4	8	0.42	-0.20	335	0.47	336	0.71	330	0.23	336	0.63	332	0.31
35.00	34.99	0.7	9	0.43	-0.20	336	0.48	337	0.72	330	0.23	337	0.64	333	0.31
36.00	35.99	0.8	57	0.44	-0.19	336	0.48	338	0.74	331	0.23	338	0.65	334	0.32
37.00	36.99	0.4	7	0.45	-0.19	337	0.49	339	0.75	331	0.23	339	0.67	334	0.32
38.00	37.99	0.8	24	0.47	-0.18	338	0.50	340	0.77	332	0.24	340	0.68	335	0.32
39.00	38.99	0.8	24	0.47	-0.18	339	0.51	341	0.78	332	0.24	341	0.69	336	0.33
40.00	39.99	0.4	59	0.48	-0.18	340	0.51	342	0.79	332	0.24	342	0.70	336	0.33
41.00	40.99	0.4	358	0.49	-0.17	341	0.52	343	0.81	333	0.24	343	0.71	337	0.33
42.00	41.99	0.8	44	0.50	-0.17	342	0.53	344	0.82	333	0.24	344	0.72	338	0.34
43.00	42.99	1.0	37	0.51	-0.16	342	0.54	345	0.83	334	0.24	344	0.73	338	0.34
44.00	43.99	0.7	69	0.52	-0.15	343	0.54	346	0.84	334	0.24	345	0.74	339	0.34
45.00	44.99	0.8	19	0.53	-0.15	344	0.55	347	0.86	334	0.24	346	0.76	340	0.34
46.00	45.99	0.6	31	0.54	-0.14	345	0.56	348	0.87	335	0.24	347	0.77	340	0.35
47.00	46.99	0.8	19	0.55	-0.14	346	0.56	349	0.88	335	0.25	348	0.78	341	0.35
48.00	47.99	0.4	360	0.55	-0.13	347	0.57	350	0.89	336	0.25	349	0.79	342	0.35
49.00	48.99	0.6	27	0.56	-0.12	348	0.57	351	0.91	336	0.25	350	0.80	342	0.35
50.00	49.99	0.4	51	0.57	-0.12	348	0.58	351	0.92	336	0.25	351	0.81	343	0.36
51.00	50.99	0.4	48	0.58	-0.11	349	0.59	352	0.93	337	0.25	352	0.82	343	0.36
52.00	51.99	0.8	37	0.58	-0.11	350	0.59	353	0.95	337	0.25	352	0.83	344	0.36
53.00	52.99	0.7	54	0.59	-0.10	350	0.60	354	0.96	337	0.25	353	0.84	344	0.36
54.00	53.99	0.4	40	0.60	-0.09	351	0.61	355	0.97	338	0.25	354	0.85	345	0.37
55.00	54.99	0.7	50	0.61	-0.09	352	0.61	355	0.98	338	0.25	355	0.86	346	0.37
56.00	55.99	0.7	48	0.61	-0.08	353	0.62	356	1.00	338	0.25	355	0.87	346	0.37
57.00	56.99	0.7	46	0.62	-0.07	353	0.63	357	1.01	338	0.25	356	0.88	347	0.37
58.00	57.99	0.7	45	0.63	-0.07	354	0.63	358	1.02	339	0.25	357	0.89	347	0.38
59.00	58.99	0.4	34	0.64	-0.06	355	0.64	358	1.04	339	0.25	357	0.91	348	0.38
60.00	59.99	0.7	42	0.64	-0.06	355	0.65	359	1.05	339	0.25	358	0.92	348	0.38
61.00	60.99	0.4	70	0.65	-0.05	356	0.65	360	1.06	339	0.25	359	0.93	349	0.38
62.00	61.99	0.7	40	0.66	-0.04	356	0.66	0	1.08	340	0.26	359	0.94	349	0.39
63.00	62.99	0.4	69	0.67	-0.04	357	0.67	1	1.09	340	0.26	360	0.95	350	0.39
64.00	63.99	0.8	16	0.67	-0.03	357	0.67	1	1.11	340	0.26	0	0.96	350	0.39
65.00	64.99	0.7	35	0.68	-0.02	358	0.68	2	1.12	340	0.26	1	0.97	350	0.39
66.00	65.99	0.9	54	0.69	-0.02	359	0.69	3	1.14	341	0.26	2	0.99	351	0.40
67.00	66.99	0.4	17	0.70	-0.01	359	0.70	3	1.15	341	0.26	2	1.00	351	0.40
68.00	67.99	0.6	48	0.70	-0.01	360	0.70	4	1.17	341	0.26	3	1.01	352	0.40
69.00	68.99	0.6	45	0.71	0.00	360	0.71	4	1.18	342	0.26	3	1.02	352	0.41
70.00	69.99	0.4	49	0.72	0.01	0	0.72	4	1.19	342	0.26	3	1.03	353	0.41
71.00	70.99	0.6	39	0.73	0.01	1	0.73	5	1.21	342	0.26	4	1.05	353	0.41
72.00	71.99	0.4	46	0.73	0.02	1	0.73	5	1.22	342	0.26	5	1.06	353	0.41
73.00	72.99	0.7	16	0.74	0.02	2	0.74	6	1.23	342	0.26	5	1.07	354	0.42
74.00	73.99	1.0	52	0.75	0.03	2	0.75	6	1.25	343	0.26	5	1.08	354	0.42
75.00	74.99	0.9	38	0.75	0.04	3	0.76	7	1.26	343	0.27	6	1.09	355	0.42
76.00	75.99	0.4	50	0.76	0.04	3	0.76	7	1.28	343	0.27	6	1.11	355	0.43
77.00	76.99	0.7	18	0.77	0.05	4	0.77	8	1.30	343	0.27	7	1.12	355	0.43
78.00	77.99	0.4	9	0.78	0.05	4	0.78	8	1.31	344	0.27	7	1.14	356	0.43
79.00	78.99	0.6	41	0.79	0.06	4	0.79	8	1.33	344	0.27	7	1.15	356	0.44
80.00	79.99	0.6	40	0.80	0.07	5	0.80	9	1.35	345	0.27	8	1.16	357	0.44
81.00	80.99	0.4	45	0.81	0.07	5	0.81	9	1.36	345	0.27	8	1.18	357	0.44
82.00	81.99	0.7	56	0.81	0.08	5	0.82	9	1.38	345	0.27	9	1.19	357	0.45
83.00	82.99	0.6	35	0.82	0.08	6	0.83	10	1.40	346	0.28	9	1.21	358	0.45
84.00	83.99	0.6	33	0.83	0.09	6	0.84	10	1.42	346	0.28	9	1.22	358	0.46
85.00	84.99	0.6	32	0.84	0.10	7	0.85	10	1.44	347	0.28	9	1.24	359	0.46
86.00	85.99	0.7	50	0.85	0.10	7	0.86	11	1.46	347	0.28	10	1.26	359	0.47
87.00	86.99	0.4	36	0.86	0.11	7	0.87	11	1.48	348	0.29	10	1.27	360	0.47
88.00	87.99	0.6	27	0.87	0.12	8	0.88	11	1.49	348	0.29	10	1.29	360	0.48
89.00	88.99	0.7	1	0.89	0.12	8	0.89	11	1.51	349	0.29	11	1.31	0	0.49
90.00	89.99	0.6	21	0.90	0.13	8	0.91	12	1.54	349	0.29	11	1.32	1	0.49
91.00	90.99	0.6	21	0.91	0.13	8	0.92	12	1.55	349	0.30	11	1.34	1	0.50
92.00	91.99	0.6	21	0.92	0.14	8	0.93	12	1.58	350	0.30	11	1.36	1	0.50
93.00	92.99	0.9	360	0.93	0.14	9	0.94	12	1.60	350	0.30	11	1.38	1	0.51
94.00	93.99	0.6	20	0.94	0.14	9	0.95	12	1.61	350	0.31	11	1.39	2	0.51
94.70	94.69	0.4	358	0.94	0.15	9	0.95	12	1.62	350	0.30	11	1.40	2	0.51

CROSS SECTION

ALL FIGURES IN LOG DEPTH MS
TARGET ORIGIN DEPTH.....3.10
LAST PLOTTED DEPTH......94.70
DEPTH MARKERS ANNOTATED
IN MULTIPLES OF.........10
FIRST DEPTH MARKER AT...10
LAST DEPTH MARKER AT....90

PLOT WITH RESPECT TO TRUE NORTH
SCALE 1:20
DECLINATION 18.0 DEG.



BOREHOLE POSITIONAL ERROR

THE TWO BOXES SURROUNDING THE LAST PLOTTED DEPTH SHOW THE TYPICAL, AND MAXIMUM, POSITIONAL ERROR AT THAT DEPTH.

FINAL BOREHOLE POSITION

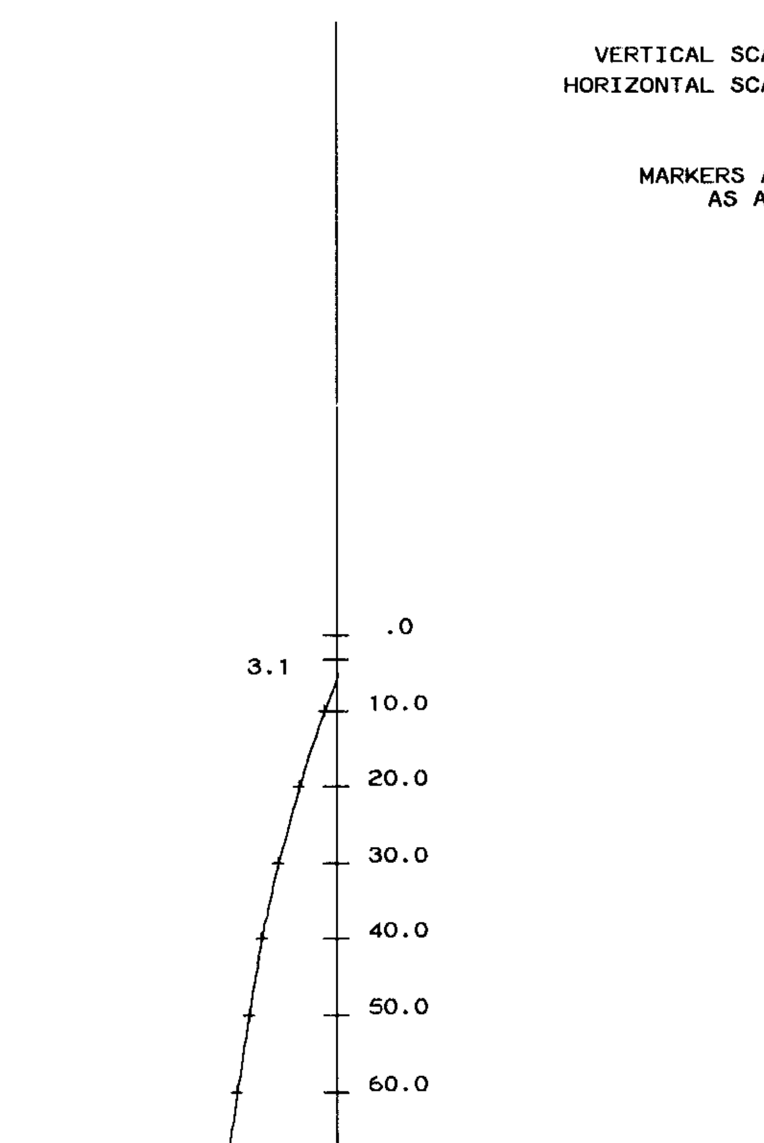
THE LAST PLOTTED DEPTH IS AT .94 MS NORTH, .15 MS EAST IE. .95 MS FROM THE ORIGIN, 9 DEG FROM TRUE NORTH

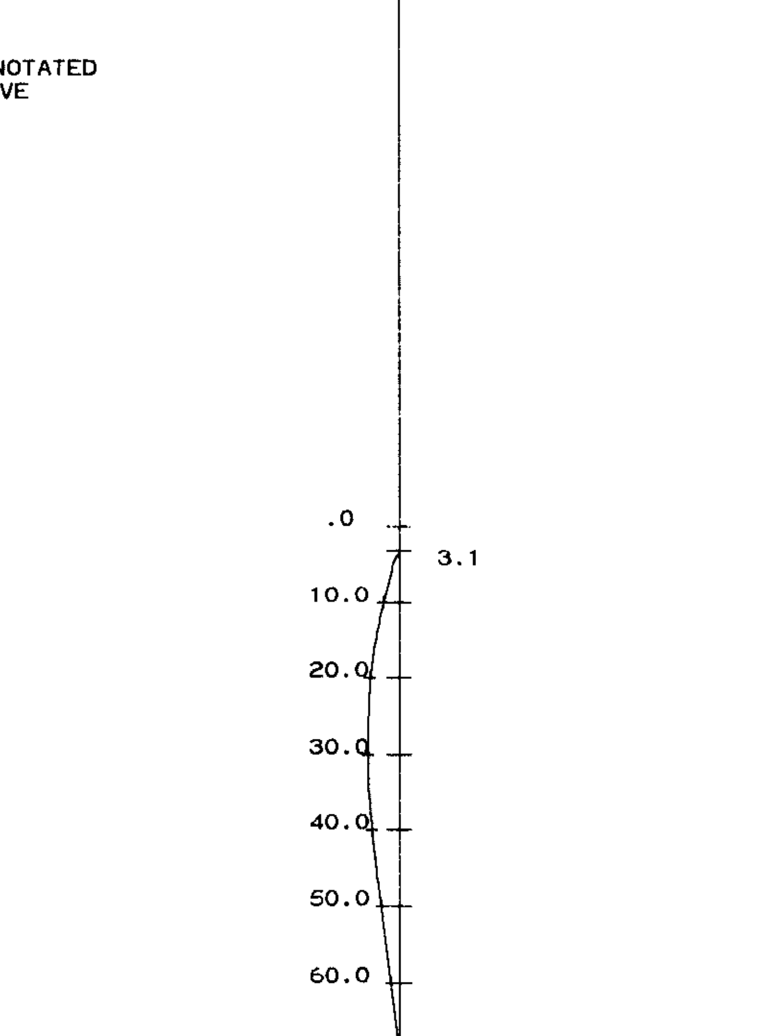
N-S SECTION — VERTICAL SECTIONS — E-W SECTION

(TRUE DEPTH VS DISPLACEMENT)

VERTICAL SCALE 1:1000
HORIZONTAL SCALE 1:50

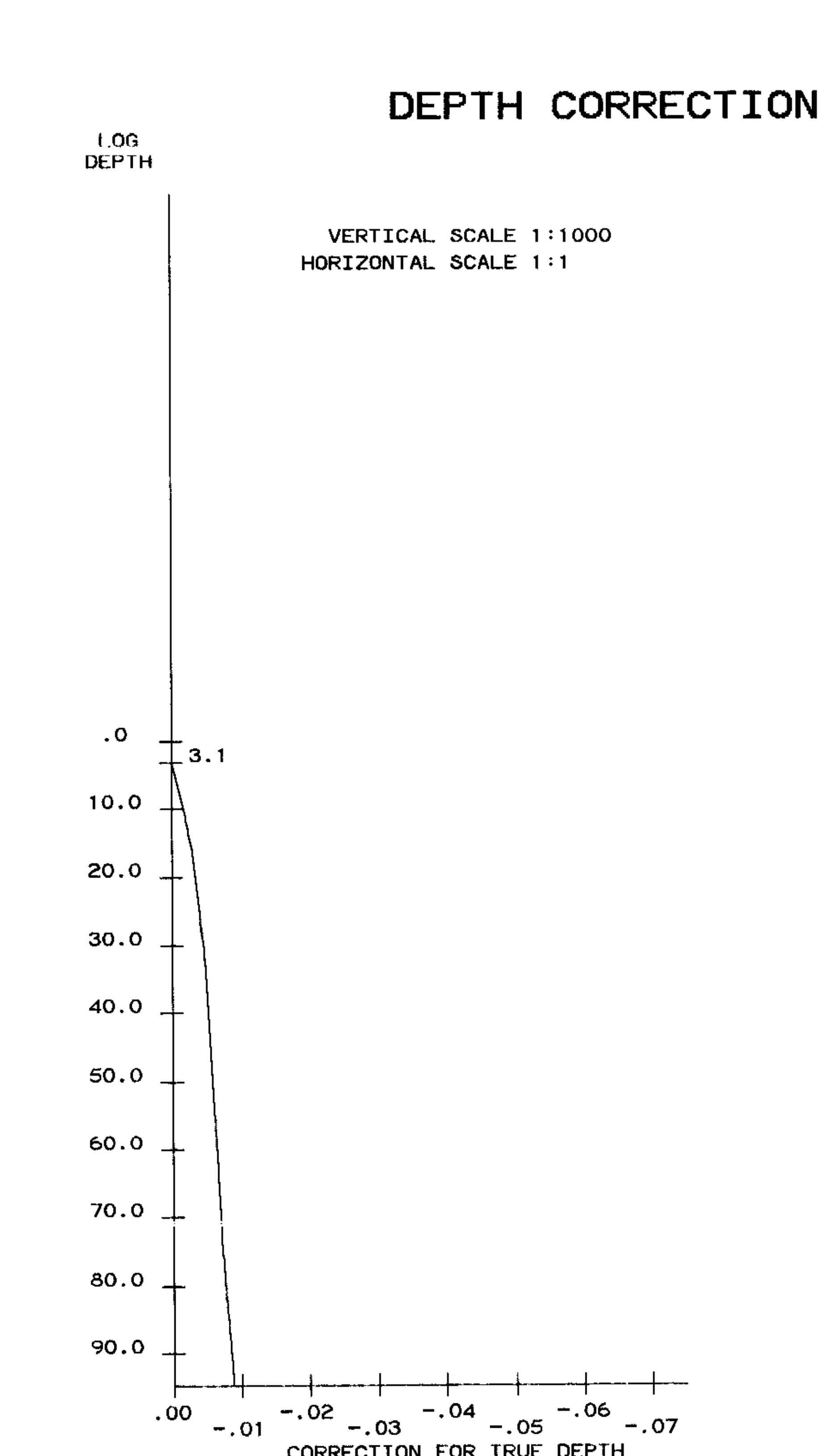
MARKERS ANNOTATED AS ABOVE





DEPTH CORRECTION ANALYSIS

VERTICAL SCALE 1:1000
HORIZONTAL SCALE 1:1



DEPTHS: LOG	TRUE	DEPTHS: LOG	TRUE
4.00	4.00	74.00	73.99
5.00	5.00	75.00	74.99
6.00	6.00	76.00	75.99
7.00	7.00	77.00	76.99
8.00	8.00	78.00	77.99
9.00	9.00	79.00	78.99
10.00	10.00	80.00	79.99
11.00	11.00	81.00	80.99
12.00	12.00	82.00	81.99
13.00	13.00	83.00	82.99
14.00	14.00	84.00	83.99
15.00	15.00	85.00	84.99
16.00	16.00	86.00	85.99
17.00	17.00	87.00	86.99
18.00	18.00	88.00	87.99
19.00	19.00	89.00	88.99
20.00	20.00	90.00	89.99
21.00	21.00	91.00	90.99
22.00	22.00	92.00	91.99
23.00	23.00	93.00	92.99
24.00	24.00	94.00	93.99
25.00	25.00	94.70	94.69
26.00	26.00		
27.00	27.00		
28.00	28.00		
29.00	29.00		
30.00	30.00		
31.00	31.00		
32.00	32.00		
33.00	33.00		
34.00	34.00		
35.00	34.99		
36.00	35.99		
37.00	36.99		
38.00	37.99		
39.00	38.99		
40.00	39.99		
41.00	40.99		
42.00	41.99		
43.00	42.99		
44.00	43.99		
45.00	44.99		
46.00	45.99		
47.00	46.99		
48.00	47.99		
49.00	48.99		
50.00	49.99		
51.00	50.99		
52.00	51.99		
53.00	52.99		
54.00	53.99		
55.00	54.99		
56.00	55.99		
57.00	56.99		
58.00	57.99		
59.00	58.99		
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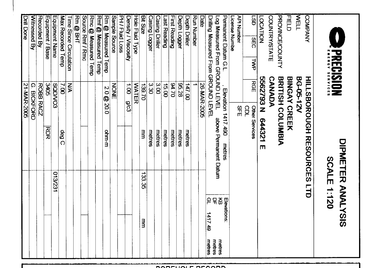
62.00	61.99		
63.00	62.99		
64.00	63.99		
65.00	64.99		
66.00	65.99		
67.00	66.99		
68.00	67.99		
69.00	68.99		
70.00	69.99		
71.00	70.99		
72.00	71.99		
73.00	72.99		

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-12V
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA



BOREHOLE RECORD

Bit Size	Depth From	Depth To
millimetres	metres	metres
139.700	3.00	95.00
133.350	95.00	147.00

CASING RECORD

Type	Size	Depth From	Shoe Depth	Weight
	millimetres	metres	metres	kg/metre
	159.000	0.00	3.00	0.00

REMARKS

SURFACE CO-ORDINATES

NORTHING 5562793.138
EASTING 644321.173

ELEVATION 1417.490 M SURVEYED ON MARCH 26/2005

WATER LEVEL: 14.60 M

HOLE BROGED AT 95.74 M

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions in our price schedule

MAIN LOG 1:120

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename C:\logs\Ellsford\Bg-12v\DIP412VM.dta
System Configuration Dates Logged
Plotted 18-MAY-2004
Plotted on 01-APR-2005 15:39

Depth in Metres

Timing Marks every 60.0 sec

GAMMA RAY API 0 / 150

Verticality Tadpole Declination 18.00 deg East

XF-CALIPER MILLIMETRES 100 / 300

YF-CALIPER MILLIMETRES 100 / 300

Replay Scale 1:120

PAD 1F ohms 1500 / 3000

Rose Diagram

PAD 2F ohms 2000 / 3500

Formation Dip Solid=0.40 Hollow=0.20 Dip Parameters 0 / 90

PAD 3F ohms 2500 / 4000

PAD 4F ohms 2750 / 4000

2 Casing Shoe

YF-CALIPER
XF-CALIPER
GAMMA RAY

PAD 4F
PAD 3F
PAD 2F
PAD 1F

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename C:\logs\Ellsford\Bg-12v\DIP412VM.dta
System Configuration Dates Logged
Plotted 18-MAY-2004
Plotted on 01-APR-2005 15:39
MAIN LOG 1:120

BEFORE SURVEY CALIBRATION

C:\logs\Ellsford\Bg-12v\dip4m12v.dta

LOGGING CONSTANTS & GAMMA CALIBRATION

Correlation step (m.)	25	Correlation interval (m.)	1.00
Bit size #1 (mm)	0.00	Bit depth #1 (m)	0.00
Bit size #2 (mm)	0.00	Bit depth #2 (m)	0.00
Bit size #3 (mm)	0.00	Bit depth #3 (m)	0.00
Bit size #4 (mm)	0.00	Bit depth #4 (m)	0.00
Bit size #5 (mm)	0.00	Bit depth #5 (m)	0.00
Gamma calibration (API)	0.00	Gamma counts	0.00
Pad penetration (mm)	3.81	Search angle (degrees)	60.00
Structural dip angle (degrees)	90	Structural dip azi. (degrees)	00
Declination (degrees)	18.00	Detail pad data	NO
Coorvalue	1	Caliper used	MM
Depth units	METRC	Caliper used in calculations	YES

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-12V
FIELD	BINGAY CREEK
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

Elevation Kelly Bushing	metres	First Reading	94.72 metres
Elevation Grnd Floor	metres	Depth Driller	147.00 metres
Elevation Ground Level	1417.49 metres	Depth Logger	95.28 metres

PRECISION

DIPMETER ANALYSIS
SCALE 1:120

PRECISION ENERGY SERVICES

FOCUSSED ELECTRIC GAMMA RAY, CALIPER SCALE 1:240

LOCN. 5562793N 644321E
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG-05-12V
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG-05-12V
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION 5562793N 644321E

LSD	SEC	TWP	RGE
N/A			

OTHER SERVICES
CDL
DIP/VERT

PERMANENT DATUM GROUND LEVEL .ELEVATION 1417.490M
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1417.490M

DATE	28-MAR-05							
RUN NUMBER	1							
DEPTH-DRILLER	147.00M							
DEPTH-LOGGER	95.28M							
FIRST READING	89.20M							
LAST READING	15.80M							
CASING-DRILLER	3.00M							
CASING-LOGGER	3.00M							
BIT SIZE	133.35MM							
HOLE FLUID TYPE	WATER							
DENS./VISC.	1000	N/A						
PH/FLUID LOSS	N/A	N/A						
SAMPLE SOURCE	NONE							
RM @ MEAS TEMP	2.00 @ 20.0C							
RMF @ MEAS TEMP	N/A							
RMC @ MEAS TEMP	N/A							
SOURCE: RMF/RMC	N/A	N/A						
RM @ BHT	N/A							
TIME SINCE CIRC	N/A							
MAX REC TEMP	N/A							
EQUIPMENT/BASE	V3405	RDR						
RECORDED BY	ROBB RACZ							
WITNESSED BY	G. BICKFORD							
DRILL DONE	21-MAR-05							

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	133.35MM	85.00M	TD	159.00MM	N/A	SURFACE	3.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
SFE	103			

REMARKS

FOCUSSED ELECTRIC GAMMA RAY, CALIPER SCALE 1:240

NORTHING: 5562793.138 ELEVATION: 1417.490M SURVEYED ON MARCH 26/2005

EASTING : 644321.173 NO DETAIL ZONES HOLE BRIDGED AT 95.28M

'.L INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS
;D WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS,
ANND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE
OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE
RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE
INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS IN OUR PRICE SCHEDULE

MAIN LOG 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 22:16

FILENAME: MRGE12VM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 28-MAR-2005 AT 22:21

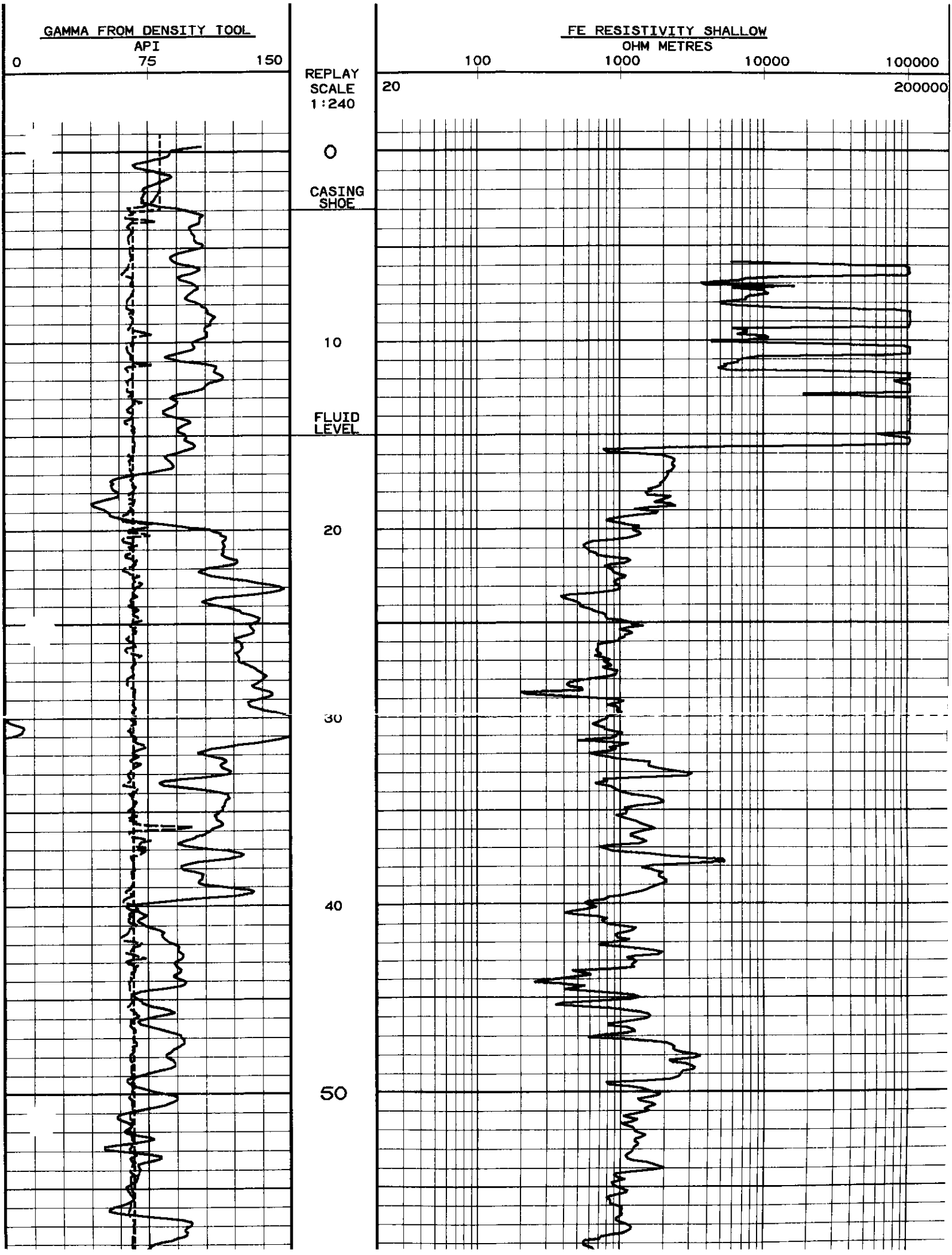
BIT SIZE
MILLIMETRES
50 150 250

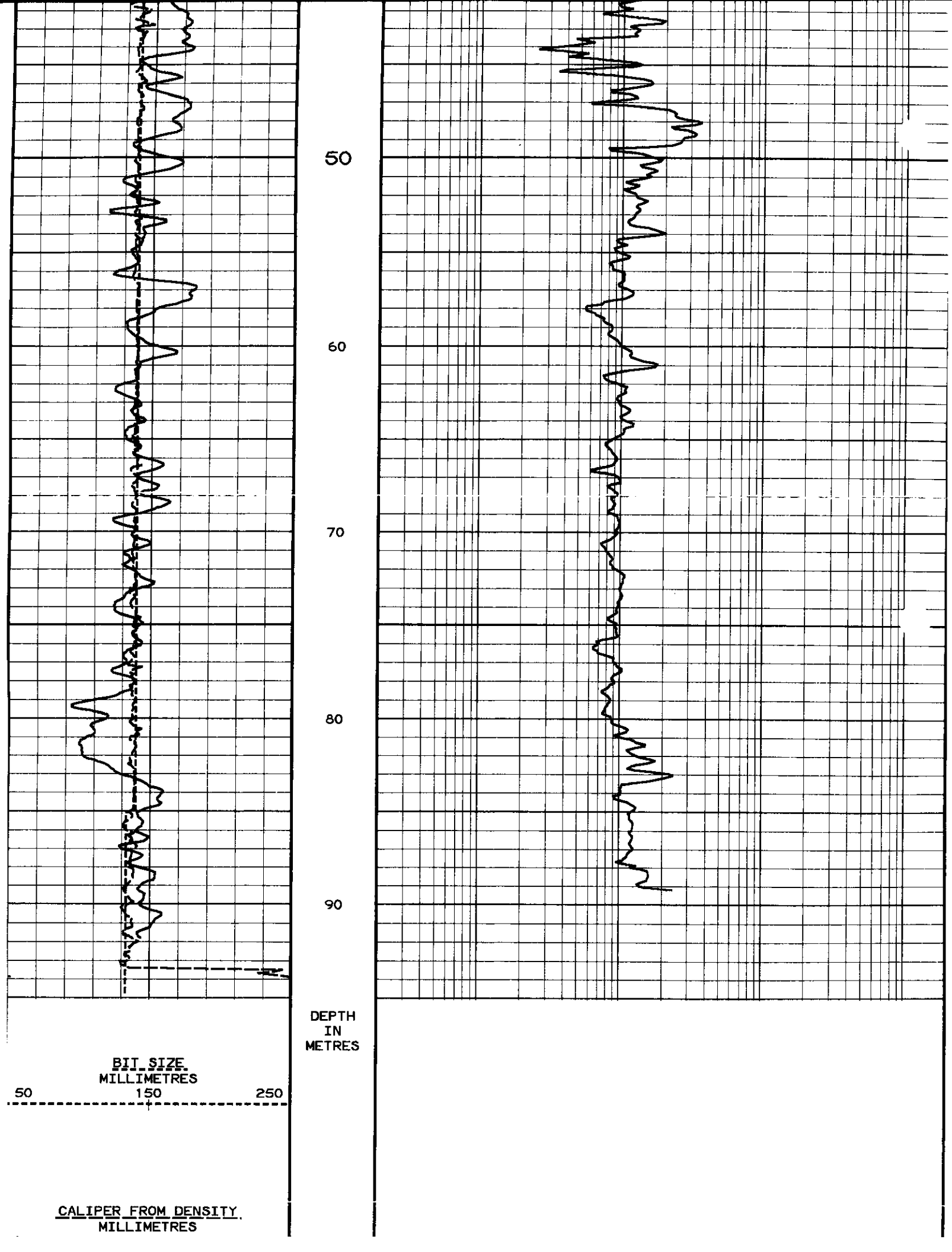
DEPTH IN METRES

CALIPER FROM DENSITY
MILLIMETRES
50 150 250

GAMMA FROM DENSITY TOOL

FE RESISTIVITY SHALLOW


GAMMA FROM DENSITY TOOL
API
0
75
150
REPLAY SCALE 1:240
FE RESISTIVITY SHALLOW
OHM METRES
100
1000
10000
100000
20
200000
0
CASING SHOE
10
FLUID LEVEL
20
30
40
50


50
60
70
80
90
DEPTH
IN
METRES
BIT SIZE
MILLIMETRES
50
150
250
CALIPER FROM DENSITY
MILLIMETRES

GAMMA FROM DENSITY TOOL
API
0 75 150

REPLAY SCALE 1:240

FE RESISTIVITY SHALLOW
OHM METRES
20 100 1000 10000 100000 200000

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 22:16

FILENAME: MRGE12VM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 28-MAR-2005 AT 22:21

MAIN LOG 1:240

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 22:15

FILENAME: MRGE12VR.CIB RUN ID:REPEAT SECTION PLOTTED ON 28-MAR-2005 AT 22:21

DEPTH IN METRES

BIT SIZE
MILLIMETRES
50 150 250

CALIPER FROM DENSITY
MILLIMETRES
50 150 250

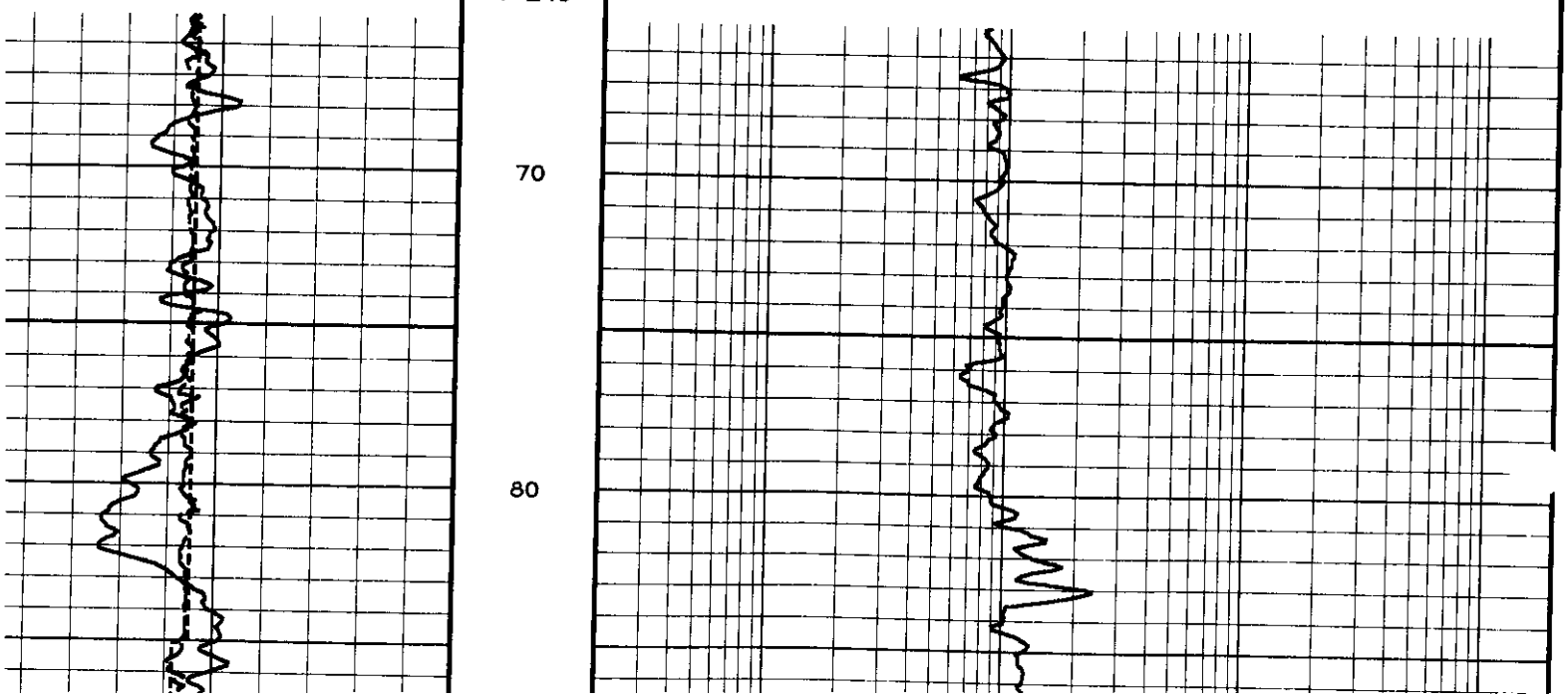
GAMMA FROM DENSITY TOOL
API
0 75 150

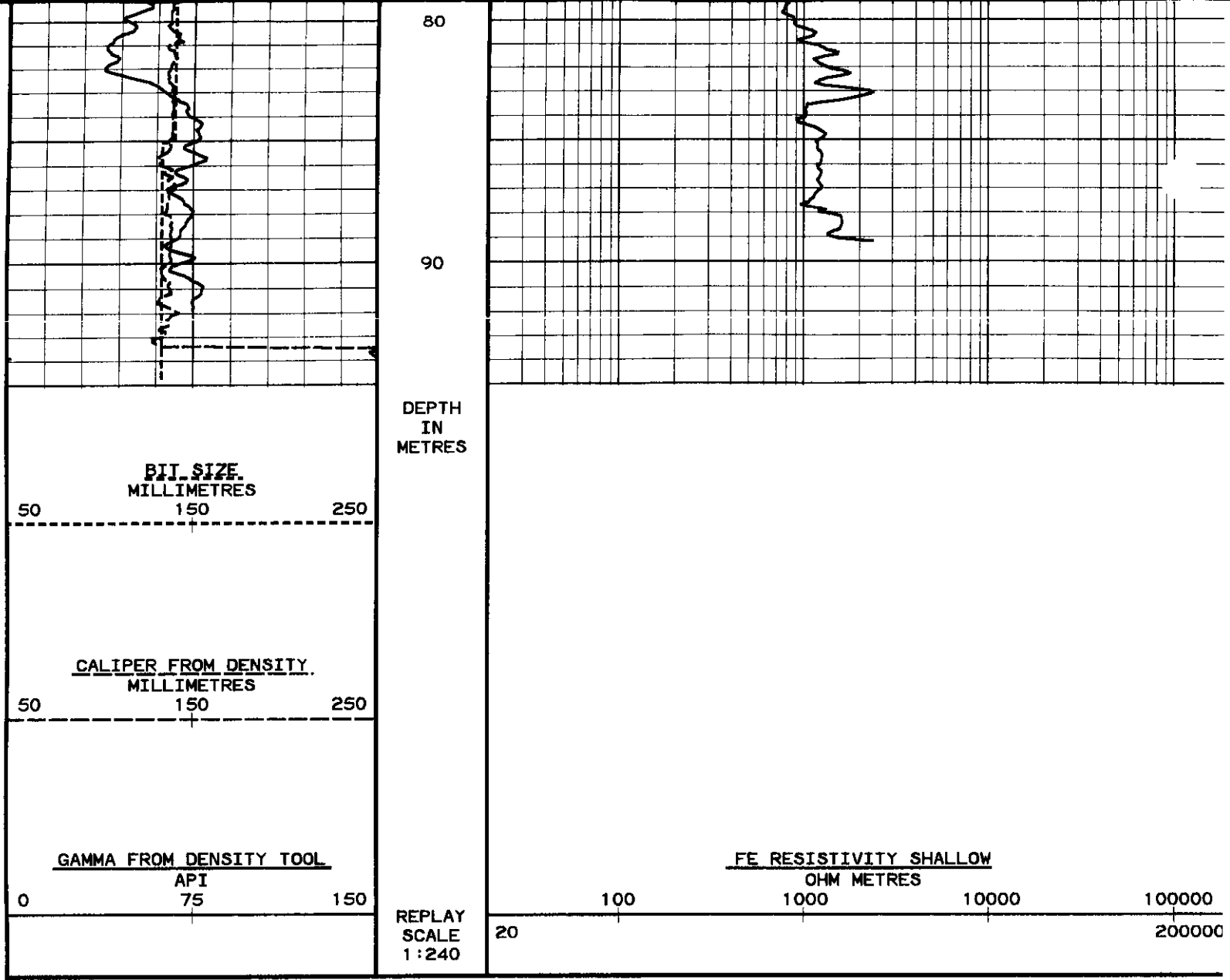
REPLAY SCALE 1:240

FE RESISTIVITY SHALLOW
OHM METRES
20 100 1000 10000 100000 200000

70

80





DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 22:15

FILENAME: MRGE12VR.CIB RUN ID:REPEAT SECTION PLOTTED ON 28-MAR-2005 AT 22:21

REPEAT SECTION

LOGGING/CALIBRATION CONSTANTS

CONSTANTS LAST EDITED: 28-MAR-2005 AT 22:10

LOGGING CONSTANTS AND BIT SIZE MEASUREMENTS

RESISTIVITY SONDE TYPE	DUAL RR1	MUD RESISTIVITY (OHM METRES)	2.000
BIT SIZE UNITS (INS/MM)	MILLIMTR	BIT DEPTH UNITS (M/FT)	METRES
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	3.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	85.00
BIT SIZS 4	0.00	FROM BIT DEPTH 4	147.00
BIT SIZE 5	0.00	FROM BIT DEPTH 5	0.00
TEMPERATURE UNITS	DEG. C		

CALIBRATION CONSTANTS

FE1	CALIBRATOR VALUE 1	2.0000	FE1	COUNT RATE 1	4496.0000
FE1	CALIBRATOR VALUE 2	2000.0000	FE1	COUNT RATE 2	2972.0000
FE2	CALIBRATOR VALUE 1	2.0000	FE2	COUNT RATE 1	4492.0000
FE2	CALIBRATOR VALUE 2	2000.0000	FE2	COUNT RATE 2	3010.0000
GRFE	CALIBRATOR VALUE 1	490.0000	GRFE	COUNT RATE 1	315.0000

TEMPERATURE UNITS	DEG. C

CALIBRATION CONSTANTS

FE1	CALIBRATOR VALUE 1	2.0000	FE1	COUNT RATE 1	4496.0000
FE1	CALIBRATOR VALUE 2	2000.0000	FE1	COUNT RATE 2	2972.0000
FE2	CALIBRATOR VALUE 1	2.0000	FE2	COUNT RATE 1	4492.0000
FE2	CALIBRATOR VALUE 2	2000.0000	FE2	COUNT RATE 2	3010.0000
GRFE	CALIBRATOR VALUE 1	490.0000	GRFE	COUNT RATE 1	315.0000
SP	CALIBRATOR VALUE 1	1.0000	SP	COUNT RATE 1	1.0000
SP	CALIBRATOR VALUE 2	0.0000	SP	COUNT RATE 2	0.0000

LOGGING CONSTANTS

SONDE TYPE (DD3,CCS,DDI,DDS,DDL	DDS	SONDE MODE (WET,DRY,STD)	STD
MUD WEIGHT	1.00	STRIP COEFFICIENT	0.50
ANNULAR VOLUME DIAMETER	133.35	WATER LEVEL	.00
CALIPER ARM LENGTH (CMS)	22.60	MATRIX DENSITY	2.65
CALIPER UNITS(INS,MMS)	MMS	DENSITY OF MUD FILTRATE	1.00
BRD POINT ONE	1.00	BRD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
LSD POINT ONE	1.00	LSD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
DENSITY SCALAR	1.50	BRD SCALAR	-.50
BIT DEPTHS & WATER LEVEL (FT,M)	METRES	CALIPER SOURCE FOR PROCESSING	CAL
BIT SIZE 1	159.00	FROM BIT DEPTH 1	.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	3.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	85.00
BIT SIZE 4	.00	FROM BIT DEPTH 4	147.00
BIT SIZE 5	.00	FROM BIT DEPTH 5	.00

CALIBRATION CONSTANTS

GAMMA CALIBRATOR VALUE 1	436.00	GAMMA COUNT RATE 1	237.72
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
CALIPER RING SIZE 1	76.20	CALIPER COUNT FOR RING 1	1834.00
CALIPER RING SIZE 2	101.60	CALIPER COUNT FOR RING 2	2258.00
CALIPER RING SIZE 3	127.00	CALIPER COUNT FOR RING 3	2690.00
CALIPER RING SIZE 4	152.40	CALIPER COUNT FOR RING 4	3162.00
CALIPER RING SIZE 5	203.20	CALIPER COUNT FOR RING 5	4224.00
CALIPER RING SIZE 6	254.00	CALIPER COUNT FOR RING 6	5030.00
DRY HOLE CORRECTION...			
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
DRY HOLE BRD NEW (1) GM/CC	0.00	DRY HOLE BRD LOG (1) GM/CC	0.00
DRY HOLE BRD NEW (2) GM/CC	1.00	DRY HOLE BRD LOG (2) GM/CC	1.00
DRY HOLE LSD NEW (1) GM/CC	0.00	DRY HOLE LSD LOG (1) GM/CC	0.00
DRY HOLE LSD NEW (2) GM/CC	1.00	DRY HOLE LSD LOG (2) GM/CC	1.00

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-12V
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

NOTE: Hole bridged at top of coal.

PRECISION ENERGY SERVICES

COMPENSATED DENSITY GAMMA RAY, CALIPER SCALE 1:240

LOCN. 5562793N 644321E
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG-05-12V
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG-05-12V
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION 5562793N 644321E

LSD	SEC	TWP	RGE
N/A			

OTHER SERVICES
SFE
DIP/VERT

PERMANENT DATUM GROUND LEVEL ,ELEVATION 1417.490M
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1417.490M

DATE	28-MAR-05							
RUN NUMBER	1							
DEPTH-DRILLER	147.00M							
DEPTH-LOGGER	95.28M							
FIRST READING	94.00M							
LAST READING	0.00M							
CASING-DRILLER	3.00M							
CASING-LOGGER	3.00M							
BIT SIZE	133.35MM							
HOLE FLUID TYPE	WATER							
DENS./VISC.	1000	N/A						
PH/FLUID LOSS	N/A	N/A						
SAMPLE SOURCE	NONE							
RM @ MEAS TEMP	2.00 @ 20.0C							
RMF @ MEAS TEMP	N/A							
RMC @ MEAS TEMP	N/A							
SOURCE: RMF/RMC	N/A	N/A						
RM @ BHT	N/A							
TIME SINCE CIRC	N/A							
MAX REC TEMP	N/A							
EQUIPMENT/BASE	V3405	RDR						
RECORDED BY	ROBB RACZ							
WITNESSED BY	G. BICKFORD							
DRILL DONE	21-MAR-05							

RUN	BOREHOLE RECORD			CASING RECORD			
JMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	133.35MM	85.00M	TD	159.00MM	N/A	SURFACE	3.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
DD6	629			

REMARKS

COMPENSATED DENSITY GAMMA RAY, CALIPER SCALE 1:240

NORTHING: 5562793.138 ELEVATION: 1417.490M SURVEYED ON MARCH 26/2005

EASTING : 644321.173 NO DETAIL ZONES HOLE BRIDGED AT 95.28M

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS IN OUR PRICE SCHEDULE

MAIN LOG 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 22:16

FILENAME: MRGE12VM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 28-MAR-2005 AT 22:37

BIT SIZE
MILLIMETRES
50 150 250

CALIPER FROM DENSITY
MILLIMETRES
50 150 250

GAMMA FROM DENSITY TOOL
API
0 75 150

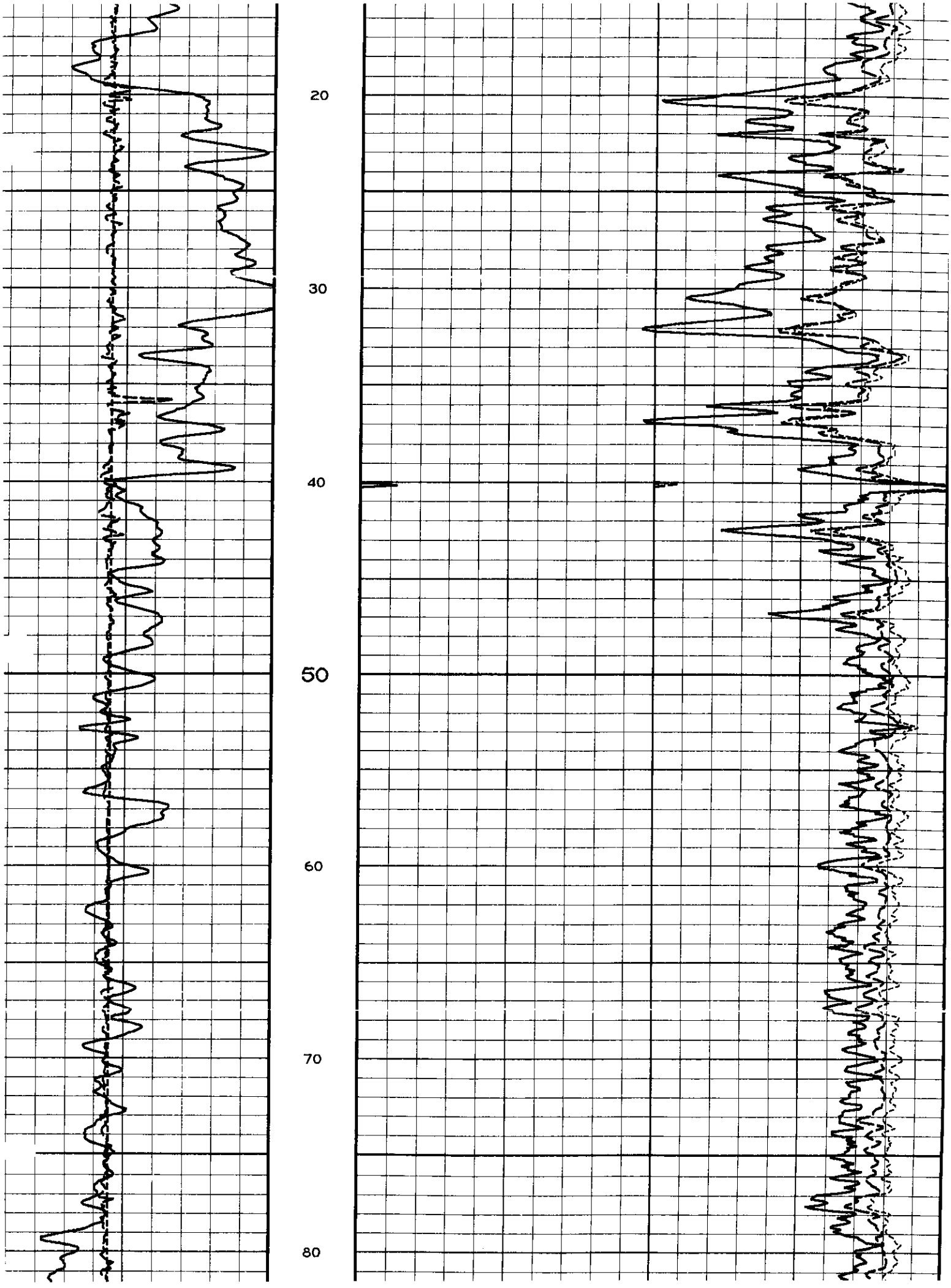
DEPTH IN METRES

REPLAY SCALE 1:240

COMPENSATED DENSITY
GM/CC
1 1.50 2 2.50 3

DENSITY SHORT SPACED
GM/CC
1 2 3

DENSITY LONG SPACED
GM/CC
1 2 3


20
30
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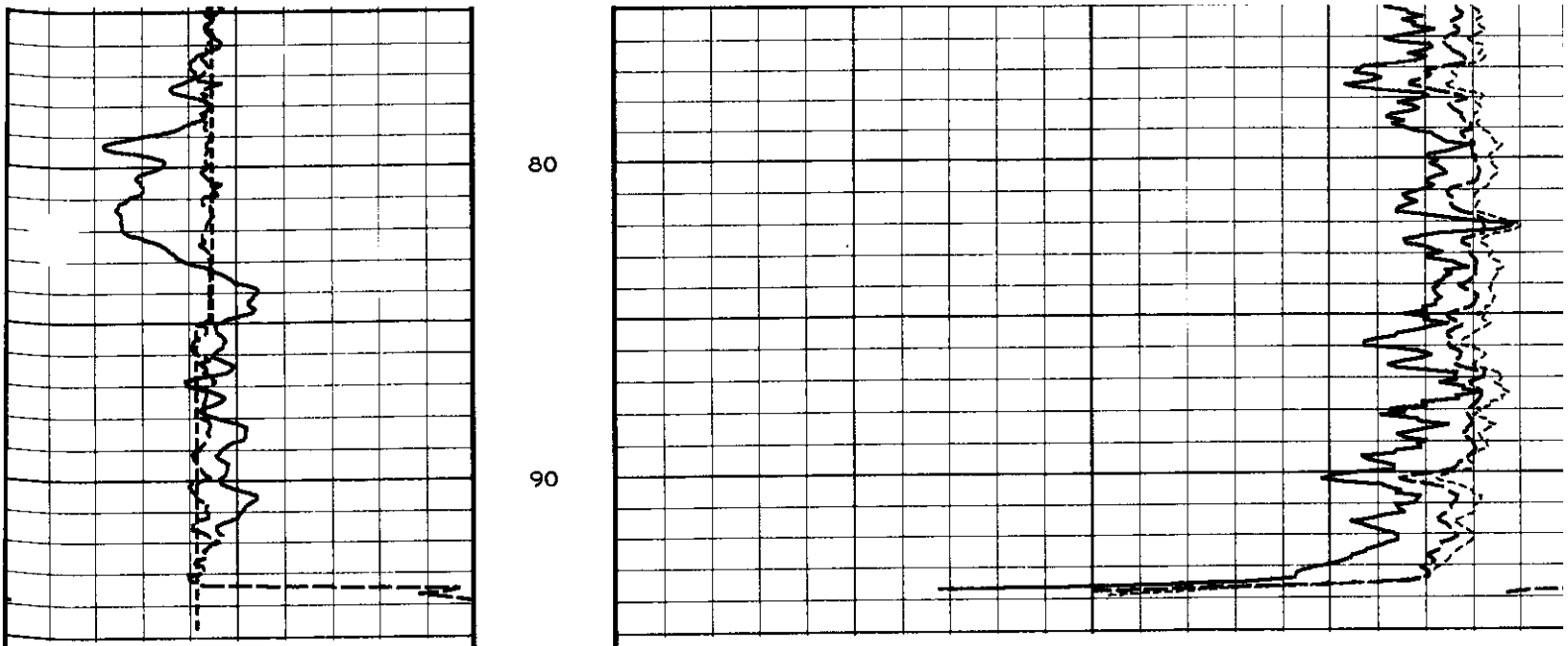


DEPTH IN METRES

BIT SIZE
MILLIMETRES
50 150 250

COMPENSATED DENSITY
GM/CC
1 1.50 2 2.50 3

CALIPER FROM DENSITY
MILLIMETRES
6 150 250

DENSITY SHORT SPACED
GM/CC
1 2 3

GAMMA FROM DENSITY TOOL
API
0 75 150

DENSITY LONG SPACED
GM/CC
1 2 3

REPLAY SCALE 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 22:16

FILENAME: MRGE12VM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 28-MAR-2005 AT 22:37

MAIN LOG 1:240

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 22:15

FILENAME: MRGE12VR.CIB RUN ID:REPEAT SECTION PLOTTED ON 28-MAR-2005 AT 22:37

DEPTH IN METRES

BIT SIZE
MILLIMETRES
50 150 250

COMPENSATED DENSITY
GM/CC
1 1.50 2 2.50 3

GAMMA FROM DENSITY TOOL
API
0 75 150

REPLAY SCALE 1:240

DENSITY LONG SPACED
GM/CC
1 2 3

70

80

90

DEPTH IN METRES

BIT SIZE
MILLIMETRES
50 150 250

COMPENSATED DENSITY
GM/CC
1 1.50 2 2.50 3

CALIPER FROM DENSITY
MILLIMETRES
50 150 250

DENSITY SHORT SPACED
GM/CC
1 2 3

GAMMA FROM DENSITY TOOL
API
0 75 150

REPLAY SCALE 1:240

DENSITY LONG SPACED
GM/CC
1 2 3

REPLAY
SCALE
1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 22:15

FILENAME: MRGE12VR.CIB RUN ID:REPEAT SECTION PLOTTED ON 28-MAR-2005 AT 22:37

REPEAT SECTION

LOGGING/CALIBRATION CONSTANTS

CONSTANTS LAST EDITED: 28-MAR-2005 AT 22:10

LOGGING CONSTANTS AND BIT SIZE MEASUREMENTS

RESISTIVITY SONDE TYPE	DUAL RR1	MUD RESISTIVITY (OHM METRES)	2.000
BIT SIZE UNITS (INS/MM)	MILLIMTR	BIT DEPTH UNITS (M/FT)	METRES
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	3.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	85.00
BIT SIZS 4	0.00	FROM BIT DEPTH 4	147.00
BIT SIZE 5	0.00	FROM BIT DEPTH 5	0.00
TEMPERATURE UNITS	DEG. C		

CALIBRATION CONSTANTS

FE1	CALIBRATOR VALUE 1	2.0000	FE1	COUNT RATE 1	4496.0000
FE1	CALIBRATOR VALUE 2	2000.0000	FE1	COUNT RATE 2	2972.0000
FE2	CALIBRATOR VALUE 1	2.0000	FE2	COUNT RATE 1	4492.0000
FE2	CALIBRATOR VALUE 2	2000.0000	FE2	COUNT RATE 2	3010.0000
GRFE	CALIBRATOR VALUE 1	490.0000	GRFE	COUNT RATE 1	315.0000
SP	CALIBRATOR VALUE 1	1.0000	SP	COUNT RATE 1	1.0000
SP	CALIBRATOR VALUE 2	0.0000	SP	COUNT RATE 2	0.0000

LOGGING CONSTANTS

SONDE TYPE (DD3,CCS,DDI,DDS,DDL	DDS	SONDE MODE (WET,DRY,STD)	STD
MUD WEIGHT	1.00	STRIP COEFFICIENT	0.50
ANNULAR VOLUME DIAMETER	133.35	WATER LEVEL	.00
CALIPER ARM LENGTH (CMS)	22.60	MATRIX DENSITY	2.65
CALIPER UNITS(INS,MMS)	MMS	DENSITY OF MUD FILTRATE	1.00
BRD POINT ONE	1.00	BRD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
LSD POINT ONE	1.00	LSD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
DENSITY SCALAR	1.50	BRD SCALAR	-.50
BIT DEPTHS & WATER LEVEL (FT,M)	METRES	CALIPER SOURCE FOR PROCESSING	CAL
BIT SIZE 1	159.00	FROM BIT DEPTH 1	.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	3.00
BIT SIZE 3	133.35	FROM BIT DEPTH 3	85.00
BIT SIZE 4	.00	FROM BIT DEPTH 4	147.00
BIT SIZE 5	.00	FROM BIT DEPTH 5	.00

CALIBRATION CONSTANTS

GAMMA CALIBRATOR VALUE 1	436.00	GAMMA COUNT RATE 1	237.72
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD [illegible]	.00
CALIPER RING SIZE 1	76.20	CALIPER COUNT FOR RING 1	1834.00
CALIPER RING SIZE 2	101.60	CALIPER COUNT FOR RING 2	2258.00
CALIPER RING SIZE 3	127.00	CALIPER COUNT FOR RING 3	2690.00
CALIPER RING SIZE 4	152.40	CALIPER COUNT FOR RING 4	3162.00
CALIPER RING SIZE 5	203.20	CALIPER COUNT FOR RING 5	4224.00
CALIPER RING SIZE 6	254.00	CALIPER COUNT FOR RING 6	5030.00
DRY HOLE CORRECTION...			
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
DRY HOLE BRD NEW (1) GM/CC	0.00	DRY HOLE BRD LOG (1) GM/CC	0.00
DRY HOLE BRD NEW (2) GM/CC	1.00	DRY HOLE BRD LOG (2) GM/CC	1.00
DRY HOLE LSD NEW (1) GM/CC	0.00	DRY HOLE LSD LOG (1) GM/CC	0.00
DRY HOLE LSD NEW (2) GM/CC	1.00	DRY HOLE LSD LOG (2) GM/CC	1.00

LIPER	RING SIZE 1	76.20	CALIPER COUNT FOR RING 1	1834.00
LIPER	RING SIZE 2	101.60	CALIPER COUNT FOR RING 2	2258.00
LIPER	RING SIZE 3	127.00	CALIPER COUNT FOR RING 3	2690.00
LIPER	RING SIZE 4	152.40	CALIPER COUNT FOR RING 4	3162.00
LIPER	RING SIZE 5	203.20	CALIPER COUNT FOR RING 5	4224.00
LIPER	RING SIZE 6	254.00	CALIPER COUNT FOR RING 6	5030.00
Y HOLE CORRECTION...				
D CALIBRATOR VALUE 1		38247.00	BRD COUNT RATE 1	1875.22
D CALIBRATOR VALUE 2		.00	BRD COUNT RATE 2	.00
D CALIBRATOR VALUE 1		20028.00	LSD COUNT RATE 1	1140.24
D CALIBRATOR VALUE 2		.00	LSD COUNT RATE 2	.00
Y HOLE BRD NEW (1) GM/CC		0.00	DRY HOLE BRD LOG (1) GM/CC	0.00
Y HOLE BRD NEW (2) GM/CC		1.00	DRY HOLE BRD LOG (2) GM/CC	1.00
Y HOLE LSD NEW (1) GM/CC		0.00	DRY HOLE LSD LOG (1) GM/CC	0.00
Y HOLE LSD NEW (2) GM/CC		1.00	DRY HOLE LSD LOG (2) GM/CC	1.00

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-12V
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

BG-05-13A

Log Date	01-APR-2005	Elevation: 1416.687 metres		Elevations:	
Max Recorded Temp.	38.00 deg. C	Permanent Datum: G.L.		KB:	1416.687 metres
Max Recorded Hdg.	0.00 degrees	Log Measured from GROUND LEVEL		DF:	metres
Max Recorded Inclin.	0.00 degrees	Drilling Measured from GROUND LEVEL		GL:	1416.687 metres
Max Recorded Azimuth	0.00 degrees	Date Last Calibrated: 7-MAR-2005			
Log Method	Wireline	Depth Reference: Log Level Permanent Datum			
Logging Unit	1	Other Services:			
Logging Engineer	SPE				
Witnessed by					

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-13A
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY	CANADA
CORRIDATE	5563414.000 N 64417.67 E
LOC	SEC 17 TWP 17 RGE 17 W6
Lat. Longitude	

PRECISION GEOSCIENCE SERVICES

DIPMETER ANALYSIS
SCALE 1:240

BOREHOLE RECORD

Bit Size millimetres	Depth From metres	Depth To metres
159.700	0.00	94.50

CASING RECORD

Type	Size millimetres	Depth From metres	Shoe Depth metres	Weight kg/metre
	159.000	0.00	3.00	0.00

REMARKS

SURFACE CO-ORDINATES:

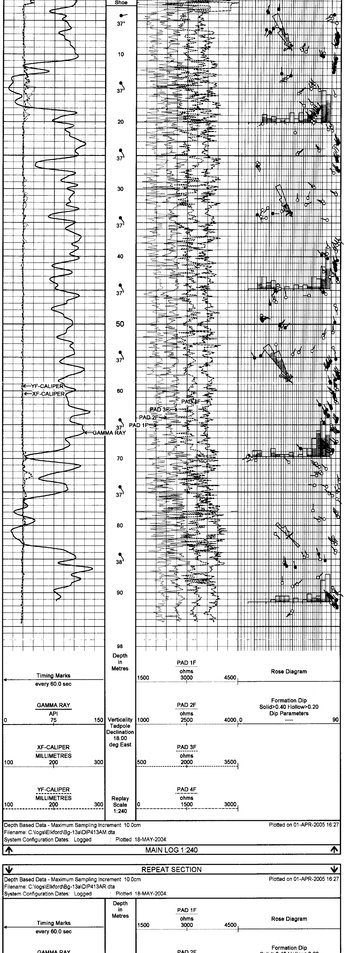
NORTHING 5563434.298
EASTING 64417.967

ELEVATION 1416.687 M SURVEYED ON MARCH 26/2005

All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions in our price schedule.

MAIN LOG 1:240

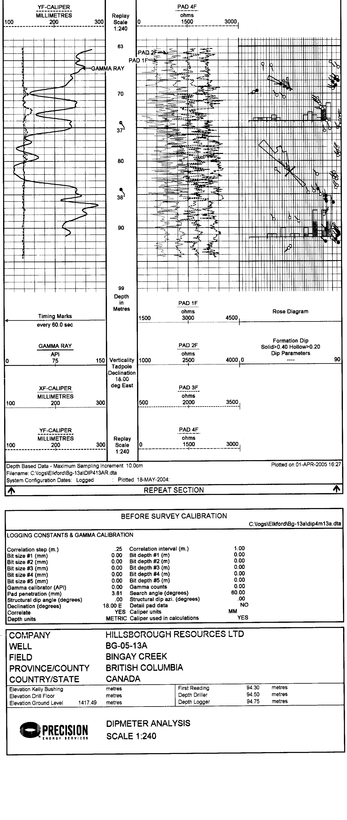
Depth Based Data - Maximum Sampling Increment: 10.0cm
Filename: C:\logs\Elxford\bg-13a\DIP41MAIN.dta
System Configuration Dates: Logged Plotted: 18-MAY-2004
Plotted on 01-APR-2005 16:26



Depth Based Data - Maximum Sampling Increment: 10.0cm
Filename: C:\logs\Elxford\bg-13a\DIP41MAIN.dta
System Configuration Dates: Logged Plotted: 18-MAY-2004
Plotted on 01-APR-2005 16:27

REPEAT SECTION

Depth Based Data - Maximum Sampling Increment: 10.0cm
Filename: C:\logs\Elxford\bg-13a\DIP41MAR.dta
System Configuration Dates: Logged Plotted: 18-MAY-2004
Plotted on 01-APR-2005 16:27



Depth Based Data - Maximum Sampling Increment: 10.0cm
Filename: C:\logs\Elxford\bg-13a\DIP41MAR.dta
System Configuration Dates: Logged Plotted: 18-MAY-2004
Plotted on 01-APR-2005 16:27

BEFORE SURVEY CALIBRATION

C:\logs\Elxford\bg-13a\dip4m13a.dta

LOGGING CONSTANTS & GAMMA CALIBRATION

Correlation step (m.)	25	Correlation interval (m.)	1.00
Bit size #1 (mm)	0.00	Bit depth #1 (m)	0.00
Bit size #2 (mm)	0.00	Bit depth #2 (m)	0.00
Bit size #3 (mm)	0.00	Bit depth #3 (m)	0.00
Bit size #4 (mm)	0.00	Bit depth #4 (m)	0.00
Bit size #5 (mm)	0.00	Bit depth #5 (m)	0.00
Gamma calibration (API)	0.00	Gamma counts	0.00
Pad penetration (mm)	3.81	Search angle (degrees)	60.00
Structural dip angle (degrees)	.00	Structural dip azi. (degrees)	.00
Declination (degrees)	18.00 E	Detail pad data	NO
Correlate	YES	Caliper units	MM
Depth units	METRIC	Caliper used in calculations	YES

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-13A
FIELD	BINGAY CREEK
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

Elevation Kelly Bushing	metres		First Reading	94.50	metres
Elevation Drill Floor	metres		Depth Driller	94.50	metres
Elevation Ground Level	1417.49	metres	Depth Logger	94.75	metres

PRECISION GEOSCIENCE SERVICES

DIPMETER ANALYSIS
SCALE 1:240

VERTICALITY ANALYSIS

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG-05-13A
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A
LOCATION 5563434N 644157E
LSD N/A | SEC | TWP | RGE
OTHER SERVICES SFE CDL

LOCN. 5563434N 644157E
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG-05-13A
COMPANY: HILLSBOROUGH RESOURCES LTD

PERMANENT DATUM GROUND LEVEL .ELEVATION 1416.687M
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL
ELEVATIONS: KB N/A DF N/A GL 1416.687M

DATE	27-MAR-05
RUN NUMBER	1
DEPTH-DRILLER	94.50M
DEPTH-LOGGER	94.75M
FIRST READING	92.00M
LAST READING	6.20M
CASING-DRILLER	3.00M
CASING-LOGGER	2.80M
BIT SIZE	139.70MM
HOLE FLUID TYPE	WATER
DENS./VISC.	1000 N/A
PH/FLUID LOSS	N/A N/A
SAMPLE SOURCE	NONE
RM @ MEAS TEMP	2.00 @ 20.0C
RMF @ MEAS TEMP	N/A
RMC @ MEAS TEMP	N/A
SOURCE: RMF/RMC	N/A N/A
RM @ BHT	N/A
TIME SINCE CIRC	N/A
MAX REC TEMP	N/A
EQUIPMENT/BASE	V3405 RDR
RECORDED BY	ROBB RACZ
WITNESSED BY	G. BICKFORD
DRILL DONE	22-MAR-05

VERTICALITY ANALYSIS INTERPRETATION NOTES

1. ALL PLOTTED OUTPUT IS AUTOMATICALLY SCALED TO OBTAIN THE BEST VISUAL EFFECT WITHIN THE PHYSICAL SPACE AVAILABLE. THE MAXIMUM SCALES BEING 1:50000 (METRIC) AND 1:48000 (IMPERIAL), AND THE MINIMUM 1:1.

2. THE ANALYSIS IS DERIVED BY INTEGRATING 10CM. SAMPLED DATA DOWN THE BOREHOLE. THE LISTING SUPPLIED WILL CONTAIN A MAXIMUM OF 200 POINTS IN MULTIPLES OF 1, 2, 5, 10, 20, 50 OR 100 METRES/ FEET DEPENDING ON THE TOTAL RANGE OF THE ANALYSIS. HOWEVER THE ANALYSIS IS CALCULATED FOR THE ENTIRE RANGE OF THE BOREHOLE AND THE FINAL BOREHOLE POSITION IS INCLUDED IN THE LISTING.

3. COMPUTED VERTICALITY MAY ONLY BE FULLY DERIVED IN OPEN SECTIONS OF THE BOREHOLE, AWAY FROM THE INFLUENCE OF ANY UNUSUAL MAGNETIC EFFECTS (AS THE AZIMUTH CALCULATIONS ARE DERIVED FROM THREE SOLID STATE MAGNETOMETERS). SO THE ANALYSIS WILL GENERALLY BEGIN AT THE END OF THE CASING AND ALL BOREHOLE POSITIONAL INFORMATION WILL RELATE TO THIS DEPTH.

4. UP TO TEN CROSS SECTIONS MAY BE REQUESTED FOR ANY BOREHOLE TO BE DISPLAYED AT ANY SCALE (THE DEFAULT SCALE IS THAT OF THE CROSS-SECTION FOR THE ENTIRE HOLE).

5. BOREHOLE POSITIONAL ERROR IS DERIVED ASSUMING THE FOLLOWING PARAMETERS.

	TILT(DEGREES)	AZIMUTH(DEGREES)
TYPICAL ERROR	+/- .3333	+/- 10.00
MAXIMUM ERROR	+/- .5000	+/- 15.00

6. ERROR ANALYSIS MAY BE CALCULATED AND PLOTTED FROM THE DATA LISTING AS FOLLOWS:

   A) PLOT THE FOUR COORDINATES FROM THE ERROR LISTING (BASED UPON ZERO AZIMUTH ERROR) ON A TARGET PLOT. ORIGIN AT THE START OF THE ANALYSIS.
   B) DESCRIBE ARCS OF +/- 10.00 DEGREES AND +/- 15.00 DEGREES (CENTRE AT THE ORIGIN) THROUGH THE INNER AND OUTER POINTS RESPECTIVELY.
   C) CONNECT THE RESPECTIVE ARCS TOGETHER WITH STRAIGHT LINES TO GIVE THE TYPICAL AND MAXIMUM BOREHOLE POSITIONAL ERROR.

7. GIVEN BELOW IS A FULL DESCRIPTION OF THE PARAMETERS DISPLAYED ON THE ENSUING LISTING:

LOG DEPTH	THE DEPTH RECORDED ON THE FIELD LOGS FOR THE BOREHOLE.
TRUE DEPTH	THE TRUE VERTICAL DEPTH CORESPONDING TO THE ABOVE DEPTH. CORRECTED FROM THE START OF THE ANALYSIS.
HOLE TILT AND AZIMUTH	THE SAMPLED BOREHOLE ORIENTATION.
AXIAL COORDINATES	THE COORDINATES NORTH AND EAST FROM THE TARGET ORIGIN.
POLAR COORDINATES	THE POLAR, OR RADIAL COORDINATES OF THE BOREHOLE.
ERROR COORDINATES	THE POLAR COORDINATES CORRESPONDING TO THE TYPICAL AND MAXIMUM TILT ERROR.

N.B. THE REFERENCE POINT FOR ALL BEARING ANGLES ON THIS LISTING IS GIVEN AT THE TOP OF EACH SHEET.

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

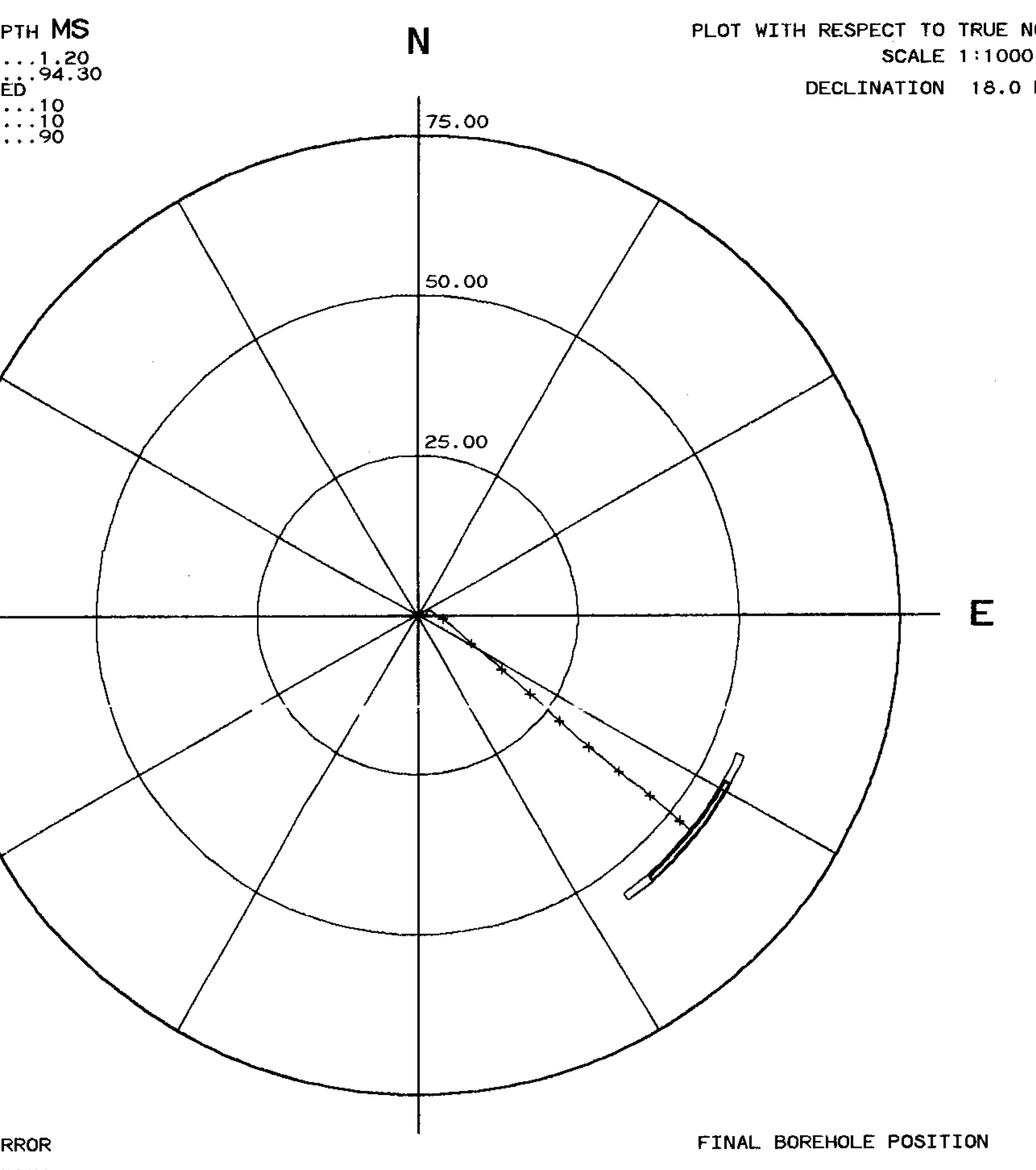
BG-05-13A — VERTICALITY DATA LISTING FOR DIP413AB.CIB — DATE PROCESSED: 31-MAR-2005
ALL CO-ORDINATES WITH RESPECT TO TRUE NORTH — DATE LOGGED: 27-MAR-2005

DEPTHS		BOREHOLE		AXIAL CO-ORDS		POLAR		POLAR ERROR CO-ORDINATES (MAXIMUM & TYPICAL)							
LOG	TRUE	TILT	AZI	NORTH	EAST	BRG	RADIUS	BRG	RADIUS	BRG	RADIUS	BRG	RADIUS	BRD	RADIUS
2.00	1.86	35.6	65	-0.09	0.43	102	0.44	102	0.44	102	0.43	102	0.44	102	0.44
3.00	2.66	36.6	73	-0.06	0.63	96	0.63	96	0.64	96	0.62	96	0.64	96	0.63
4.00	3.46	37.3	60	0.17	1.16	82	1.17	82	1.19	82	1.16	82	1.18	82	1.17
5.00	4.26	37.3	62	0.67	1.49	66	1.63	66	1.65	66	1.61	66	1.64	66	1.62
6.00	5.05	37.0	120	0.76	1.97	69	2.12	69	2.14	69	2.09	69	2.13	69	2.10
7.00	5.85	36.9	126	0.42	2.47	80	2.51	80	2.54	80	2.48	80	2.53	80	2.49
8.00	6.65	36.8	127	0.07	2.95	89	2.96	89	2.99	89	2.92	89	2.98	89	2.93
9.00	7.45	36.8	126	-0.29	3.43	95	3.45	95	3.49	95	3.41	95	3.47	95	3.42
10.00	8.25	36.9	129	-0.66	3.91	100	3.96	100	4.01	100	3.92	100	4.00	100	3.93
11.00	9.05	36.9	126	-1.02	4.39	103	4.51	103	4.56	103	4.45	103	4.54	103	4.47
12.00	9.85	37.0	130	-1.39	4.86	106	5.05	106	5.11	106	5.00	106	5.09	106	5.02
13.00	10.65	36.7	132	-1.78	5.31	109	5.60	109	5.67	109	5.54	109	5.65	109	5.56
14.00	11.46	36.4	135	-2.18	5.76	111	6.16	111	6.23	111	6.09	111	6.21	111	6.11
15.00	12.26	37.0	131	-2.58	6.20	113	6.72	113	6.80	113	6.64	113	6.77	113	6.66
16.00	13.06	36.7	133	-2.97	6.65	114	7.29	114	7.37	114	7.20	114	7.34	114	7.23
17.00	13.86	36.8	130	-3.37	7.10	115	7.86	115	7.95	115	7.77	115	7.92	115	7.80
18.00	14.66	37.1	131	-3.77	7.55	117	8.44	117	8.54	117	8.34	117	8.50	117	8.37
19.00	15.46	37.0	129	-4.16	8.01	117	9.02	117	9.13	117	8.92	117	9.09	117	8.95
20.00	16.25	37.1	131	-4.56	8.46	118	9.61	118	9.72	118	9.50	118	9.69	118	9.54
21.00	17.05	37.1	132	-4.96	8.91	119	10.20	119	10.32	119	10.08	119	10.28	119	10.12
22.00	17.85	37.4	128	-5.36	9.37	120	10.79	120	10.92	120	10.67	120	10.88	120	10.71
23.00	18.64	37.4	130	-5.74	9.84	120	11.39	120	11.52	120	11.26	120	11.48	120	11.30
24.00	19.44	37.4	128	-6.12	10.31	121	11.99	121	12.13	121	11.85	121	12.08	121	11.90
25.00	20.23	37.3	132	-6.51	10.77	121	12.59	121	12.73	121	12.44	121	12.69	121	12.49
26.00	21.03	37.1	133	-6.91	11.23	122	13.19	122	13.34	122	13.03	122	13.29	122	13.08
27.00	21.83	37.3	131	-7.31	11.69	122	13.78	122	13.94	122	13.62	122	13.89	122	13.68
28.00	22.62	36.8	132	-7.72	12.13	122	14.38	122	14.54	122	14.21	122	14.49	122	14.26
29.00	23.42	37.4	131	-8.12	12.58	123	14.97	123	15.14	123	14.79	123	15.08	123	14.85
30.00	24.22	37.2	131	-8.52	13.03	123	15.57	123	15.75	123	15.39	123	15.69	123	15.45
31.00	25.01	37.5	129	-8.90	13.50	123	16.17	123	16.36	123	15.98	123	16.30	123	16.05
32.00	25.81	37.6	126	-9.28	13.98	124	16.78	124	16.97	124	16.58	124	16.91	124	16.65
33.00	26.60	37.1	132	-9.67	14.45	124	17.39	124	17.59	124	17.18	124	17.52	124	17.25
34.00	27.40	36.9	133	-10.08	14.89	124	17.98	124	18.19	124	17.77	124	18.12	124	17.84
35.00	28.19	37.8	127	-10.47	15.35	124	18.58	124	18.80	124	18.37	124	18.73	124	18.44
36.00	28.99	37.5	129	-10.87	15.80	125	19.18	125	19.41	125	18.96	125	19.33	125	19.04
37.00	29.78	37.3	129	-11.26	16.27	125	19.79	125	20.02	125	19.56	125	19.94	125	19.63
38.00	30.58	37.0	133	-11.66	16.73	125	20.39	125	20.62	125	20.15	125	20.55	125	20.23
39.00	31.37	37.2	132	-12.07	17.17	125	20.99	125	21.23	125	20.74	125	21.15	125	20.82
40.00	32.17	37.4	130	-12.47	17.62	125	21.59	125	21.84	125	21.34	125	21.75	125	21.42
41.00	32.97	37.5	131	-12.88	18.07	125	22.19	125	22.45	125	21.93	125	22.36	125	[illegible]
42.00	33.76	37.1	133	-13.28	18.52	126	22.79	126	23.05	126	22.53	126	22.97	126	[illegible]
43.00	34.56	37.2	135	-13.70	18.96	126	23.39	126	23.66	126	23.12	126	23.57	126	23.21
44.00	35.36	37.0	135	-14.11	19.40	126	23.99	126	24.26	126	23.71	126	24.17	126	23.80
45.00	36.15	37.1	134	-14.53	19.84	126	24.59	126	24.87	126	24.30	126	24.78	126	24.40
46.00	36.95	37.2	134	-14.94	20.28	126	25.19	126	25.48	126	24.90	126	25.38	126	25.00
47.00	37.75	37.3	133	-15.35	20.72	127	25.79	127	26.09	127	25.49	127	25.99	127	25.59
48.00	38.54	37.5	132	-15.76	21.17	127	26.39	127	26.70	127	26.09	127	26.60	127	26.19
49.00	39.33	37.4	131	-16.16	21.63	127	27.00	127	27.31	127	26.69	127	27.21	127	26.79
50.00	40.13	37.5	133	-16.56	22.08	127	27.60	127	27.92	127	27.29	127	27.82	127	27.39
51.00	40.92	37.4	131	-16.97	22.54	127	28.21	127	28.54	127	27.88	127	28.43	127	27.99
52.00	41.72	37.7	132	-17.36	23.00	127	28.82	127	29.15	127	28.48	127	29.04	127	28.60
53.00	42.51	37.4	132	-17.77	23.46	127	29.43	127	29.76	127	29.09	127	29.65	127	29.20
54.00	43.30	37.5	133	-18.18	23.90	127	30.03	127	30.38	127	29.68	127	30.26	127	29.80
55.00	44.09	37.5	132	-18.59	24.35	127	30.64	127	30.99	127	30.28	127	30.87	127	30.40
56.00	44.89	37.5	132	-19.00	24.80	127	31.24	127	31.60	127	30.88	127	31.48	127	31.00
57.00	45.68	37.5	133	-19.42	25.25	128	31.85	128	32.22	128	31.48	128	32.09	128	31.60
58.00	46.47	37.4	131	-19.83	25.70	128	32.46	128	32.83	128	32.08	128	32.71	128	32.21
59.00	47.27	37.4	133	-20.23	26.15	128	33.06	128	33.44	128	32.68	128	33.32	128	32.81
60.00	48.06	37.4	129	-20.63	26.61	128	33.67	128	34.06	128	33.28	128	33.93	128	33.41
61.00	48.85	37.4	132	-21.03	27.07	128	34.28	128	34.67	128	33.89	128	34.54	128	34.02
62.00	49.65	37.6	130	-21.43	27.53	128	34.89	128	35.29	128	34.49	128	35.16	128	34.62
63.00	50.44	37.6	131	-21.83	27.99	128	35.50	128	35.91	128	35.09	128	35.77	128	35.23
64.00	51.23	37.4	132	-22.23	28.45	128	36.11	128	36.52	128	35.69	128	36.38	128	35.83
65.00	52.03	37.6	128	-22.62	28.92	128	36.72	128	37.14	128	36.29	128	37.00	128	36.43
66.00	52.82	37.6	127	-23.00	29.40	128	37.32	128	37.75	128	36.89	128	37.61	128	37.04
67.00	53.61	37.4	127	-23.37	29.87	128	37.93	128	38.37	128	37.49	128	38.22	128	37.64
68.00	54.41	37.3	128	-23.75	30.35	128	38.54	128	38.98	128	38.10	128	38.83	128	38.24
69.00	55.20	37.9	129	-24.13	30.83	128	39.15	128	39.60	128	38.70	128	39.45	128	38.85
70.00	55.99	37.8	129	-24.51	31.31	128	39.76	128	40.22	128	39.30	128	40.07	128	39.46
71.00	56.78	37.8	130	-24.90	31.78	128	40.38	128	40.84	128	39.91	128	40.68	128	40.07
72.00	57.56	38.5	128	-25.29	32.26	128	41.00	128	41.46	128	40.52	128	41.31	128	40.68
73.00	58.35	38.1	127	-25.68	32.75	128	41.61	128	42.09	128	41.13	128	41.93	128	41.29
74.00	59.14	37.6	129	-26.05	33.23	128	42.22	128	42.71	128	41.74	128	42.55	128	41.90
75.00	59.93	37.7	129	-26.44	33.70	128	42.84	128	43.33	128	42.34	128	43.16	128	42.51
76.00	60.72	38.2	130	-26.83	34.18	128	43.45	128	43.95	128	42.95	128	43.78	128	43.12
77.00	61.51	38.3	129	-27.22	34.65	128	44.07	128	44.57	128	43.56	128	44.40	128	43.73
78.00	62.30	38.2	128	-27.62	35.13	128	44.68	128	45.19	128	44.17	128	45.02	128	44.34
79.00	63.08	37.9	130	-28.01	35.60	128	45.30	128	45.82	128	44.78	128	45.64	128	44.95
80.00	63.87	38.3	128	-28.41	36.07	128	45.92	128	46.44	128	45.39	128	46.27	128	45.57
81.00	64.65	38.2	130	-28.81	36.55	128	46.53	128	47.07	128	46.00	128	46.89	128	46.18
82.00	65.44	38.1	129	-29.20	37.02	128	47.15	128	47.69	128	46.61	128	47.51	128	46.79
83.00	66.23	38.1	131	-29.59	37.50	128	47.77	128	48.31	128	47.22	128	48.13	128	47.40
84.00	67.02	38.1	131	-30.00	37.96	128	48.39	128	48.94	128	47.83	128	48.75	128	48.02
85.00	67.80	38.2	130	-30.40	38.44	128	49.00	128	49.56	128	48.44	128	49.38	128	48.63
86.00	68.59	38.1	132	-30.80	38.91	128	49.62	128	50.18	128	49.05	128	50.00	128	49.24
87.00	69.37	37.9	131	-31.20	39.38	128	50.24	128	50.81	128	49.66	128	50.62	128	49.85
88.00	70.16	38.5	131	-31.60	39.85	128	50.86	128	51.44	128	50.27	128	51.24	128	50.47
89.00	70.94	38.3	133	-32.01	40.31	128	51.47	128	52.06	128	50.89	128	51.86	128	51.08
90.00	71.73	38.3	132	-32.43	40.77	128	52.09	128	52.68	128	51.50	128	52.49	128	51.70
91.00	72.51	38.3	130	-32.84	41.23	129	52.71	129	53.31	129	52.11	129	53.11	129	52.31
92.00	73.30	38.3	131	-33.25	41.70	129	53.33	129	53.94	129	52.72	129	53.73	129	52.92
93.00	74.08	38.3	133	-33.66	42.16	129	53.95	129	54.56	129	53.33	129	54.36	129	53.54
94.00	74.87	38.6	132	-34.07	42.63	129	54.57	129	55.19	129	53.94	129	54.98	129	54.15
94.30	75.11	38.2	130	-34.19	42.77	129	54.75	129	55.37	129	54.13	129	55.17	129	54.34

CROSS SECTION

ALL FIGURES IN LOG DEPTH MS
TARGET ORIGIN DEPTH.....1.20
LAST PLOTTED DEPTH.....94.30
DEPTH MARKERS ANNOTATED IN MULTIPLES OF.........10
FIRST DEPTH MARKER AT....10
LAST DEPTH MARKER AT....90

PLOT WITH RESPECT TO TRUE NORTH
SCALE 1:1000
DECLINATION 18.0 DEG.



BOREHOLE POSITIONAL ERROR

THE TWO BOXES SURROUNDING THE LAST PLOTTED DEPTH SHOW THE TYPICAL, AND MAXIMUM, POSITIONAL ERROR AT THAT DEPTH.

FINAL BOREHOLE POSITION

THE LAST PLOTTED DEPTH IS AT 34.19 MS SOUTH, 42.77 MS EAST IE. 54.75 MS FROM THE ORIGIN. 129 DEG FROM TRUE NORTH

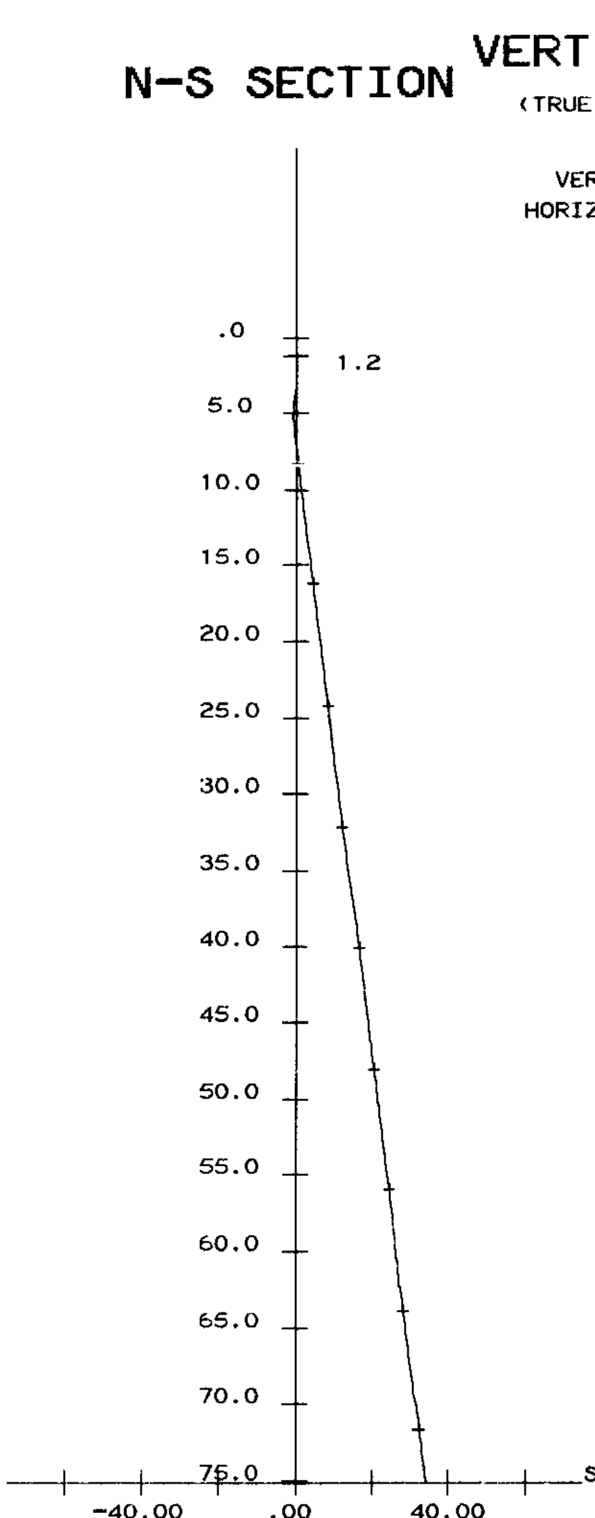
VERTICAL SECTIONS

(TRUE DEPTH VS DISPLACEMENT)

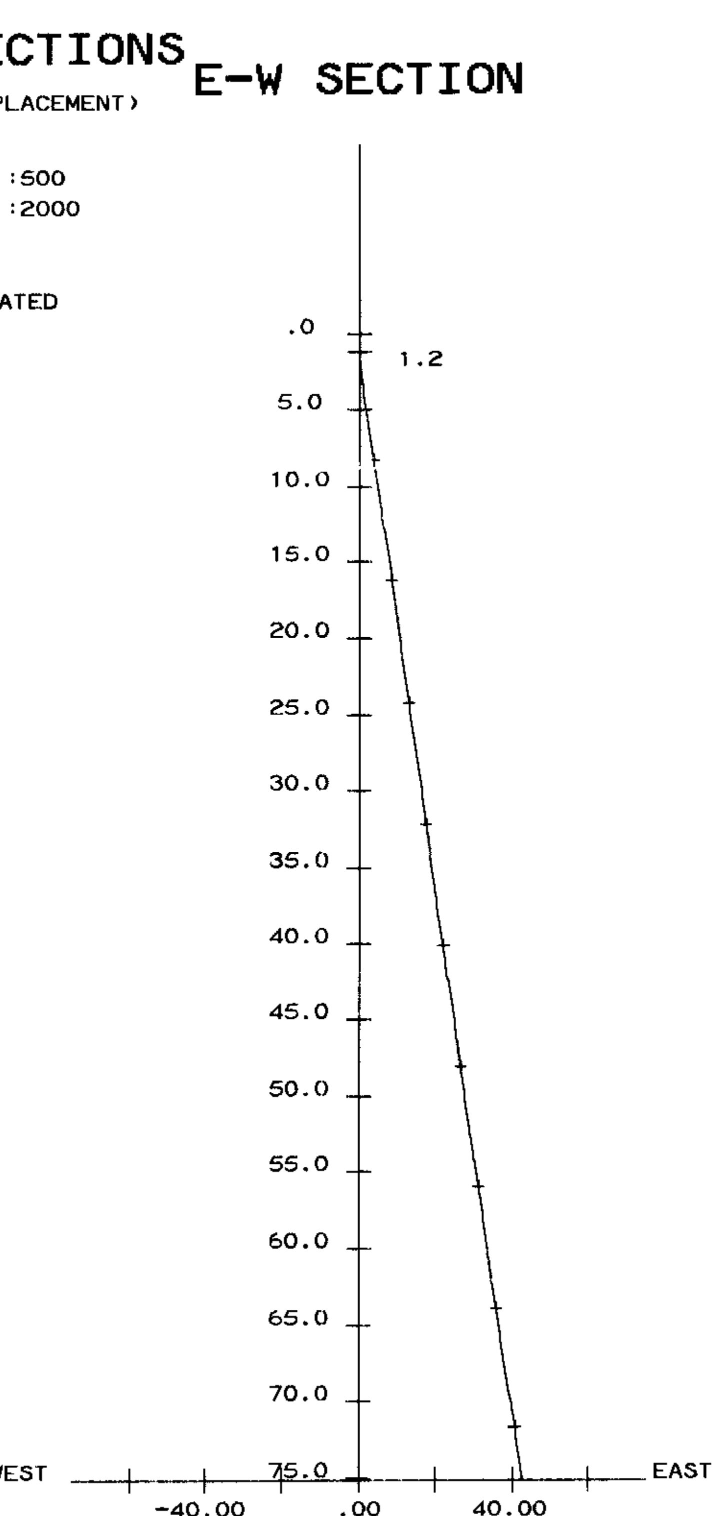
VERTICAL SCALE 1:500
HORIZONTAL SCALE 1:2000

MARKERS ANNOTATED AS ABOVE

N-S SECTION

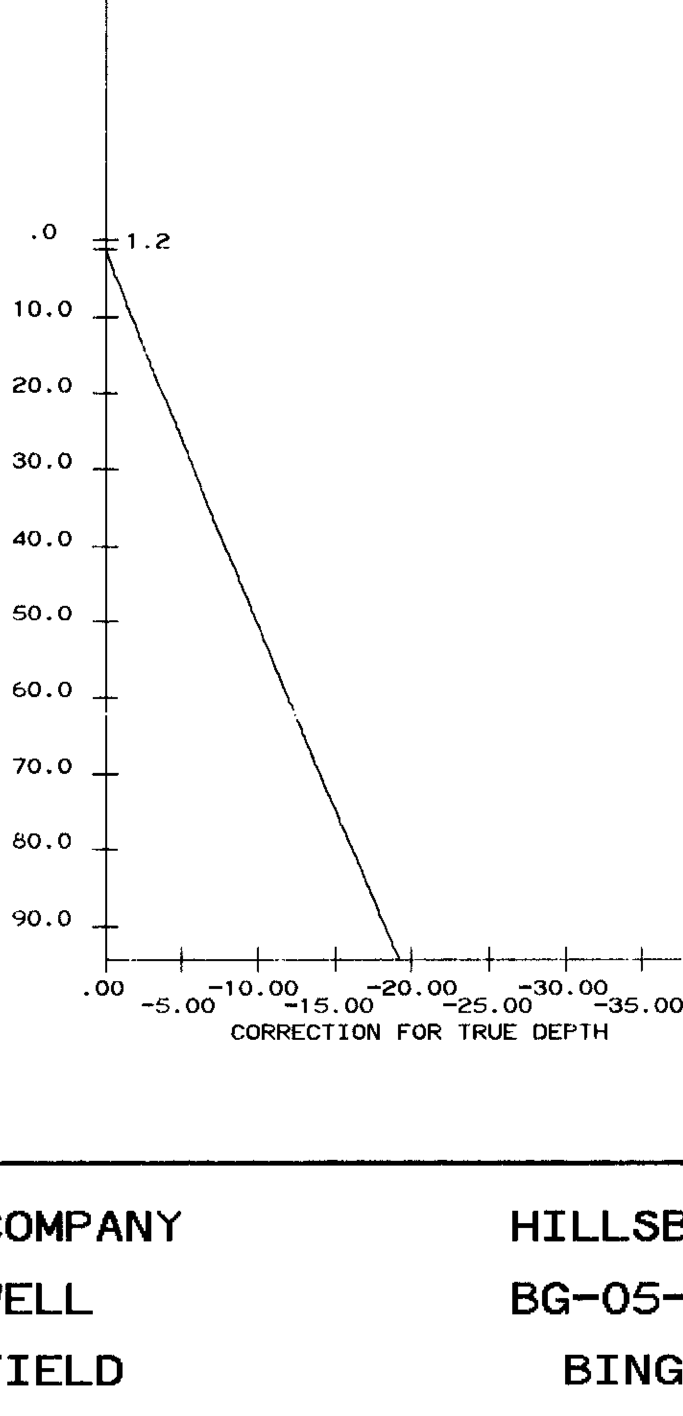


E-W SECTION



DEPTH CORRECTION ANALYSIS

VERTICAL SCALE 1:1000
HORIZONTAL SCALE 1:500



DEPTHS: LOG	TRUE	DEPTHS: LOG	TRUE
2.00	1.86	72.00	57.56
3.00	2.66	73.00	58.35
4.00	3.46	74.00	59.14
5.00	4.26	75.00	59.93
6.00	5.05	76.00	60.72
7.00	5.85	77.00	61.51
8.00	6.65	78.00	62.30
9.00	7.45	79.00	63.08
10.00	8.25	80.00	63.87
11.00	9.05	81.00	64.65
12.00	9.85	82.00	65.44
13.00	10.65	83.00	66.23
14.00	11.46	84.00	67.02
15.00	12.26	85.00	67.80
16.00	13.06	86.00	68.59
17.00	13.86	87.00	69.37
18.00	14.66	88.00	70.16
19.00	15.46	89.00	70.94
20.00	16.25	90.00	71.73
21.00	17.05	91.00	72.51
22.00	17.85	92.00	73.30
23.00	18.64	93.00	74.08
24.00	19.44	94.00	74.87
25.00	20.23	94.30	75.11
26.00	21.03		
27.00	21.83		
28.00	22.62		
29.00	23.42		
30.00	24.22		
31.00	25.01		
32.00	25.81		
33.00	26.60		
34.00	27.40		
35.00	28.19		
36.00	28.99		
37.00	29.78		
38.00	30.58		
39.00	31.37		
40.00	32.17		
41.00	32.97		
42.00	33.76		
43.00	34.56		
44.00	35.36		
45.00	36.15		
46.00	36.95		
47.00	37.75		
48.00	38.54		
49.00	39.33		
50.00	40.13		
51.00	40.92		
52.00	41.72		
53.00	42.51		
54.00	43.30		
55.00	44.09		
56.00	44.89		
57.00	45.68		
58.00	46.47		
59.00	47.27		
60.00	48.06		
61.00	48.85		
62.00	49.65		
63.00	50.44		
64.00	51.23		
65.00	52.03		
66.00	52.82		
67.00	53.61		
68.00	54.41		
69.00	55.20		
70.00	55.99		
71.00	56.78		

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-13A
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

PRECISION ENERGY SERVICES

COMPENSATED DENSITY GAMMA RAY, CALIPER SCALE 1:240

LOCN. 5563434N 644157E
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG-05-13A
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG-05-13A
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION 5563434N 644157E

LSD	SEC	TWP	RGE
N/A			

OTHER SERVICES
SFE
DIP/VERT

PERMANENT DATUM GROUND LEVEL ,ELEVATION 1416.687M
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1416.687M

DATE	28-MAR-05			
RUN NUMBER	1			
DEPTH-DRILLER	94.50M			
DEPTH-LOGGER	94.75M			
FIRST READING	92.00M			
LAST READING	6.20M			
CASING-DRILLER	3.00M			
CASING-LOGGER	2.80M			
BIT SIZE	139.70MM			
HOLE FLUID TYPE	WATER			
DENS./VISC.	1000 N/A			
PH/FLUID LOSS	N/A N/A			
SAMPLE SOURCE	NONE			
RM @ MEAS TEMP	2.00 @ 20.0C			
RMF @ MEAS TEMP	N/A			
RMC @ MEAS TEMP	N/A			
SOURCE: RMF/RMC	N/A N/A			
RM @ BHT	N/A			
TIME SINCE CIRC	N/A			
MAX REC TEMP	N/A			
EQUIPMENT/BASE	V3405 RDR			
RECORDED BY	ROBB RACZ			
WITNESSED BY	G. BICKFORD			
DRILL DONE	22-MAR-05			

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	139.70MM	3.00M	TD	159.00MM	N/A	SURFACE	3.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
DD6	629			

REMARKS

COMPENSATED DENSITY GAMMA RAY, CALIPER SCALE 1:240

NORTHING: 5563434.298 ELEVATION: 1416.687M SURVEYED ON MARCH 26/2005

EASTING : 644157.968

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE R RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE ESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS IN OUR PRICE SCHEDULE

MAIN LOG 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 16:27

FILENAME: MRGE13AM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 28-MAR-2005 AT 16:42

BIT SIZE
MILLIMETRES
150 250

DEPTH IN METRES

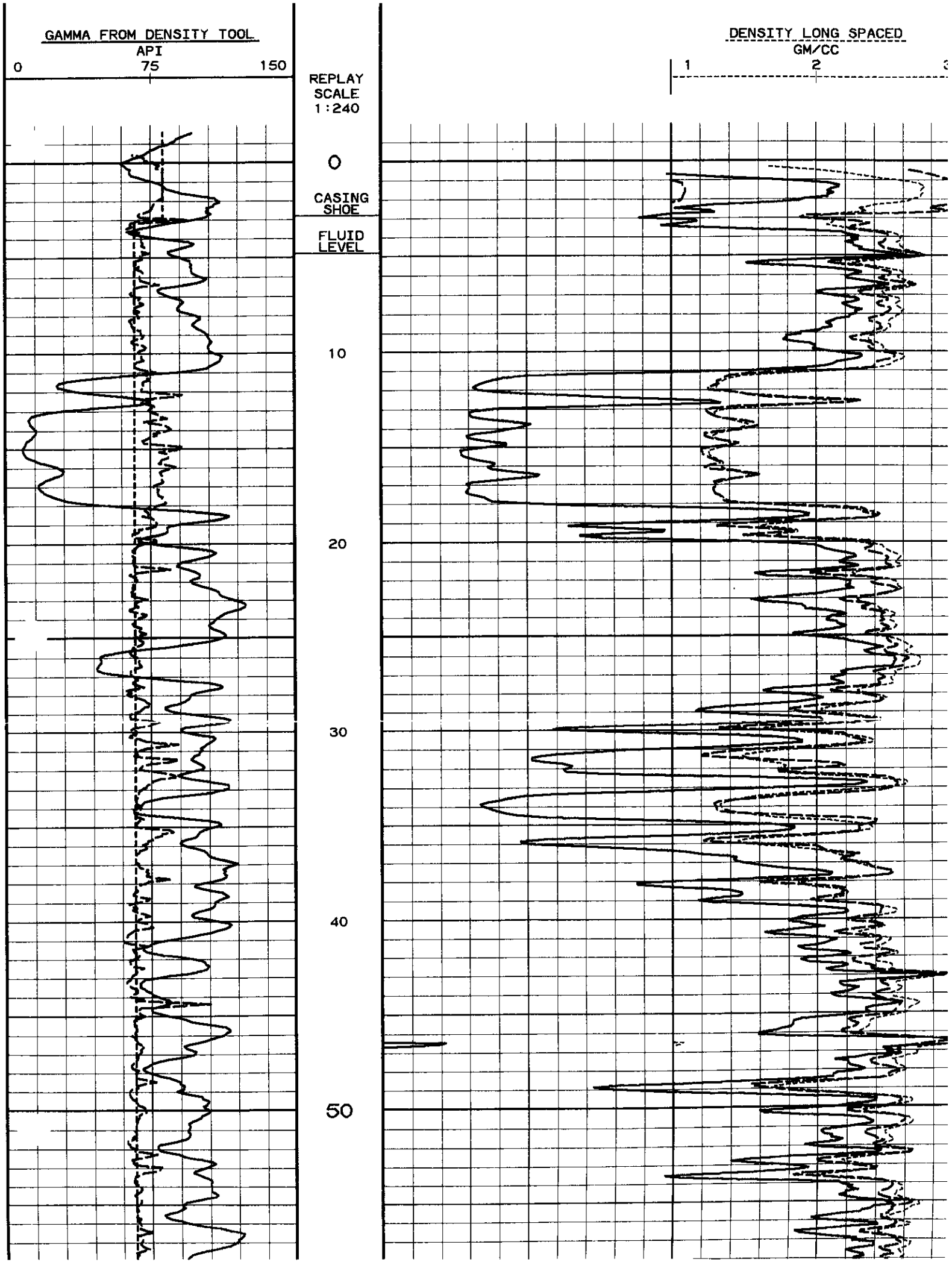
COMPENSATED DENSITY
GM/CC
1 1.50 2 2.50 3

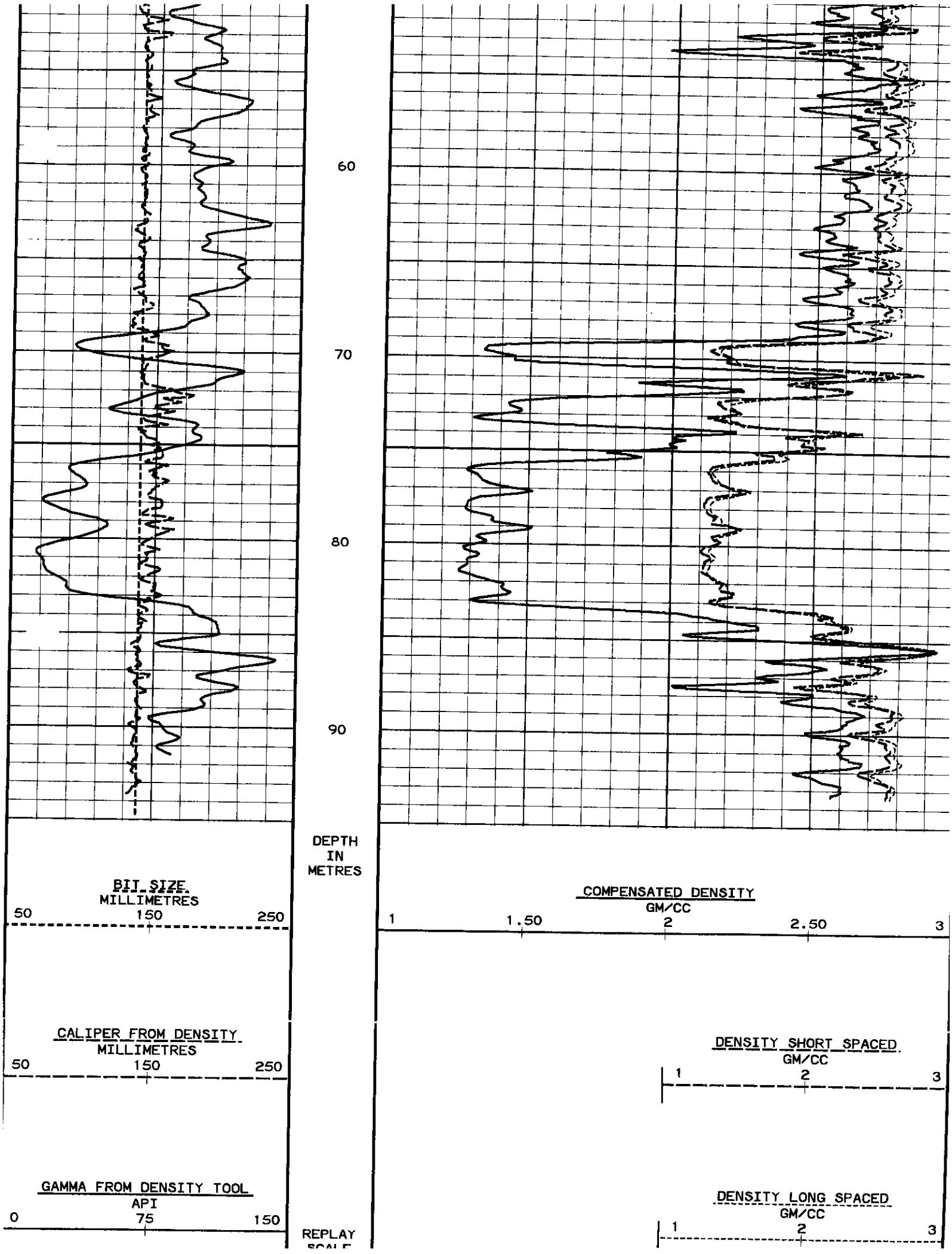
CALIPER FROM DENSITY
MILLIMETRES
150 250

DENSITY SHORT SPACED
GM/CC
1 2 3

GAMMA FROM DENSITY TOOL
API
75 150

DENSITY LONG SPACED
GM/CC
1 2 3


GAMMA FROM DENSITY TOOL
API
0
75
150
REPLAY SCALE 1:240
0
CASING SHOE
FLUID LEVEL
10
20
30
40
50
DENSITY LONG SPACED
GM/CC
1
2


60
70
80
90
DEPTH
IN
METRES
BII SIZE
MILLIMETRES
50
150
250
CALIPER FROM DENSITY
MILLIMETRES
50
150
250
GAMMA FROM DENSITY TOOL
API
0
75
150
REPLAY
COMPENSATED DENSITY
GM/CC
1
1.50
2
2.50
3
DENSITY SHORT SPACED
GM/CC
1
2
3
DENSITY LONG SPACED
GM/CC
1
2
3

GAMMA FROM DENSITY TOOL
API
0 75 150

REPLAY SCALE 1:240

DENSITY LONG SPACED
GM/CC
1 2

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 16:27

FILENAME: MRGE13AM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 28-MAR-2005 AT 16:42

MAIN LOG 1:240

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 16:26

FILENAME: MRGE13AR.CIB RUN ID:REPEAT SECTION PLOTTED ON 28-MAR-2005 AT 16:42

DEPTH IN METRES

BIT SIZE
MILLIMETRES
50 150 250

COMPENSATED DENSITY
GM/CC
1 1.50 2 2.50

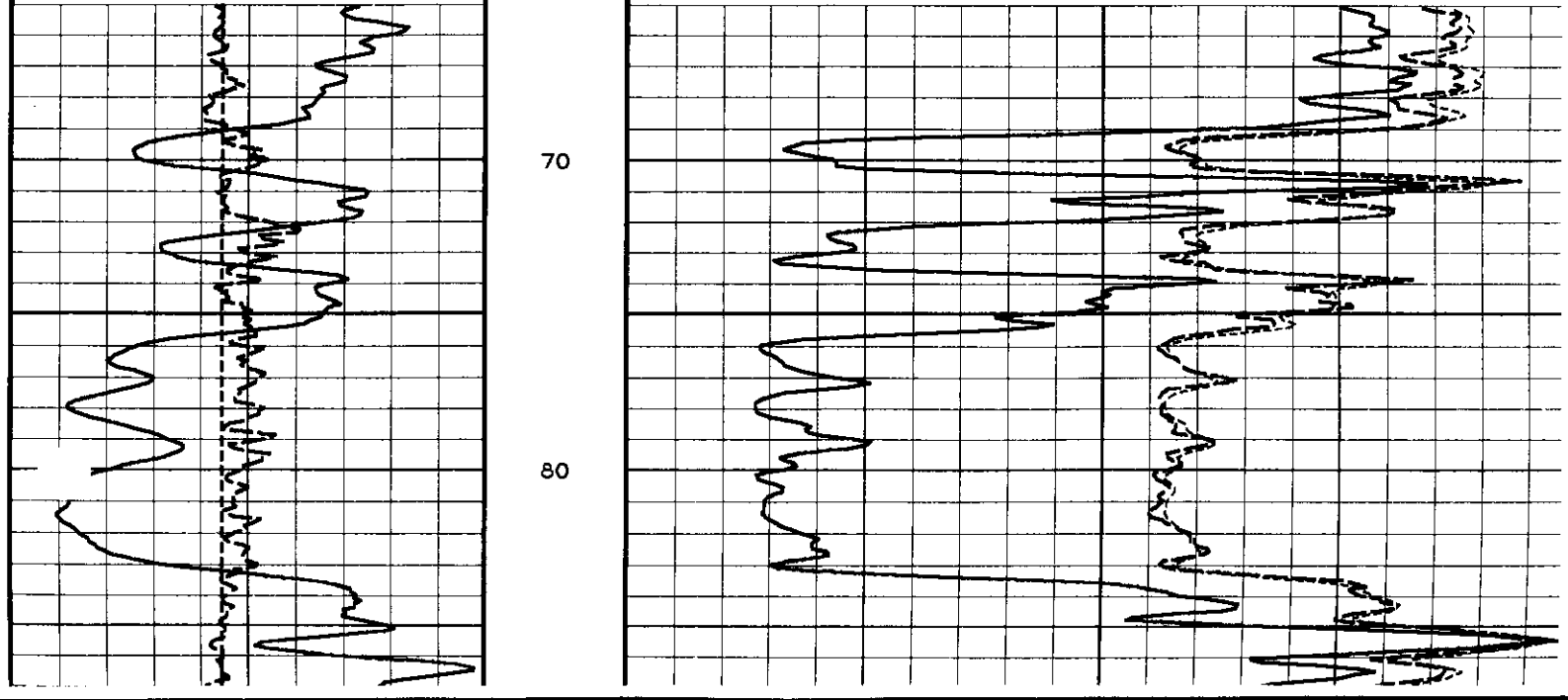
CALIPER FROM DENSITY
MILLIMETRES
150 250

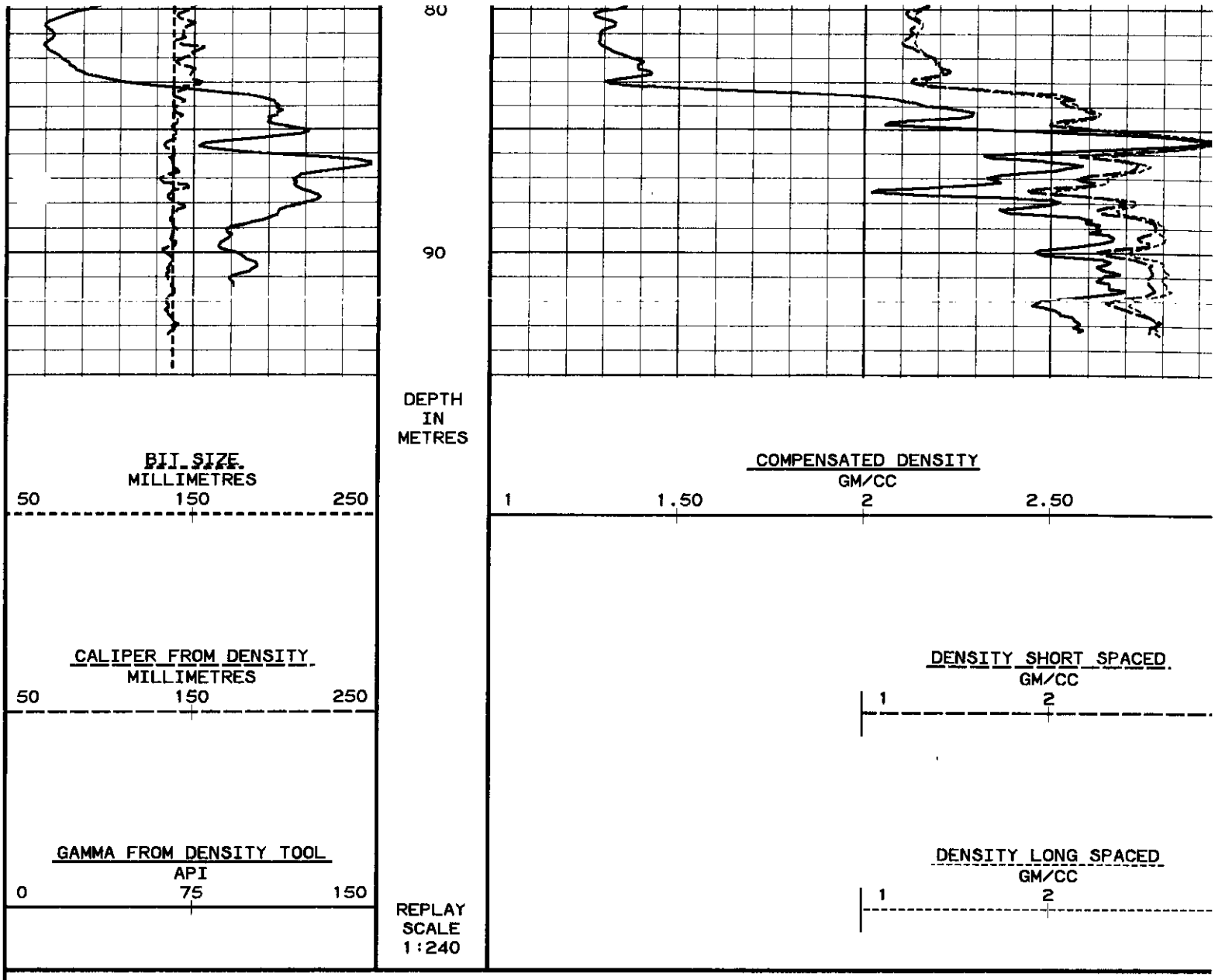
DENSITY SHORT SPACED
GM/CC
1 2

GAMMA FROM DENSITY TOOL
API
0 75 150

DENSITY LONG SPACED
GM/CC
1 2

REPLAY SCALE 1:240





DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 16:26

FILENAME: MRGE13AR.CIB RUN ID:REPEAT SECTION PLOTTED ON 28-MAR-2005 AT 16:42

REPEAT SECTION

LOGGING/CALIBRATION CONSTANTS

CONSTANTS LAST EDITED: 28-MAR-2005 AT 16:21

LOGGING CONSTANTS AND BIT SIZE MEASUREMENTS

RESISTIVITY SONDE TYPE	DUAL RR1	MUD RESISTIVITY (OHM METRES)	2.000
BIT SIZE UNITS (INS/MM)	MILLIMTR	BIT DEPTH UNITS (M/FT)	METRES
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	6.00
BIT SIZE 3	0.00	FROM BIT DEPTH 3	0.00
BIT SIZS 4	0.00	FROM BIT DEPTH 4	0.00
BIT SIZE 5	0.00	FROM BIT DEPTH 5	0.00
TEMPERATURE UNITS	DEG. C		

CALIBRATION CONSTANTS

FE1	CALIBRATOR VALUE 1	2.0000	FE1	COUNT RATE 1	4496.0000
FE1	CALIBRATOR VALUE 2	2000.0000	FE1	COUNT RATE 2	2972.0000
FE2	CALIBRATOR VALUE 1	2.0000	FE2	COUNT RATE 1	4492.0000
FE2	CALIBRATOR VALUE 2	2000.0000	FE2	COUNT RATE 2	3010.0000
GRFE	CALIBRATOR VALUE 1	490.0000	GRFE	COUNT RATE 1	315.0000
SP	CALIBRATOR VALUE 1	1.0000	SP	COUNT RATE 1	1.0000

CALIBRATION CONSTANTS

FE1	CALIBRATOR VALUE 1	2.0000	FE1	COUNT RATE 1	4496.0000
FE1	CALIBRATOR VALUE 2	2000.0000	FE1	COUNT RATE 2	2972.0000
FE2	CALIBRATOR VALUE 1	2.0000	FE2	COUNT RATE 1	4492.0000
FE2	CALIBRATOR VALUE 2	2000.0000	FE2	COUNT RATE 2	3010.0000
GRFE	CALIBRATOR VALUE 1	490.0000	GRFE	COUNT RATE 1	315.0000
SP	CALIBRATOR VALUE 1	1.0000	SP	COUNT RATE 1	1.0000
SP	CALIBRATOR VALUE 2	0.0000	SP	COUNT RATE 2	0.0000

LOGGING CONSTANTS

SONDE TYPE (DD3,CCS,DDI,DDS,DDL	DDS	SONDE MODE (WET,DRY,STD)	STD
MUD WEIGHT	1.00	STRIP COEFFICIENT	0.50
ANNULAR VOLUME DIAMETER	139.70	WATER LEVEL	.00
CALIPER ARM LENGTH (CMS)	22.60	MATRIX DENSITY	2.65
CALIPER UNITS(INS,MMS)	MMS	DENSITY OF MUD FILTRATE	1.00
BRD POINT ONE	1.00	BRD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
LSD POINT ONE	1.00	LSD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
DENSITY SCALAR	1.50	BRD SCALAR	-.50
BIT DEPTHS & WATER LEVEL (FT,M)	METRES	CALIPER SOURCE FOR PROCESSING	CAL
BIT SIZE 1	159.00	FROM BIT DEPTH 1	.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	3.00
BIT SIZE 3	.00	FROM BIT DEPTH 3	.00
BIT SIZE 4	.00	FROM BIT DEPTH 4	.00
BIT SIZE 5	.00	FROM BIT DEPTH 5	.00

CALIBRATION CONSTANTS

GAMMA CALIBRATOR VALUE 1	436.00	GAMMA COUNT RATE 1	237.72
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
CALIPER RING SIZE 1	76.20	CALIPER COUNT FOR RING 1	1834.00
CALIPER RING SIZE 2	101.60	CALIPER COUNT FOR RING 2	2258.00
CALIPER RING SIZE 3	127.00	CALIPER COUNT FOR RING 3	2690.00
CALIPER RING SIZE 4	152.40	CALIPER COUNT FOR RING 4	3162.00
CALIPER RING SIZE 5	203.20	CALIPER COUNT FOR RING 5	4224.00
CALIPER RING SIZE 6	254.00	CALIPER COUNT FOR RING 6	5030.00
DRY HOLE CORRECTION...			
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
DRY HOLE BRD NEW (1) GM/CC	0.00	DRY HOLE BRD LOG (1) GM/CC	0.00
DRY HOLE BRD NEW (2) GM/CC	1.00	DRY HOLE BRD LOG (2) GM/CC	1.00
DRY HOLE LSD NEW (1) GM/CC	0.00	DRY HOLE LSD LOG (1) GM/CC	0.00
DRY HOLE LSD NEW (2) GM/CC	1.00	DRY HOLE LSD LOG (2) GM/CC	1.00

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-13A
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

PRECISION ENERGY SERVICES

FOCUSSED ELECTRIC GAMMA RAY, CALIPER SCALE 1:240

LOCN. 5563434N 644157E
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG-05-13A
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG-05-13A
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION 5563434N 644157E

LSD	SEC	TWP	RGE
N/A			

OTHER SERVICES
CDL
DIP/VERT

PERMANENT DATUM GROUND LEVEL .ELEVATION 1416.687M
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1416.687M

DATE	28-MAR-05			
RUN NUMBER	1			
DEPTH-DRILLER	94.50M			
DEPTH-LOGGER	94.75M			
FIRST READING	92.00M			
LAST READING	6.20M			
CASING-DRILLER	3.00M			
CASING-LOGGER	2.80M			
BIT SIZE	139.70MM			
HOLE FLUID TYPE	WATER			
DENS./VISC.	1000 N/A			
PH/FLUID LOSS	N/A N/A			
SAMPLE SOURCE	NONE			
RM @ MEAS TEMP	2.00 @ 20.0C			
RMF @ MEAS TEMP	N/A			
RMC @ MEAS TEMP	N/A			
SOURCE: RMF/RMC	N/A N/A			
RM @ BHT	N/A			
TIME SINCE CIRC	N/A			
MAX REC TEMP	N/A			
EQUIPMENT/BASE	V3405 RDR			
RECORDED BY	ROBB RACZ			
WITNESSED BY	G. BICKFORD			
DRILL DONE	22-MAR-05			

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	139.70MM	3.00M	TD	159.00MM	N/A	SURFACE	3.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
SFE	103			

REMARKS

FOCUSSED ELECTRIC GAMMA RAY, CALIPER SCALE 1:240

NORTHING: 5563434.298 ELEVATION: 1416.687M SURVEYED ON MARCH 26/2005

EASTING : 644157.968

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MAIN LOG 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 16:27

FILENAME: MRGE13AM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 28-MAR-2005 AT 16:35

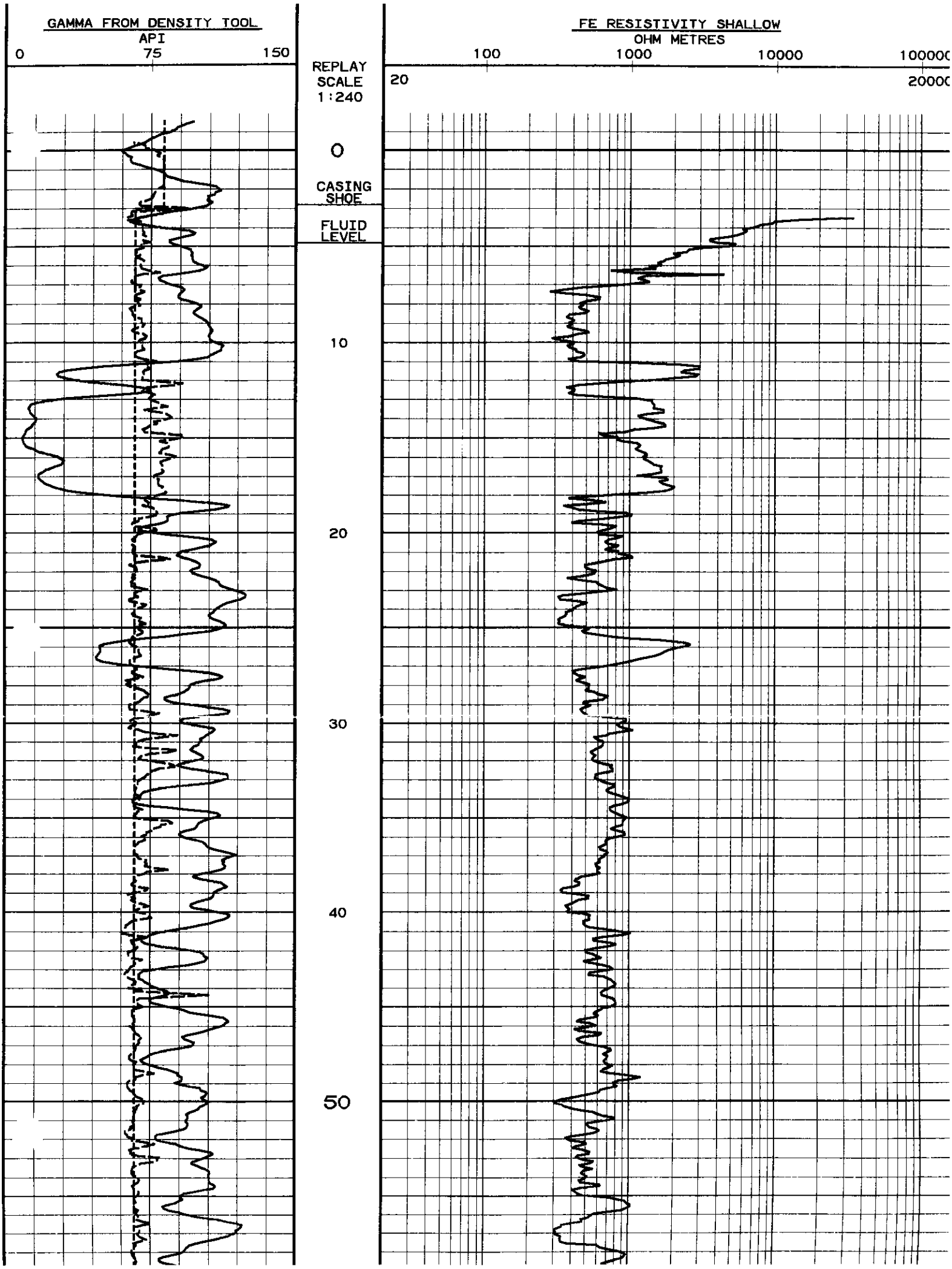
BIT SIZE
MILLIMETRES
50 150 250

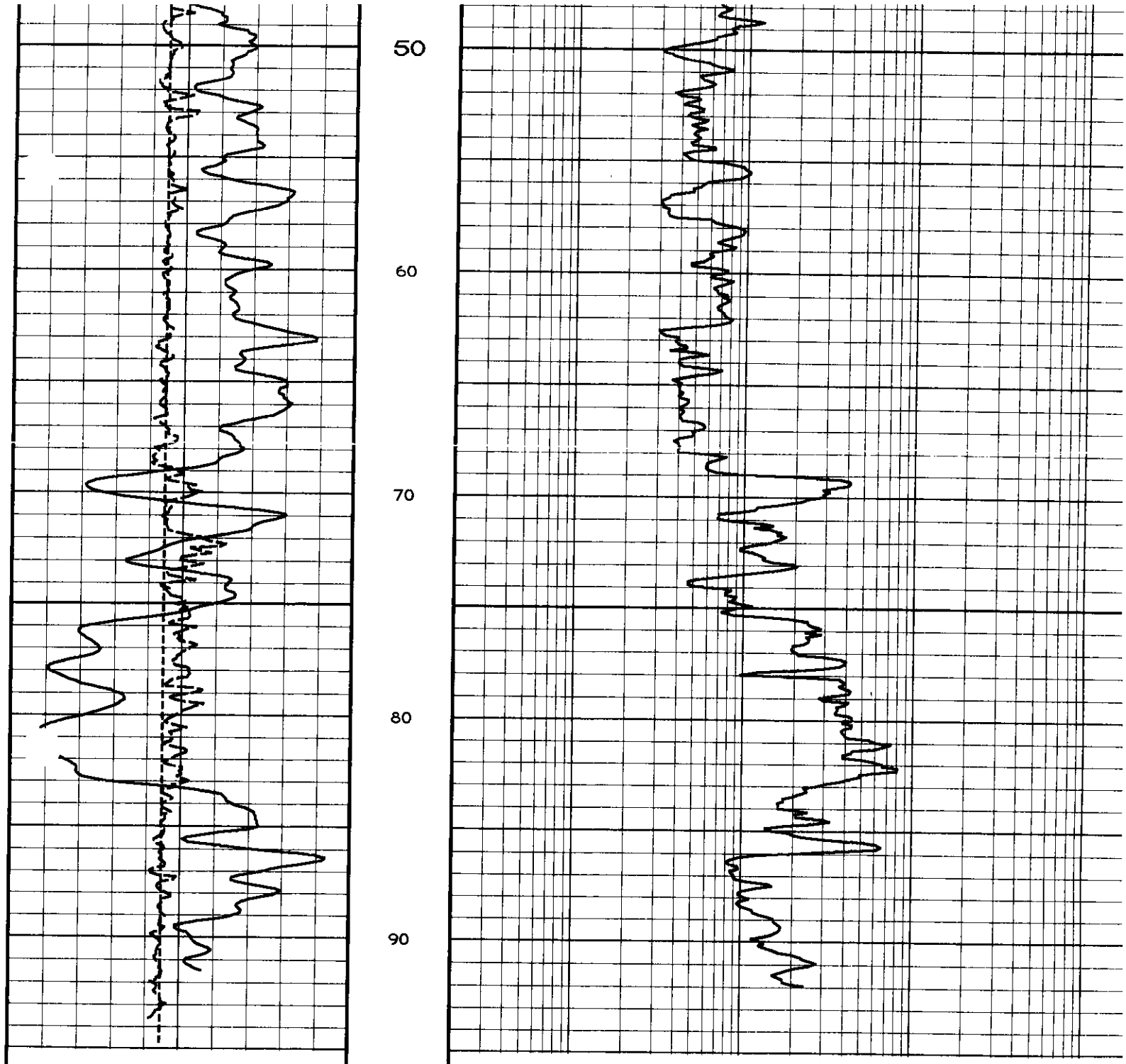
DEPTH IN METRES

CALIPER FROM DENSITY
MILLIMETRES
50 150 250

GAMMA FROM DENSITY TOOL
APT

FE RESISTIVITY SHALLOW


GAMMA FROM DENSITY TOOL
API
0
75
150
REPLAY
SCALE
1:240
FE RESISTIVITY SHALLOW
OHM METRES
100
1000
10000
100000
20
20000
0
CASING
SHOE
FLUID
LEVEL
10
20
30
40
50


50
60
70
80
90
DEPTH
IN
METRES
BIT SIZE
MILLIMETRES
50
150
250
CALIPER FROM DENSITY
MILLIMETRES
150
250
GAMMA FROM DENSITY TOOL

GAMMA FROM DENSITY TOOL
API
0 75 150

REPLAY SCALE 1:240

FE RESISTIVITY SHALLOW
OHM METRES
20 100 1000 10000 100000
20000

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 16:27

FILENAME: MRGE13AM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 28-MAR-2005 AT 16:35

MAIN LOG 1:240

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 16:26

FILENAME: MRGE13AR.CIB RUN ID:REPEAT SECTION PLOTTED ON 28-MAR-2005 AT 16:34

DEPTH IN METRES

BIT SIZE
MILLIMETRES
50 150 250

CALIPER FROM DENSITY
MILLIMETRES
5 150 250

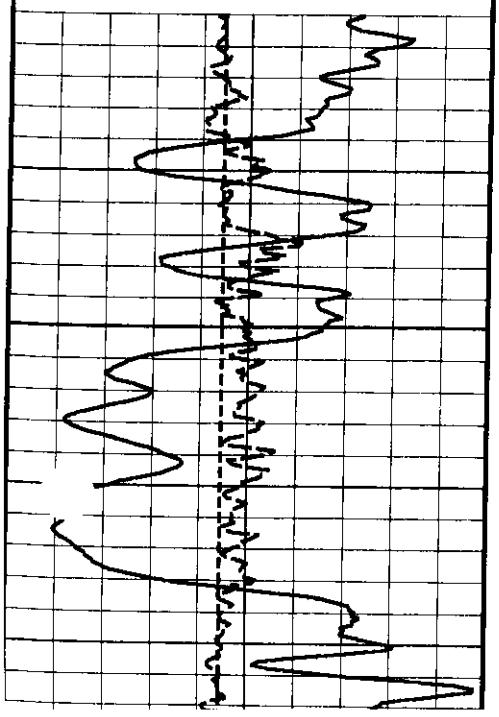
GAMMA FROM DENSITY TOOL
API
0 75 150

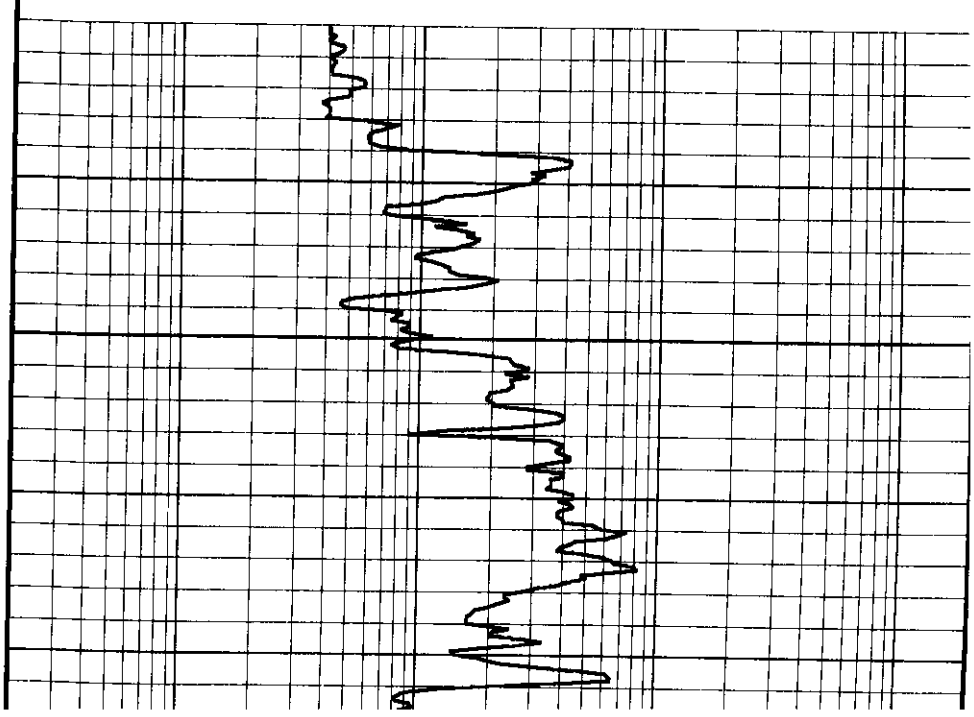
REPLAY SCALE 1:240

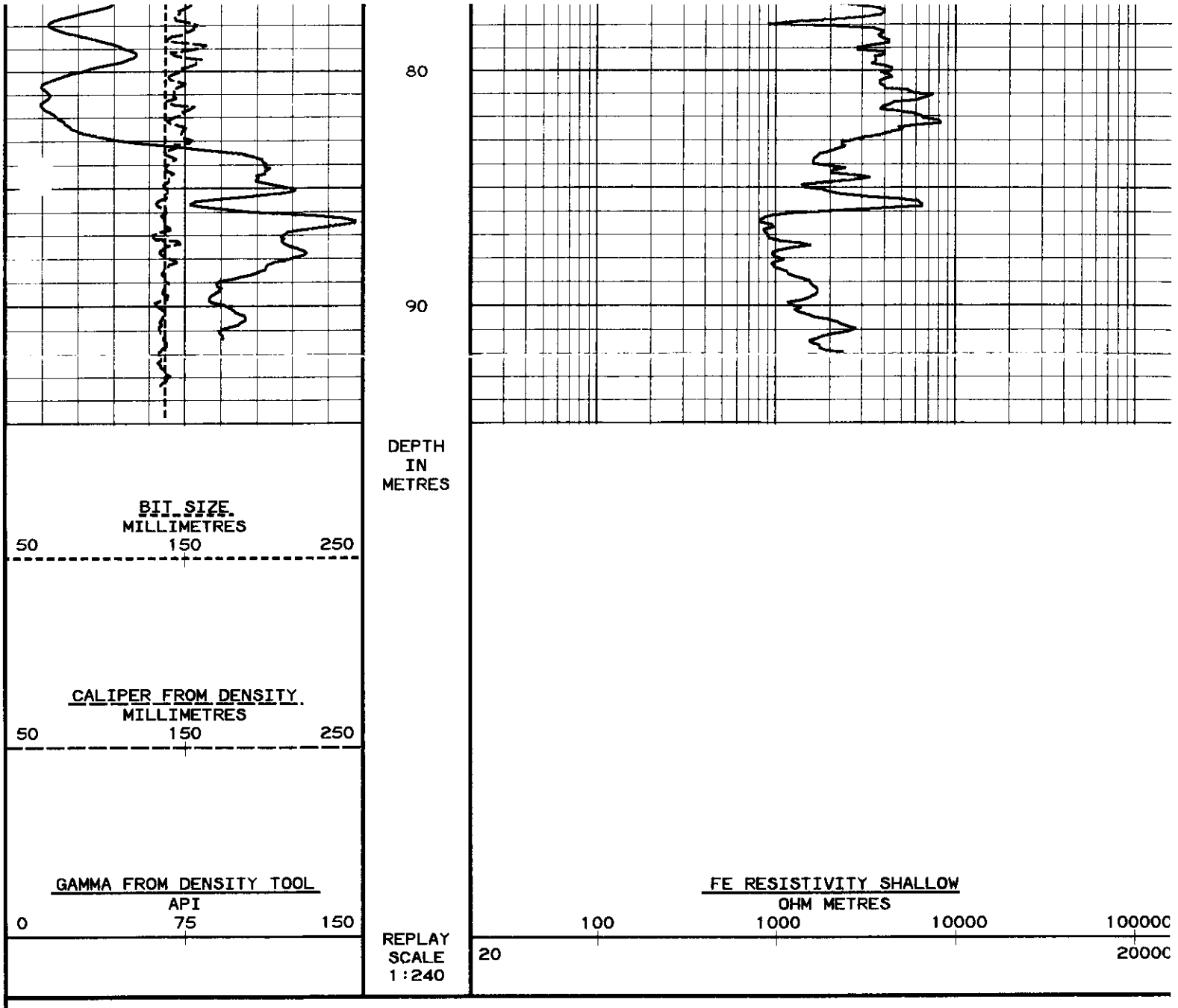
FE RESISTIVITY SHALLOW
OHM METRES
20 100 1000 10000 100000
200000

70

80







DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 28-MAR-2005 AT 16:26

FILENAME: MRGE13AR.CIB RUN ID:REPEAT SECTION PLOTTED ON 28-MAR-2005 AT 16:34

REPEAT SECTION

LOGGING/CALIBRATION CONSTANTS

CONSTANTS LAST EDITED: 28-MAR-2005 AT 16:21

LOGGING CONSTANTS AND BIT SIZE MEASUREMENTS

RESISTIVITY SONDE TYPE	DUAL RR1	MUD RESISTIVITY (OHM METRES)	2.000
BIT SIZE UNITS (INS/MM)	MILLIMTR	BIT DEPTH UNITS (M/FT)	METRES
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	6.00
BIT SIZE 3	0.00	FROM BIT DEPTH 3	0.00
BIT SIZE 4	0.00	FROM BIT DEPTH 4	0.00
BIT SIZE 5	0.00	FROM BIT DEPTH 5	0.00
TEMPERATURE UNITS	DEG. C		

CALIBRATION CONSTANTS

FE1	CALIBRATOR VALUE 1	2.0000	FE1	COUNT RATE 1	4496.0000
FE1	CALIBRATOR VALUE 2	2000.0000	FE1	COUNT RATE 2	2972.0000

CALIBRATION CONSTANTS

FE1	CALIBRATOR VALUE 1	2.0000	FE1	COUNT RATE 1	4496.0000
FE1	CALIBRATOR VALUE 2	2000.0000	FE1	COUNT RATE 2	2972.0000
FE2	CALIBRATOR VALUE 1	2.0000	FE2	COUNT RATE 1	4492.0000
FE2	CALIBRATOR VALUE 2	2000.0000	FE2	COUNT RATE 2	3010.0000
GRFE	CALIBRATOR VALUE 1	490.0000	GRFE	COUNT RATE 1	315.0000
SP	CALIBRATOR VALUE 1	1.0000	SP	COUNT RATE 1	1.0000
SP	CALIBRATOR VALUE 2	0.0000	SP	COUNT RATE 2	0.0000

LOGGING CONSTANTS

SONDE TYPE (DD3,CCS,DDI,DDS,DDL	DDS	SONDE MODE (WET,DRY,STD)	STD
MUD WEIGHT	1.00	STRIP COEFFICIENT	0.50
ANNULAR VOLUME DIAMETER	139.70	WATER LEVEL	.00
CALIPER ARM LENGTH (CMS)	22.60	MATRIX DENSITY	2.65
CALIPER UNITS(INS,MMS)	MMS	DENSITY OF MUD FILTRATE	1.00
BRD POINT ONE	1.00	BRD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
LSD POINT ONE	1.00	LSD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
DENSITY SCALAR	1.50	BRD SCALAR	-.50
BIT DEPTHS & WATER LEVEL (FT,M)	METRES	CALIPER SOURCE FOR PROCESSING	CAL
BIT SIZE 1	159.00	FROM BIT DEPTH 1	.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	3.00
BIT SIZE 3	.00	FROM BIT DEPTH 3	.00
BIT SIZE 4	.00	FROM BIT DEPTH 4	.00
BIT SIZE 5	.00	FROM BIT DEPTH 5	.00

CALIBRATION CONSTANTS

GAMMA CALIBRATOR VALUE 1	436.00	GAMMA COUNT RATE 1	237.72
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
CALIPER RING SIZE 1	76.20	CALIPER COUNT FOR RING 1	1834.00
CALIPER RING SIZE 2	101.60	CALIPER COUNT FOR RING 2	2258.00
CALIPER RING SIZE 3	127.00	CALIPER COUNT FOR RING 3	2690.00
CALIPER RING SIZE 4	152.40	CALIPER COUNT FOR RING 4	3162.00
CALIPER RING SIZE 5	203.20	CALIPER COUNT FOR RING 5	4224.00
\LIPER RING SIZE 6	254.00	CALIPER COUNT FOR RING 6	5030.00
.Y HOLE CORRECTION...			
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
DRY HOLE BRD NEW (1) GM/CC	0.00	DRY HOLE BRD LOG (1) GM/CC	0.00
DRY HOLE BRD NEW (2) GM/CC	1.00	DRY HOLE BRD LOG (2) GM/CC	1.00
DRY HOLE LSD NEW (1) GM/CC	0.00	DRY HOLE LSD LOG (1) GM/CC	0.00
DRY HOLE LSD NEW (2) GM/CC	1.00	DRY HOLE LSD LOG (2) GM/CC	1.00

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-13A
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

PRECISION ENERGY SERVICES

DIPMETER ANALYSIS
SCALE 1:240

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-14A
FIELD	BINGAY CREEK
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA
LOCATION	5562916 N 644187 E

LSD	SEC	TWP	RGE

Other Services
CDL
SFE

API Number
License Numbe

Permanent Datum G.L. , Elevation 1423.717 metres
Log Measured From GROUND LEVEL above Permanent Datum
Drilling Measured From GROUND LEVEL

Elevations:
KB metres
DF metres
GL 1423.72 metres

Date	27-MAR-2005			
Run Number	1			
Depth Driller	168.00	metres		
Depth Logger	168.00	metres		
First Reading	167.50	metres		
Last Reading	3.20	metres		
Casing Driller	3.00	metres		
Casing Logger	2.80	metres		
Bit Size	139.70	mm		
Hole Fluid Type	WATER			
Density / Viscosity	1.00 g/c3			
PH / Fluid Loss				
Sample Source	NONE			
Rm @ Measured Temp	2.0 @ 20.0	ohm-m		
Rmf @ Measured Temp				
Rmc @ Measured Temp				
Source Rmf / Rmc				
Rm @ BHT				
Time Since Circulation	N/A			
Max Recorded Temp	7.00	deg C		
Equipment Name	SQD/VO3		013/231	
Equipment / Base	3405	RDR		
Recorded By	ROBB RACZ			
Witnessed By	G. BICKFORD			
Drill Done	24-MAR-2005			

BOREHOLE RECORD

Bit Size millimetres	Depth From metres	Depth To metres
139.700	3.00	168.00

CASING RECORD

Type	Size millimetres	Depth From metres	Shoe Depth metres	Weight Kg/metre
	159.000	0.00	3.00	0.00

REMARKS

SURFACE CO-ORDINATES:

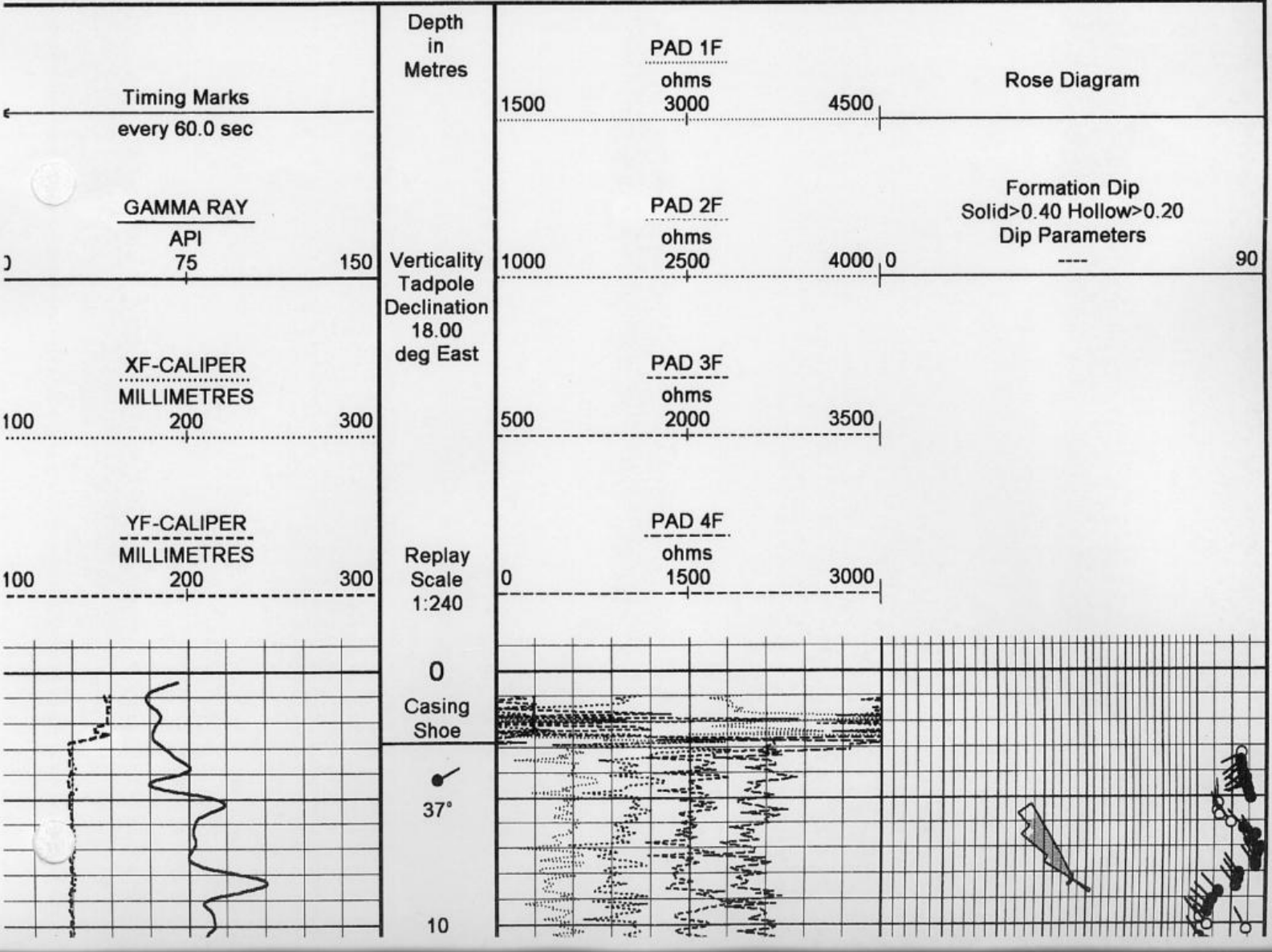
NORTHING: 5563312.995
EASTING: 644117.224

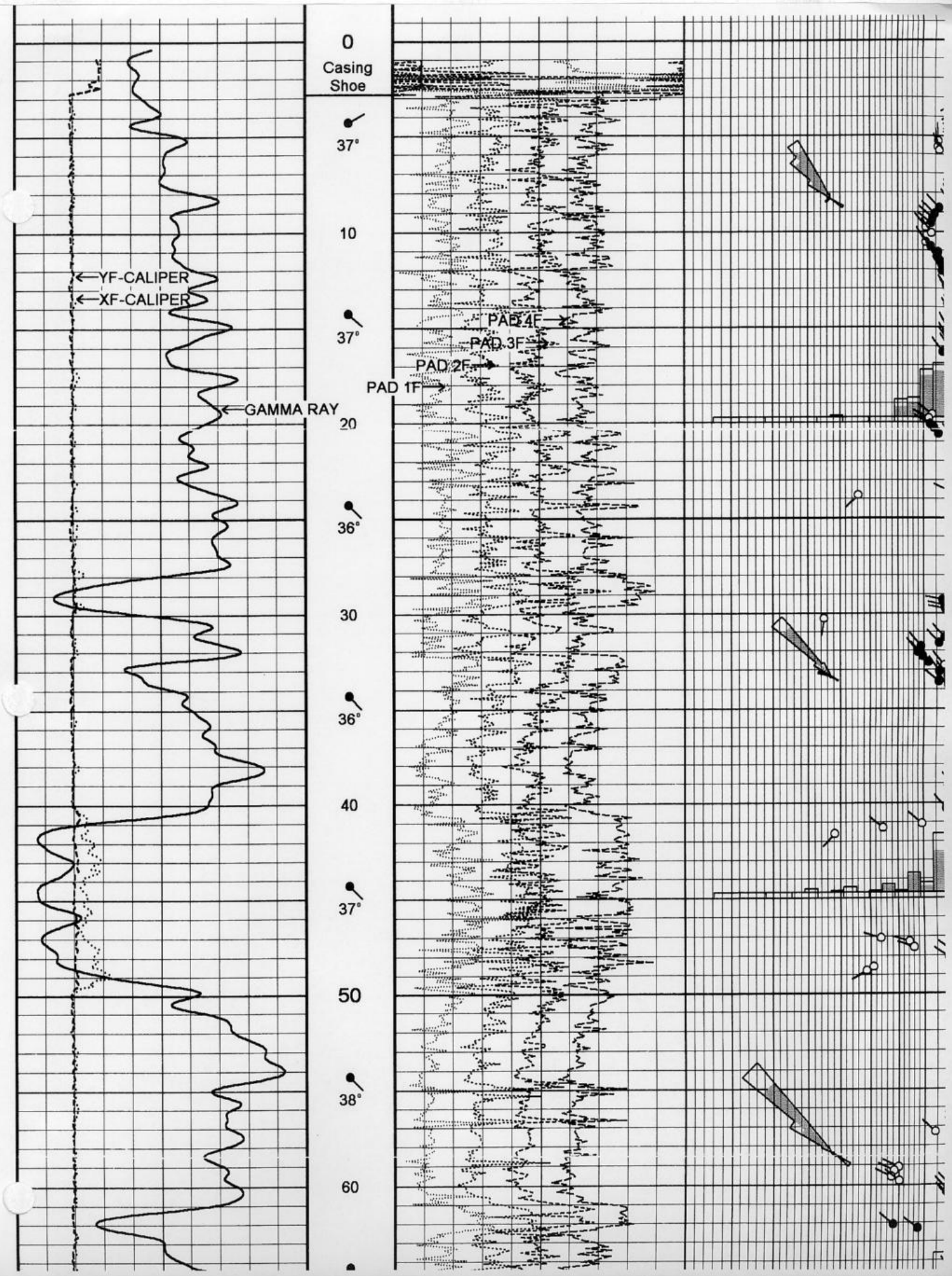
ELEVATION: 1423.717 M SURVEYED ON MARCH 26/2005

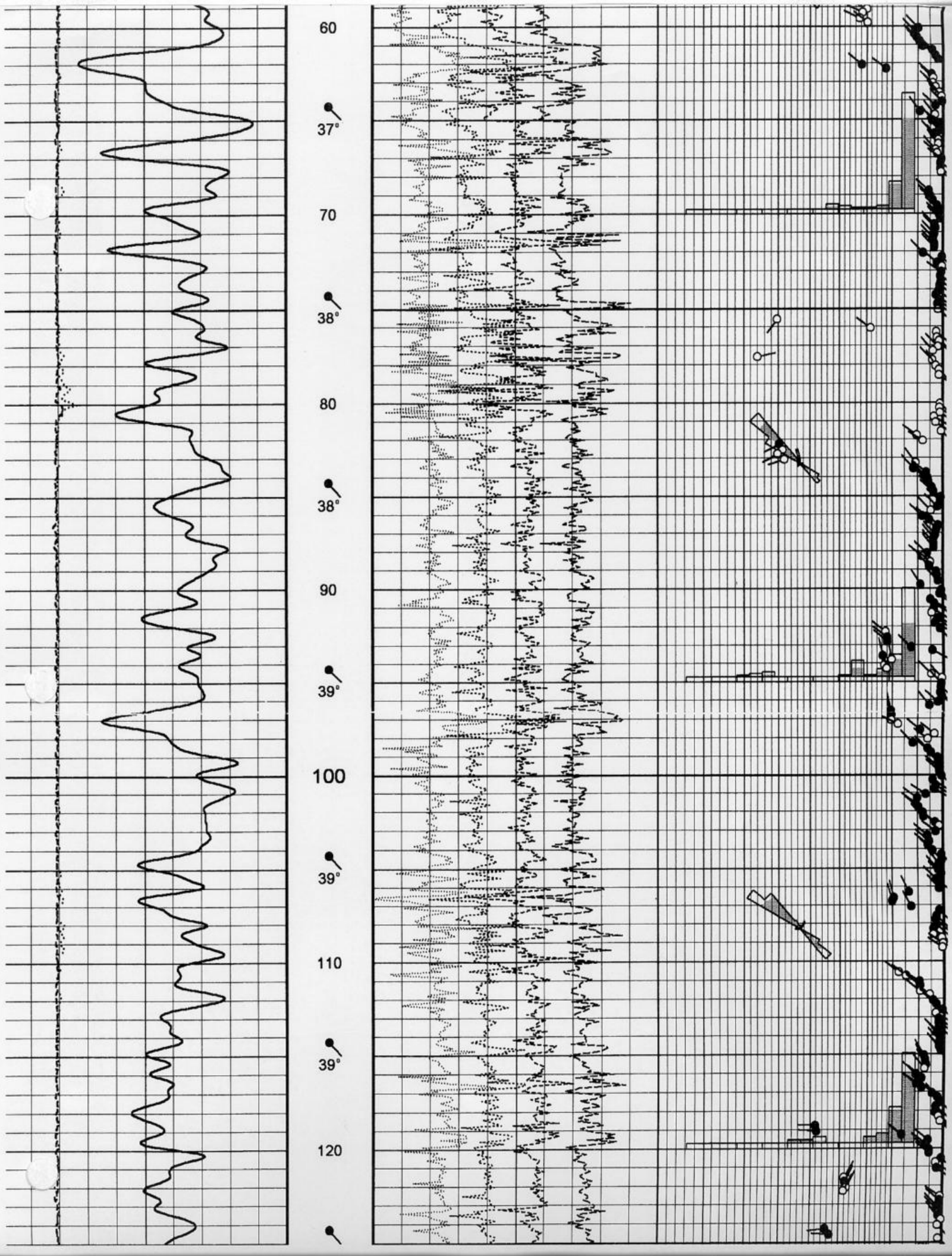
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions in our price schedule.

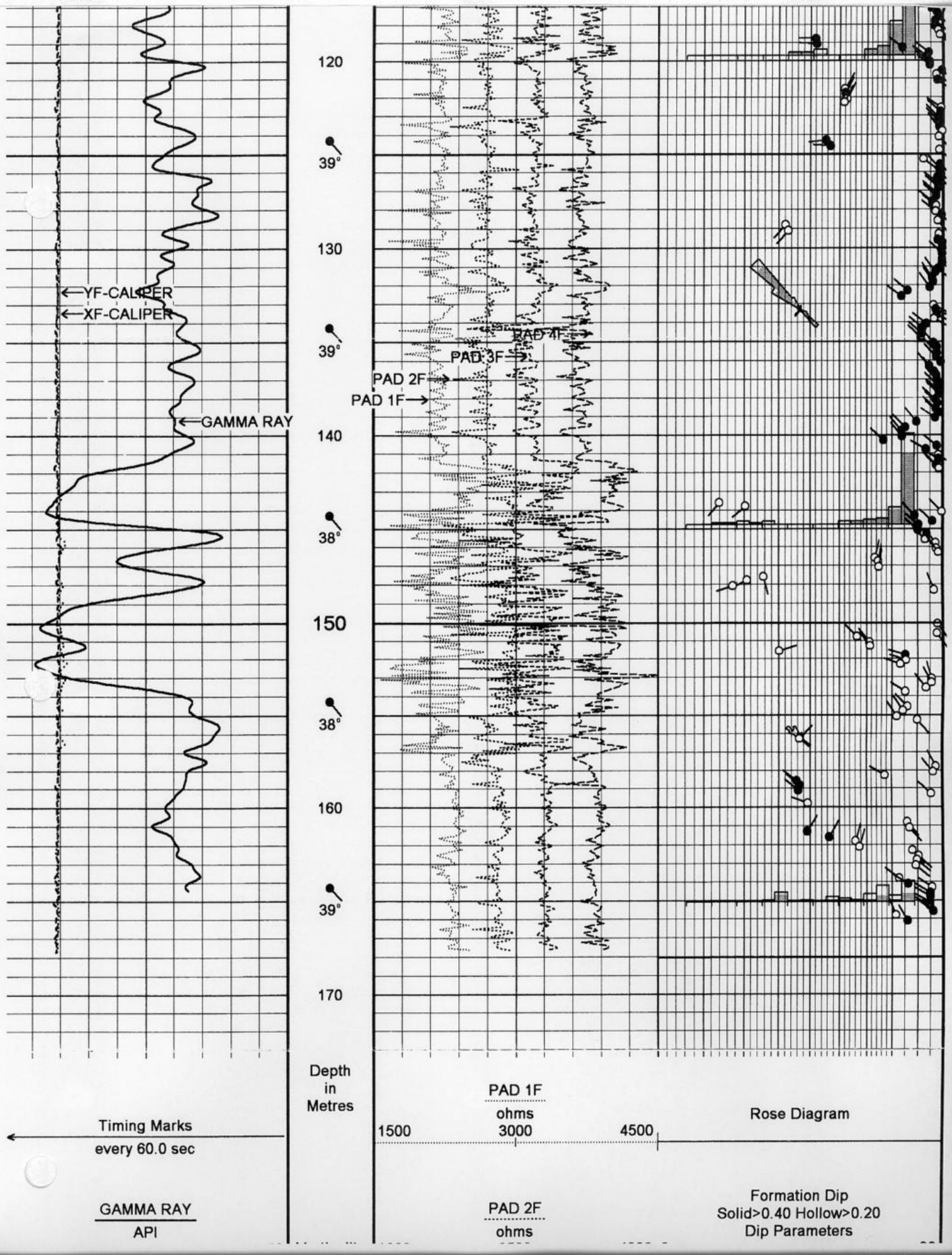
MAIN LOG 1:240

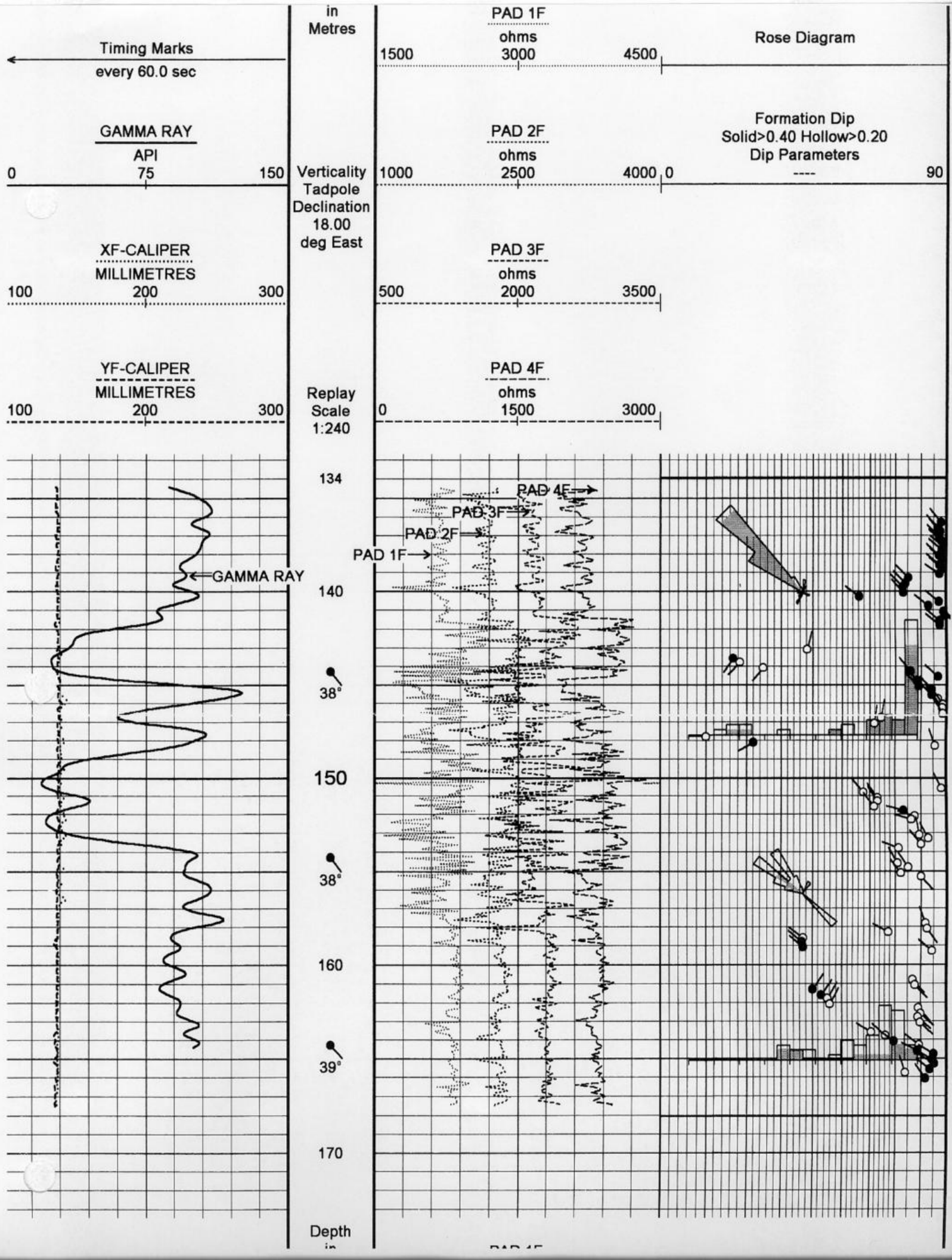
Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 01-APR-2005 18:28
Filename: C:\logs\Elkford\bg-14a\DIP14AM.dta
System Configuration Dates: Logged : Plotted 18-MAY-2004:



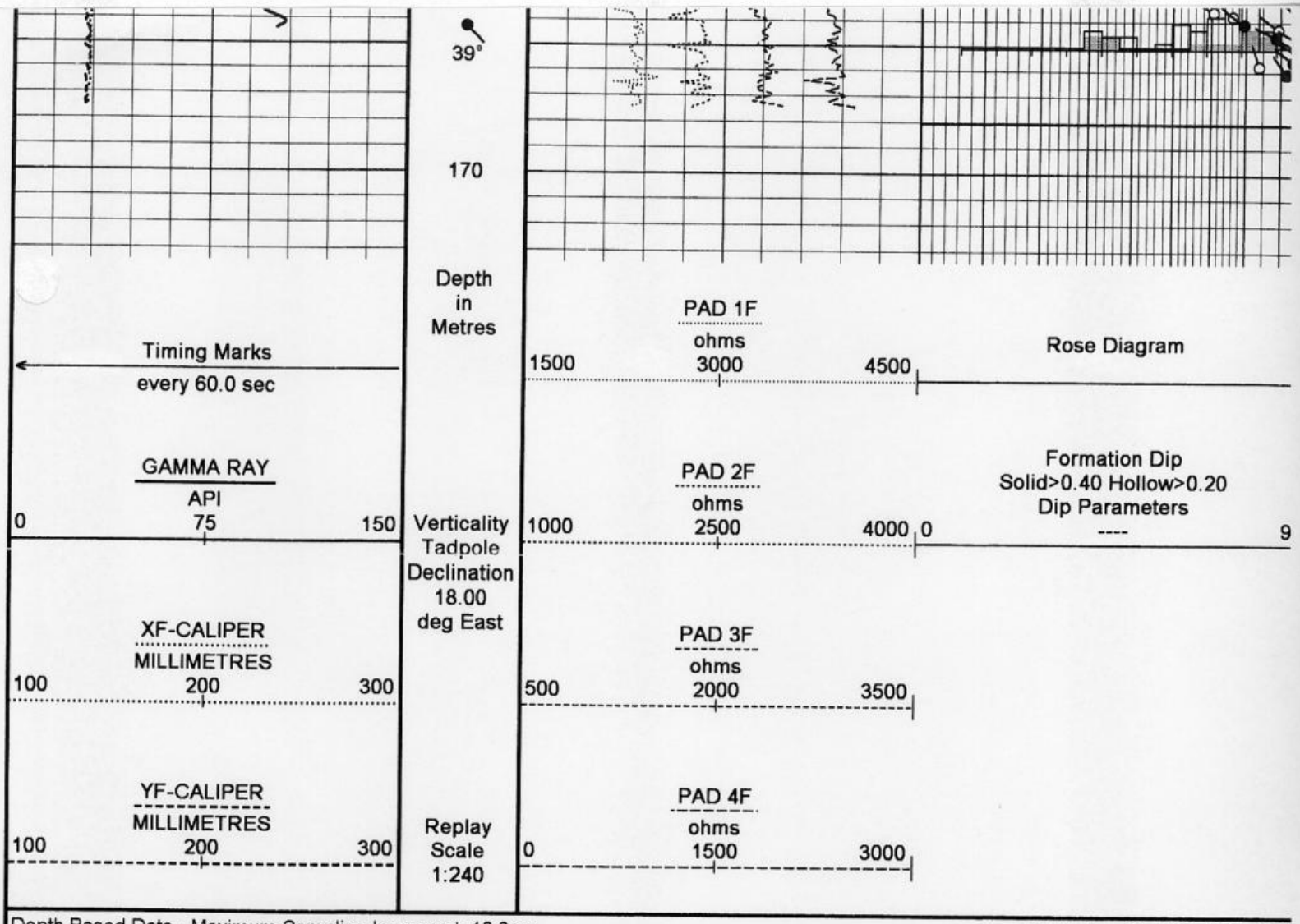

0
Casing Shoe
37°
10
YF-CALIPER
XF-CALIPER
37°
PAD 4F
PAD 3F
PAD 2F
PAD 1F
GAMMA RAY
20
36°
30
36°
40
37°
50
38°
60


60
37°
70
38°
80
38°
90
39°
100
39°
110
39°
120


YF-CALIPER
XF-CALIPER
GAMMA RAY
PAD 4F
PAD 3F
PAD 2F
PAD 1F
120
39°
130
39°
140
38°
150
38°
160
39°
170
Depth
in
Metres
Timing Marks
every 60.0 sec
GAMMA RAY
API
PAD 1F
ohms
1500
3000
4500
PAD 2F
ohms
Rose Diagram
Formation Dip
Solid>0.40 Hollow>0.20
Dip Parameters


in
Metres
Timing Marks
every 60.0 sec
GAMMA RAY
API
0
75
150
XF-CALIPER
MILLIMETRES
100
200
300
YF-CALIPER
MILLIMETRES
100
200
300
Verticality
Tadpole
Declination
18.00
deg East
Replay
Scale
1:240
PAD 1F
ohms
1500
3000
4500
PAD 2F
ohms
1000
2500
4000
PAD 3F
ohms
500
2000
3500
PAD 4F
ohms
0
1500
3000
Rose Diagram
Formation Dip
Solid>0.40 Hollow>0.20
Dip Parameters

0
90
GAMMA RAY
PAD 4F
PAD 3F
PAD 2F
PAD 1F
134
140
38°
150
38°
160
39°
170
Depth



Depth Based Data - Maximum Sampling Increment 10.0cm

Plotted on 01-APR-2005 18:2

Name: C:\logs\Elkford\bg-14a\DIP14AR.dta

System Configuration Dates: Logged : Plotted 18-MAY-2004:

REPEAT SECTION

BEFORE SURVEY CALIBRATION

C:\logs\Elkford\bg-14a\dip4m14a.dta

LOGGING CONSTANTS & GAMMA CALIBRATION

Correlation step (m.)	.25	Correlation interval (m.)	1.00
Bit size #1 (mm)	0.00	Bit depth #1 (m)	0.00
Bit size #2 (mm)	0.00	Bit depth #2 (m)	0.00
Bit size #3 (mm)	0.00	Bit depth #3 (m)	0.00
Bit size #4 (mm)	0.00	Bit depth #4 (m)	0.00
Bit size #5 (mm)	0.00	Bit depth #5 (m)	0.00
Gamma calibrator (API)	0.00	Gamma counts	0.00
Pad penetration (mm)	3.81	Search angle (degrees)	60.00
Structural dip angle (degrees)	.00	Structural dip azi. (degrees)	.00
Declination (degrees)	18.00 E	Detail pad data	NO
Correlate	YES	Caliper units	MM
Depth units	METRIC	Caliper used in calculations	YES

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-14A
FIELD	BINGAY CREEK
PROVINCE/COUNTY	BRITISH COLUMBIA

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-14A
FIELD	BINGAY CREEK
PROVINCE/COUNTY	BRITISH COLUMBIA
COUNTRY/STATE	CANADA

Elevation Kelly Bushing		metres	First Reading	167.50	metres
El[illegible]on Drill Floor		metres	Depth Driller	168.00	metres
Ele[illegible]ion Ground Level	1423.72	metres	Depth Logger	168.00	metres

PRECISION ENERGY SERVICES

DIPMETER ANALYSIS

SCALE 1:240

VERTICALITY ANALYSIS

LOCN. 5563312N 644056E
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG-05-14A
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG-05-14A
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION				OTHER SERVICES
5563312N 644056E				SFE CDL
LSD	SEC	TWP	RGE	
N/A				

PERMANENT DATUM GROUND LEVEL ,ELEVATION 1423.717M
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1423.717M

DATE	27-MAR-05			
RUN NUMBER	1			
DEPTH-DRILLER	168.00M			
DEPTH-LOGGER	168.00M			
FIRST READING	167.60M			
LAST READING	1.00M			
CASING-DRILLER	3.00M			
CASING-LOGGER	2.80M			
BIT SIZE	139.70MM			
HOLE FLUID TYPE	WATER			
DENS./VISC.	1000 N/A			
PH/FLUID LOSS	N/A N/A			
SAMPLE SOURCE	NONE			
RM @ MEAS TEMP	2.00 @ 20.0C			
RMF @ MEAS TEMP	N/A			
RMC @ MEAS TEMP	N/A			
SOURCE: RMF/RMC	N/A N/A			
RM @ BHT	N/A			
TIME SINCE CIRC	N/A			
MAX REC TEMP	N/A			
EQUIPMENT/BASE	V3405 RDR			
RECORDED BY	ROBB RACZ			
WITNESSED BY	G. BICKFORD			
DRILL DONE	24-MAR-05			

VERTICALITY ANALYSIS INTERPRETATION NOTES

. ALL PLOTTED OUTPUT IS AUTOMATICALLY SCALED TO OBTAIN THE BEST VISUAL EFFECT WITHIN THE PHYSICAL SPACE AVAILABLE. THE MAXIMUM SCALES BEING 1:50000 (METRIC) AND 1:48000 (IMPERIAL), AND THE MINIMUM 1:1.

THE ANALYSIS IS DERIVED BY INTEGRATING 10CM. SAMPLED DATA DOWN THE BOREHOLE. THE LISTING SUPPLIED WILL CONTAIN A MAXIMUM OF 200 POINTS IN MULTIPLES OF 1, 2, 5, 10, 20, 50 OR 100 METRES/FEET DEPENDING ON THE TOTAL RANGE OF THE ANALYSIS. HOWEVER THE ANALYSIS IS CALCULATED FOR THE ENTIRE RANGE OF THE BOREHOLE AND THE FINAL BOREHOLE POSITION IS INCLUDED IN THE LISTING.

. COMPUTED VERTICALITY MAY ONLY BE FULLY DERIVED IN OPEN SECTIONS OF THE BOREHOLE, AWAY FROM THE INFLUENCE OF ANY UNUSUAL MAGNETIC EFFECTS (AS THE AZIMUTH CALCULATIONS ARE DERIVED FROM THREE SOLID STATE MAGNETOMETERS). SO THE ANALYSIS WILL GENERALLY BEGIN AT THE END OF THE CASING AND ALL BOREHOLE POSITIONAL INFORMATION WILL RELATE TO THIS DEPTH.

. UP TO TEN CROSS SECTIONS MAY BE REQUESTED FOR ANY BOREHOLE TO BE DISPLAYED AT ANY SCALE (THE DEFAULT SCALE IS THAT OF THE CROSS-SECTION FOR THE ENTIRE HOLE).

. BOREHOLE POSITIONAL ERROR IS DERIVED ASSUMING THE FOLLOWING PARAMETERS.

	TILT(DEGREES)	AZIMUTH(DEGREES)
TYPICAL ERROR	+/- .3333	+/- 10.00
MAXIMUM ERROR	+/- .5000	+/- 15.00

. ERROR ANALYSIS MAY BE CALCULATED AND PLOTTED FROM THE DATA LISTING AS FOLLOWS:

A) PLOT THE FOUR COORDINATES FROM THE ERROR LISTING (BASED UPON ZERO AZIMUTH ERROR) ON A TARGET PLOT. ORIGIN AT THE START OF THE ANALYSIS.
B) DESCRIBE ARCS OF +/- 10.00 DEGREES AND +/- 15.00 DEGREES (CENTRE AT THE ORIGIN) THROUGH THE INNER AND OUTER POINTS RESPECTIVELY.
C) CONNECT THE RESPECTIVE ARCS TOGETHER WITH STRAIGHT LINES TO GIVE THE TYPICAL AND MAXIMUM BOREHOLE POSITIONAL ERROR.

. GIVEN BELOW IS A FULL DESCRIPTION OF THE PARAMETERS DISPLAYED ON THE ENSUING LISTING:

LOG DEPTH	THE DEPTH RECORDED ON THE FIELD LOGS FOR THE BOREHOLE.
TRUE DEPTH	THE TRUE VERTICAL DEPTH CORESPONDING TO THE ABOVE DEPTH. CORRECTED FROM THE START OF THE ANALYSIS.
HOLE TILT AND AZIMUTH	THE SAMPLED BOREHOLE ORIENTATION.
AXIAL COORDINATES	THE COORDINATES NORTH AND EAST FROM THE TARGET ORIGIN.
POLAR COORDINATES	THE POLAR, OR RADIAL COORDINATES OF THE BOREHOLE.
ERROR COORDINATES	THE POLAR COORDINATES CORRESPONDING TO THE TYPICAL AND MAXIMUM TILT ERROR.

N.B. THE REFERENCE POINT FOR ALL BEARING ANGLES ON THIS LISTING IS GIVEN AT THE TOP OF EACH SHEET.

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

3-05-14A VERTICALITY DATA LISTING FOR DIP414AB.CIB DATE PROCESSED: 31-MAR-2005
ALL CO-ORDINATES WITH RESPECT TO TRUE NORTH DATE LOGGED: 27-MAR-2005

DEPTHS		BOREHOLE		AXIAL CO-ORDS		POLAR		POLAR ERROR CO-ORDINATES (MAXIMUM & TYPICAL)					
LOG	TRUE	TILT	AZI	NORTH	EAST	BRG	RADIUS	BRG	RADIUS	BRG	RADIUS	BRG	RADIUS	BRD	RADIUS
2.00	1.79	38.4	144	-0.57	0.23	158	0.61	158	0.62	158	0.61	158	0.62	158	0.61
3.00	2.58	37.4	76	-0.43	0.68	123	0.80	123	0.81	123	0.80	123	0.81	123	0.80
4.00	3.37	37.8	20	0.05	1.00	87	1.00	87	1.01	87	0.99	87	1.01	87	1.00
5.00	4.16	37.8	42	0.62	1.22	63	1.37	63	1.38	63	1.35	63	1.38	63	1.36
6.00	4.96	37.6	129	0.15	1.53	84	1.54	84	1.56	84	1.52	84	1.55	84	1.53
7.00	5.75	36.9	119	-0.17	2.05	95	2.05	95	2.08	95	2.03	95	2.07	95	2.04
8.00	6.55	37.7	113	-0.44	2.59	100	2.63	100	2.66	100	2.60	100	2.65	100	2.61
9.00	7.34	37.1	115	-0.70	3.14	103	3.21	103	3.25	103	3.18	103	3.24	103	3.19
10.00	8.14	37.1	114	-0.95	3.68	105	3.81	105	3.85	105	3.76	105	3.83	105	3.78
11.00	8.94	37.3	113	-1.20	4.24	106	4.40	106	4.45	106	4.35	106	4.44	106	4.37
12.00	9.73	37.3	113	-1.44	4.79	107	5.00	107	5.06	107	4.95	107	5.04	107	4.96
13.00	10.53	37.4	114	-1.68	5.34	107	5.60	107	5.67	107	5.54	107	5.65	107	5.56
14.00	11.32	37.6	112	-1.93	5.90	108	6.21	108	6.28	108	6.14	108	6.25	108	6.16
15.00	12.12	37.1	114	-2.17	6.45	109	6.81	109	6.89	109	6.73	109	6.86	109	6.76
16.00	12.91	37.5	113	-2.42	7.01	109	7.42	109	7.50	109	7.33	109	7.47	109	7.36
7.00	13.70	37.9	115	-2.66	7.58	109	8.03	109	8.12	109	7.94	109	8.09	109	7.97
8.00	14.50	37.1	116	-2.91	8.13	110	8.63	110	8.73	110	8.53	110	8.70	110	8.57
19.00	15.29	37.2	114	-3.17	8.67	110	9.24	110	9.34	110	9.13	110	9.31	110	9.17
20.00	16.09	37.4	114	-3.43	9.22	110	9.84	110	9.95	110	9.73	110	9.92	110	9.77
21.00	16.88	37.5	114	-3.69	9.77	111	10.45	111	10.56	111	10.33	111	10.53	111	10.37
22.00	17.68	37.1	115	-3.94	10.32	111	11.05	111	11.18	111	10.92	111	11.13	111	10.97

6.00	4.96	37.6 129	0.15	1.53 84	1.54 84	1.56 84	1.52 84	1.55 84	1.5
7.00	5.75	36.9 119	-0.17	2.05 95	2.05 95	2.08 95	2.03 95	2.07 95	2.0
8.00	6.55	37.7 113	-0.44	2.59 100	2.63 100	2.66 100	2.60 100	2.65 100	2.6
9.00	7.34	37.1 115	-0.70	3.14 103	3.21 103	3.25 103	3.18 103	3.24 103	3.1
10.00	8.14	37.1 114	-0.95	3.68 105	3.81 105	3.85 105	3.76 105	3.83 105	3.7
11.00	8.94	37.3 113	-1.20	4.24 106	4.40 106	4.45 106	4.35 106	4.44 106	4.3
12.00	9.73	37.3 113	-1.44	4.79 107	5.00 107	5.06 107	4.95 107	5.04 107	4.9
13.00	10.53	37.4 114	-1.68	5.34 107	5.60 107	5.67 107	5.54 107	5.65 107	5.5
14.00	11.32	37.6 112	-1.93	5.90 108	6.21 108	6.28 108	6.14 108	6.25 108	6.1
15.00	12.12	37.1 114	-2.17	6.45 109	6.81 109	6.89 109	6.73 109	6.86 109	6.7
16.00	12.91	37.5 113	-2.42	7.01 109	7.42 109	7.50 109	7.33 109	7.47 109	7.3
17.00	13.70	37.9 115	-2.66	7.58 109	8.03 109	8.12 109	7.94 109	8.09 109	7.9
18.00	14.50	37.1 116	-2.91	8.13 110	8.63 110	8.73 110	8.53 110	8.70 110	8.5
19.00	15.29	37.2 114	-3.17	8.67 110	9.24 110	9.34 110	9.13 110	9.31 110	9.1
20.00	16.09	37.4 114	-3.43	9.22 110	9.84 110	9.95 110	9.73 110	9.92 110	9.7
21.00	16.88	37.5 114	-3.69	9.77 111	10.45 111	10.56 111	10.33 111	10.53 111	10.3
22.00	17.68	37.1 115	-3.94	10.32 111	11.05 111	11.18 111	10.92 111	11.13 111	10.9
23.00	18.47	37.6 114	-4.20	10.87 111	11.65 111	11.79 111	11.52 111	11.74 111	11.5
24.00	19.27	36.8 119	-4.47	11.41 111	12.25 111	12.39 111	12.11 111	12.35 111	12.1
25.00	20.07	36.7 118	-4.74	11.94 112	12.85 112	13.00 112	12.70 112	12.95 112	12.7
26.00	20.87	37.1 114	-5.00	12.48 112	13.45 112	13.60 112	13.30 112	13.55 112	13.3
27.00	21.67	37.2 114	-5.26	13.03 112	14.05 112	14.21 112	13.89 112	14.16 112	13.9
28.00	22.46	37.4 116	-5.51	13.58 112	14.66 112	14.82 112	14.49 112	14.77 112	14.5
29.00	23.26	37.3 116	-5.76	14.13 112	15.26 112	15.44 112	15.09 112	15.38 112	15.1
30.00	24.06	37.1 115	-6.03	14.68 112	15.86 112	16.05 112	15.68 112	15.99 112	15.7
31.00	24.85	37.3 116	-6.28	15.22 112	16.47 112	16.66 112	16.28 112	16.59 112	16.3
32.00	25.65	36.9 115	-6.55	15.77 113	17.07 113	17.27 113	16.87 113	17.20 113	16.9
33.00	26.45	37.0 118	-6.83	16.29 113	17.67 113	17.87 113	17.47 113	17.80 113	17.5
34.00	27.25	37.0 118	-7.11	16.82 113	18.27 113	18.48 113	18.06 113	18.41 113	18.1
35.00	28.05	36.7 120	-7.40	17.35 113	18.86 113	19.08 113	18.65 113	19.01 113	18.7
36.00	28.85	36.9 117	-7.68	17.88 113	19.46 113	19.68 113	19.24 113	19.61 113	19.3
37.00	29.65	36.9 117	-7.95	18.42 113	20.06 113	20.29 113	19.83 113	20.22 113	19.9
38.00	30.45	37.3 116	-8.22	18.96 113	20.66 113	20.90 113	20.43 113	20.82 113	20.5
39.00	31.24	37.5 114	-8.47	19.51 113	21.27 113	21.51 113	21.03 113	21.43 113	21.1
40.00	32.03	37.6 113	-8.72	20.07 113	21.88 113	22.13 113	21.63 113	22.05 113	21.7
41.00	32.83	37.5 113	-8.96	20.63 113	22.49 113	22.75 113	22.23 113	22.66 113	22.3
42.00	33.62	37.6 115	-9.21	21.18 113	23.10 113	23.36 113	22.83 113	23.28 113	22.9
43.00	34.41	38.2 115	-9.46	21.75 114	23.72 114	23.99 114	23.44 114	23.90 114	23.5
44.00	35.20	38.0 113	-9.71	22.31 114	24.33 114	24.61 114	24.05 114	24.51 114	24.1
45.00	35.99	37.6 118	-9.98	22.86 114	24.94 114	25.22 114	24.65 114	25.13 114	24.7
46.00	36.78	37.9 115	-10.24	23.41 114	25.55 114	25.84 114	25.26 114	25.74 114	25.3
47.00	37.57	37.9 115	-10.51	23.96 114	26.16 114	26.46 114	25.86 114	26.36 114	25.9
48.00	38.36	38.0 116	-10.79	24.51 114	26.78 114	27.08 114	26.47 114	26.98 114	26.5
49.00	39.15	37.7 119	-11.08	25.05 114	27.39 114	27.70 114	27.07 114	27.60 114	27.1
50.00	39.94	37.7 118	-11.38	25.58 114	28.00 114	28.32 114	27.68 114	28.21 114	27.7
51.00	40.73	37.8 120	-11.68	26.11 114	28.60 114	28.93 114	28.28 114	28.82 114	28.3
52.00	41.52	38.1 117	-11.96	26.66 114	29.22 114	29.55 114	28.88 114	29.44 114	28.9
53.00	42.31	38.1 117	-12.24	27.21 114	29.83 114	30.17 114	29.49 114	30.06 114	29.6
54.00	43.09	38.0 119	-12.52	27.76 114	30.45 114	30.80 114	30.10 114	30.68 114	30.2
55.00	43.88	38.0 120	-12.81	28.30 114	31.07 114	31.42 114	30.71 114	31.30 114	30.8
56.00	44.67	38.0 117	-13.11	28.84 114	31.68 114	32.04 114	31.32 114	31.92 114	31.4
57.00	45.45	38.4 118	-13.40	29.39 115	32.30 115	32.66 115	31.93 115	32.54 115	32.0
58.00	46.24	38.2 118	-13.69	29.93 115	32.91 115	33.28 115	32.54 115	33.16 115	32.6
59.00	47.03	37.8 121	-13.99	30.46 115	33.52 115	33.90 115	33.14 115	33.78 115	33.2
60.00	47.82	37.9 120	-14.29	31.00 115	34.13 115	34.52 115	33.74 115	34.39 115	33.8
61.00	48.61	37.9 118	-14.59	31.53 115	34.74 115	35.14 115	34.35 115	35.01 115	34.4
62.00	49.40	37.7 118	-14.88	32.07 115	35.35 115	35.76 115	34.95 115	35.62 115	35.0
63.00	50.19	37.6 121	-15.19	32.60 115	35.96 115	36.37 115	35.55 115	36.24 115	35.6
64.00	50.98	38.0 120	-15.50	33.13 115	36.57 115	36.99 115	36.15 115	36.85 115	36.2
65.00	51.77	37.9 117	-15.81	33.66 115	37.18 115	37.60 115	36.76 115	37.46 115	36.9
66.00	52.56	38.0 120	-16.10	34.19 115	37.80 115	38.22 115	37.36 115	38.08 115	37.5
67.00	53.35	38.3 117	-16.39	34.74 115	38.41 115	38.85 115	37.98 115	38.71 115	38.1
68.00	54.13	38.8 116	-16.67	35.30 115	39.04 115	39.48 115	38.59 115	39.33 115	38.7
69.00	54.91	38.6 118	-16.96	35.85 115	39.66 115	40.11 115	39.21 115	39.96 115	39.3
70.00	55.70	38.4 119	-17.26	36.39 115	40.28 115	40.73 115	39.82 115	40.58 115	39.9
71.00	56.48	38.4 119	-17.56	36.94 115	40.90 115	41.36 115	40.43 115	41.21 115	40.5
72.00	57.26	38.6 118	-17.86	37.49 115	41.52 115	41.99 115	41.05 115	41.84 115	41.2
73.00	58.04	38.8 117	-18.16	38.04 116	42.15 116	42.62 116	41.67 116	42.47 116	41.8
74.00	58.82	38.9 116	-18.45	38.59 116	42.77 116	43.26 116	42.29 116	43.10 116	42.4
75.00	59.60	38.9 118	-18.75	39.15 116	43.40 116	43.89 116	42.91 116	43.73 116	43.0
76.00	60.37	39.6 118	-19.04	39.70 116	44.03 116	44.53 116	43.53 116	44.36 116	43.7
77.00	61.15	39.4 118	-19.32	40.27 116	44.67 116	45.17 116	44.16 116	45.00 116	44.3
78.00	61.92	39.3 118	-19.61	40.84 116	45.30 116	45.81 116	44.79 116	45.64 116	44.9
79.00	62.69	39.2 120	-19.91	41.40 116	45.93 116	46.45 116	45.41 116	46.28 116	45.5
80.00	63.47	39.5 118	-20.21	41.95 116	46.57 116	47.09 116	46.04 116	46.92 116	46.2
81.00	64.24	39.3 119	-20.52	42.51 116	47.20 116	47.73 116	46.67 116	47.56 116	46.8
82.00	65.01	39.4 120	-20.84	43.06 116	47.83 116	48.37 116	47.29 116	48.19 116	47.4
83.00	65.79	39.2 121	-21.16	43.60 116	48.47 116	49.01 116	47.92 116	48.83 116	48.1
84.00	66.56	38.9 121	-21.48	44.14 116	49.09 116	49.64 116	48.54 116	49.46 116	48.7
85.00	67.34	38.9 121	-21.82	44.67 116	49.72 116	50.27 116	49.16 116	50.09 116	49.3
86.00	68.12	38.9 122	-22.15	45.21 116	50.34 116	50.90 116	49.77 116	50.72 116	49.9
87.00	68.89	39.1 121	-22.48	45.75 116	50.97 116	51.54 116	50.39 116	51.35 116	50.5
88.00	69.67	39.4 122	-22.81	46.28 116	51.60 116	52.17 116	51.01 116	51.98 116	51.2
89.00	70.44	39.4 121	-23.13	46.83 116	52.23 116	52.81 116	51.64 116	52.62 116	51.8
90.00	71.22	40.0 121	-23.46	47.37 116	52.86 116	53.45 116	52.27 116	53.26 116	52.4
91.00	71.99	39.7 118	-23.77	47.93 116	53.50 116	54.10 116	52.90 116	53.90 116	53.1
92.00	72.75	39.8 118	-24.08	48.49 116	54.14 116	54.74 116	53.53 116	54.54 116	53.7
93.00	73.52	39.7 120	-24.38	49.05 116	54.78 116	55.39 116	54.16 116	55.18 116	54.3
94.00	74.29	40.0 119	-24.69	49.61 116	55.42 116	56.03 116	54.80 116	55.83 116	55.0
95.00	75.06	39.7 118	-25.00	50.17 116	56.06 116	56.68 116	55.43 116	56.47 116	55.6
96.00	75.83	39.8 118	-25.31	50.73 117	56.70 117	57.33 117	56.06 117	57.12 117	56.2

90.00	71.22	40.0 121	-23.46	47.37 116	52.86 116	53.45 116	52.27 116	53.26 116	52.47
91.00	71.99	39.7 118	-23.77	47.93 116	53.50 116	54.10 116	52.90 116	53.90 116	53.10
92.00	72.75	39.8 118	-24.08	48.49 116	54.14 116	54.74 116	53.53 116	54.54 116	53.73
93.00	73.52	39.7 120	-24.38	49.05 116	54.78 116	55.39 116	54.16 116	55.18 116	54.37
94.00	74.29	40.0 119	-24.69	49.61 116	55.42 116	56.03 116	54.80 116	55.83 116	55.00
95.00	75.06	39.7 118	-25.00	50.17 116	56.06 116	56.68 116	55.43 116	56.47 116	55.64
96.00	75.83	39.8 118	-25.31	50.73 117	56.70 117	57.33 117	56.06 117	57.12 117	56.27
97.00	76.60	39.7 120	-25.62	51.30 117	57.34 117	57.97 117	56.69 117	57.76 117	56.91
98.00	77.36	39.8 120	-25.92	51.86 117	57.98 117	58.62 117	57.33 117	58.41 117	57.54
99.00	78.13	40.0 119	-26.23	52.42 117	58.61 117	59.26 117	57.96 117	59.05 117	58.18
100.00	78.90	39.6 120	-26.54	52.98 117	59.25 117	59.91 117	58.59 117	59.69 117	58.81
101.00	79.67	39.7 119	-26.85	53.54 117	59.89 117	60.55 117	59.22 117	60.33 117	59.45
102.00	80.44	39.4 121	-27.16	54.09 117	60.53 117	61.20 117	59.85 117	60.97 117	60.08
3.00	81.21	39.5 121	-27.48	54.64 117	61.16 117	61.84 117	60.48 117	61.61 117	60.71
4.00	81.99	39.5 121	-27.80	55.19 117	61.80 117	62.48 117	61.11 117	62.25 117	61.34
105.00	82.76	39.8 120	-28.12	55.74 117	62.43 117	63.12 117	61.74 117	62.89 117	61.97
106.00	83.53	39.4 122	-28.43	56.30 117	63.07 117	63.77 117	62.37 117	63.54 117	62.60
107.00	84.30	39.9 118	-28.75	56.85 117	63.71 117	64.41 117	63.00 117	64.18 117	63.24
108.00	85.06	39.6 118	-29.04	57.42 117	64.35 117	65.06 117	63.63 117	64.82 117	63.87
109.00	85.83	39.9 116	-29.33	57.99 117	64.99 117	65.71 117	64.27 117	65.47 117	64.51
110.00	86.60	39.7 120	-29.64	58.55 117	65.63 117	66.35 117	64.90 117	66.11 117	65.14
111.00	87.37	39.7 120	-29.95	59.11 117	66.27 117	67.00 117	65.53 117	66.75 117	65.78
112.00	88.14	39.1 119	-30.27	59.66 117	66.90 117	67.64 117	66.16 117	67.39 117	66.41
113.00	88.91	39.7 120	-30.59	60.21 117	67.54 117	68.28 117	66.79 117	68.03 117	67.04
114.00	89.68	39.3 122	-30.91	60.76 117	68.17 117	68.92 117	67.41 117	68.67 117	67.67
115.00	90.46	39.5 121	-31.23	61.31 117	68.80 117	69.56 117	68.04 117	69.31 117	68.30
116.00	91.23	39.6 119	-31.54	61.86 117	69.44 117	70.20 117	68.67 117	69.95 117	68.93
117.00	92.00	39.4 121	-31.85	62.42 117	70.07 117	70.84 117	69.30 117	70.59 117	69.56
118.00	92.77	39.3 119	-32.16	62.97 117	70.71 117	71.49 117	69.92 117	71.23 117	70.19
119.00	93.54	39.5 118	-32.47	63.53 117	71.35 117	72.13 117	70.56 117	71.87 117	70.82
120.00	94.31	39.8 117	-32.78	64.09 117	71.98 117	72.77 117	71.19 117	72.51 117	71.45
121.00	95.09	39.7 121	-33.09	64.64 117	72.62 117	73.41 117	71.81 117	73.15 117	72.08
122.00	95.86	39.4 121	-33.41	65.19 117	73.25 117	74.05 117	72.44 117	73.79 117	72.71
123.00	96.63	39.4 119	-33.73	65.73 117	73.88 117	74.69 117	73.07 117	74.42 117	73.34
124.00	97.41	39.4 121	-34.05	66.28 117	74.52 117	75.33 117	73.69 117	75.06 117	73.97
125.00	98.18	39.3 122	-34.37	66.83 117	75.15 117	75.97 117	74.32 117	75.70 117	74.60
126.00	98.95	39.1 120	-34.69	67.38 117	75.78 117	76.62 117	74.95 117	76.34 117	75.23
127.00	99.72	39.5 119	-35.00	67.93 117	76.42 117	77.26 117	75.58 117	76.98 117	75.86
128.00	100.50	39.1 121	-35.32	68.48 117	77.05 117	77.90 117	76.20 117	77.62 117	76.49
129.00	101.27	39.6 121	-35.63	69.03 117	77.69 117	78.54 117	76.83 117	78.25 117	77.12
130.00	102.04	39.0 122	-35.95	69.58 117	78.32 117	79.18 117	77.46 117	78.89 117	77.75
131.00	102.81	39.4 119	-36.27	70.13 117	78.95 117	79.82 117	78.08 117	79.53 117	78.37
132.00	103.59	39.4 119	-36.58	70.68 117	79.59 117	80.46 117	78.71 117	80.17 117	79.00
133.00	104.36	39.1 120	-36.90	71.23 117	80.22 117	81.10 117	79.33 117	80.81 117	79.63
134.00	105.14	39.1 119	-37.22	71.78 117	80.85 117	81.74 117	79.96 117	81.44 117	80.26
135.00	105.91	39.1 120	-37.53	72.32 117	81.48 117	82.37 117	80.58 117	82.08 117	80.88
136.00	106.69	39.2 120	-37.86	72.86 117	82.11 117	83.01 117	81.20 117	82.71 117	81.51
137.00	107.47	39.1 121	-38.19	73.39 117	82.74 117	83.64 117	81.82 117	83.34 117	82.13
138.00	108.25	38.7 123	-38.52	73.92 118	83.36 118	84.27 118	82.44 118	83.97 118	82.75
139.00	109.03	38.5 122	-38.86	74.45 118	83.98 118	84.90 118	83.06 118	84.59 118	83.36
140.00	109.81	38.7 122	-39.20	74.97 118	84.60 118	85.53 118	83.67 118	85.22 118	83.98
141.00	110.59	38.5 123	-39.54	75.49 118	85.22 118	86.15 118	84.28 118	85.84 118	84.60
142.00	111.37	38.4 123	-39.88	76.02 118	85.84 118	86.78 118	84.90 118	86.47 118	85.21
143.00	112.16	38.3 124	-40.22	76.54 118	86.46 118	87.41 118	85.51 118	87.09 118	85.83
144.00	112.94	38.5 122	-40.56	77.05 118	87.08 118	88.03 118	86.12 118	87.71 118	86.44
145.00	113.72	38.5 124	-40.90	77.57 118	87.70 118	88.66 118	86.73 118	88.34 118	87.05
146.00	114.51	38.8 122	-41.24	78.10 118	88.32 118	89.28 118	87.35 118	88.96 118	87.67
147.00	115.29	38.5 121	-41.58	78.62 118	88.94 118	89.91 118	87.96 118	89.59 118	88.29
148.00	116.07	38.3 124	-41.91	79.15 118	89.56 118	90.54 118	88.57 118	90.21 118	88.90
149.00	116.85	39.2 121	-42.25	79.67 118	90.18 118	91.17 118	89.19 118	90.84 118	89.52
150.00	117.63	39.0 120	-42.58	80.21 118	90.81 118	91.81 118	89.81 118	91.48 118	90.15
151.00	118.41	39.3 122	-42.92	80.74 118	91.44 118	92.44 118	90.43 118	92.11 118	90.77
152.00	119.18	39.3 122	-43.25	81.28 118	92.07 118	93.07 118	91.05 118	92.74 118	91.39
153.00	119.96	39.4 123	-43.59	81.81 118	92.70 118	93.71 118	91.67 118	93.37 118	92.02
154.00	120.74	38.5 124	-43.93	82.33 118	93.32 118	94.34 118	92.29 118	94.00 118	92.63
155.00	121.52	38.5 124	-44.28	82.85 118	93.94 118	94.97 118	92.90 118	94.62 118	93.25
156.00	122.30	38.5 124	-44.63	83.36 118	94.56 118	95.59 118	93.52 118	95.25 118	93.86
157.00	123.08	38.4 125	-44.98	83.88 118	95.18 118	96.22 118	94.13 118	95.87 118	94.48
158.00	123.87	38.6 124	-45.33	84.40 118	95.80 118	96.85 118	94.74 118	96.50 118	95.10
159.00	124.65	38.5 123	-45.67	84.92 118	96.42 118	97.48 118	95.36 118	97.13 118	95.72
160.00	125.42	38.9 123	-46.01	85.45 118	97.05 118	98.11 118	95.98 118	97.76 118	96.34
161.00	126.20	38.9 124	-46.34	85.98 118	97.67 118	98.74 118	96.60 118	98.39 118	96.96
162.00	126.98	39.0 123	-46.68	86.51 118	98.30 118	99.38 118	97.22 118	99.02 118	97.58
163.00	127.76	38.9 122	-47.02	87.04 118	98.93 118	100.01 118	97.84 118	99.65 118	98.21
164.00	128.53	39.1 120	-47.35	87.58 118	99.56 118	100.65 118	98.46 118	100.28 118	98.83
165.00	129.31	39.1 120	-47.67	88.12 118	100.19 118	101.28 118	99.09 118	100.92 118	99.45
166.00	130.09	39.6 119	-47.99	88.67 118	100.82 118	101.92 118	99.71 118	101.55 118	100.08
167.00	130.85	40.1 118	-48.29	89.23 118	101.46 118	102.57 118	100.34 118	102.20 118	100.71
167.50	131.24	40.3 116	-48.44	89.51 118	101.78 118	102.89 118	100.66 118	102.52 118	101.04

CROSS SECTION

ALL FIGURES IN LOG DEPTH MS

TARGET ORIGIN DEPTH 1.00

N

PLOT WITH RESPECT TO TRUE NORTH

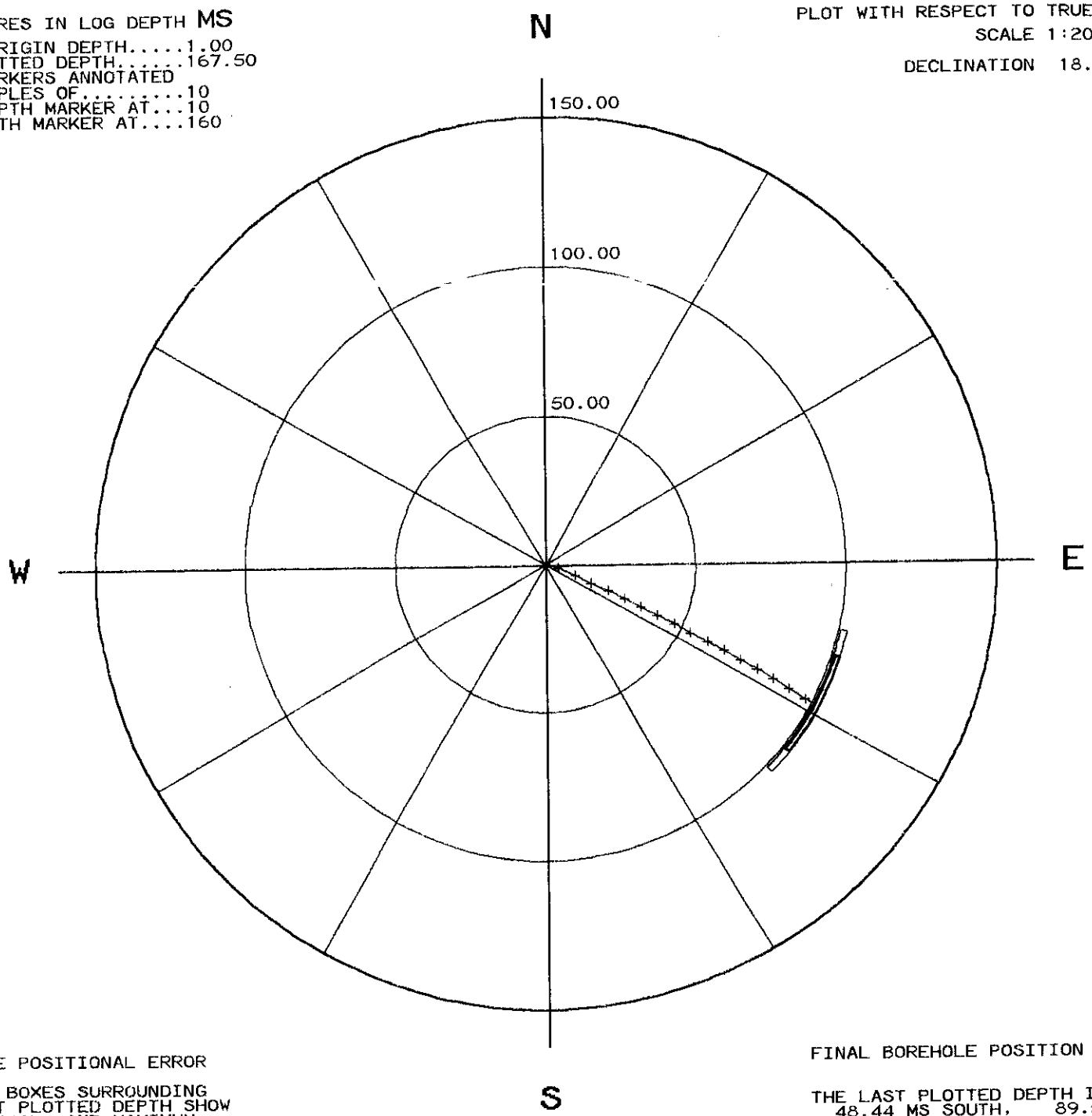
SCALE 1:2000

167.50 131.24 40.3 116 -48.44 89.51 118 101.78 118

CROSS SECTION

ALL FIGURES IN LOG DEPTH MS
TARGET ORIGIN DEPTH.....1.00
LAST PLOTTED DEPTH.....167.50
DEPTH MARKERS ANNOTATED
MULTIPLES OF.....10
FIRST DEPTH MARKER AT...10
LAST DEPTH MARKER AT....160

PLOT WITH RESPECT TO TRUE N
SCALE 1:2000
DECLINATION 18.0



BOREHOLE POSITIONAL ERROR

THE TWO BOXES SURROUNDING THE LAST PLOTTED DEPTH SHOW THE TYPICAL, AND MAXIMUM, POSITIONAL ERROR AT THAT DEPTH.

FINAL BOREHOLE POSITION

THE LAST PLOTTED DEPTH IS 48.44 MS SOUTH, 89.51 EAST IE. 101.78 MS FROM ORIGIN. 118 DEG FROM TRUE

VERTICAL SECTIONS

N-S SECTION

E-W SECTION

(TRUE DEPTH VS DISPLACEMENT)

VERTICAL SCALE 1:1000
HORIZONTAL SCALE 1:5000

MARKERS ANNOTATED

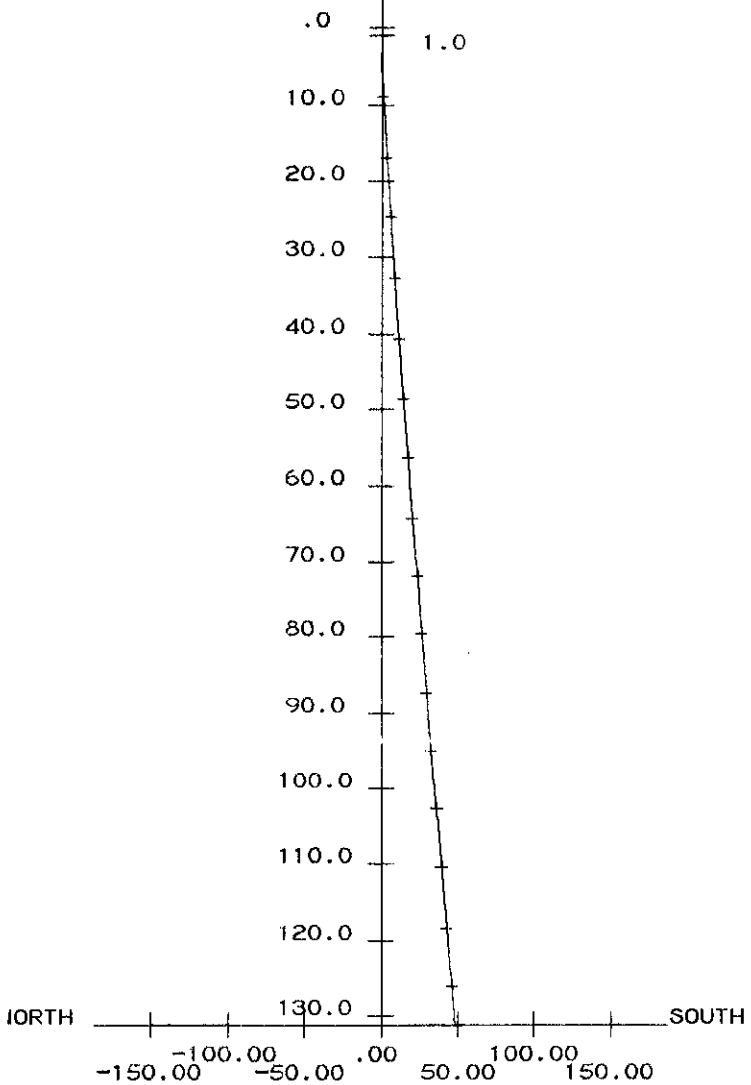
VERTICAL SECTIONS

(TRUE DEPTH VS DISPLACEMENT)

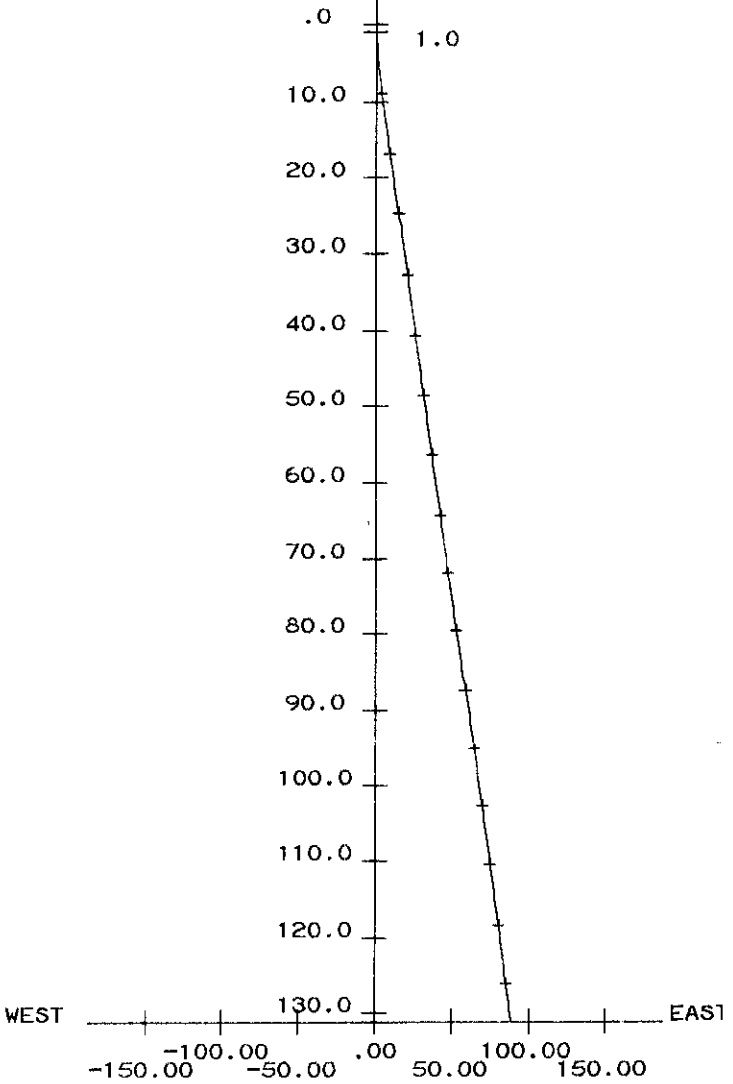
N-S SECTION

VERTICAL SCALE 1:1000
HORIZONTAL SCALE 1:5000

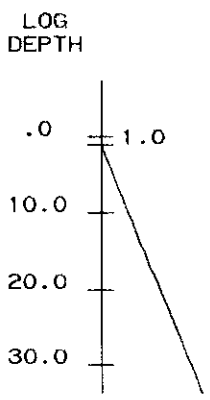
MARKERS ANNOTATED
AS ABOVE



E-W SECTION



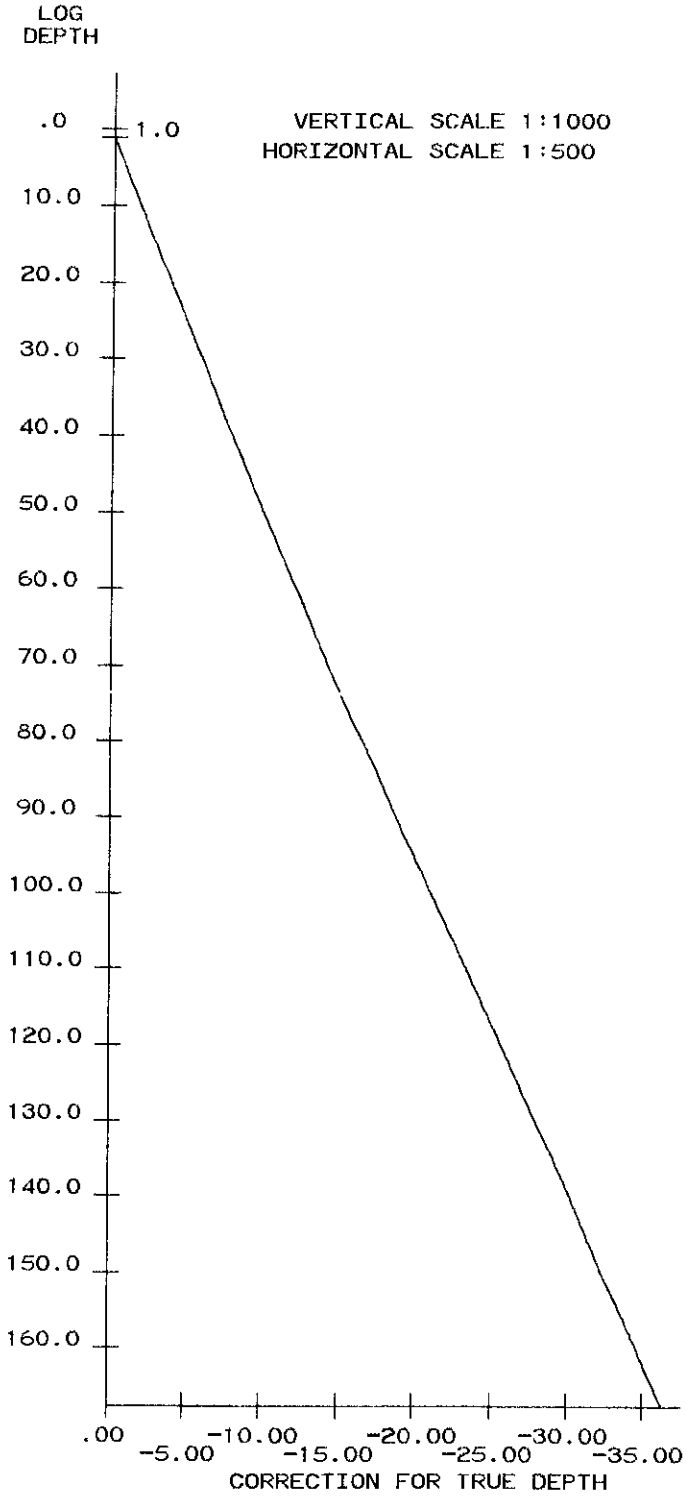
DEPTH CORRECTION ANALYSIS



VERTICAL SCALE 1:1000
HORIZONTAL SCALE 1:500

DEPTHS: LOG	TRUE	DEPTHS: LOG	TRUE	DEPTHS: LOG	TRUE
2.00	1.79	72.00	57.26	142.00	111.37
3.00	2.58	73.00	58.04	143.00	112.16
4.00	3.37	74.00	58.82	144.00	112.94
5.00	4.16	75.00	59.60	145.00	113.72
6.00	4.96	76.00	60.37	146.00	114.51
7.00	5.75	77.00	61.15	147.00	115.29
8.00	6.55	78.00	61.92	148.00	116.07
9.00	7.34	79.00	62.69	149.00	116.85
10.00	8.14	80.00	63.47	150.00	117.63
11.00	8.94	81.00	64.24	151.00	118.41
12.00	9.73	82.00	65.01	152.00	119.18
13.00	10.53	83.00	65.79	153.00	119.96
14.00	11.32	84.00	66.56	154.00	120.74

DEPTH CORRECTION ANALYSIS



DEPTHS: LOG	TRUE	DEPTHS: LOG	TRUE	DEPTHS: LOG	TRUE
2.00	1.79	72.00	57.26	142.00	111.37
3.00	2.58	73.00	58.04	143.00	112.16
4.00	3.37	74.00	58.82	144.00	112.94
5.00	4.16	75.00	59.60	145.00	113.72
6.00	4.96	76.00	60.37	146.00	114.51
7.00	5.75	77.00	61.15	147.00	115.29
8.00	6.55	78.00	61.92	148.00	116.07
9.00	7.34	79.00	62.69	149.00	116.85
10.00	8.14	80.00	63.47	150.00	117.63
11.00	8.94	81.00	64.24	151.00	118.41
12.00	9.73	82.00	65.01	152.00	119.18
13.00	10.53	83.00	65.79	153.00	119.96
14.00	11.32	84.00	66.56	154.00	120.74
15.00	12.12	85.00	67.34	155.00	121.52
16.00	12.91	86.00	68.12	156.00	122.30
17.00	13.70	87.00	68.89	157.00	123.08
18.00	14.50	88.00	69.67	158.00	123.87
19.00	15.29	89.00	70.44	159.00	124.65
20.00	16.09	90.00	71.22	160.00	125.42
21.00	16.88	91.00	71.99	161.00	126.20
22.00	17.68	92.00	72.75	162.00	126.98
23.00	18.47	93.00	73.52	163.00	127.76
24.00	19.27	94.00	74.29	164.00	128.53
25.00	20.07	95.00	75.06	165.00	129.31
26.00	20.87	96.00	75.83	166.00	130.09
27.00	21.67	97.00	76.60	167.00	130.85
28.00	22.46	98.00	77.36	167.50	131.24
29.00	23.26	99.00	78.13		
30.00	24.06	100.00	78.90		
31.00	24.85	101.00	79.67		
32.00	25.65	102.00	80.44		
33.00	26.45	103.00	81.21		
34.00	27.25	104.00	81.99		
35.00	28.05	105.00	82.76		
36.00	28.85	106.00	83.53		
37.00	29.65	107.00	84.30		
38.00	30.45	108.00	85.06		
39.00	31.24	109.00	85.83		
40.00	32.03	110.00	86.60		
41.00	32.83	111.00	87.37		
42.00	33.62	112.00	88.14		
43.00	34.41	113.00	88.91		
44.00	35.20	114.00	89.68		
45.00	35.99	115.00	90.46		
46.00	36.78	116.00	91.23		
47.00	37.57	117.00	92.00		
48.00	38.36	118.00	92.77		
49.00	39.15	119.00	93.54		
50.00	39.94	120.00	94.31		
51.00	40.73	121.00	95.09		
52.00	41.52	122.00	95.86		
53.00	42.31	123.00	96.63		
54.00	43.09	124.00	97.41		
55.00	43.88	125.00	98.18		
56.00	44.67	126.00	98.95		
57.00	45.45	127.00	99.72		
58.00	46.24	128.00	100.50		
59.00	47.03	129.00	101.27		
60.00	47.82	130.00	102.04		
61.00	48.61	131.00	102.81		
62.00	49.40	132.00	103.59		
63.00	50.19	133.00	104.36		
64.00	50.98	134.00	105.14		
65.00	51.77	135.00	105.91		
66.00	52.56	136.00	106.69		
67.00	53.35	137.00	107.47		
68.00	54.13	138.00	108.25		
69.00	54.91	139.00	109.03		
70.00	55.70	140.00	109.81		
71.00	56.48	141.00	110.59		

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-14A
FIELD	BINGAY CREEK
RVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA

PRECISION ENERGY SERVICES

COMPENSATED DENSITY GAMMA RAY, CALIPER SCALE 1:240

LOCN. 5563312N 644056E
PRVNC BRITISH COLUMBIA
FIELD BINGAY CREEK
WELL: BG-05-14A
COMPANY: HILLSBOROUGH RESOURCES LTD

COMPANY HILLSBOROUGH RESOURCES LTD
WELL BG-05-14A
FIELD BINGAY CREEK
PROVINCE/COUNTY BRITISH COLUMBIA
COUNTRY/STATE CANADA
PERMIT NUMBER N/A

LOCATION 5563312N 644056E

LSD	SEC	TWP	RGE
N/A			

OTHER SERVICES
SFE
DIP/VERT

PERMANENT DATUM GROUND LEVEL ,ELEVATION 1423.717M
LOG MEASURED FROM G.L. 00.00M ABOVE PERMANENT DATUM
DRILLING MEASURED FROM GROUND LEVEL

ELEVATIONS:
KB N/A
DF N/A
GL 1423.717M

DATE	27-MAR-05	
RUN NUMBER	1	
DEPTH-DRILLER	168.00M	
DEPTH-LOGGER	168.00M	
FIRST READING	166.70M	
LAST READING	0.00M	
CASING-DRILLER	3.00M	
CASING-LOGGER	2.80M	
BIT SIZE	139.70MM	
HOLE FLUID TYPE	WATER	
DENS./VISC.	1000 N/A	
PH/FLUID LOSS	N/A N/A	
SAMPLE SOURCE	NONE	
RM @ MEAS TEMP	2.00 @ 20.0C	
RMF @ MEAS TEMP	N/A	
RMC @ MEAS TEMP	N/A	
SOURCE: RMF/RMC	N/A N/A	
RM @ BHT	N/A	
TIME SINCE CIRC	N/A	
MAX REC TEMP	N/A	
EQUIPMENT/BASE	V3405 RDR	
RECORDED BY	ROBB RACZ	
WITNESSED BY	G. BICKFORD	
DRILL DONE	24-MAR-05	

RUN	BOREHOLE RECORD			CASING RECORD			
NUMBER	BIT	FROM	TO	SIZE	WEIGHT	FROM	TO
1	139.70MM	3.00M	TD	159.00MM	N/A	SURFACE	3.00M

EQUIPMENT	RUN 1	RUN 2	RUN 3	RUN 4
DD6	629			

REMARKS

COMPENSATED DENSITY GAMMA RAY, CALIPER SCALE 1:240

NORTHING: 5563312.995 ELEVATION: 1423.717M SURVEYED ON MARCH 29/2005

EASTING : 644056.611

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS IN OUR PRICE SCHEDULE

MAIN LOG 1:240

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 27-MAR-2005 AT 17:30

FILENAME: MRGE14AM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 27-MAR-2005 AT 18:08

BIT SIZE
MILLIMETRES
50 150 250

CALIPER FROM DENSITY
MILLIMETRES
50 150 250

GAMMA FROM DENSITY TOOL
API
0 75 150

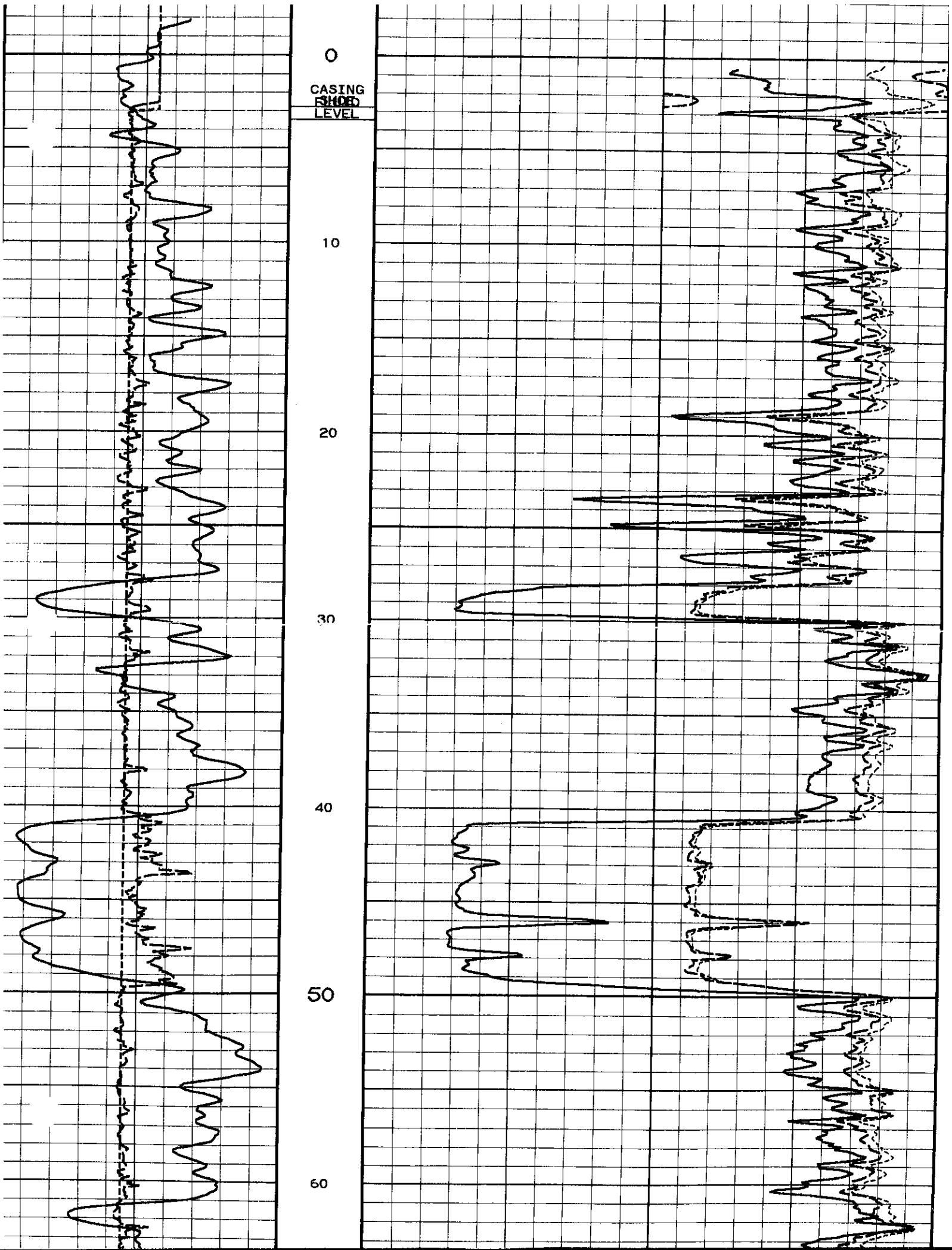
DEPTH IN METRES

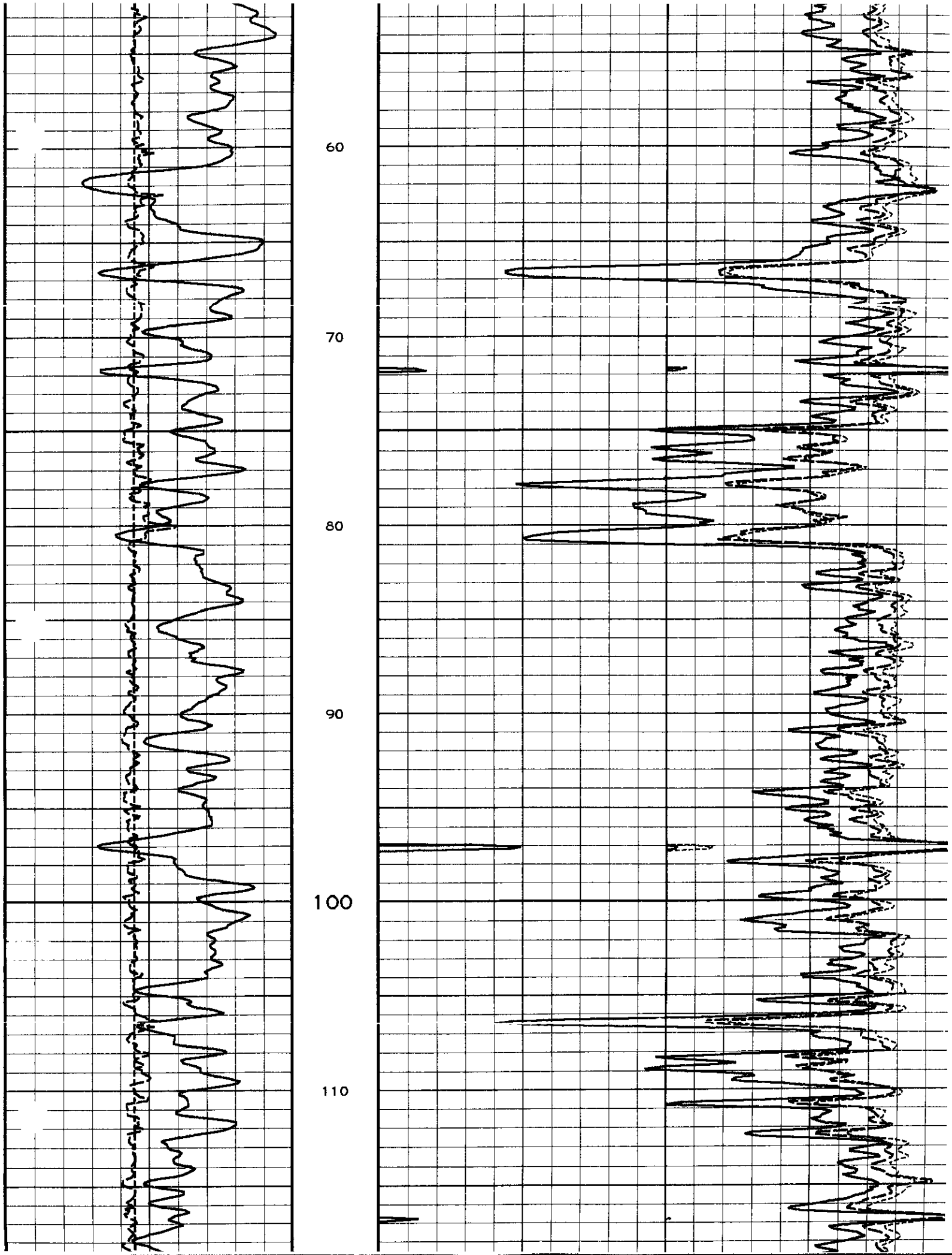
REPLAY SCALE 1:240

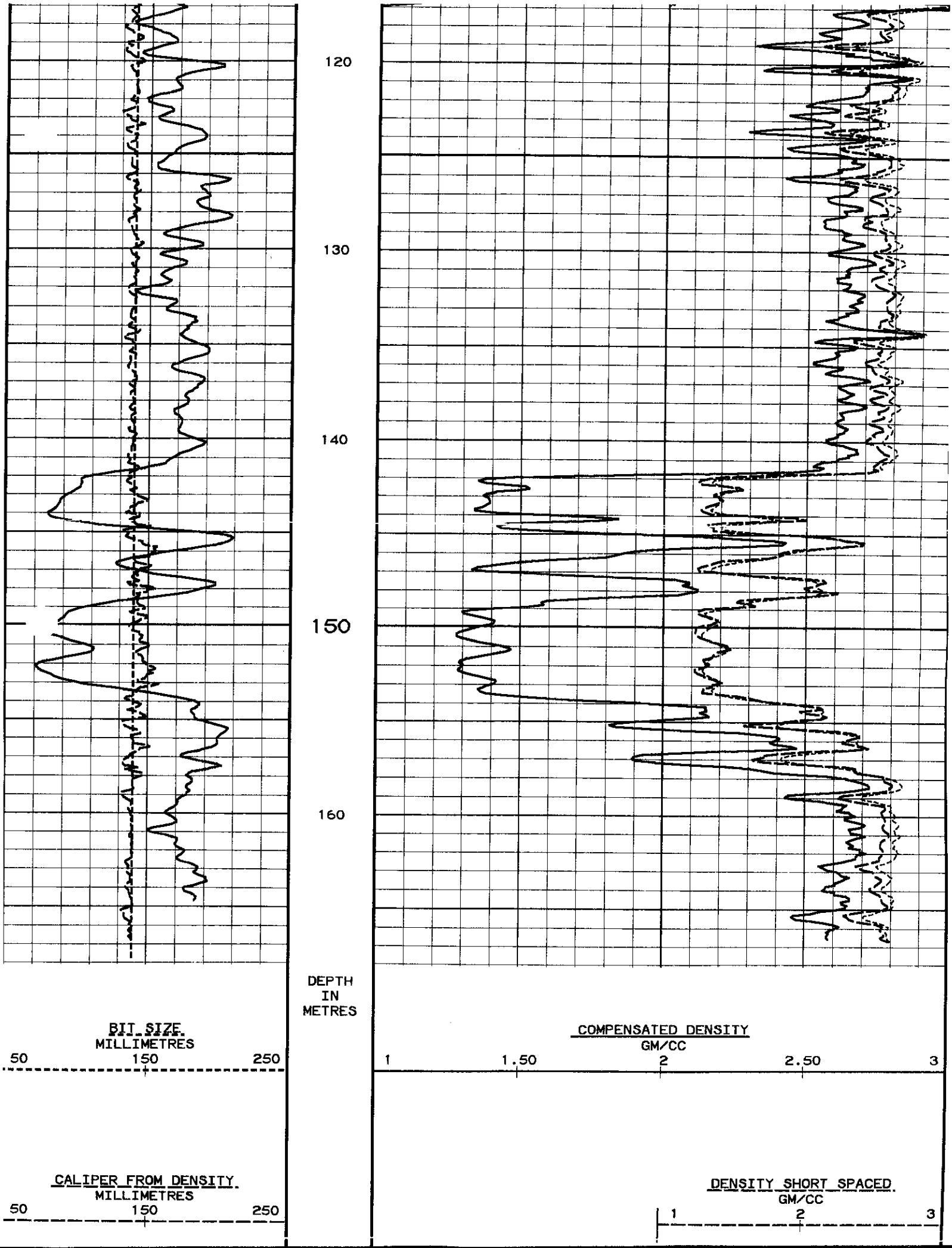
COMPENSATED DENSITY
GM/CC
1 1.50 2 2.50 3

DENSITY SHORT SPACED
GM/CC
1 2 3

DENSITY LONG SPACED
GM/CC
1 2


0
CASING SHOE LEVEL
10
20
30
40
50
60


60
70
80
90
100
110


120
130
140
150
160
DEPTH
IN
METRES
BIT SIZE
MILLIMETRES
50
150
250
CALIPER FROM DENSITY
MILLIMETRES
50
150
250
COMPENSATED DENSITY
GM/CC
1
1.50
2
2.50
3
DENSITY SHORT SPACED
GM/CC
1
2
3

GAMMA FROM DENSITY TOOL
API
0 75 150

REPLAY SCALE 1:240

DENSITY LONG SPACED
GM/CC
1 2 3

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 27-MAR-2005 AT 17:30

FILENAME: MRGE14AM.CIB RUN ID:MAIN LOG 1:240 PLOTTED ON 27-MAR-2005 AT 18:08

MAIN LOG 1:240

REPEAT SECTION

DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 27-MAR-2005 AT 17:29

FILENAME: MRGE14AR.CIB RUN ID:REPEAT SECTION PLOTTED ON 27-MAR-2005 AT 18:08

DEPTH IN METRES

BIT SIZE
MILLIMETRES
50 150 250

COMPENSATED DENSITY
GM/CC
1 1.50 2 2.50 3

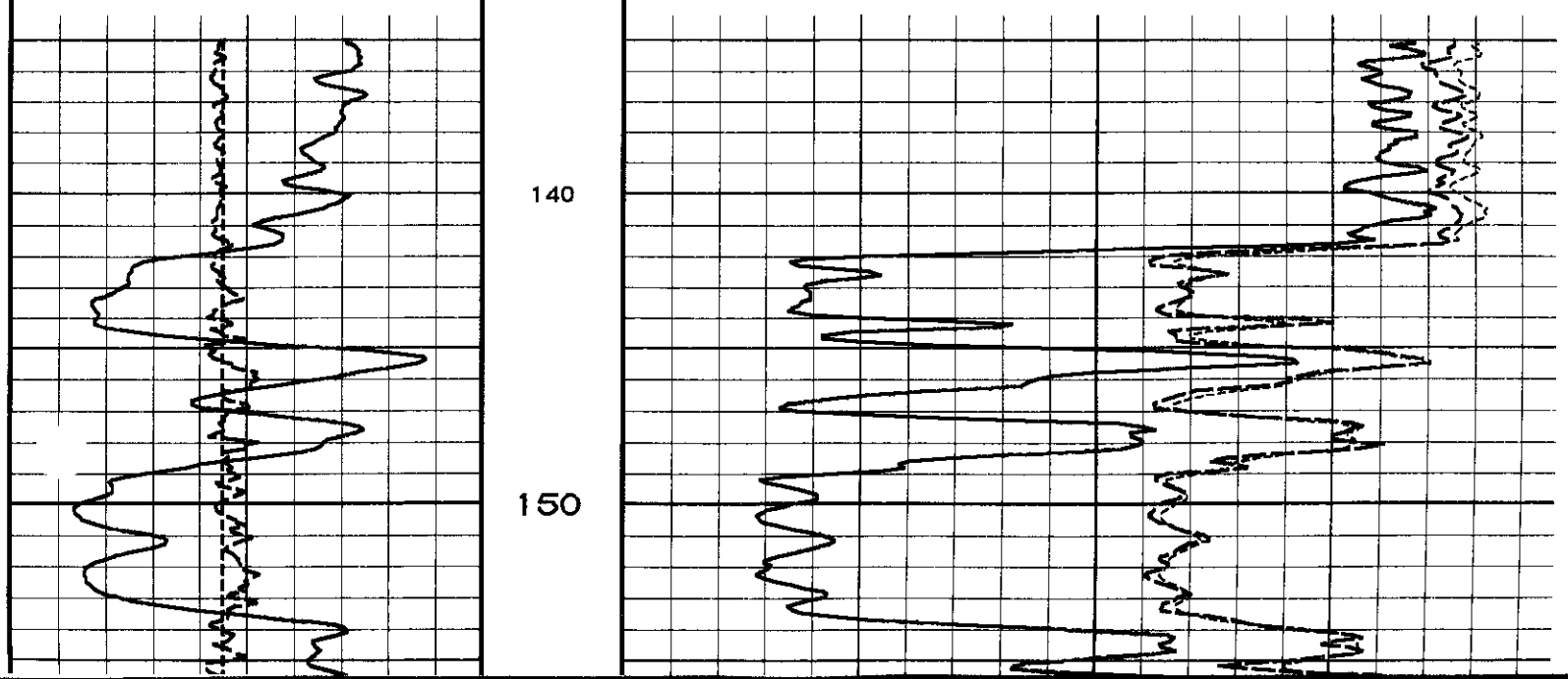
CALIPER FROM DENSITY
MILLIMETRES
50 150 250

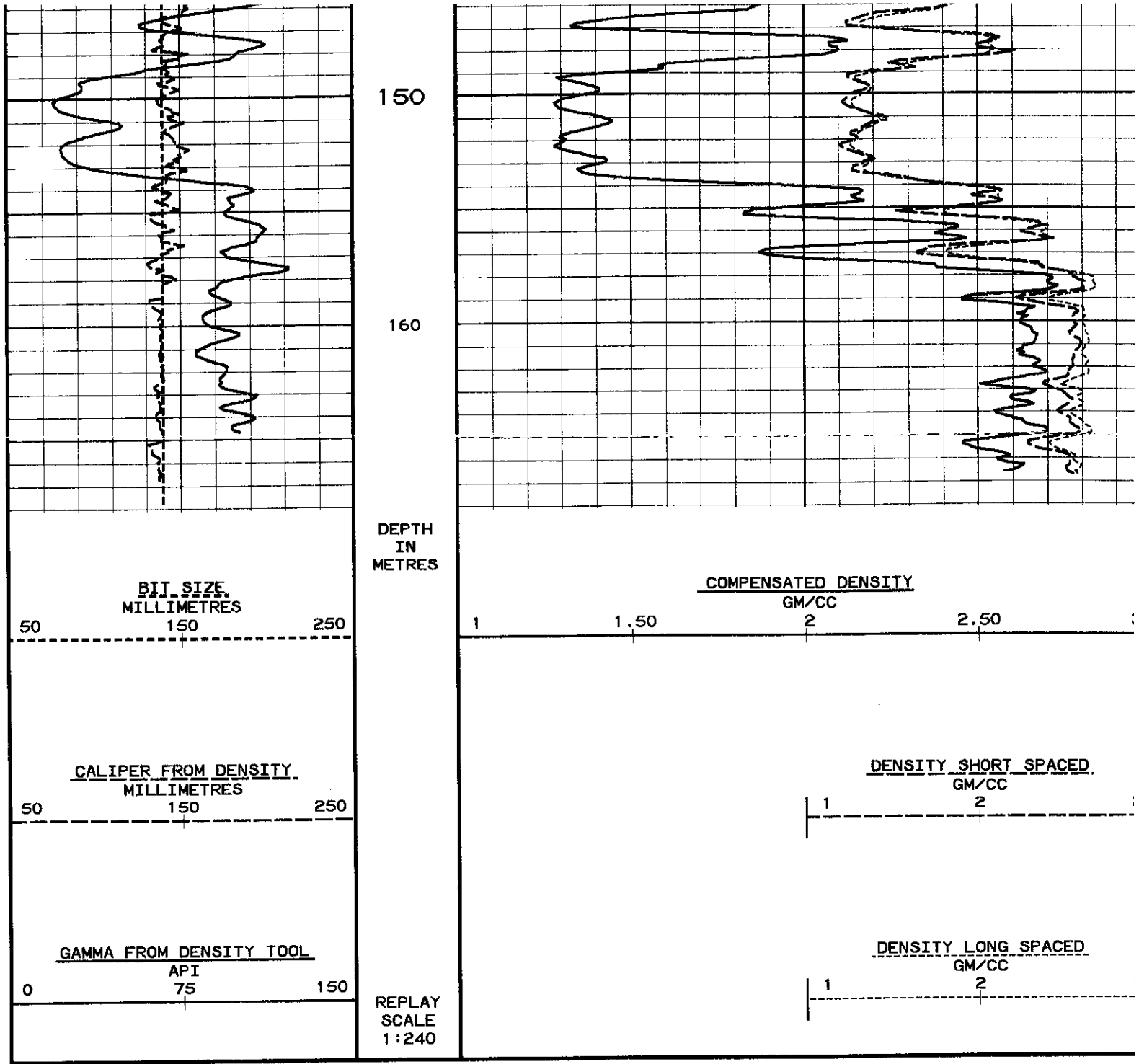
DENSITY SHORT SPACED
GM/CC
1 2 3

GAMMA FROM DENSITY TOOL
API
0 75 150

DENSITY LONG SPACED
GM/CC
1 2 3

REPLAY SCALE 1:240





DEPTH BASED DATA - MAXIMUM SAMPLING INCREMENT 10.0CM RECORDED ON 27-MAR-2005 AT 17:29

FILENAME: MRGE14AR.CIB RUN ID:REPEAT SECTION PLOTTED ON 27-MAR-2005 AT 18:08

REPEAT SECTION

LOGGING/CALIBRATION CONSTANTS

CONSTANTS LAST EDITED: 27-MAR-2005 AT 17:25

LOGGING CONSTANTS AND BIT SIZE MEASUREMENTS

RESISTIVITY SONDE TYPE	DUAL RR1	MUD RESISTIVITY (OHM METRES)	2.000
BIT SIZE UNITS (INS/MM)	MILLIMTR	BIT DEPTH UNITS (M/FT)	METRES
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	3.00
BIT SIZE 3	0.00	FROM BIT DEPTH 3	0.00
BIT SIZS 4	0.00	FROM BIT DEPTH 4	0.00
BIT SIZE 5	0.00	FROM BIT DEPTH 5	0.00
TEMPERATURE UNITS	DEG. C		

LOGGING CONSTANTS AND BIT SIZE MEASUREMENTS

RESISTIVITY SONDE TYPE	DUAL RR1	MUD RESISTIVITY (OHM METRES)	2.000
BIT SIZE UNITS (INS/MM)	MILLIMTR	BIT DEPTH UNITS (M/FT)	METRES
BIT SIZE 1	159.00	FROM BIT DEPTH 1	0.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	3.00
BIT SIZE 3	0.00	FROM BIT DEPTH 3	0.00
BIT SIZE 4	0.00	FROM BIT DEPTH 4	0.00
BIT SIZE 5	0.00	FROM BIT DEPTH 5	0.00
TEMPERATURE UNITS	DEG. C		

CALIBRATION CONSTANTS

FE1 CALIBRATOR VALUE 1	2.0000	FE1 COUNT RATE 1	4496.0000
FE1 CALIBRATOR VALUE 2	2000.0000	FE1 COUNT RATE 2	2972.0000
FE2 CALIBRATOR VALUE 1	2.0000	FE2 COUNT RATE 1	4492.0000
FE2 CALIBRATOR VALUE 2	2000.0000	FE2 COUNT RATE 2	3010.0000
GRFE CALIBRATOR VALUE 1	490.0000	GRFE COUNT RATE 1	315.0000
SP CALIBRATOR VALUE 1	1.0000	SP COUNT RATE 1	1.0000
SP CALIBRATOR VALUE 2	0.0000	SP COUNT RATE 2	0.0000

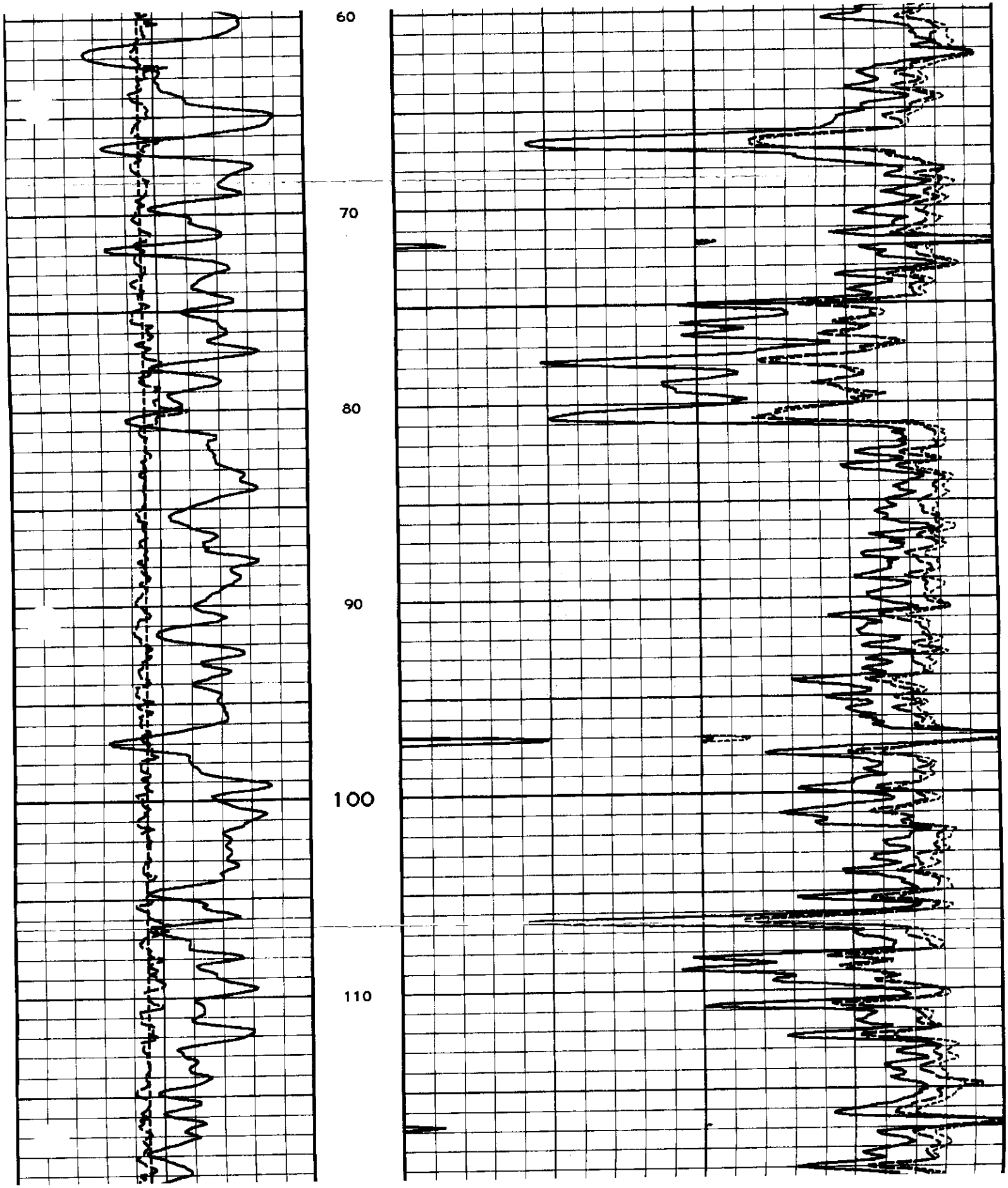
LOGGING CONSTANTS

SONDE TYPE (DD3,CCS,DDI,DDS,DDL	DDS	SONDE MODE (WET,DRY,STD)	STD
MUD WEIGHT	1.00	STRIP COEFFICIENT	0.50
ANNULAR VOLUME DIAMETER	133.35	WATER LEVEL	.00
CALIPER ARM LENGTH (CMS)	22.60	MATRIX DENSITY	2.65
CALIPER UNITS(INS,MMS)	MMS	DENSITY OF MUD FILTRATE	1.00
BRD POINT ONE	1.00	BRD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
LSD POINT ONE	1.00	LSD POINT TWO	3.00
DENSITY POINT ONE	1.00	DENSITY POINT TWO	3.00
DENSITY SCALAR	1.50	BRD SCALAR	-.50
BIT DEPTHS & WATER LEVEL (FT,M)	METRES	CALIPER SOURCE FOR PROCESSING	CAL
BIT SIZE 1	159.00	FROM BIT DEPTH 1	.00
BIT SIZE 2	139.70	FROM BIT DEPTH 2	3.00
BIT SIZE 3	.00	FROM BIT DEPTH 3	.00
BIT SIZE 4	.00	FROM BIT DEPTH 4	.00
BIT SIZE 5	.00	FROM BIT DEPTH 5	.00

CALIBRATION CONSTANTS

GAMMA CALIBRATOR VALUE 1	436.00	GAMMA COUNT RATE 1	237.72
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
CALIPER RING SIZE 1	76.20	CALIPER COUNT FOR RING 1	1834.00
CALIPER RING SIZE 2	101.60	CALIPER COUNT FOR RING 2	2258.00
CALIPER RING SIZE 3	127.00	CALIPER COUNT FOR RING 3	2690.00
CALIPER RING SIZE 4	152.40	CALIPER COUNT FOR RING 4	3162.00
CALIPER RING SIZE 5	203.20	CALIPER COUNT FOR RING 5	4224.00
CALIPER RING SIZE 6	254.00	CALIPER COUNT FOR RING 6	5030.00
DRY HOLE CORRECTION...			
BRD CALIBRATOR VALUE 1	38247.00	BRD COUNT RATE 1	1875.22
BRD CALIBRATOR VALUE 2	.00	BRD COUNT RATE 2	.00
LSD CALIBRATOR VALUE 1	20028.00	LSD COUNT RATE 1	1140.24
LSD CALIBRATOR VALUE 2	.00	LSD COUNT RATE 2	.00
DRY HOLE BRD NEW (1) GM/CC	0.00	DRY HOLE BRD LOG (1) GM/CC	0.00
DRY HOLE BRD NEW (2) GM/CC	1.00	DRY HOLE BRD LOG (2) GM/CC	1.00
DRY HOLE LSD NEW (1) GM/CC	0.00	DRY HOLE LSD LOG (1) GM/CC	0.00
DRY HOLE LSD NEW (2) GM/CC	1.00	DRY HOLE LSD LOG (2) GM/CC	1.00

COMPANY	HILLSBOROUGH RESOURCES LTD
WELL	BG-05-14A
FIELD	BINGAY CREEK
PRVNC/COUNTY	BRITISH COLUMBIA
CNTRY/STATE	CANADA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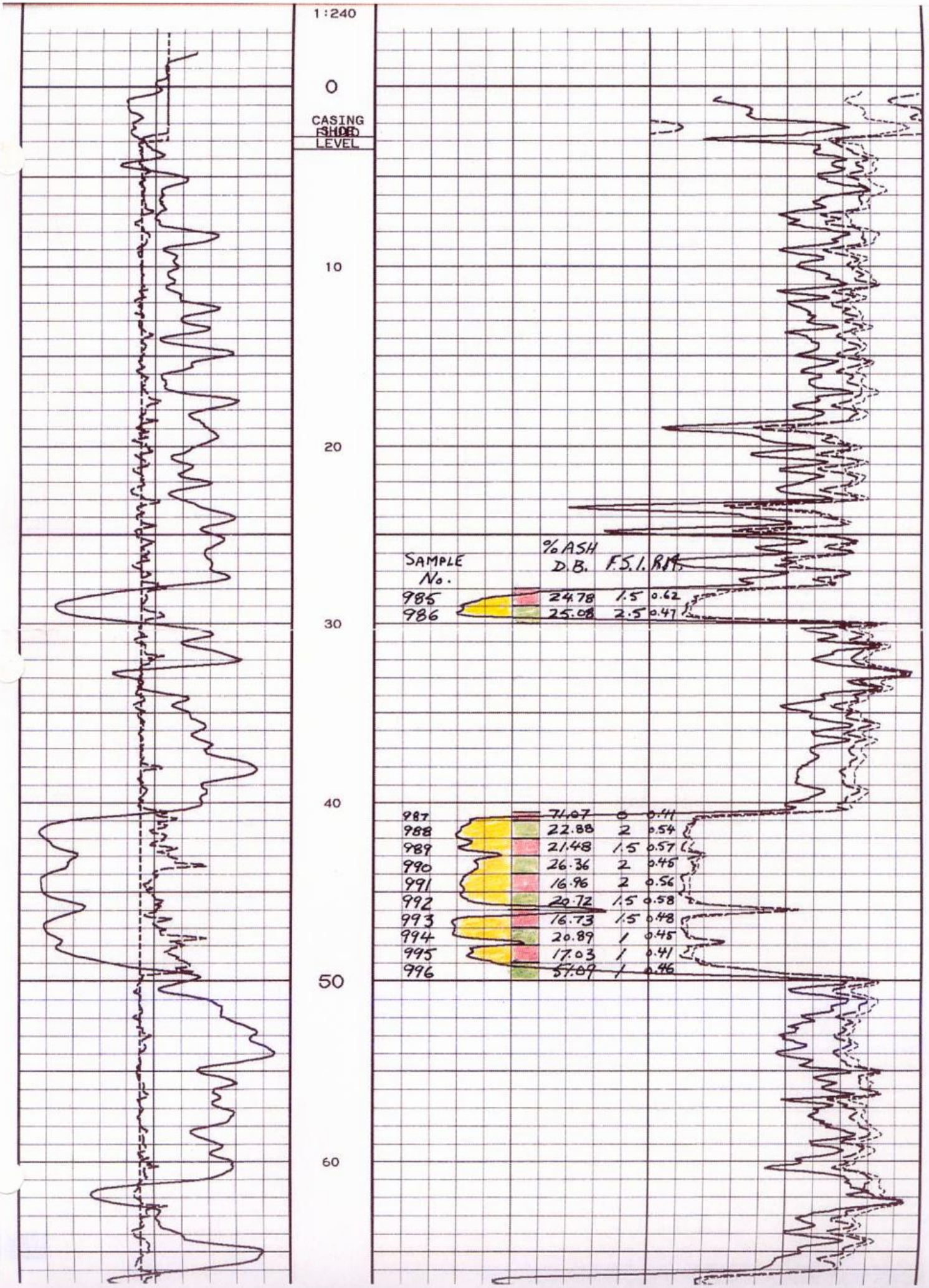
1:240
0
CASING SHOE LEVEL
10
20
30
40
50
60
SAMPLE No.
%ASH D.B.
F.S.I.
R.I.
985 24.78 1.5 0.62
986 25.08 2.5 0.47
987 71.07 0 0.44
988 22.88 2 0.54
989 21.48 1.5 0.57
990 26.36 2 0.46
991 16.96 2 0.56
992 20.72 1.5 0.58
993 16.73 1.5 0.48
994 20.89 1 0.45
995 17.03 1 0.41
996 57.09 1 0.46