Open File Envelope No. 2176

EL 19

LAKE FROME NORTH

PROGRESS REPORTS FOR THE PERIOD 26/10/72 TO 25/10/74

Submitted by

Afmeco Pty Ltd and Techmin Pty Ltd
1974

Enquiries: Customer Services
Ground Floor
101 Grenfell Street, Adelaide 5000

Telephone: (08) 8463 3000
Facsimile: (08) 8204 1880

PRIMARY INDUSTRIES AND RESOURCES SA

CONTENTS ENVELOPE 2176

TENEMENT: E.L. 19--LAKE FROME NORTH.
TENEMENT HOLDER: PETROMIN N.L., EXOIL N.L., TRANSOIL N.L., AFMECO PTY. LTD.

EL 19

AFMECO PTY LTD

147 Ward Street, North Adelaide
P.O. Box 111, North Adelaide 5006
Telephone 67 3777
Telex AA82940

C 003

The Director of Mines,
South Australian Department of Mines,
169 Rundle Street,
ADELAIDE,
S.A. 5000.

JJR/smb - 73/250 12th February 1973

Dear Sir,

Quarterly Report for E.L. 19
26.10.1972 - 26.1.1973

Activity on E.L. 19 during the quarter ended 26th January 1973 was carried out by AFMECO Pty. Ltd. under their farm-in agreement with Petromin N.L.

No field operations were undertaken during the period. Previous drilling was assessed and a new programme planned. It is anticipated that this programme, to cover about 20,000' of drilling together with logging and some coring, will commence towards the end of February 1973.

EL 19

AFMECO PTY LTD

47 Ward Street, North Adelaide
P.O. Box 111, North Adelaide 5006
Telephone 67 3777
Telex AA82940

The Director of Mines,
S.A. Department of Mines,
169 Rundle Street,
ADELAIDE,
S.A. 5000.

004

JJR/smb - 73/982

8th May 1973

Dear Sir,

Quarterly Report E.L. 19
26.01.1973 - 26.04.1973

Activity on E.L. 19 during the quarter was carried out by AFMECO Pty. Ltd. under their farm-in agreement with Petromin N.L.

A four-hole coring programme was carried out by Thompson Drilling Company using a special Christensen bit with the recoveries shown in the accompanying table. As can be seen, the recovery was very high.

The purpose of the coring programme was to provide essential information on the nature and extent of the mineralization, the lithology of the host rock and equilibrium. The core samples are now being chemically analysed.

As drilling and logging invoices have not yet been received, it is only possible to give provisional details of expenditure as shown in the attached statement.

With your approval, a full report of the coring programme and a complete statement of expenditure will be provided in the next quarterly report.

Yours faithfully,
AFMECO PTY. LTD.

J. J. REED
Exploration Manager

Enclosures: 2

005

Quarterly Report on E.L. 19

Attachment: 1

26.01.1973 - 26.04.1973

Hole	Cored Interval	Recovery	
		Footage	Percentage
A1S1E'''	404 - 500	96	100
A1E	410 - 460' 10"	50' 10"	100
A2NE'	385 - 465	85	97
B1S7W	506 - 531' 7"	25' 7"	99

10/5/73

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Quarterly Report on E.L. 19
26.01.1973 - 26.04.1973

Attachment: 2

PROVISIONAL STATEMENT OF EXPENSES 26.01.73 - 26.04.73

Personnel (field work, evaluation, office work)	$	3063.70
Materials		358.05
Travel, Accommodation		1670.12
Contracts, supplies (including drilling, logging, etc.)		21149.20
Miscellaneous (including drafting, preparation of reports)		726.80
Overhead expenses (5%)		1348.39
Total:	$	28,316.26

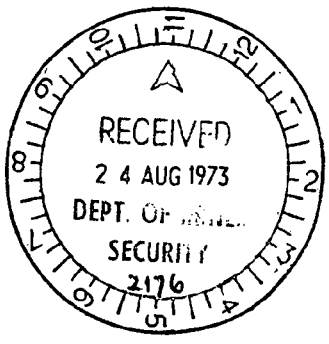
8.5.73

QUARTERLY REPORT - E.L. 19

26.04.1973 - 26.07.1973 007

STATEMENT OF EXPENDITURE

Personnel (field work, evaluation, office work)	1668.19
Materials	33.76
Travel and Accommodation	7.97
Contracts, Supplies	5128.56
Miscellaneous (including drafting services, preparation of reports)	200.09
Overheads	351.93
	$ 7390.50



73/1794

AFMECO PTY LTD

147 Ward Street, North Adelaide, South Australia 5006
Postal Address: P.O. Box 133, North Adelaide, South Australia 5006
Telephone ~~67 3777~~ 267 3777 ● Telex AA82940

008

The Director of Mines,
South Australian Department of Mines,
169 Rundle Street,
ADELAIDE,
S.A. 5000.

JJR/smb - 73/2531

14th November 1973

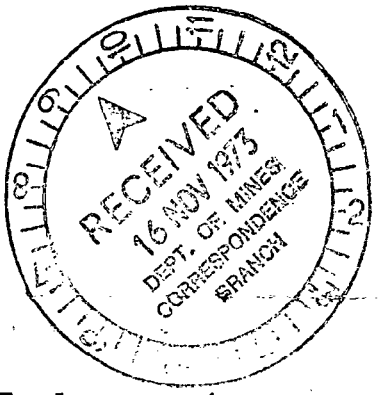
Dear Sir,

Quarterly Report for E.L. 19
26.07.1973 - 26.10.1973

Activity on E.L. 19 during the quarter was carried out by AFMECO Pty. Ltd. under their farm-in agreement with O.T.P.

Preparations were continued for undertaking a drilling programme which is now expected to take place early in 1974. To assist this preparation an additional brief field survey was undertaken during the quarter.

A statement of expenditure is attached.



Yours faithfully,
AFMECO PTY. LTD.

J. J. REED
Exploration Manager

Enclosure: 1

Copy: D. Heron, Techmin Pty. Ltd.

QUARTERLY REPORT - E.L. 19

26.07.1973 - 26.10.1973 009

STATEMENT OF EXPENDITURE

Personnel (field work, evaluation, office work)	140.31
Materials	17.62
Travel and Accommodation	348.39
Contracts and supplies (including analyses)	567.91
Miscellaneous (including renewal of licence paid to Techmin)	1,046.30
Overheads	106.03
	$2,226.56

73/2531

AFMECO PTY LTD

147 Ward Street, North Adelaide, South Australia 5006
Postal Address: P.O. Box 133, North Adelaide, South Australia 5006
Telephone ~~67 3777~~ 267 3777 ● Telex AA82940

The Director of Mines,
S.A. Mines Department,
169 Rundle Street,
ADELAIDE,
S.A. 5000.

010

JJR/pjb - 74/522

12th March 1974

Dear Sir,

Quarterly Report for E.L.19
26.10.1973 - 26.01.1973

Activity on E.L.19 during the quarter was carried out by AFMECO Pty. Ltd. under its farm-in agreement with O.T.P.

The programme proposed for 1974 was finalised but its implementation depends on whether AFMECO decides to earn a 50% interest in E.L.19 or elects to choose other options in terms of its joint venture agreement with O.T.P. It is expected that a decision will be made in March, 1974. A statement of expenditure is attached.

Yours faithfully,
AFMECO PTY. LTD.

J.J. REED
Exploration Manager

c.c. D. Heron, O.T.P.

STATEMENT OF EXPENDITURE

E.L. 19 - 27.10.1973 - 26.01.1974

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	$
PERSONNEL	
(FIELD WORK, EVALUATION, OFFICE WORK)	364.41
MATERIAL	108.60
TRAVEL, ACCOMMODATION	179.21
CONTRACTS, SUPPLIES	-
MISCELLANEOUS	380.63
OVERHEADS	51.64
TOTAL	1,084.49

TECHMIN PTY. LTD.

7th FLOOR, 27-35 TURBOT ST., BRISBANE, Q. 4000
POSTAL ADDRESS: P.O. BOX 232, NORTH QUAY, Q. 4000
PHONE: 21 8288, 21 8448, ~~21 1634~~, ~~21 1694~~

Telegraphic Address:
"Techmin", Brisbane
Telex: AA41040

Management Company for—
OILMIN N.L.
TRANSOIL N.L.
PETROMIN N.L.

NW

012

T483/74
DHH/wt

5th June, 1974.

Director of Mines,
Department of Mines,
Box 38 Rundle St. P.O.,
ADELAIDE. S.A. 5000

→ Sup Geol, Mines Dep

Dear Sir,

Exploration Licence No. 19
Quarterly Report - Period ending 26th April, 1974

There has been no exploratory activity on the area held under Exploration Licence No. 19 during the past quarter and no expenditure has been allocated against the area.

In March Afmeco Pty. Ltd. advised that they did not wish to earn additional interest in the title area, and that accordingly they wished to enter into the Operating Agreement stage of the joint venture, with Afmeco retaining their 35% interest earned to that time, and Oilmin, Transoil and Petromin sharing equally the remaining 65% interest.

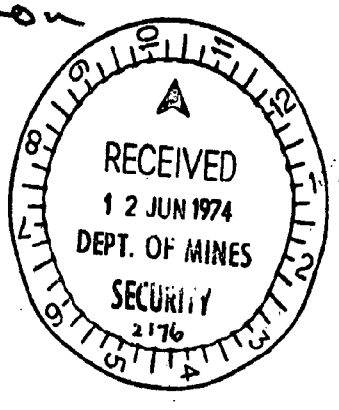
In accordance with the terms of the Operating Agreement, Afmeco has now been advised that Techmin Pty. Ltd., as management company for Oilmin, Transoil and Petromin will take over as Operator for all future work in the area.

Plans for continuation of exploration will be advised to you in due course.

Yours faithfully,
TECHMIN PTY. LTD.

D. H. HERON.
General Manager.

c.c. Afmeco Pty. Ltd.
Adelaide.



TECHMIN PTY. LTD.

7th FLOOR, 27-35 TURBOT ST., BRISBANE, Q. 4000
POSTAL ADDRESS: P.O. BOX 232, NORTH QUAY, Q. 4000
PHONE: 21 8288, 21 8448

Telegraphic Address:
"Techmin", Brisbane
Telex: AA41040

Management Company for—
OILMIN N.L.
TRANSOIL N.L.
PETROMIN N.L.

C 013

T558/74

15th August, 194.

DHH:km

The Director of Mines,
Department of Mines,
Box 38, Rundle St. P.O.,
ADELAIDE, S.A. 5000.

Dear Sir,

EXPLORATION LICENCE NO. 19

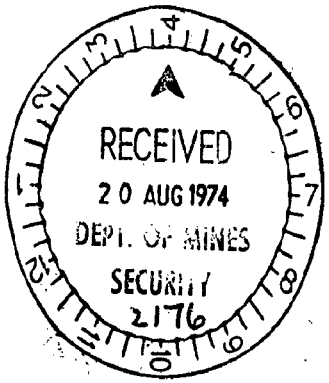
Quarterly Report- Period Ending 26th July, 1974.

There was no exploratory activity on the area at Lake Frome held under Exploration Licence 19 during the past 3 months and no expenditure has been allocated against the area.

Yours Faithfully,
TECHMIN PTY. LTD.

D.H. HERON
General Manager

cc. Afmeco Pty. Ltd.
Adelaide



TECHMIN PTY. LTD.

7th FLOOR, 27-35 TURBOT ST., BRISBANE, Q. 4000
POSTAL ADDRESS: P.O. BOX 232, NORTH QUAY, Q. 4000
PHONE: 21 8288, 21 8448

Telegraphic Address:
"Techmin", Brisbane
Telex: AA41040

Management Company for—
OILMIN N.L.
TRANSOIL N.L.
PETROMIN N.L.

T698/74

014

DHH:ja

21st November, 1974

The Director of Mines,
Department of Mines,
Box 38,
Rundle Street Post Office,
ADELAIDE. S.A. 5000

Dear Sir,

Exploration Licence No. 19

Quarterly Report - Period ending 26th October, 1974

There was no exploratory activity on the area held under Exploration Licence No. 19 during the quarter under report, and no further expenditure has been allocated against the area.

Application has now been lodged for renewal of the Licence to the present titleholders, and a new joint venture over the title area is anticipated under which BP Minerals Australia Pty. Ltd. may earn a 14% interest from the 65% interest held by Oilmin, Transoil and Petromin.

A joint venture agreement is being finalized between BP Minerals and the titleholders and this will be submitted to you for Ministerial approval at an early date.

Yours sincerely,
TECHMIN PTY. LTD.

RECEIVED
9 DEC 1974
DEPT. OF MINES
SECURITY
2176

for D. H. HERON
General Manager

c.c. Afmeco Pty. Ltd.
BP Minerals, Melbourne

EN2176

015

LAKE FROME EL19

RESULTS OF CORING PROGRAMME

REPORT NO. SA-70-F

C.G. Gatehouse

AFMECO PTY. LIMITED
May, 1973

SUMMARY

The coring programme was designed to obtain good recoveries of unconsolidated sediments. This object has been achieved, loss of core was attributed to either damage to the core head or to washing out of the hole ahead of the core head during cleaning of the hole immediately prior to coring at a set depth. Unconsolidated silts and sands were cored using standard oil field soft formation coring techniques with a special stainless steel inner barrel to minimize surface friction with the core. Core recovery in excess of cut core length has been attributed to expanding clay.

LAKE FROME CORING PROGRAMME

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Introduction

Many attempts have been made in recent years to obtain good core recoveries in unconsolidated Tertiary clays, silts, and sands of the Lake Frome area.

Three methods were considered initially:

(a) Christensen Diamond Products equipment.

(b) Thompsons Drilling Company Longyear triple tube HQ3 wire-line unit.

(c) A French "cutting bit" in conjunction with a Mission Megadrill hammer.

It was originally intended that each type of equipment be employed and compared to the other methods. The method which achieved best results would then be employed for the rest of the programme. The equipment and method suggested by Christensen Diamond Products proved successful and was used for the entire programme. Both the Longyear and the French equipment were not available during the coring programme.

At completion of the coring programme, the Christensen method had proved a completely successul but relatively slow method.

The Longyear equipment recently (late February, 1973) acquired by Thompson Drilling Company, commenced operations on the Western Nuclear deposits at Beverley at the same time as this programme started. It had been agreed, that if the Longyear equipment was available, it may be possible for Afmeco to use it on one of the EL 19 core holes for a period of one week whilst Thompsons' drill crews at Beverley were on leave. When an approach was made to the field drilling supervisor for the rig, it was clear that the unit was not recovering cores as well as had been expected. Numerous modifications were needed, but had not yet been made. In subsequent weeks modifications to the equipment and technique brought recovery percentages up to but not reaching 100 percent. Even at the end of this coring programme results were such that core recoveries, although good, had not yet reached 100 percent according to Thompsons Drilling Company.

The Christensen method, although having problems with the pre-core hole, gave nothing but excellent recoveries throughout.

The programme, due to commence on 7th March, 1973 according to the contracted agreement, commenced drilling on the 10th March, 1973, and on the area of EL 19, was completed 13th April, 1973.

Four core holes were drilled and cored on EL 19, they are, AISIE"', AIE", A2NIE', and BIS7W'. For location of the holes see Figure 1.

Table 1 displays the date of commencement and completion of each of the holes involved in the coring programme, together with a breakdown of initial drilling of 4¾ inch pilot hole, reaming to 8 inches, and coring.

Description of Equipment

(a) Christensen Diamond Products.

This company has had world wide experience of coring all types of sedimentary rocks.

Personnel from the company suggested that a large diameter core barrel with a "crackerjack" head and associated pilot bit together with a stainless steel inner barrel would be most suitable for the sediments encountered. To obtain optimum results, the services of a coring technician were requested.

A large diameter barrel was employed so that the largest possible diameter of core could be obtained. The core-head used, faced with small (1/8 inch) tungsten carbide chips, comprised the main section with an associated pilot bit. The pilot bit protruded approximately 3 cms ahead of the main bit. The function of the pilot bit is to drill ahead of the main bit to protect the formation from being washed out. Drilling fluid lubricates the main bit and also cools the threads of the pilot bit. Thus the core itself does not come in contact with drilling mud, except for an insignificant amount which passes between the end of the inner core barrel and the core-head to facilitate entry of the core into the barrel.

The advantages of this system is the large diameter core, whereas the disadvantages are the need for a straight hole, large diameter of the hole, slow drilling of 8 inch diameter hole and relatively slow recovery of cores.

(b) Thompson Drilling Company Longyear triple tube HQ3 wire line unit:

This equipment comprises a standard wire line core recovery unit which allows core to be recovered from within the drill stems without withdrawing pipe from the hole.

The advantages of this system is a small diameter hole, faster drilling and coring, and rapid core recovery. The main disadvantage is the small diameter of the core.

(c) The French cutting bit comprises a core tube 0.5 or 1.5 metres in length headed by a "cutting shoe" and backed by a Mission Megadrill hammer. The method of use is to hammer the tube into the formation, pull out, recover the core and run into the hole for a new core, periodically the hole would need to be reamed to bottom for tube and hammer clearance.

Type of Equipment Used

The initial programme called for the use of Christensen equipment to be followed by the Longyear, and if available, the French cutting bit. The French equipment was not available except at the end of the coring programme.

The Longyear equipment was available only for a period of seven days at the early stages of the coring programme and no useful purpose would have been served by using it at that time. Because of this and the complete success of the Christensen equipment, neither of the alternative methods were used.

Method of Drilling and Coring

When coring with the Christensen Diamond Products core barrel, it was essential that a straight hole be maintained because the barrel is not flexible. To obtain a straight hole a pilot hole 4¾ inches in diameter was drilled to core depth, one stabiliser was used behind the bit for this purpose. The narrow hole was then opened out by reaming with an 8 inch blade bit headed by a 4¾ inch bit to main the bit centrally about the pilot hole. Several "dummy trips" were made with an 8 inch roller bit to ensure a clean hole and to condition the drilling mud prior to coring.

The core barrel with its stainless steel liner was then run to bottom and the hole again circulated for 15 - 30 minutes depending on the amount of fill. A measured 10 foot run of core was then taken, in general hard clays cored at 3 - 5 minutes per foot, soft clays at 2 - 3 minutes, and unconsolidated sands and silts at 10 seconds to one minute per foot. For the unconsolidated material penetration rate to some extent depended on the ability of the driller to keep sufficient weight on the bit not to allow washing out ahead of the pilot bit.

Bit condition was of prime importance during coring as it affected both penetration rate and core recovery. Penetration rate was dependent on the size of tungsten carbide chips left on the core head. Recovery depended on the internal diameter of the pilot bit as this was slightly smaller than the internal diameter of the inner barrel. The core tended to jam in the barrel when bit wear increased core diameter by more than 2 mm.

The cores were recovered by retrieving the inner barrel, laying it down horizontally and pumping the core from the barrel on to 3 foot lengths of thin wall plastic piping cut in half. This method prevented break-up of core during recovery and transport; in the case of unconsolidated sand and silt minimal disturbance occurred. No noticeable difference in penetration or recovery of core was detected between using a stainless steel or standard steel inner barrel.

CORE RECOVERY

During coring, in particular of the clay intervals, the amount of core recovered sometimes exceeded the interval cut. Recoveries apparently in excess of 100 percent did not occur with cores recovering sand or silt.

The increase in length of the cored interval has been attributed to the presence of swelling clays in the section. It appears that the small amount of fluid lubricating the core at the core head may be sufficient to cause swelling of the clays.

When describing the cores the length of each core is taken as that length recovered, and all thicknesses are relative to it. In each case the only known position is the depth at which each cored interval commences. That is, if a core cut and recovered 10 feet commencing at 200 feet, then the next core commenced at 210 feet. However, if it cut 8 feet and recovered 9 feet 6 inches then the actual cored interval was still 200 to 208 feet and the next core commenced at 208 feet, not 209 feet 6 inches.

Sample positions relative to such expanded cores should be relative to that actual core but for final comparison with logged interval it should be "compressed" to counteract the expansion.

Table 2 gives list of core holes, cored interval, core recovery, and percentage recovery for each core.

CONCLUSIONS AND RECOMMENDATIONS

Although core recoveries within clay intervals of the Tertiary strata of this area have been very high, the unconsolidated sediments have not been so successfully recovered. Primarily because of the problem of disequilibrium a new technique was used to obtain samples of the unconsolidated strata. The technique employed was recommended by Christensen Diamond Products, it had not been used in the Frome Embayment prior to this with success.

The technique resulted in 100 percent recovery of core in all cases except where hard formation or boulders of quartzite from up-hole, caused damage to the bit.

The programme took longer than anticipated to complete because rig down time due to breakdowns occupied about 10 days, redrilling of three holes cost another 10 days, and finally, drilling an 8 inch hole was slow and tedious. However, this method though time consuming produced the required results and can be considered a success.

During the coring programme the Thompson Drilling Company's wire line coring equipment was available only from the 12th to 19th of March. By the 12th March it was clear that the Christensen technique was attaining 100 percent recovery of cores cut. The Thompson equipment however, was still at its earliest stages of use, their technique had not been perfected, core recoveries being well below the required 100 percent. The techniques of wire line coring used by Thompson Drilling Company have, since the completion of the programme, been improved considerably. The result was that recoveries varied from 92-98 percent according to company personnel and that one core hole can be completed in 2 days.

In the light of information at hand after completion of the EL 19 coring programme, it would now be recommended that the wire line coring unit be employed for any coring programme. This would also depend on the presence or absence of gravels in the up-hole section and the availability of trained personnel to operate the equipment.

Core hole AISIE'" 026

Located 15 feet from AISIE and 25 feet from AISIE' the original core hole.

Core hole AISIE" reached a core depth of 390 feet with no problems encountered during drilling of the initial 8 inch diameter hole. The core barrel, because of its 15 foot length and its rigidity, was not able to penetrate more than 200 feet, due mainly to excessive spiralling of the core hole. The new hole AISIE"' was drilled at 4¾ inches diameter to core depth using a stabilizer which resulted in a straighter hole. This hole was then reamed to 8 inches diameter and prepared for coring by making several "dummy runs", at the same time conditioning the drilling mud.

An intermediate S.P, Resistivity, and Gamma log were run in the hole in order to determine the exact depth of correlation with the original hole.

Strata in AISIE"' were 2 feet higher than the corresponding strata in AISIE. The hole was then deepened to 404 feet at which point coring commenced. No problems were encountered during coring. Appendix 1 includes the details of the cores cut, intervals, recovery, and percentage recovery, together with the field description of each core.

After completing the programmed core runs the hole was deepened by 10 feet so that the logging probe would log the cored interval. The complete hole was logged and a copy of the log is included in Appendix 1.

Core hole AIE" 027

During the preparation of core hole AIE' several problems were encountered during drilling of the pilot and core holes. A gravel bed at 80 feet caused minor problems during reaming but at 360 feet the 4¾ inch pilot bit jammed and attempts to retrieve it resulted in sufficient backlash of the wound-up drill pipe to screw it off. Several attempts both with a magnet and then with an improvised fishing device were unsuccessful and the hole was abandoned.

Core hole AIE" encountered considerable lost circulation at a depth of 80 feet. After regaining circulation the hole was drilled and reamed to 410 feet. Six cores were taken over the interval 410 feet to 460 feet 10 inches. All cores were 100 percent recovered, except number 5 where the top 5 inches of very soft clay was lost during circulation prior to coring.

Core descriptions, intervals, recoveries, and the log of the final hole are included in Appendix No. 2.

Core hole A2NIE' 028

No problems were encountered during the drilling, reaming, and conditioning of this hole prior to coring. As this was the third hole of the programme this may have been due in part to the experience of the drilling crew.

Coring commenced at 385 feet and continuous coring was conducted down to 465 feet. The hole was then drilled to 517 feet and two more cores cut. Cores taken in the first interval were all recovered with 100 percent recovery. The two cores of the second interval were only 2/3 and ⅓ recovered, loss of core was attributed to excessive wear on the core head, and in particular on the pilot bit.

Appendix 3 comprises the cored intervals, core recoveries, percentage recoveries, core descriptions, and a copy of the log.

Core hole BIS7W'

This hole was prepared to a depth of 506 feet in a manner similar to core hole A2NIE' with no problems encountered.

The cored interval was from 506 feet to 531 feet 7 inches with a total of four core runs. Core number 2, due to a miscalculation of length of drill pipe cored only 6 inches of sand, all of which was recovered. Cores 1 and 3 recovered the cut interval but core number 4 lost 5 inches at the top owing to the unconsolidated sand being washed out during pre-coring circulation.

Appendix 4 contains the cored intervals, recoveries, percentage recoveries, core descriptions, and a copy of the log of this core hole.

TABLE 1

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LAKE FROME RESULTS OF CORING PROGRAMME

Core hole	Drilling Hours	Top Bottom	Length	Reaming Hours	Top Bottom	Length	Coring Hours	Top Bottom	Length	Set-up charge	Time invoiced	Time accounted	Remarks
AIE'	31½	0'-380'	380'	None			None				31½	31½	8 hrs. fishing not charged
AIE''	25	0'-410'	410'	13½	0'-410'	410'	15½	410' - 460' 5"	50'5"	3	57	57¼	
AISIE''	13	0'-390'	390'	4¼	?	?	2	Attempted		½	16¾	22¼	4½ hrs. lost circulation + 1¼ logging = 22½
AISIE'''	17	0'-404' 500' - 510'	404' 10'	6½	0'-404'	404'	47½	404' 499' 6"	95'6"	½	69½	71	Stuck in hole - time split 50/50
A2NIE	18¼	0'-385' 465' - 517'	385' 52'	14¾	0'-385' 385' - 517'	385' 132'	32¼	385' - 465' 517' - 532'	80' 15'	½	65¼	66¾	Logging time included, not charged
BIS7W	18¾	0'-480' 480' - 506'	480' 26'	24½	0'-480'	480'	12½	506' 531' 7"	25'7"	2½	62	63	Extra time due to logging "handling" and shifting

Hole	Commenced	Completion	Days Operating (Part and Whole)
AISIE''	9.3.73	13.3.73	4
AISIE'''	13.3.73	18.3.73	6
BIS7W'	19.3.73	25.3.73	7
AIE'	26.3.73	29.3.73	4
AIE''	29.3.73	6.4.73	8
A2NIE'	6.4.73	13.4.73	8
		Total Days Operating	37

Hole	Core	Interval	Cut	Recovered	%	Rock Type
AISIE'"	1	404' - 414'	10'	10'	100	Clay
	2	414' - 424'	10'	10'	100	Clay
	3	424' - 434'	10'	10'	100	Clay and silt
	4	434' - 444'	10'	9'8"	97	Clay and sand
	5	444' - 454'	10'	10'	100	Clay and sand
	6	454' - 463'4"	9'4"	9'4"	100	Clay
	7	463'4" - 472'6"	9'2"	9'2"	100	Clay
	8	472'6" - 479'3"	6'9"	6'9"	100	Clay
	9	479'3" - 489'3"	10'	10'	100	Clay
	10	489'3" - 499'6"	10'3"	10'3"	100	Clay
AIE"	1	410' - 418'2"	8'2"	9'2"	100	Expanding clay
	2	418'2" - 427'2"	9'	9'10"	100	Expanding clay
	3	427'2" - 432'2"	5'	5'1"	100	Sand
	4	432'2" - 440'10"	8'8"	8'8"	100	Sand and clay
	5	440'10" - 450'5"	9'7"	9'7"	100	Clay
	6	450'5" - 460'5"	10'	10'3"	100	Clay
A2NIE'	1	385' - 395'	10'	10'2"	100	Clay
	2	395' - 405'	10'	10'4"	100	Clay
	3	405' - 415'	10'	10'4"	100	Clay
	4	415' - 425'	10'	10'5"	100	Sand and clay
	5	425' - 435'	10'	10'	100	Clay and sand
	6	435' - 445'	10'	10'5"	100	Clay
	7	445' - 455'	10'	10'	100	Clay
	8	455' - 465'	10'	10'	100	Clay
	9	517' - 526'	9'	6'6"	72	Sand, minor clay
	10	526' - 532'	6'	2'	33	Clay
BIS7W'	1	506' - 514'	8'	8'	100	Sand, and clay
	2	514' - 514'6"	6"	6"	100	Sand
	3	514'6" - 522'7"	8'1"	8'1"	100	Sand
	4	522'7" - 531'7"	9'	8'7"	100	Clay and sand

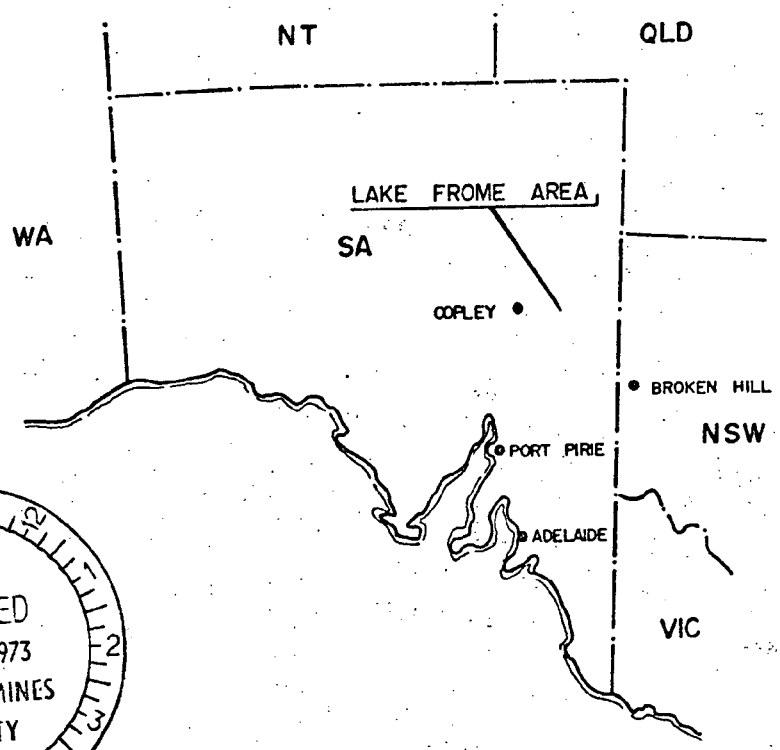
TABLE 2

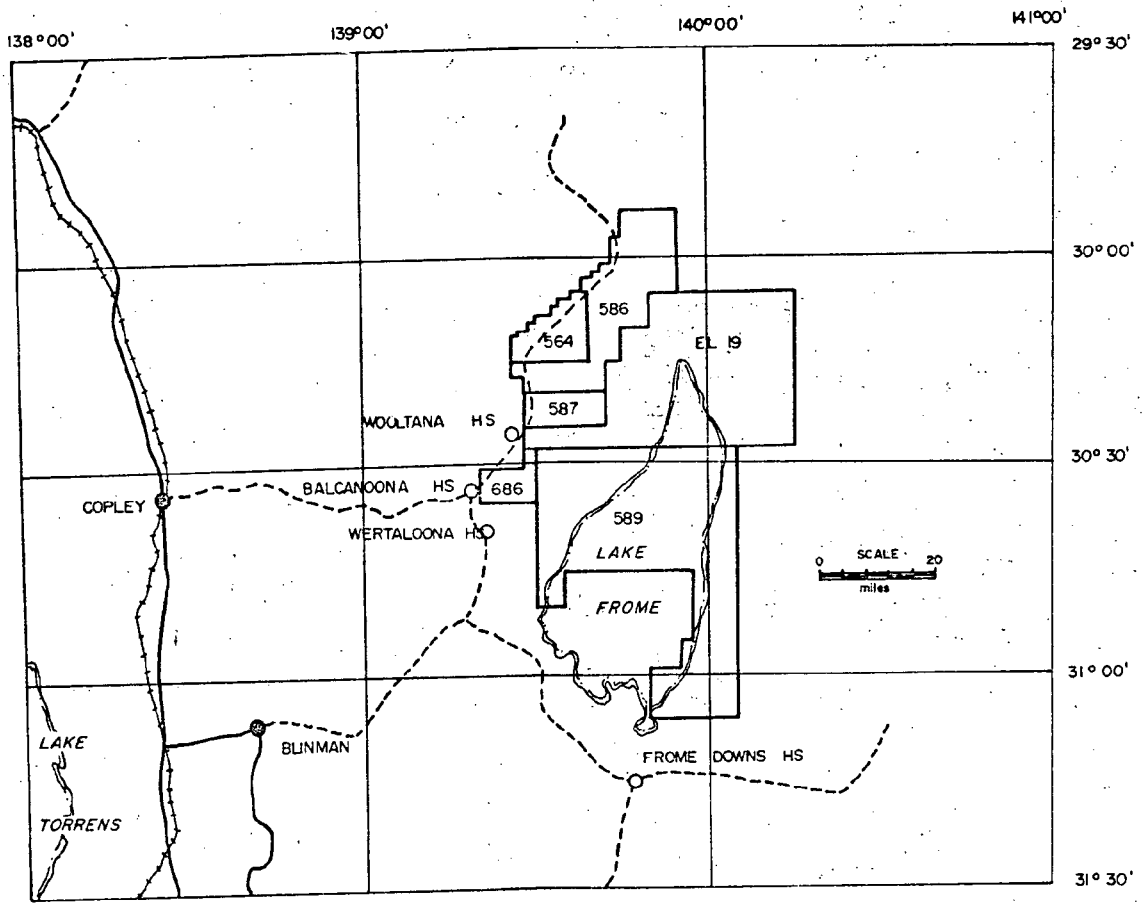
CORED INTERVALS

LAKE FROME AREA

LOCALITY MAPS

032





APPENDIX I
AFMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

AISIE "1 CORE # 1 404'-414'
CUT 10'
RECOVERED 10'

033
SA-70-F

FIELD LOGGING SHEET

PROJECT LAKE FROME TITLE CORING PROGRAMME STATE S.A

PROJECT GEOLOGIST C.G. GATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. AISIE "1

ELEVATION NORTH EAST LOGGED BY C.G. GATEHOUSE J.P. RICHENS DATE

SECTION EL 19 TOWN RANGE T.D. P.D.

DEPTH	STRIP LOG	LITHOLOGY LOG
404'		
		CLAY V.DK PURPLE-RED, SLIGHTLY MOTTLED WITH DK GREY HARD PLASTIC CLAY
405'		
406'		
407'		
408'		
409'		
410'		
411'		
412'		
413'		
414'		

APPENDIX 1

AFMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

AISIE''' CORE # 2 414'- 424'
CUT 10'
RECOVERED 10

SA-70-F

FIELD LOGGING SHEET

PROJECT LAKE EROME TITLE CORING PROGRAMME STATE S.A

PROJECT GEOLOGIST C.C. CATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. AISIE'''

ELEVATION _____ NORTH _____ EAST _____ LOGGED BY C.C. CATEHOUSE J.P. RICHENS DATE _____

SECTION ELIA TOWN _____ RANGE _____ T.D. _____ P.D. _____

DEPTH	STRIP LOG	LITHOLOGY LOG
414'		
415'		CLAY DK-MD GRY, HARD, PLASTIC, RARE MOTTLING BASAL 6" MOTTLED DK GRY, AND LT GRY, LIMONITIC
416'		
417'		
418'		
419'		
420'		
421'		
422'		
423'		
424'		LIMONITIC

APPENDIX 1

AFMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

AISIE''' CORE# 3 424-434
CUT 10'
RECOVERED 10'

SA-70-F

FIELD LOGGING SHEET

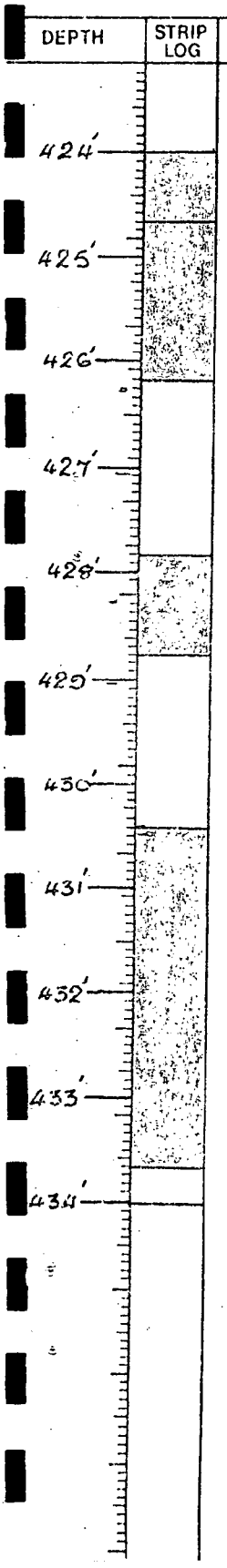
035

PROJECT LAKE FROME TITLE CORING PROGRAMME STATE S.A

PROJECT GEOLOGIST C.G. GATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. AISIE'''

ELEVATION _____ NORTH _____ EAST _____ LOGGED BY C.G. GATEHOUSE J.P. RICHENS DATE _____

SECTION E.L. 19 TOWN _____ RANGE _____ T.D. _____ P.D. _____



LITHOLOGY LOG

424' CLAY MOTTLED DK GRY AND LT GRY, LIMONITIC

425' CLAY LT-MD GRY, MOTTLED WITH INCREASING LIMONITE MOTTLING TOWARDS BASE

426' SILT LT GRY, F-V.F. QR., POORLY SORTED, POORLY CONSOLIDATED MINOR CLAY INTERBEDS

427' CLAY LT GRY, WITH SAND LENSES (UP TO 30% OF CORE)

428' SILT LIMONITIC MOTTLING, AS FOR 426'2" - 427'10"

429'

430' CLAY LT-MD GRY, HARD PLASTIC, STRONGLY MOTTLED WITH LIMONITE. OCCASIONAL LENSES OF LT GRY SILT NEAR BASE

431'

432'

433' SILT LT GRY, SOFT, VF-FGR, V. POORLY CONSOLIDATED

434'

APPENDIX 1

AFMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

AISIE III CORE # 4 434 - 444
CUT 10'
RECOVERED 98"

SA-70-F

FIELD LOGGING SHEET

036

PROJECT LAKE EROME TITLE CORING PROGRAMME STATE S.A.

PROJECT GEOLOGIST C.C. CATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. AISIE III

ELEVATION _____ NORTH _____ EAST _____ LOGGED BY C.C. CATEHOUSE J.P. RICHENS DATE _____

SECTION 64 19 TOWN _____ RANGE _____ T.D. _____ P.D. _____

DEPTH	STRIP LOG	LITHOLOGY LOG
434'		CLAY MED-DK GRY, STICKY, MOTTLED WITH LIMONITE, CONTAINING NODULES LIMONITE, OCC. SLIGHTLY DOLOMITIC AND SANDY *
435'		SAND LT-MD GRY V.F → SILT, WELL SORTED S/A - S/R, NO CEMENT, SOFT - V. SOFT, 30% CLAY MATRIX
		CLAY LT GRY LIMONITE MOTTLING.
		SAND AS FOR 434'8" - 435'4"
436'		CLAY LT GRY CONSIDERABLE LIMONITE MOTTLING, OCC. LENSES OF V.F. - SILT/SAND
437'		SAND LT GRY V.F.C. → SILT, WELL SORTED, S/A - S/R, NO CEMENT, SOFT - V. SOFT LIMONITE MOTTLING, OCC. CLAY LENSES (TO 30%)
438'		
439'		CLAY WITH MINOR SAND
		CLAY DK GRY, PLASTIC, HARD
440'		
441'		
442'		
		SAND A/A INTERVAL 436'11" - 438'6"
443'		
444'		

* 434 - 435'8" Gabet quartzite, calcare / dol?
1 à 3cm.

APPENDIX I

AEMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

AISIE III CORE # 5 444 - 454
CUT 10'
RECOVERED 10'

SA-70-F

FIELD LOGGING SHEET

037

PROJECT LAKE FROME TITLE CORING PROGRAMME STATE S.A.

PROJECT GEOLOGIST C.C. GATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. AISIE III

ELEVATION NORTH EAST LOGGED BY C.C. GATEHOUSE S.P. RICHENS DATE

SECTION E.L. 19 TOWN RANGE T.D. P.D.

DEPTH	STRIP LOG	LITHOLOGY LOG
444'		CLAY MED GRY, SLIGHTLY MOTTLED, SILTY IN PART Q? Galet Ø 6 cm + petits galets cm.
445'		SAND LT GRY, V.F.G., GRADING → SILT; WELL SORTED, VERY SOFT, UNCONSOLIDATED UNCEMENTED
446'		SAND LT GRY, V.F.G. GRADING → SILT, S/A, POORLY SORTED, TOTALLY UNCONSOLIDATED, NO CLAY MATRIX
447'		CLAY DK GRY-BLK, HARD PLASTIC. HAEMATITIC 446' 4" - 447' 1" LIMONITIC PATCH AT 446' 8"; ALSO IN JOINT PLANES AND REPLACING PYRITE
448'		INCREASINGLY HAEMATITIC TOWARD BASE, WITH WHITE NODULES (DOLOMITE (?) ½-1 mm)
449'		→ Sable propre, lavé par Fe Stratifications obliques dans le Sable
450'		Contact ravinant légèrement les argiles.
451'		- Brun foncé Chocolat !
452'		- taches rouges - taches blanches - jaune
453'		
454'		

APPENDIX 1

AFMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

AISIE" CORE # 6 454' - 463' 4"
CUT 9'4"
RECOVERED 9'4"

SA-70-F

FIELD LOGGING SHEET

038

PROJECT LAKE FROME TITLE CORING PROGRAMME STATE SA

PROJECT GEOLOGIST C.G. GATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. AISIE"

ELEVATION NORTH EAST LOGGED BY C.G. GATEHOUSE DATE 24·3·73
I.P. RICHENS

SECTION EL 19 TOWN RANGE T.D. P.D.

DEPTH	STRIP LOG	LITHOLOGY LOG
454'		
		CLAY AS FOR 446' 3" – 454' (45), WITH MINOR HAEMATITE STAINING, RARE LIMONITE NODULES (AFTER PYRITE?)
455'		
456'		
457'		CLAY U. DK. RED, HARD, RARE HAEMATITE STAINING, RARE LIMONITE NODULES (AFTER PYRITE?)
		CLAY AS ABOVE
458'		
459'		
460'		
461'		
		CLAY DK GRY, MOTTLED, WITH HAEMATITE AND LIMONITE
462'		
463'		CLAY LT GRY, HARD, PLASTIC, WITH OCCASIONAL LIMONITE NODULES.
464'		

APPENDIX 1

AEMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

AISIE " CORE # 4 463'4" - 472'6" SA-70-F
CUT 9'2"
RECOVERED 9'2"

FIELD LOGGING SHEET

039

PROJECT LAKE FROME TITLE CORING PROGRAMME STATE S.A

PROJECT GEOLOGIST C.C. GATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. AISIE "

ELEVATION NORTH EAST LOGGED BY C.C. GATEHOUSE & J.P. RICHENS DATE

SECTION EL 19 TOWN RANGE T.D. P.D.

DEPTH	STRIP LOG	LITHOLOGY LOG
464'		CLAY MED- DK GREY WITH GREEN TINTS, HARD, PLASTIC, MOTTLED WITH LIMONITE ON 15% SURFACE, BROADLY BANDED
465'		
466'		
467'		
468'		CLAY AIA WITH HAEMATITE GRAINS THROUGHOUT. HAEMATITE INCREASES TOWARD BASE OF CORE
469'		
470'		
471'		
472'		
473'		

APPENDIX I

AEMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

AISIE III CORE # 8 472'6" - 479' 3" SA-70-F
CUT 6'9"
RECOVERED 6'9"

FIELD LOGGING SHEET

040

PROJECT LAKE FROME TITLE CORING PROGRAMME STATE S.A.

PROJECT GEOLOGIST C.C. CATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. AISIE III

ELEVATION _____ NORTH _____ EAST _____ LOGGED BY C.C. CATEHOUSE J.P. RICHENS DATE _____

SECTION EL. 19 TOWN _____ RANGE _____ T.D. _____ P.D. _____

DEPTH	STRIP LOG	LITHOLOGY LOG
472'		
		CLAY LT-MD GRY, STRONGLY HAEMATITIC MOTTLING
473'		
		CLAY MD GRY STRONGLY LIMONITIC IN BANDS OF MOTTLING (50%) SCATTERED HAEMATITE GRAINS INCREASINGLY ABUNDANT TOWARDS BASE. OCCASIONALLY BLUE GREY PATCHES.
474'		
475'		
476'		
477'		
478'		
479'		

APPENDIX 1

AFMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

AISIE''' CORE# 9 479'3" – 489'3"
CUT 10'
RECOVERED 10'

SA-70-F

FIELD LOGGING SHEET

041

PROJECT LAKE FROME TITLE CORING PROGRAMME STATE S.A.

PROJECT GEOLOGIST C.C. CATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. AISIE'''

ELEVATION _____ NORTH _____ EAST _____ LOGGED BY C.C. CATEHOUSE J.P. RICHENE DATE _____

SECTION EL 19 TOWN _____ RANGE _____ T.D. _____ P.D. _____

DEPTH	STRIP LOG	LITHOLOGY LOG
479'		
480'		CLAY LT-MD GRY, LIMONITE MOTTLING TO 10%, TRACES HEMATITE THROUGHOUT
481'		
482'		
483'		
484'		CLAY AS ABOVE WITH LIMONITE IN BANDS 5° THICK LIMONITE CONTENT DECREASING WITH INCREASING DEPTH
485'		
486'		
487'		GYPSIFEROUS AT 487'8"
488'		CLAY MD-DK GRY MOTTLED WITH LIMONITE (MINOR -10%)
489'		

APPENDIX I

AFMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

AISIE " CORE # 10 489'3" – 499'6"
CUT 10'3"
RECOVERED 10'3" SA-70-F

FIELD LOGGING SHEET

042

PROJECT LAKE FROME TITLE CORING PROGRAMME STATE S.A.

PROJECT GEOLOGIST C.G. CATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. AISIE "

ELEVATION ____ NORTH ____ EAST ____ LOGGED BY C.G. CATEHOUSE S.P. RICHENS DATE ____

SECTION E.L. 19 TOWN ____ RANGE ____ T.D. ____ P.D. ____

DEPTH	STRIP LOG	LITHOLOGY LOG
489'		
		CLAY AS FOR 488–489'3" CORE # 9
490'		CLAY AS ABOVE WITH 30% DOLOMITIC CLAY (WHITE, SOFT, PATCHY)
491'		
492'		
		CLAY AS ABOVE – GYPSIFEROUS
493'		
494'		
495'		
496'		
497'		
498'		
499'		
500'		

APPENDIX 2

AFMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006.

"A1E" CORE 1 410'-418'2" SA 70-F
CUT 8'2"
RECOVERED 9'2"

FIELD LOGGING SHEET

PROJECT LAKE FROME TITLE CORING PROGRAMME STATE SA

PROJECT GEOLOGIST C.C. CATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. A1E"

ELEVATION NORTH EAST LOGGED BY C.C. CATEHOUSE J.P. RICHENS DATE

SECTION E.L. 19 TOWN RANGE T.D. P.D.

DEPTH	STRIP LOG	LITHOLOGY LOG
410'		CLAY BLK - V DK GRY, BRITTLE IN PATCHES, NON PLASTIC, RICH IN HAEMATITE AS SCATTERED BLEBS, INTERSPERSED WITH WHITE (DOLOMITE?) AND MINOR LIMONITE.
411'		
412'		
413'		
414'		
415'		CLAY MD. B GRAY, HARD, PLASTIC, LIMONITIC, IN PARTS SLIGHT TRACES OF HAEMATITE. IN LOWERMOST 1" LIGHT BROWN CLAY
416'		
417'		
418'		
419'		
420'		

NOTE: CORE RECOVERIES EXCEED CORED INTERVAL DUE TO EXPANSION OF CORE. (DUE TO EXPANDING CLAYS). ALL MEASUREMENTS ON CORE AS RECOVERED.

APPENDIX 2

AFMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

AIE" CORE #2 418'2" – 427'2" SA-70-F
CUT 9'
RECOVERED 9'10"

FIELD LOGGING SHEET

044

PROJECT LAKE FROME TITLE CORING PROGRAMME STATE S.A.

PROJECT GEOLOGIST C.G. GATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. AIE"

ELEVATION NORTH EAST LOGGED BY C.G. GATEHOUSE J.P. RICHENS DATE

SECTION E.L. 19 TOWN RANGE T.D. P.D.

DEPTH	STRIP LOG	LITHOLOGY LOG
418		CLAY AS FOR LAST INTERVAL OF CORE #1, BUT DK. GRY.
419		CLAY LT GRY, HARD, PLASTIC, OCC. GRADING TO SILT.
420		WITH >80% LIMONITEC CLAY THROUGHOUT CORE NO APPARENT HAEMATITE.
421		
422		
423		
424		
425		
426		
427		CLAY LT GRY; HARD, NON PLASTIC, VERY SILTY.
428		

NOTE CORE RECOVERY EXCEEDS CORE CUT OWING TO EXPANDING CLAYS IN CORE.

ALL MEASUREMENTS ON CORE AS RECOVERED

APPENDIX 2

AFMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

AIE" CORE #3 427'2" - 432'2"
CUT 5'
RECOVERED 5',"

SA-70-F

045

FIELD LOGGING SHEET

PROJECT LAKE EROME TITLE CORING PROGRAMME STATE S.A.

PROJECT GEOLOGIST C.C.CATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. AIE"

ELEVATION _____ NORTH _____ EAST _____ LOGGED BY C.C.CATEHOUSE J.P.RICHENS DATE _____

SECTION E.L. 19 TOWN _____ RANGE _____ T.D. _____ P.D. _____

DEPTH	STRIP LOG	LITHOLOGY LOG
427'		
		SILT HARD, NON PLASTIC, BRITTLE, LIMONITIC AT 428'. BEDDING APPARENT AS VERY THIN LAMINAE, DIP 0-5°. CLAY MATRIX TO 45%.
428'		SILT A/A. BARE LIMONITE AS THIN BANDS, OR BLEBS. DIP 0-10°, AVERAGE 5°.
429'		
430'		
431'		SILT A/A WITH 1" WIDE BANDS LIMONITE.
432'		
433'		

APPENDIX 2

AFMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

AIE" CORE# 4 432'2"- 440'10"
CUT 8'8"
RECOVERED 8'8"

SA-70-F

FIELD LOGGING SHEET

046

PROJECT LAKE FLOME TITLE CORING PROGRAMME STATE SA.

PROJECT GEOLOGIST C.C.CATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. AIE"

ELEVATION _____ NORTH _____ EAST _____ LOGGED BY C.C.CATEHOUSE J.P. RICHENS DATE _____

SECTION E.L.19 TOWN _____ RANGE _____ T.D. _____ P.D. _____

DEPTH	STRIP LOG	LITHOLOGY LOG
432'		CLAY LIGHT GREY, SOFT, PLASTIC, LIMONITIC, SILTY.
433'		SAND LIGHT GREY TO WHITE, AND BROWN, MEDIUM TO FINE GRAINED, SILTY, POORLY SORTED UNCONSOLIDATED.
434'		
435'		
436'		
437'		
438'		
439'		
440'		
441'		
442'		

APPENDIX 2

AFMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

AIE" CORE #5 440'10"- 450'5"
CUT 9'7"
RECOVERED 9'7"

SA-70-F
047

FIELD LOGGING SHEET

PROJECT LAKE FROME TITLE CORING PROGRAMME STATE S.A.

PROJECT GEOLOGIST C.C. CATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. AIE"

ELEVATION _____ NORTH _____ EAST _____ LOGGED BY C.C. CATEHOUSE J.P. RICHENS DATE _____

SECTION E.L. 19 TOWN. _____ RANGE _____ T.D. _____ P.D. _____

DEPTH	STRIP LOG	LITHOLOGY LOG
440		
441		CLAY SOFT-VERY SOFT, LT BRWN, LIMONITIC, PLASTIC NEAR TOP, BRITTLE NEAR BASE
442		CLAY V. DK BRN, WITH RED STAINING, WHITE (DOLOMITE?) PATCHES AT 441'6" AND 441', OCC. HD BANDS PLASTIC CLAY NEAR BASE
443		
444		
445		
446		
447		
448		
449		
450 5		CLAY DK BRN, HARD, PLASTIC, WITH HAEMATITE STAINING THROUGHOUT.
451		
		RADIOACTIVITY :- 2-3 X BACKGROUND THROUGHOUT.

APPENDIX 2

AFMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

AIE" CORE #6 450'8" - 460'5"
CUT 10'
RECOVERED 10'3"

SA-70-F

FIELD LOGGING SHEET

048

PROJECT LAKE FROME TITLE CORING PROGRAMME STATE S.A.

PROJECT GEOLOGIST C.C. CATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. AIE"

ELEVATION _____ NORTH _____ EAST _____ LOGGED BY C.C. CATEHOUSE DATE _____
J.P. RICHENS

SECTION E.L. 19 TOWN _____ RANGE _____ T.D. _____ P.D. _____

DEPTH	STRIP LOG	LITHOLOGY LOG
450'		CLAY DK GRY, HD, ALTERNATING PLASTIC, BRITTLE; SCATTERED LIMONITE, HAEMATITE, COMMON DOLOMITE.
451'		
452'		
453'		
454'		CLAY MD GRY, RICH IN HAEMATITE; MINOR LIMONITE MOTTLING.
455'		
456'		CLAY ALTERNATING PLASTIC AND BRITTLE, BRITTLE WITH DOLOMITE, PLASTIC WITH HAEMATITE STRINING.
457'		CLAY MD GRY, SOFT, BRITTLE WITH HAEMATITE, LIMONITE, DOLOMITE
458		CLAY LT GRY AT BASE, DK GRY IN TOP 12", STRONGLY MOTTLED WITH HAEMATITE, LIMONITE, DOLOMITE IN PATCHES, AND CRACKS. THIN BAND BLK & V DK GRY MINERALIZATION, AT 458'11".
459		CLAY R/A VERY RICH IN HAEMATITE NEAR TOP, ALSO LIMONITIC, DOLOMITIC.
460		

APPENDIX 3
AFMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

ARNIE' CORE# 1 385-395
CUT 10'
RECOVERED 10'2"

SA-70-F

049

FIELD LOGGING SHEET

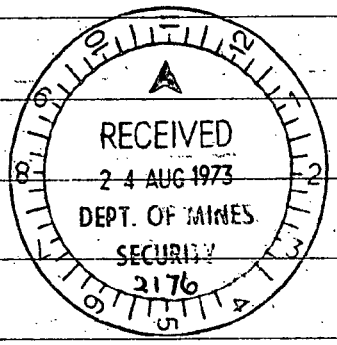
PROJECT LAKE EYRE TITLE CORING PROGRAMME STATE S.A.

PROJECT GEOLOGIST C.G.CATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. ARNIE'

ELEVATION _____ NORTH _____ EAST _____ LOGGED BY C.G.CATEHOUSE DATE _____
S.P. RICHENS

SECTION EL 19 TOWN _____ RANGE _____ T.D. _____ P.D. _____

DEPTH	STRIP LOG	LITHOLOGY LOG
385'		
		CLAY LT-MD GRY, SOFT, BRITTLE, SLIGHTLY SILTY, WITH SCATTERED HAEMATITE AND LIMONITE MOTTLING.
386'		
		CLAY MD GRY, HARD, PLASTIC GRDG TO BRITTLE, WITH SCATTERED VERY SMALL (<1mm) TO LARGE (20mm) MOTTLED PATCHES.
387'		
		CLAY AS FOR 385'0" - 386'10" BUT WITH LARGER MOTTLED PATCHES.
388'		
		CLAY AS FOR 386'10" - 387'3" GRDG TO SILT WITH WHITE PATCHES OF DOLOMITE
389'		CLAY MD GRY, SOFT, BRITTLE WITH LIMONITE & HAEMATITE AS THIN PARTINGS.
390'		CLAY MD-DK GRY, ALT. HARD & SOFT, PLASTIC, BRITTLE IN PARTS, WITH HAEMATITE PARTINGS, SCATTERED LIMONITE STAINING, <1% SAND P.gr. & ISOLATED PEBBLES.
391'		CLAY DK GRY, HARD, BRITTLE, GRADING TO V. HARD PLASTIC, LIMONITE AND HAEMATITE MOTTLING, ALSO PRESENT AS LARGE HARD NODULES.
392'		
393'		
394'		CLAY DRKD, HARD AT BASE, SOFT AT TOP, BRITTLE, QTZ PEBBLES (CAVINGS?) WHITE DOLOMITE (?), MOTTLED THROUGHOUT WITH GRY/GRN CLAY, SHOWING INTRAFORMATIONAL SLUMPING & SLICKENSIDING, GRADING TO SILTY IN PLACES.
395'		



APPENDIX 3

AFMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

ARNIE' CORE #2 395-405'
CUT 10'
RECOVERED 10'4"

SA-70-F

FIELD LOGGING SHEET

050

PROJECT LAKE EROME TITLE CORING PROGRAMME STATE S.A.

PROJECT GEOLOGIST C.G.CATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. ARNIE

ELEVATION _____ NORTH _____ EAST _____ LOGGED BY C.G.CATEHOUSE J.P.RICHENS DATE _____

SECTION EL.19 TOWN _____ RANGE _____ T.D. _____ P.D. _____

DEPTH	STRIP LOG	LITHOLOGY LOG
395'		
		CLAY DK GRY - GRN GRY, ALTERNATING HARD & PLASTIC, SOFT AND BRITTLE, SOFT LAYERS STAINED WITH HAEMATITE. HARD LAYERS GRN-GRY, HAEMATITE MOTTLING, NO VISIBLE LIMONITE; BRITTLE LAYERS GRDG TO SILT.
396'		
397'		
398'		
399'		
400'		
401'		
402'		
403'		CLAY A/A MOTTLED WITH LIMONITE & HAEMATITE; STAINED BLACK ALSO.
404'		
405'		CLAY As for 395'0" - 402'6"

APPENDIX 3
AFMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

A2N/E' CORE # 3 405-415'
CUT 10'
RECOVERED 10'4"

SA-70-F

FIELD LOGGING SHEET

051

PROJECT LAKE FROME TITLE CORING PROGRAMME STATE SA.

PROJECT GEOLOGIST C.C. CATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. A2N/E'

ELEVATION NORTH EAST LOGGED BY C.C. CATEHOUSE J.P. RICHENS DATE

SECTION E.L. 19 TOWN RANGE T.D. P.D.

DEPTH	STRIP LOG	LITHOLOGY LOG
405'		CLAY MD-DK GRY, ALTERNATING HARD AND SOFT, PLASTIC & BRITTLE RESP. WITH RARE LIMONITE AND HAEMATITE STAINING, POSSIBLY ALSO PYRITE. DOLOMITIC.
406'		
407'		
408'		CLAY A/A, WITH MORE HAEMATITE STAINING NEAR TOP, LIMONITIC NEAR BASE; WITH SCATTERED DOLOMITE.
409'		
410'		
411'		CLAY MD, PLASTIC, LT GRY, STRONGLY STAINED WITH LIMONITE AND MINOR HAEMATITE.
412'		CLAY DK GRY, HARD, PLASTIC, MINOR LIMONITE; HAEMATITE NEAR 415' 0".
413'		
414'		
415'		

APPENDIX 3

AFMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

ADKIE' CORE # 4 415'-425'
CUT 10'
RECOVERED 10'6"

SA-70-F

052

FIELD LOGGING SHEET

PROJECT LAKE FROME TITLE CORING PROGRAMME STATE S.A.

PROJECT GEOLOGIST C.C. CATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. 7

ELEVATION NORTH EAST LOGGED BY C.C. CATEHOUSE J.P. RICHENS DATE

SECTION E.L. 19 TOWN RANGE T.D. P.D.

DEPTH	STRIP LOG	LITHOLOGY LOG
415'		CLAY AS IN LAST INTERVAL OF CORE # 3.
416'		
417'		
418'		SILT LT GRY, – BLUE GRY, HARD, CLAY MATRIX (20%); BEDDING HORIZONTAL, COMPRISING ALTERNATING LIGHT AND DARK GRY.
419'		
420'		SILT LT GRY, SOFT, VERY SOFT NEAR BASE, FRIABLE; BANDS OF DK GRY MINERALIZATION AT 421'2", 422'9", 424'4", & 425')
421'		
422'		
423'		
424'		
425'		

APPENDIX 3

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147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

ARNIE' CORE# 5 425'-435'
CUT 10'
RECOVERED 10'1"

SA-70-F

FIELD LOGGING SHEET

053

PROJECT LAKE FROME TITLE CORING PROGRAMME STATE S.A.

PROJECT GEOLOGIST C.C. CATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. ARNIE'

ELEVATION NORTH EAST LOGGED BY C.C. CATEHOUSE DATE
J.P. RICHENS

SECTION E.L. 19 TOWN RANGE T.D. P.D.

DEPTH	STRIP LOG	LITHOLOGY LOG
425'		SILT AS FOR LAST INTERVAL OF CORE #4. VERY HARD, DRY, WITH CSE GR. OF QTZ.
426'		
427'		SAND V. LT GRY, – WHITE, QTZOSE, V. POORLY SORTED, WITH GRANULES, BASAL 2" V. HARD, PARTIALLY CEMENTED. GRNS a – S/a CLAY MATRIX (10%).
428'		
429'		CLAY 50% LT – MD GRY, V. HARD, VERY BRITTLE. SILT 50%
430'		
431'		
432'		
433'		CLAY MD – DK GRY, HARD, MOTTLED WITH LIMONITE AND DOLOMITE
434'		
435'		

APPENDIX 3

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NORTH ADELAIDE,
SOUTH AUST. 5006

ARNIE' CORE# 6 435'-445'
CUT 10'
RECOVERED 10'5"

SA·70·F

FIELD LOGGING SHEET

054

PROJECT LAKE FROME TITLE CORING PROGRAMME STATE SA.

PROJECT GEOLOGIST C.C.CATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. ARNIE'

ELEVATION NORTH EAST LOGGED BY C.C.CATEHOUSE DATE
J.P. RICHENS

SECTION E.L.19 TOWN RANGE T.D. P.D.

DEPTH	STRIP LOG	LITHOLOGY LOG
435'		CLAY LT - MD GRY, SOFT PLASTIC, SOFT BRITTLE, SILTY, WITH RARE QTZ GR F-md GR, S/R, WELL SORTED. WITH MINOR HAEMATITE AND LIMONITE STAINING, 10% DOLOMITE ON BROKEN SURFACE.
436'		
437'		
438'		
439'		CLAY · A/A MORE HAEMATITE.
440'		
441'		CLAY LT - MD GRY, GRADING BLUE GRY, SOFT TO HARD, PLASTIC, VERY RICH IN HAEMATITE; DOLOMITE AT 442' 11"
442'		
443'		
444'		CLAY BLUE GRY, HARD, PLASTIC, LIMONITIC.
445'		CLAY A/A STRONGLY HAEMATITIC

APPENDIX 3

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NORTH ADELAIDE,
SOUTH AUST. 5006

ARNIE' CORE# 7 445'-455'
CUT 10'
RECOVERED 10'

055

SA-70-F

FIELD LOGGING SHEET

PROJECT LAKE FROME TITLE CORING PROGRAMME STATE S.A.

PROJECT GEOLOGIST C.C. CATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. ARNIE

ELEVATION NORTH EAST LOGGED BY C.C. CATEHOUSE J.P. RICHENS DATE

SECTION E.L. 19 TOWN RANGE T.D. P.D.

DEPTH	STRIP LOG	LITHOLOGY LOG
445'		CLAY AS FOR LAST INTERVAL OF CORE #6. SLIGHTLY SILTY,
446'		CLAY LT-MD GRY ALTERNATING HARD AND SOFT, NON PLASTIC, BATTLE RESP, WITH CONSIDERABLE PURPLE STAINING IN LAYERS UP TO 3" THICK, WITH LIMONITE, MINOR DOLOMITE.
447'		
448'		
449'		CLAY DK GRY, HARD, RICH IN HARMATITE, LIMONITE; MINOR DOLOMITE; MOTTLED.
450'		CLAY LT-MD GRY, ALTERNATING SOFT PLASTIC, HARD NON PLASTIC, WITH MINOR HAEMATITE AND LIMONITE STAINING, RARE DOLOMITE.
451'		CLAY AS FOR 445' 6" - 448' 3".
452'		CLAY LT-MD GRY, HARD, PLASTIC, WITH PURPLE STAINING NEAR BASE, CLAY BLUE GREEN IN PART.
453'		CLAY DK, PURPLE, V. HARD, PURPLE STAINING, MINOR LIMONITE. MOTTLED.
454'		
455'		

APPENDIX 3

AFMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

A2HIE' CORE# 8 455'-465
CUT 10'
RECOVERED 10'

056
SA·70-F

FIELD LOGGING SHEET

PROJECT LAKE FLOME TITLE CORING PROGRAMME STATE S.A.

PROJECT GEOLOGIST C.C. CATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. A2HIE'

ELEVATION _____ NORTH _____ EAST _____ LOGGED BY C.C. CATEHOUSE J.P. RICHENS DATE _____

SECTION E.L. 19 TOWN _____ RANGE _____ T.D. _____ P.D. _____

DEPTH	STRIP LOG	LITHOLOGY LOG
455'		CLAY AS FOR LAST INTERVAL IN CORE #7.
456'		CLAY BLK - V. DK GRY, V. HARD, occ. HAEMATITIC, WITH occ. PATCHES WELL RNDD F-MD GR. QTZ GRNS. IN CEMENTED CLUSTERS OF 3-6 GRNS.
457'		
458'		
459'		
460'		
461'		CLAY V. DK GRY, HARD, BRITTLE, LIMONITIC, NEAR BASE; HAEMATITIC THROUGHOUT.
462'		
463'		CLAY LT-MD GRY, HARD NON PLASTIC, SOFT BRITTLE, RICH IN HAEMATITE AND LIMONITE.
464'		CLAY BLUE GRY, V. HARD, NON PLASTIC, LIMONITIC.
465'		

APPENDIX 3
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NORTH ADELAIDE,
SOUTH AUST. 5006

ARNIE' .. CORE # 9 517'-526'
CUT 9'
RECOVERED 6'6"

SA-70-F

FIELD LOGGING SHEET

PROJECT LAKE FROME TITLE CORING PROGRAMME STATE SA.

PROJECT GEOLOGIST C.C. CATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. ARNIE'

ELEVATION ____ NORTH ____ EAST ____ LOGGED BY C.C. CATEHOUSE J.P. RICHENS DATE ____

SECTION E.L. 19 TOWN ____ RANGE ____ T.D. ____ P.D. ____

DEPTH	STRIP LOG	LITHOLOGY LOG
517'		CLAY BLK-GRY WITH LARGE GYPSUM CLUSTERS, RED HAEMATITIC NODULES
		SILT LT GRY V.F.G SOFT
		SILT OR DOLOMITIC SILT, WHITE, SOFT, STEEPLY DIPPING CONTACT, WITH OVERLYING UNIT V.F.G. SANDY
518'		SILT BRIGHT GREEN AT TOP, LT GRY, GREEN AT 518'4", GYPSIFEROUS.
519'		SILT WHITE (DOLOMITIC?) LT GRY, GRN, AS FOR 517'1"- 517'6"
520'		SAND LT GRY-BRN, V.F.G, V. SOFT, WELL SORTED, WATER FILLED, STEEP CONTACT WITH UNDERLYING UNIT
		SILT OR DOLOMITIC SILT WHITE, V.F.G AS FOR 517'6"- 517'9"
521'		SAND LT GRY/BRN, V.F.G, V. SOFT,
		SILT LT GRY WITH CLAY MATRIX, PLASTIC, V.F.G SOFT.
522'		CLAY, WHITE DOLOMITIC SILT AS ALTERNATING LAYERS.
523'		SAND (DOLOMITIC?) WITH CLAY BANDS, V. HARD, WELL CEMENTED, V.F.G. WHITE, V. LT GRY, WITH THIN BANDS CLAY AT BASE OF CORE.
524'		CORE JAMMED IN CATCHER, DRILLED FROM 523' 6"- 526' CORE HEAD WORN.
525'		
526'		
527'		

APPENDIX 3
AFMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

AZNIE' CORE # 10 526' - 532'
CUT 6'
RECOVERED 2'

FIELD LOGGING SHEET

PROJECT LAKE FROME TITLE CORING PROGRAMME STATE SA

PROJECT GEOLOGIST C.G.GATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. AZNIE'

ELEVATION _____ NORTH _____ EAST _____ LOGGED BY C.G.GATEHOUSE J.P. RICHENS DATE _____

SECTION EL19 TOWN _____ RANGE _____ T.D. _____ P.D. _____

DEPTH	STRIP LOG	LITHOLOGY LOG
526'		CLAY WHITE, DOLOMITIC, SILTY, HARD, ALTERNATING WITH CLAY MEDIUM GREY, HARD PLASTIC.
527'		
528'		
529'		
530'		
531		
532		

APPENDIX 4

AFMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

BISTW' CORE # 1 506'-514'
CUT 8'
RECOVERED 8'

SA-70-F

FIELD LOGGING SHEET

PROJECT LAKE FROME TITLE CORING PROGRAMME STATE S.A

PROJECT GEOLOGIST C.C. CATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. B1 S TW'

ELEVATION NORTH EAST LOGGED BY C.C. CATEHOUSE DATE 23-3-1973
J. RICHENS

SECTION EL 19 TOWN RANGE T.D. P.D.

DEPTH	STRIP LOG	LITHOLOGY LOG
506'		CLAY ALTERNATING WITH SILT, ALL LT GRY, SOFT TO V. SOFT, PLASTIC
507'		SAND - LT GRY, F.GR., VERY WELL SORTED, A-S/A, UNCONSOLIDATED, NO MATRIX (VERY CLEAN), NO CEMENT.
508'		
509'		
510'		
511'		
512'		
513'		CLAY LT GRY, STICKY, PLASTIC, OCC SILTY, SOFT, WITH OCCASIONAL 1" THICK SAND/SILT INTERBEDS.
514'		

APPENDIX 4
AFMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

B157W' CORE# 2 614'-614'6" 060
CUT 6"
RECOVERED 6"
SA-70-F

FIELD LOGGING SHEET

PROJECT LAKE FROME TITLE CORING PROGRAMME STATE S.A.

PROJECT GEOLOGIST C.C. CATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. B157W'

ELEVATION _____ NORTH _____ EAST _____ LOGGED BY C.C. CATEHOUSE DATE 28-3-1973
S.P. RICHENS

SECTION EL 19 TOWN _____ RANGE _____ T.D. _____ P.D. _____

DEPTH	STRIP LOG	LITHOLOGY LOG
514'		SAND LT. GRY., U.F.C. S/A-A, UNCONSOLIDATED, NO MATRIX
515'		

APPENDIX 4

AFMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

B1S7W' CORE # 3 514'6" - 522'7"
CUT 8'1"
RECOVERED 8'1"
SA-70-F

FIELD LOGGING SHEET

PROJECT LAKE FROME TITLE CORING PROGRAMME STATE S.A

PROJECT GEOLOGIST C.G. GATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. B1S7W'

ELEVATION _____ NORTH _____ EAST _____ LOGGED BY C.G. GATEHOUSE J.P. RICHENS DATE 24.8.1973

SECTION EL 19 TOWN _____ RANGE _____ T.D. _____ P.D. _____

DEPTH	STRIP LOG	LITHOLOGY LOG
514'		
515'		SAND LT GRY, F-MD GR., A-S/A, POORLY-MOD WELL SORTED, TOTALLY UNCONSOLIDATED, NO MATRIX, WATER-FILLED
516'		
517'		
518'		
519'		
520'		
521'		
522'		
523'		

APPENDIX 4

AFMECO PTY. LTD.
147 WARD STREET,
NORTH ADELAIDE,
SOUTH AUST. 5006

B1S7W' CORE# 4 522'7"- 531'7" SA·70·F
CUT 9'
RECOVERED 8'7"

FIELD LOGGING SHEET

PROJECT LAKE FROME TITLE CORING PROGRAMME STATE S.A.

PROJECT GEOLOGIST C.C. CATEHOUSE HOLE SIZE 8" ☐ AIR ☒ WATER HOLE No. B1S7W'

ELEVATION _____ NORTH _____ EAST _____ LOGGED BY C.C. CATEHOUSE DATE 24·3·73
J.P. RICHENS

SECTION EL 19 TOWN _____ RANGE _____ T.D. _____ P.D. _____

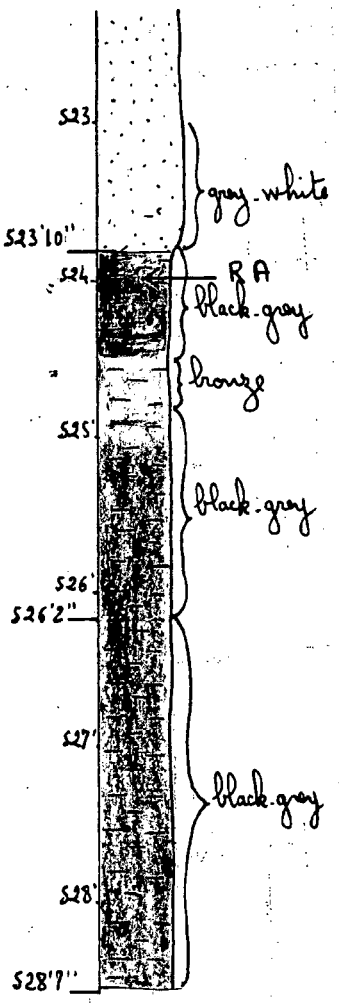
DEPTH	STRIP LOG	LITHOLOGY LOG
522'		
		LOST CORE- UNCONSOLIDATED SAND
523'		SAND LT. GRY, V.F.G. WELL SORTED, S/R, UNCEMENTED, WATER FILLED, OCC BANDS OF DARK GRY HEAVY MINERALS
524'		CLAY, DK GRY, HARD, PLASTIC
		CLAY, LT GRY, HARD. DRY
525'		CLAY, DK GRY, HARD, LIMONITE STAINING
		CLAY, DK GRY, MOD. HARD, OCC. THIN BANDS OF SOFT CLAY
526'		
527'		CLAY DK GRY V. HARD
528'		
529'		
530'		
531'		

P. Leblanc

12 . 7 . 73

063

B1S7W''



— 523'10'' - Mobile sand, i.e completely unconsolidated and has undergone missing in core barrel - Very clean - Regular - Size ≃ 1/4 m/m. sub-angular - Traces of black clay.

523'10''- 524'6'' - Compacted black gray clay, a little dry, darker towards the bottom - RA is within clay and close to the contact with sands
524'6'' - 524'10'' - Apparently same clay but with a bronze colour: limonite.
524'10'' - 526'2'' - Black gray soft clay - Traces of limonite and hematite.

526'2'' - 528'7'' - Black gray consolidated soft clay, homogeneous
Traces of hematite and limonite.

Sample #	Hole #	Sample Depth	Core #	U	Th	V	P205%	C%	Sppm	
201	AISIE'''	445'11" - 446'3"	5	40	<20	40	0.04	0.09	650	
202	"	446'3" - 446'7"	5	70	<20	70	0.04	0.10	970	
203	"	446'7" - 446'9"	5	210	<20	90	0.03	0.07	920	
204	"	446'9" - 447'2"	5	1610	<20	130	0.13	0.11	2540	
205	"	447'2" - 447'4"	5	<20	25	120	0.15	0.12	5310	
206	"	447'4" - 447'11"	5	<20	20	110	0.11	0.14	6430	
207	"	447'11" - 448'7"	5	<20	30	140	0.14	0.14	6940	
				U	Th	V	P205%	C%	%S	%CO2
212	"	427'6" - 427'11"	3	20	15	0007	0.030	0.05	0.07	0.05
213	"	427'11" - 428'5"	3	25	10	0.008	0.025	0.05	0.06	<0.0
214	"	428'5" - 428'10"	3	20	10	0.010	0.047	0.05	0.07	0.05
215	"	458'7" - 459'5"	6	20	50	0.017	0.21	0.15	0.22	0.05
216	"	459'5" - 460'5"	6	35	55	0.019	0.30	0.2	0.24	0.05
217	"	488'1" - 488'9"	9	45	25	0.016	0.032	0.1	0.12	0.25
218	"	489'8" - 490'7"	10	5	25	0.013	0.036	0.2	0.11	2.40
219	AIE''	424'0" - 425'0"	2	20	20	0.12	0.059	0.05	0.07	0.05
220	"	425'10" - 426'4"	2	50	25	0.013	0.034	0.05	0.05	<0.0
221	"	426'4" - 426'10"	2	110	20	0.009	0.034	0.05	0.07	<0.05
222	"	426'10" - 427'4"	2	50	25	0.016	0.066	0.05	0.06	0.05
223	"	425'0" - 425'10"	2	120	15	0.008	0.026	0.05	0.07	0.05
224	"	427'4" - 428'0"	3	15	25	0.014	0.064	0.05	0.10	0.05
225	"	437'1" - 437'5"	4	160	5	0.002	0.007	<0.05	0.05	0.05
226	"	437'5" - 438'5"	4	520	10	0.002	0.007	<0.05	0.06	0.05
227	"	438'5" - 439'5"	4	1160	5	0.001	0.013	<0.05	0.08	<0.0
228	"	439'5" - 439'10"	4	1200	5	0.002	0.017	0.05	0.11	<0.05
229	"	439'10" - 440'5"	4	4000	55	0.011	0.067	0.25	0.50	0.05
230	"	440'5" - 440'10"	4	70	20	0.008	0.079	0.15	0.23	0.05
232	"	440'10" - 442'5"	5	20	20	0.008	0.087	0.25	0.36	0.05
233	"	442'6" - 442'11"	5	50	25	0.009	0.089	0.3	0.41	0.05
234	"	442'11" - 444'3"	5	15	25	0.011	0.077	0.25	0.36	0.05
235	"	444'3" - 445'2"	5	15	30	0.012	0.060	0.3	0.29	0.05
236	BIS7W'	522'7" - 524'1"	4	15	5	0.002	0.009	0.05	0.06	0.3
237	"	524'1" - 524'9"	4	1160	15	0.015	0.053	0.2	0.24	0.1
238	"	524'9" - 525'2"	4	30	15	0.009	0.031	0.1	0.08	0.05
239	"	525'2" - 526'5"	4	25	15	0.009	0.023	0.15	0.06	0.05
240	"	526'5" - 5527'1"	4	5	15	0.009	0.019	0.15	0.06	0.05

TABLE 1 (Continued)

Sample #	Hole #	Sample Depth	Core #	U	Th	%S	%C	%CO2	%V	%P2O5
241	A2NIE	416'4" - 417'4"	4	15	15	0.04	0.15	0.05	0.009	0.038
242	"	417'4" - 417'8"	4	55	15	0.06	0.1	<0.05	0.008	0.025
243	"	417'8" - 418'0"	4	400	15	0.06	0.05	<0.05	0.007	0.017
244	"	418'0" - 418'6"	4	45	15	0.06	0.05	0.05	0.005	0.012
245	"	418'6" - 419'4"	4	55	15	0.06	0.05	0.05	0.005	0.021
246	"	419'4" - 420'1"	4	35	15	0.06	0.05	0.05	0.005	0.016
247	"	431'8" - 432'2"	5	30	20	0.21	0.15	0.05	0.009	0.061
248	"	432'2" - 432'6"	5	60	20	0.16	0.15	<0.05	0.009	0.07
249	"	432'6" - 433'0"	5	80	20	0.35	0.2	0.05	0.009	0.08
250	"	433'0" - 433'10"	5	30	20	0.25	0.2	<0.05	0.009	0.081
251	"	433'10"- 434'8"	5	30	20	0.18	0.15	0.05	0.010	0.046
252	"	434'8" - 435'6"	5 & 6	35	15	0.23	0.2	0.05	0.012	0.044
253	"	435'6" - 436'0"	6	800	35	0.33	0.25	0.05	0.030	0.058
254	"	436'0" - 436'6"	6	110	25	0.28	0.2	0.05	0.023	0.054
255	"	436'6" - 437'0"	6	40	25	0.25	0.2	0.05	0.016	0.05
256	"	437'0" - 437'10"	6	20	20	0.23	0.2	<0.05	0.014	0.050
257	"	437'10"- 438'6"	6	75	25	0.41	0.3	<0.05	0.013	0.064
258	"	438'6" - 439'7"	6	20	20	0.20	0.15	0.05	0.013	0.041
259	"	439'7" - 441'0"	6	20	15	0.14	0.15	0.05	0.011	0.038
260	AISIE'''	404'0" - 405'2"	1	20						
261	"	405'2" - 408'1"	1	20						
262	"	408'1" - 410'11"	1	15						
263	"	410'11"- 414'0"	1	15						
264	"	414'0" - 416'5"	2	10						
265	"	416'5" - 419'5"	2	15						
266	"	419'5" - 422'3"	2	15						
267	"	422'3" - 424'0"	2	15						
268	"	424'0" - 426'3"	3	15						
269	"	426'3" - 426'6"	3	10						
270	"	426'6" - 427'6"	3	50						
271	"	428'10"- 429'0"	3	25						
272	"	429'0" - 431'9"	3	15						
273	"	431'9" - 434'0"	3	10						
274	"	434'0" - 435'0"	4	15						
275	"	435'0" - 436'0"	4	15						
276	"	436'0" - 436'11"	4	15						
277	"	436'11"- 437'10"	4	15						
278	"	437'10"- 438'11"	4	10						
279	"	438'11"- 441'10"	4	10						
280	"	441'10"- 444'6"	4 & 5	5						

TABLE 1 (Continued)

Sample #	Hole #	Sample Depth	Core #	Uppm
281	AISIE'''	444'0" - 445'0"	5	10
282	"	445'0" - 446'0"	5	25
283	"	448'0" - 448'5"	5	10
284	"	448'5" - 450'10"	5	15
285	"	450'10"- 454'0"	5	20
286	"	454'0" - 455'6"	6	20
287	"	455'6" - 456'4"	6	15
288	"	456'4" - 457'2"	6	15
289	"	457'2" - 458'0"	6	20
290	"	458'0" - 458'9"	6	30
291	"	460'5" - 460'7"	6	40
292	"	460'7" - 461'6"	6	35
293	"	461'6" - 462'5"	6	25
294	"	462'5" - 463'4"	6	20
295	"	463'4" - 466'2"	7	15
296	"	466'2" - 469'0"	7	15
297	"	469'0" - 469'11"	7	20
298	"	469'11"- 470'10"	7	20
299	"	470'10"- 471'10"	7	15
300	"	471'10"- 472'6"	7	15
301	"	472'6" - 473'5"	8	15
302	"	473'5" - 476'4"	8	15
303	"	476'4" - 479'3"	8	25
304	"	479'3" - 480'11"	9	10
305	"	480'11"- 483'10"	9	5
306	"	483'10"- 486'6"	9	<5
307	"	486'6" - 487'1"	9	<5
308	"	487'1" - 488'1"	9	<5
309	"	488'1" - 489'3"	9	5
310	"	489'3" - 489'6"	10	<5
311	"	490'5" - 491'5"	10	50
312	"	491'5" - 494'2"	10	<5
313	"	494'2" - 496'7"	10	<5
314	"	496'7" - 499'6"	10	<5

TABLE 1 (Continued)

Sample #	Hole #	Sample Depth	Core #	Uppm
397	A2NIE'	450'6" - 451'8"	7	30
398	"	452'10"- 453'4"	7	35

~~029~~

BEVERLEY PROSPECT

CORE DRILLING

REPORT S.A. 100F

P. Leblanc

AFMECO PTY. LTD.

30th July, 1973.

REPORT ON A CORE HOLE AT BEVERLEY PROSPECT

INTRODUCTION

The Company"Western Nuclear"has authorized AFMECO to core a hole within this prospect at Beverley.

Aim

To compare stratigraphy, mineralization and equilibrium between the ore body of Beverley and the indications from AFMECO's permit E.L. 19.

Location

Beverley is situated within E.L. 64 (or SML 564) near Lake Frome, 12 kms from Flinders Ranges. Fig. 1. Core hole WC 65 is in the Northern part of the ore body, between holes P63W, P72W, P74W. Fig.2.

In abstract 0' to 298' - Quaternary
298' to 398' - Beverley Unit) Tertiary
398' to 410'3 - Alpha Unit)

Quaternary shows alternating levels of gravels, silts and clays.

Alpha Unit has dark clays.

Beverley Unit shows a normal sequence, coarse at the bottom and clay at the top.

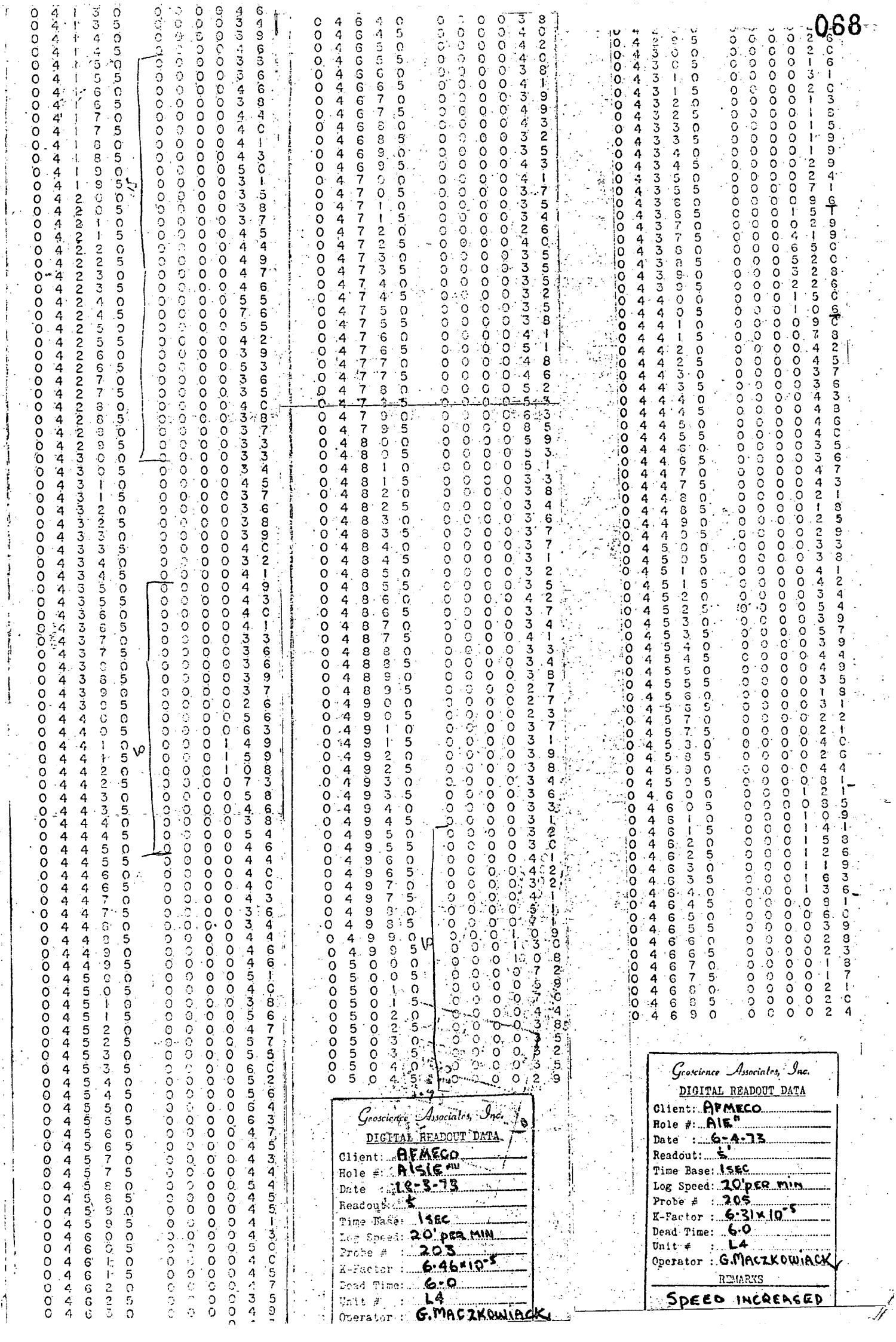
The Formation with mineralization has a width of 42': 361 to 403'. Generally, mineralization is associated with a true sand with some levels of clay. The sand contains sub-rounded grains, size: 5/10 mm. We can see a slight sedimentation slope of 10^0 to 15^0.

Contact at the bottom of the Beverley Unit is very sharp. According to Dr. Andrus, the radioactivity level of the Alpha Unit near the top is relatively high but there is no mineralization. The Electric log is very good. All variations have been followed on the cores.

% of recovery

Length in feet and tenths of a foot

		Length of Core	Recovery
Beginning 30.7.73	307.8 - 310.3	2.50	2,50
	310.3 - 320.3	10.00	9.50
	320.3 - 330.3	10.00	10.00
	330.3 - 340.3	10.00	9.9
	340.3 - 350.3	10.00	10.00
	350.3 - 360.3	10.00	10.00
	360.3 - 370.3	10.00	10.00
	370.3 - 380.3	10.00	10.00
	380.3 - 390.3	10.00	9.90
	390.3 - 400.3	10.00	10.00
	400.3 - 410.3	10.00	10.00
End	410.3 -		



Geoscience Associates, Inc.

DIGITAL READOUT DATA

Client: APMECO
Hole #: AIS(E
Date : 10-3-73
Readout: 5'
Time Base: 1SEC
Log Speed: 20' PER MIN
Probe # : 203
K-Factor : 6.46*10^-5
Dead Time: 6.0
Unit # : L4
Operator : G.MACZKOWIACK

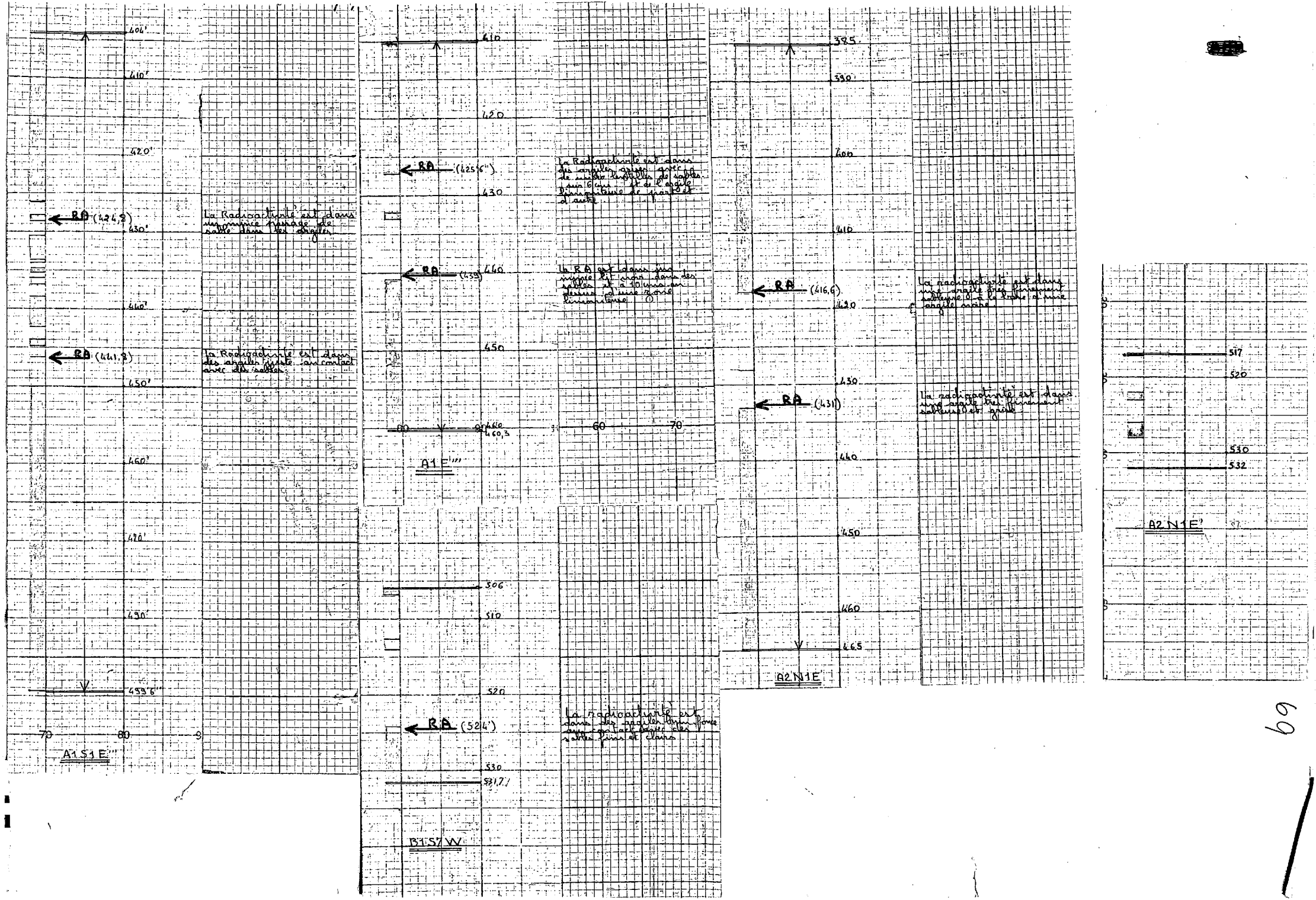
Geoscience Associates, Inc.

DIGITAL READOUT DATA

Client: APMECO
Hole #: AIE"
Date : 6-4-73
Readout: 5'
Time Base: 1SEC
Log Speed: 20'PER MIN
Probe # : 205
K-Factor : 6.31*10^-5
Dead Time: 6.0
Unit # : L4
Operator : G.MACZKOWIACK

REMARKS

SPEED INCREASED


RA (424,8)
RA (441,8)
4536''
A1 S1 E'''
La Radioactivité est dans une mince rainure parallèle aux angles
La Radioactivité est dans des argiles grises au contact avec des sables
RA (425'6'')
RA (439)
460,3
A1 E'''
La RA est dans une mince fissure dans des sables et a tendance à former une fissure circulaire
La Radioactivité est dans des argiles grises avec de minces lentilles de sables sur 6 cm et de l'argile finement litée de part et d'autre
506
510
520
RA (524')
530
531,7'
B1 S7 W
La radioactivité est dans des nodules bien plans entre gris et clairs
RA (416,6)
RA (431)
465
A2 N1 E'
La radioactivité est dans une mince fissure parallèle aux bancs de la roche et dans une argile noire
La radioactivité est dans une argile très finement laminée et grise
517
520
530
532
A2 N1 E'

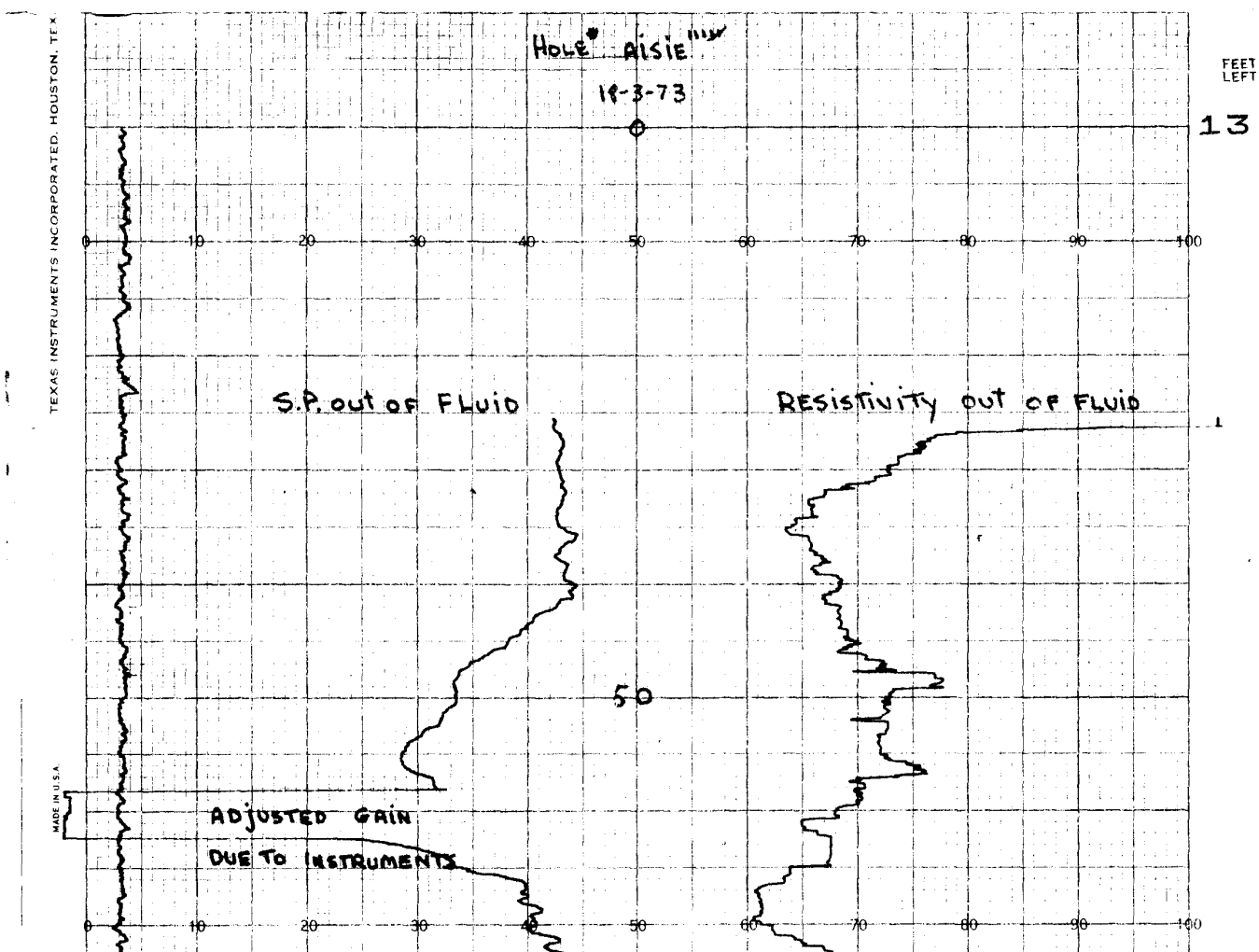
2176-1

Geoscience Associates Inc.

LOGGING DATA

Date 18-3-73

LOCATION					HOLE NUMBER: AISIE'''			CLIENT: AFMECO				
State/County: South Australia					Collar elev. ft.			Claim:				
Region: WOOLTANA					Depth drilled: 510' ft.			Owned by:				
Project: EL-19 CORE-PROG.					CASING DATA	HOLE DATA		Operated by:				
Prospect:					Wall size in.	Dia. 8 from 0 to T.D.		Unit operator: G. MACZKOWIACK				
Sec.	Twp.	Rng.			Dia.(inside) in.	Dia. from to		Unit No. L4 Office ADELAIDE				
GAMMA RAY					Cased from to ft.	Dia. from to		ELECTRIC				
	INITIAL RUN	2	3	4	Cored hole ☒	Non-cored hole ☐			1	2	3	4
Logged depth (ft.)	505				Sampled interval (ft.)	Type		Logged depth	505 ft.	505		
Range (Full scale)	1K					H_2O		Resist. scale	HIGH ohm-in			
Time constant (Sec.)	1							S.P. scale	mv/in	150		
Paper speed (ft/in)	10				INTERPRETATION DATA			Paper speed	10 ft/in	10		
Logging speed (ft/m)	20				Probe No.	Standard (cps)	K factor	Logging speed	20 ft/m	20		
Bkgnd count (cps)	25				203	610	6.46×10^{-5}	Probe size	2 in	2		
Probe No.	203							Type	ORE 3/4	ORE		
Size (dia.) (in)	2							BIAS	540			
Type	ORE				REMARKS			CALIPER				
Standard (cps)	610							Logged depth	ft.			
Dead time	6.0			4 sec.	T.D.: 508'			Scale	in/in def			
Amp. Gain	700							Paper speed	ft/in			
Ratemeter No.								Logging speed	ft/m			
Bore hole medium					RIG. T.D.C.			Arm length	in			
Mud density								Max. Def.	in			
Digital readout (ft)	½'											
Time Base	1 sec											
Upper Disc.												
Lower Disc.												



ENV. 2176 — 1

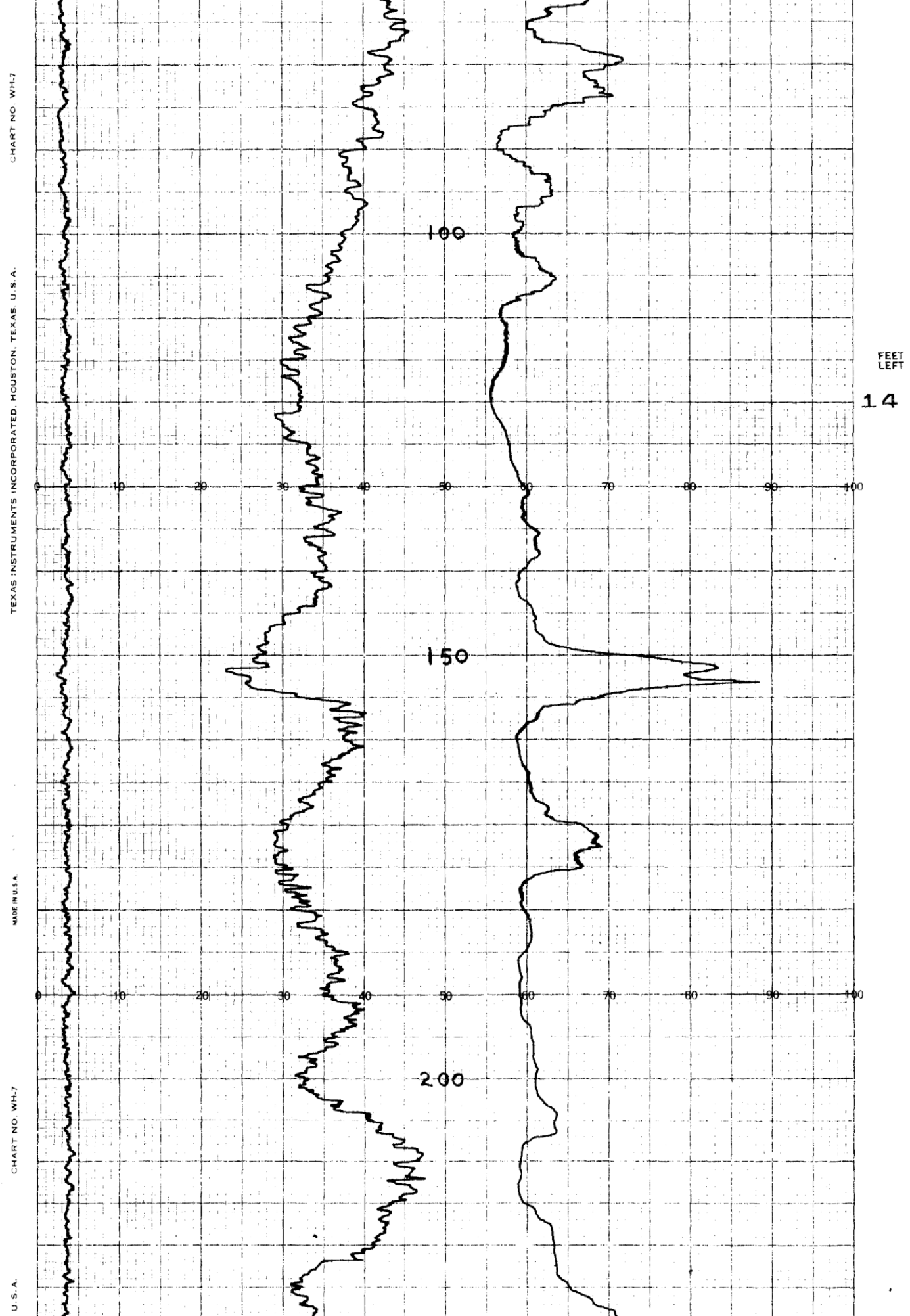

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CHART NO. WH-7
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FEET
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20
30
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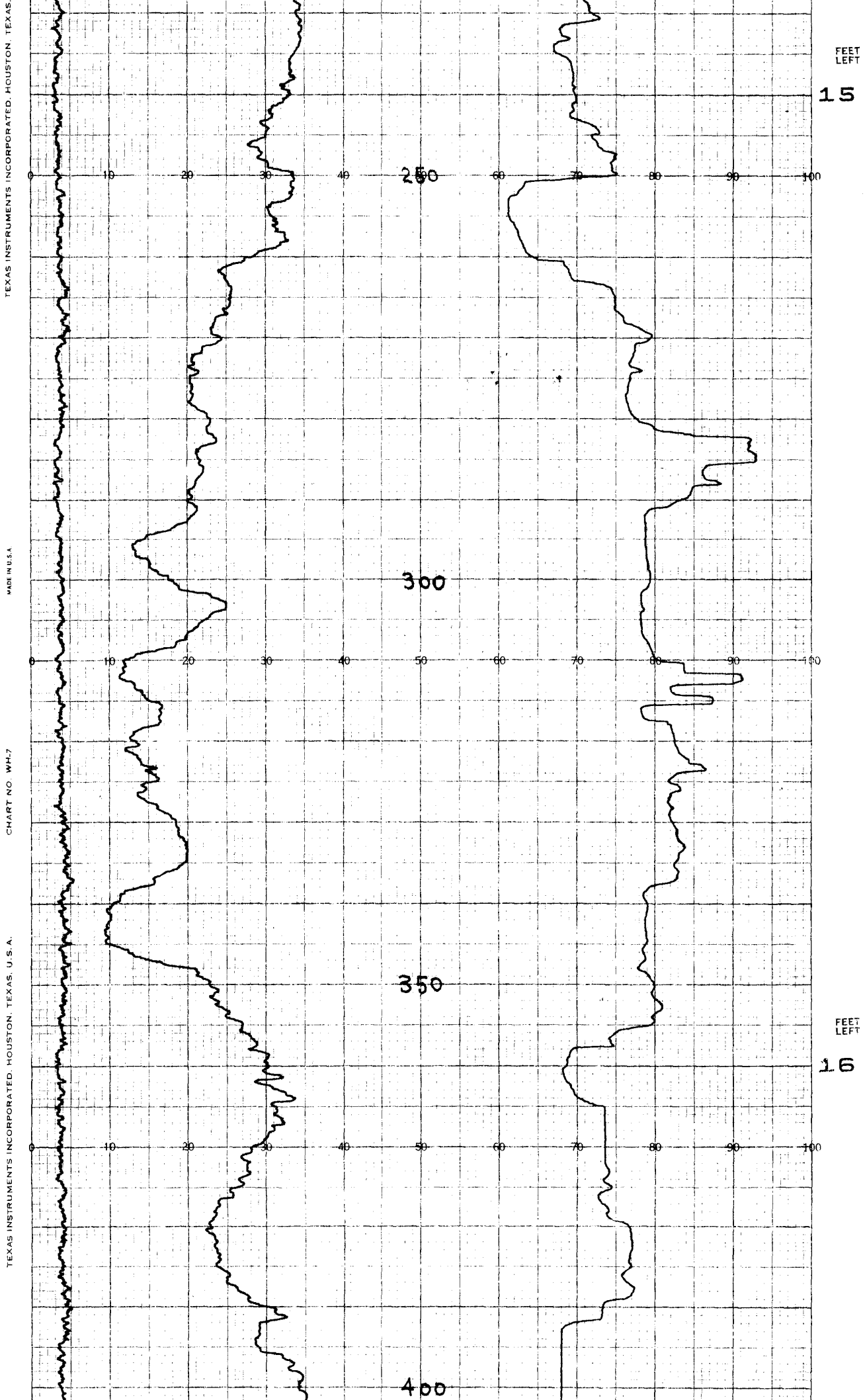
80
90
100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MADE IN U.S.A.
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FEET LEFT
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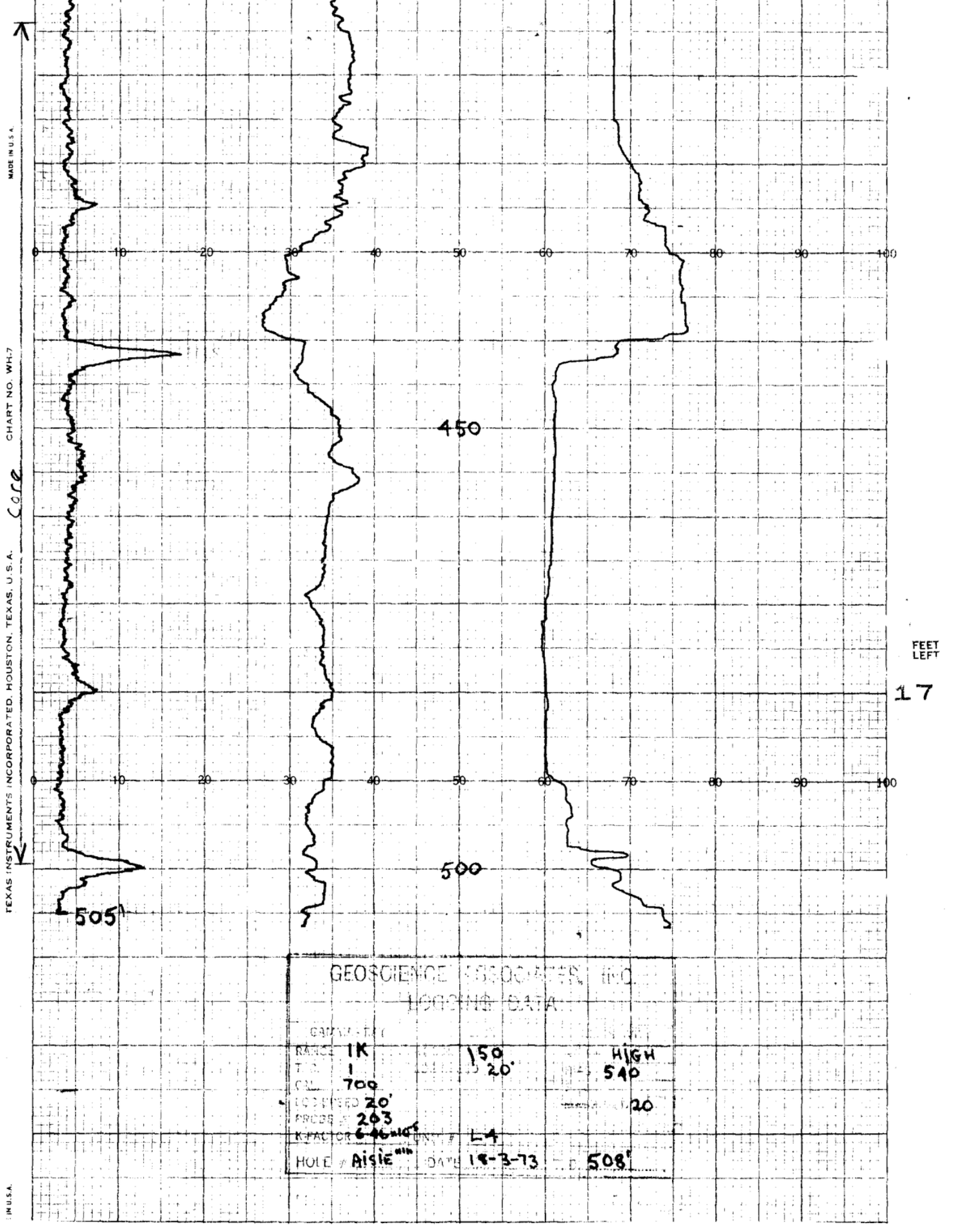
70
80
90
100


TEXAS INSTRUMENTS INCORPORATED, HOUSTON, TEXAS, U.S.A.
CHART NO. WH-7
MADE IN U.S.A.
core
0 10 20 30 40 50 60 70 80 90 100
450
500
505'
FEET LEFT
17
GEOSCIENCE ASSOCIATES, INC.
LOGGING DATA
RANGE 1K
150
HIGH
20'
540
700
20'
203
K-FACTOR
L4
HOLE Aisle
DATE 18-3-73
508'

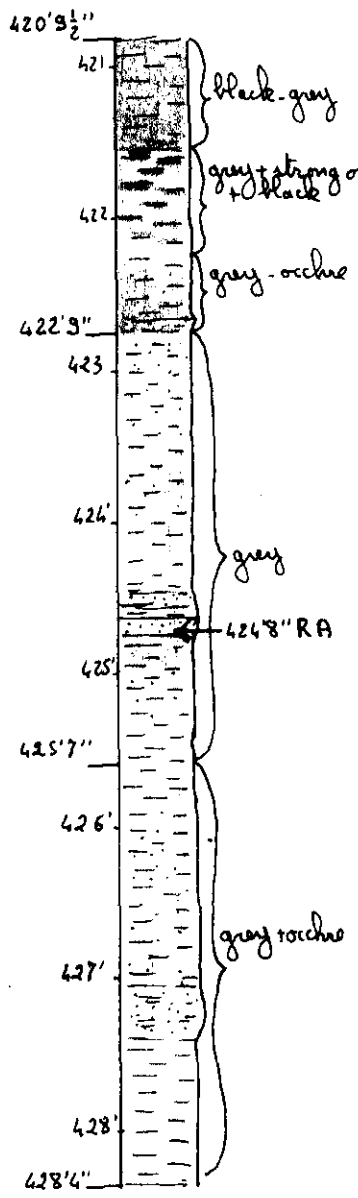
A. Hopkin and P. Leblanc

11.7.73

A2

2176 - 2

A1 S1 E"



420'9½" - 421'7" - Very soft black grey clay with irregular limonite - quartzite pebbles.

421'7" - 422'9" - Soft grey clay with strong limonite + irregular black vein width: 5 m/m - ⊥ - Clay becomes silty to the bottom.

422'8" - 422'9" - Sandy clay (irregular)

422'9" - 423'11" - Soft grey clay with irregular distribution of very fine sand - Some patches of strong limonite.

423'11" - 424'5" - Silty grey clay + patches of limonite.

424'5" - 424'6" - Very fine sand.

424'6" - 424'8" - Grey silty clay and dark grey clay.

On 1" at 424'8" - Sandy clay (very fine grain sand) + few specks of limonite. Irregular boundaries - RA -

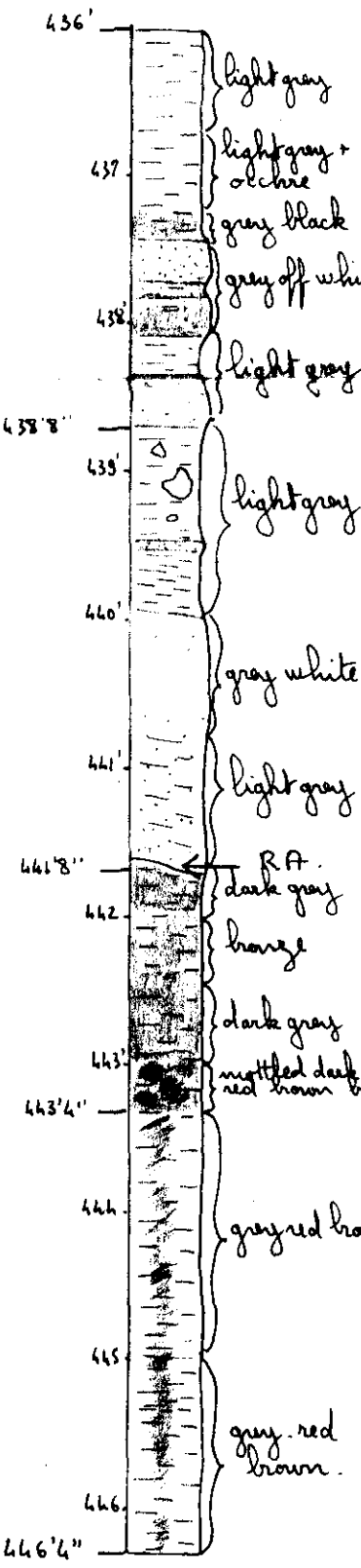
424'9" - 425'3" - Alternating sequences of soft grey clay finely interbedded silt and very fine sand - indistincts patches of limonite

425'3" - 425'7" - Silty clay with large patches of strong limonite.

425'7" - 427' - Grey clay with irregular thin beds of very fine sand and silt - Larges patches of limonite.

427' - 427'4" - Very fine sandy clay + patches of limonite.

427'4" - 428'4" - Silty grey clay with irregular very fine sand + larges patches of limonite.



436' - 437'3" - Light grey fine sandy clay - Sand content decrease from the top to the bottom - correspondingly limonite increases.

437'3" - 437'5" - Soft grey black clay (some sandy interbedded)

437'5" - 438'1" - Fine sand and light grey clay - Limonite.

438'1" - 438'4" - Light grey silty clay - Traces of carbonaceous material.

438'4" - 438'8" - Very fine sandy clay - Traces of carbonaceous material.

438'8" - 439'5" - Silty light clay with quartzite pebbles and some patches of limonite.

439'5" - 439'7" - Very fine sand shows bedding of sandy clay

439'7" - 439'11" - Light grey sandy clay with some patches of black carbonaceous material?

439'11" - 440'9" - Fine and clean sand rounded - Possible cross-bedding?

440'9" - 441'8" - Light grey sandy clay - Apparent dip: 15°. One patche of dark clay.

441'8" - 442' - Compact soft black grey clay, homogeneous. Irregular contact RA is at the top.

442' - 442'8" - Compact and dry bronze clay - Minor specks of hematite.

442'8" - 442'11" - Grey black clay, soft

442'11" - 443'4" - Grey black clay with hematite, limonite + many white nodules.

443'4" - 446'4" - Compact soft red and black clay
Hematite very abundant
Scattered patches of limonite.

At 445'4" we have 3" of clay with mottled yellow red and white nodules - similar 443' -

Env. 2176 - 2

2176-3

Geoscience Associates, Inc.

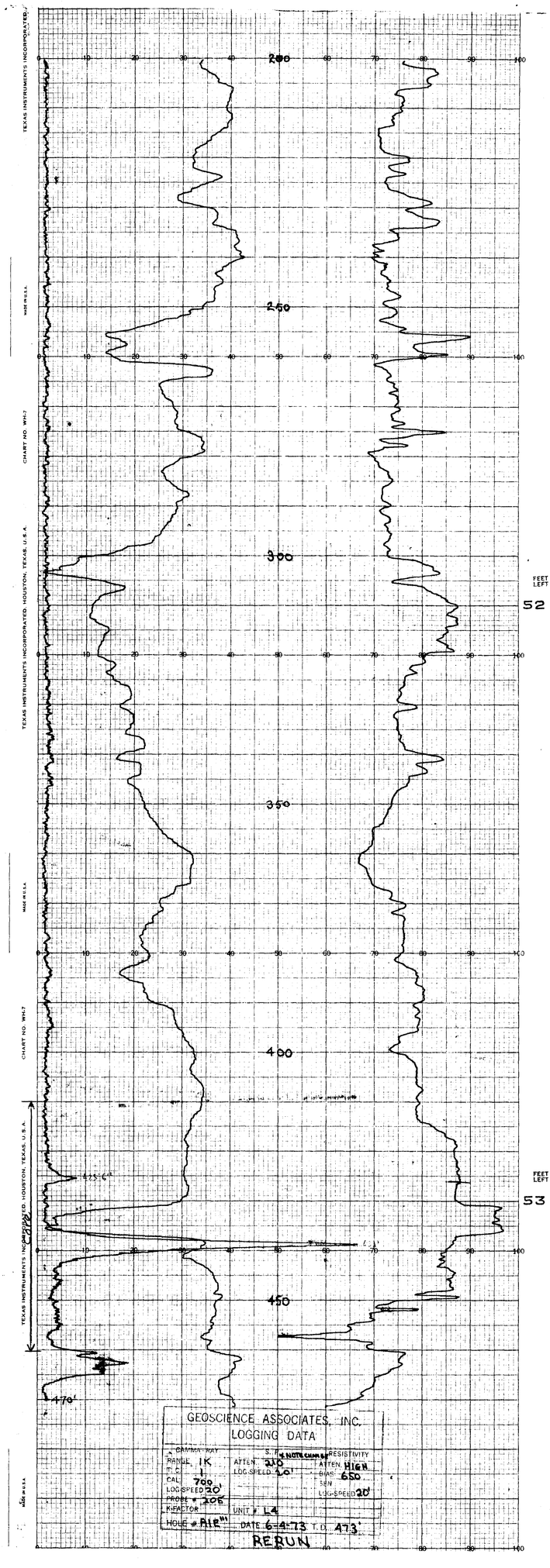
No 2. RERUN. (470'-200')

LOGGING DATA

Date 6-4-73

LOCATION					HOLE NUMBER: AIE"		CLIENT: AFMECO
State/County: South Australia					Collar elev. ft.		Claim:
Region: WOOLTANA					Depth drilled: 475' ft.		Owned by:
Project: EL-19 CORING PROG.					CASING DATA / HOLE DATA		Operated by:
Prospect:					Wall size in.	Dia. 8 from 0 to T.D.	Unit operator: G. MACZKOWIACK
Sec.	Twp.	Rng.			Dia.(inside) in.	Dia. from to	Unit No. L4 Office ADELAIDE
GAMMA RAY					Cased from to ft.	Dia. from to	ELECTRIC
	INITIAL RUN	2	3	4	Cored hole ☒	Non-cored hole ☐	1 2 3 4
Logged depth (ft.)	470				Sampled interval (ft.)	Type	Logged depth 470 ft. 470
Range (Full scale)	1K					H20	Resist. scale HIGH ohms/in
Time constant (sec.)	1				INTERPRETATION DATA		S.P. scale 210 * NOTE CHANGE
Paper speed (ft/in.)	10				Probe No. / Standard (cps) / K factor		Paper speed 10 ft/in 10
Logging speed (ft/m)	20				205 654 6·31x10⁻⁴		Logging speed 20 ft/m 20
Bkgnd count (cps)	20						Probe size 2 in 2
Probe No.	205				REMARKS		Type ORE ORE
Size (dia.) (in.)	2				T.D. 473'		BIAS 650
Type	ORE						CALIPER
Standard (cps)	654						Logged depth ft.
Dead time	6-2			μ sec.			Scale in/in def
Amp. Gain	700				RIG : T.D.C.		Paper speed ft/m
Ratemeter No.							Logging speed ft/m
Bore hole medium							Arm length in
Mud density							Max. Def. in
Digital readout (ft)	½'						
Time Base	1 SEC						
Upper Disc.							
Lower Disc.							

ENV. 2176-3



G. Kwitko and P. Leblanc.

10.7.73

2176.4

A1E"

421'3" – 421'8" – Grey soft clay with fine silty beds. Some patches of ochre.

421'8" – 422'2" – Rich ochre clay. irregular boundaries.

422'2" – 423'1" – Grey soft clay with some patches of limonite (ochre)

423'1" – 423'7" – Ochre clay (limonite rich)

423'7" – 424'2" – Grey soft clay with some patches of limonite.

424'2" – 424'10" – Mottled clay (light grey) + limonitic patches. not soft. Traces of silt.

424'10" – 425'3" – Mottled soft clay (light grey) and limonitic patches.

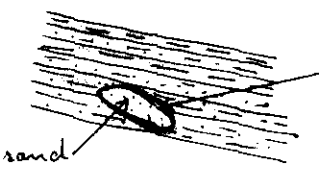
425'3" – 425'11" – Light grey clay with: a/ Irregular fine sand bed RA.
b/ Fine sand well rounded, clean, ϕ: 2/10 m/m + patches of carbonaceous material? Width: 1cm, Irregular boundaries

425'11" – 426'5" – Mottled clay (light grey) and limonitic patches.

426'5" – 427' – Silty clay with a very fine sand interbedded (2 cm) irregular boundaries.

427' – 429'9" – Alternating sequences of soft grey clay, silty clay, and very fine clean sand. Fine bedding ≃ 1 m/m. Slight dip: 5 to 10°

Enlargement



427'7" – 427'10" – Soft limonitic banded clay.

429'9" – 430'6" – Alternating sequences of soft grey clay, fine bedded silt and sand. with 2 interbeds of soft grey clay. Dip: 5 to 10°. Very thin fractures with clay? Dip: 70°

430'6" – 431' – Clay with traces of silt. Some limonite staining.

431' – 431'1" – Fine sand (clean) with limonite at contact (patchy)

431'1" – 431'10" – Grey clay with 3 cm of alternating sequences of grey clay, silt and sand – very fine bedding. Dip: 5°

431'10" – 432'6" – Grey clay with patches of limonite + rounded pebbles of quartzite up to 2 cm + fragments of carbonaceous material. Origin of pebbles: probably surface.

432'6" – 433' – Soft grey clay

433' – 433'3" – Very fine sand (clean), rounded with polished surface

433'3" – 436' – Very fine sand well rounded with polished surface very clean, well sorted. No cement. grains: ≃ 2/10 m/m.

Same sand.
Very rare specks of carbonaceous material.

437'2" – 438'10" –
Same sand.

438'10" – 439' – Soft light grey clay + very fine sand.

439' – Thin black bed, up to 1 cm – with carbonaceous material? and RA.

439' – 439'2" – Grey black clay with trace of silt

439'2" – 439'7" – Grey black clay + trace of silt.

439'7" – 439'9" – Yellow ochre clay – very sharp contact apparently horizontal – Oxydation?

439'9" – 441' – Clay very compacted – hard and dry.

441' – 443'3" – Same clay as above.

ENV. 2176 — 4

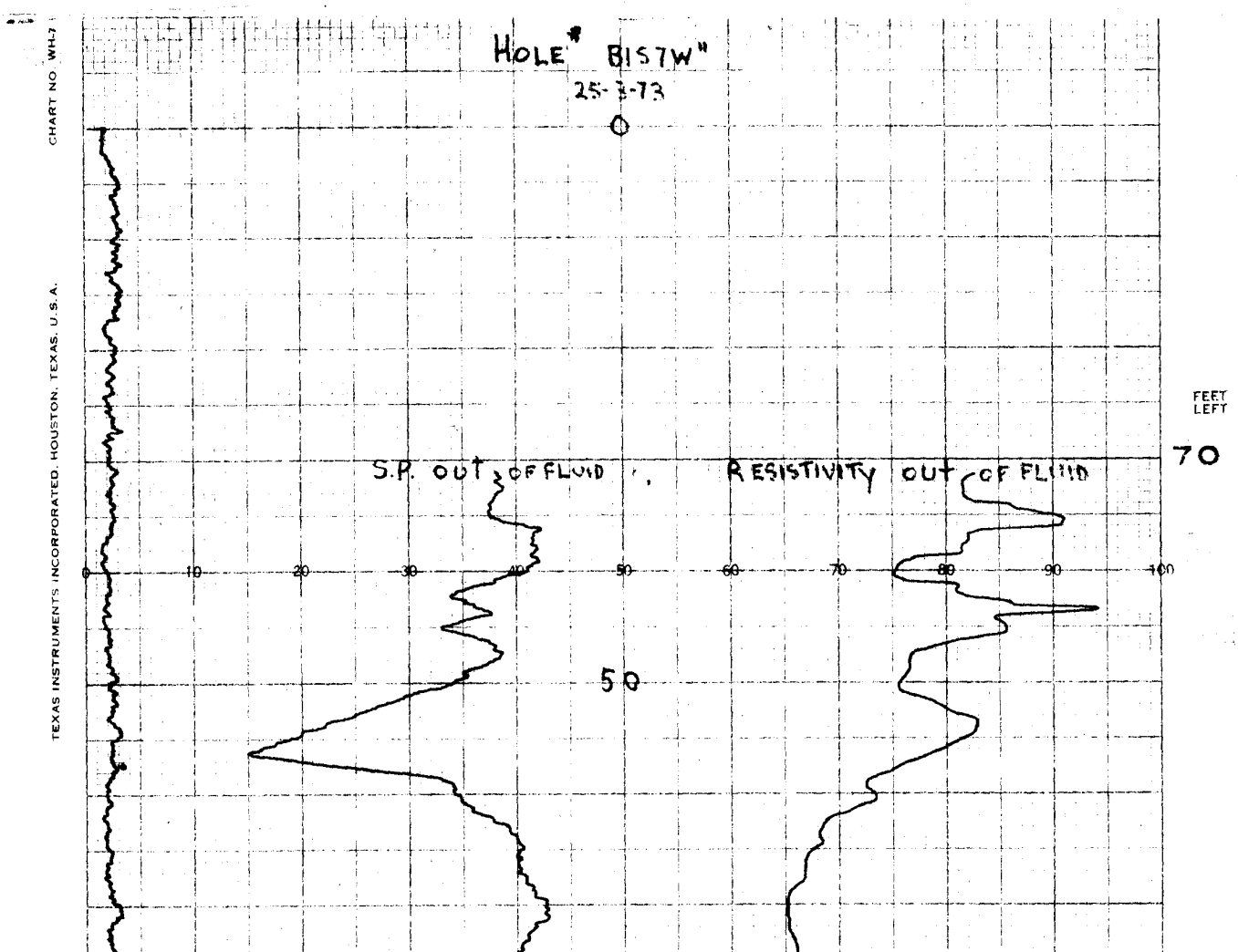
2176-5

Geoscience Associates Inc.

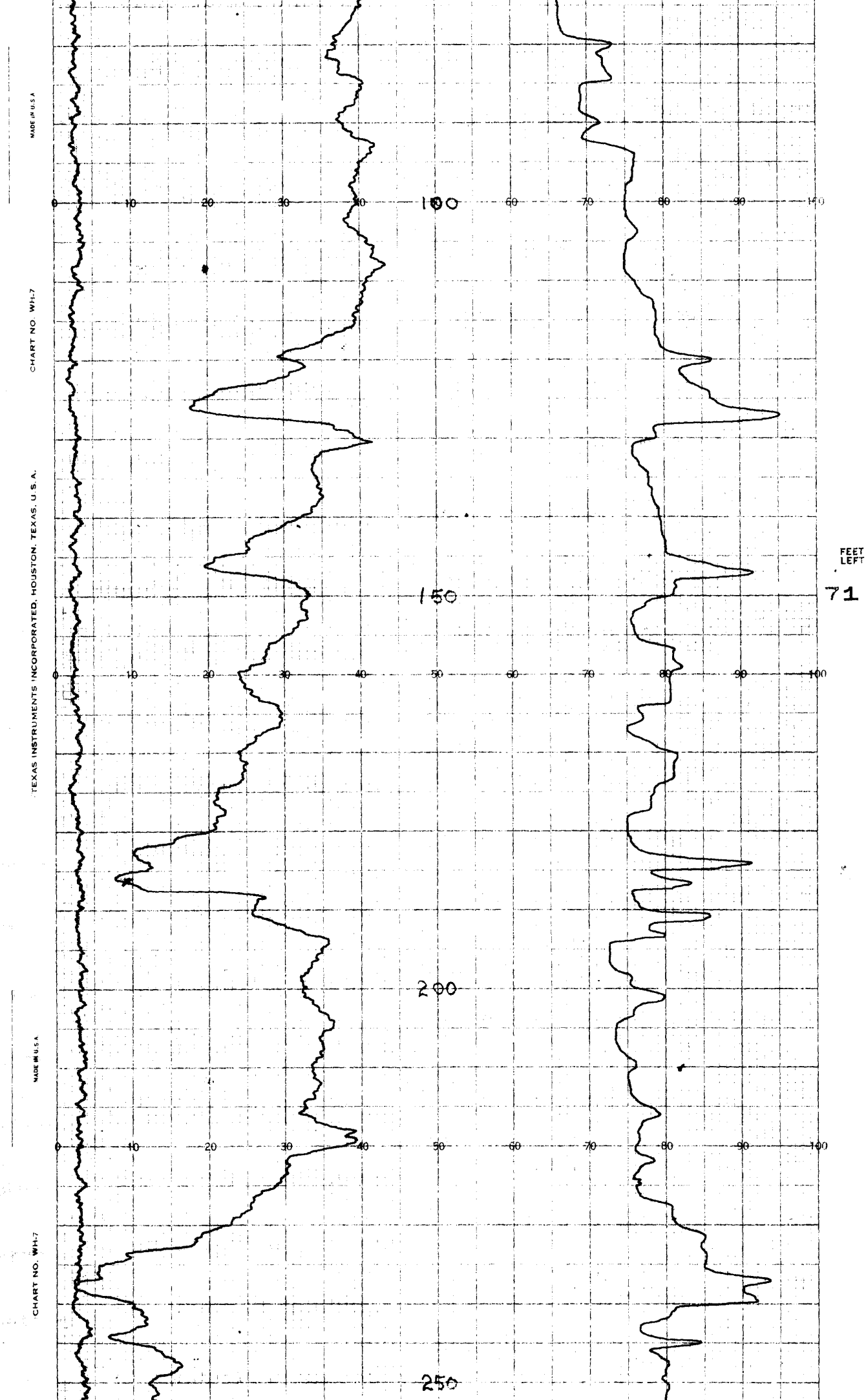
LOGGING DATA

Date 25-3-73

LOCATION					HOLE NUMBER: BIS7W'			CLIENT: AFMECO				
State/County: SOUTH AUSTRALIA					Collar elev. ft.			Claim:				
Region: WOOLTANA					Depth drilled: 545' ft.			Owned by:				
Project: EL-19 CORING PROG					CASING DATA	HOLE DATA		Operated by:				
Prospect:					Wall size in.	Dia. from 8 to		Unit operator: G. MACZKOWIACK				
Sec.	Twp.		Rng.		Dia.(inside) in.	Dia. from to		Unit No. L 4 Office ADELAIDE				
GAMMA RAY					Cased from to ft.	Dia. from to		ELECTRIC				
	INITIAL RUN	2	3	4	Cored hole ☒	Non-cored hole ☐			1	2	3	4
Logged depth (ft.)	539				Sampled interval (ft.)	Type		Logged depth	539ft.	539		
Range (Full scale)	500					H_2O		Resist. scale	HIGH ohm			
Time constant (Sec)	2							S.P. scale	mv	250		
Paper speed (ft/in)	10				INTERPRETATION DATA			Paper speed	10 ft/in	10		
Logging speed (ft/m)	20				Probe No.	Standard (cps)	K factor	Logging speed	20 ft/m	20		
Bkgnd count (cps)					205	[illegible]	5.95×10^{-5}	Probe size	2 in	2		
Probe No.	205							Type	OGL	ORE		
Size (dia.) (in)	2							BIAS	550			
Type	ORE				REMARKS			CALIPER				
Standard (cps)	660							Logging depth	ft.			
Dead time	6.0			4 sec.	T.D. : 542'			Scale	in/ft			
Amp. Gain	700							Paper speed	ft/in			
Ratemeter No.								Logging speed	ft/m			
Bore hole medium					RIG : T.D.C.			Arm length	in			
Mud density								Max. Def.	in			
Digital readout (ft)	½											
Time Base	1 sec											
Upper Disc.												
Lower Disc.												



GNV. 2176-5


MADE IN U.S.A.
CHART NO. WH-7
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MADE IN U.S.A.
CHART NO. WH-7
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150
200
250
FEET LEFT
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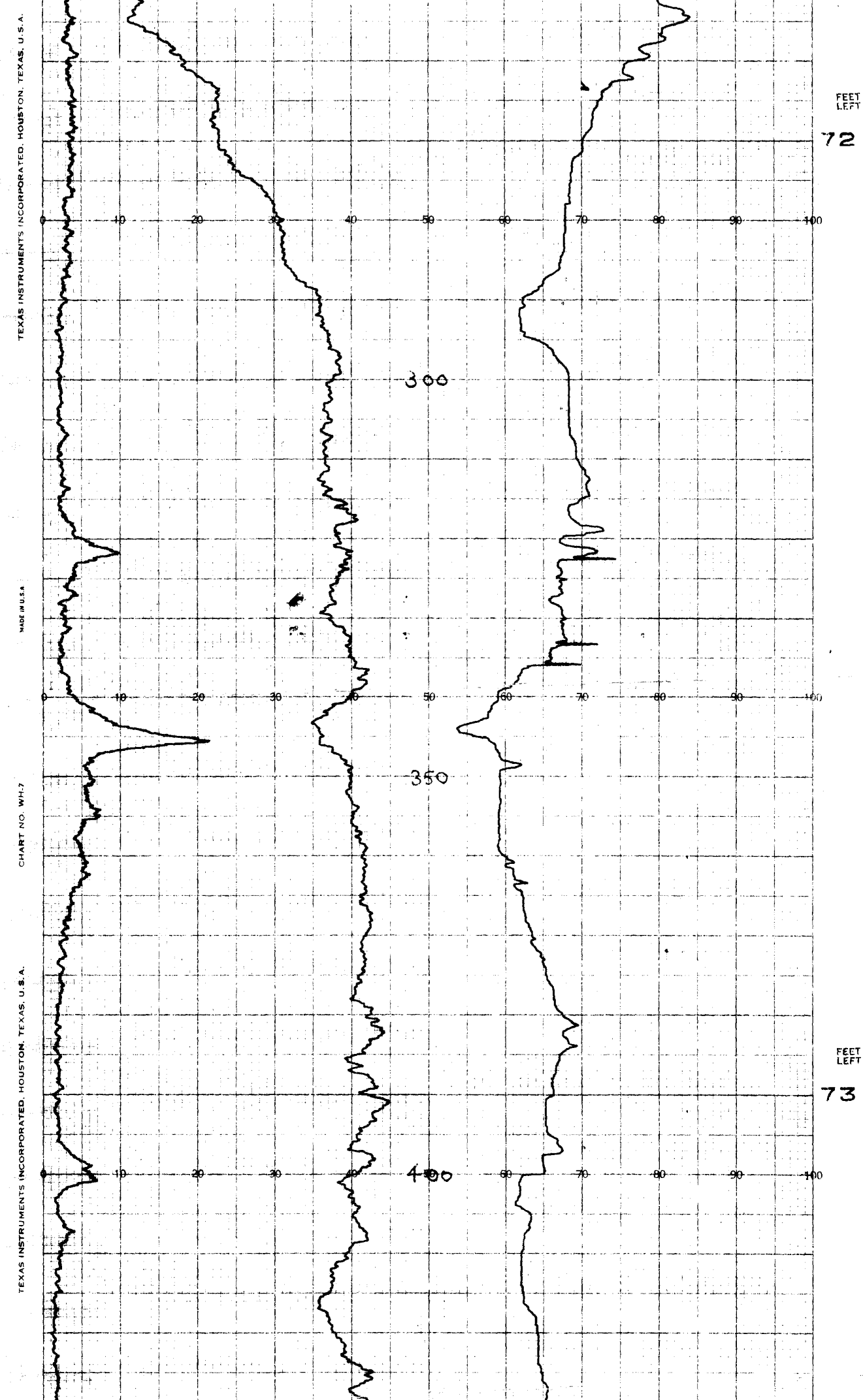
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MADE IN U.S.A.
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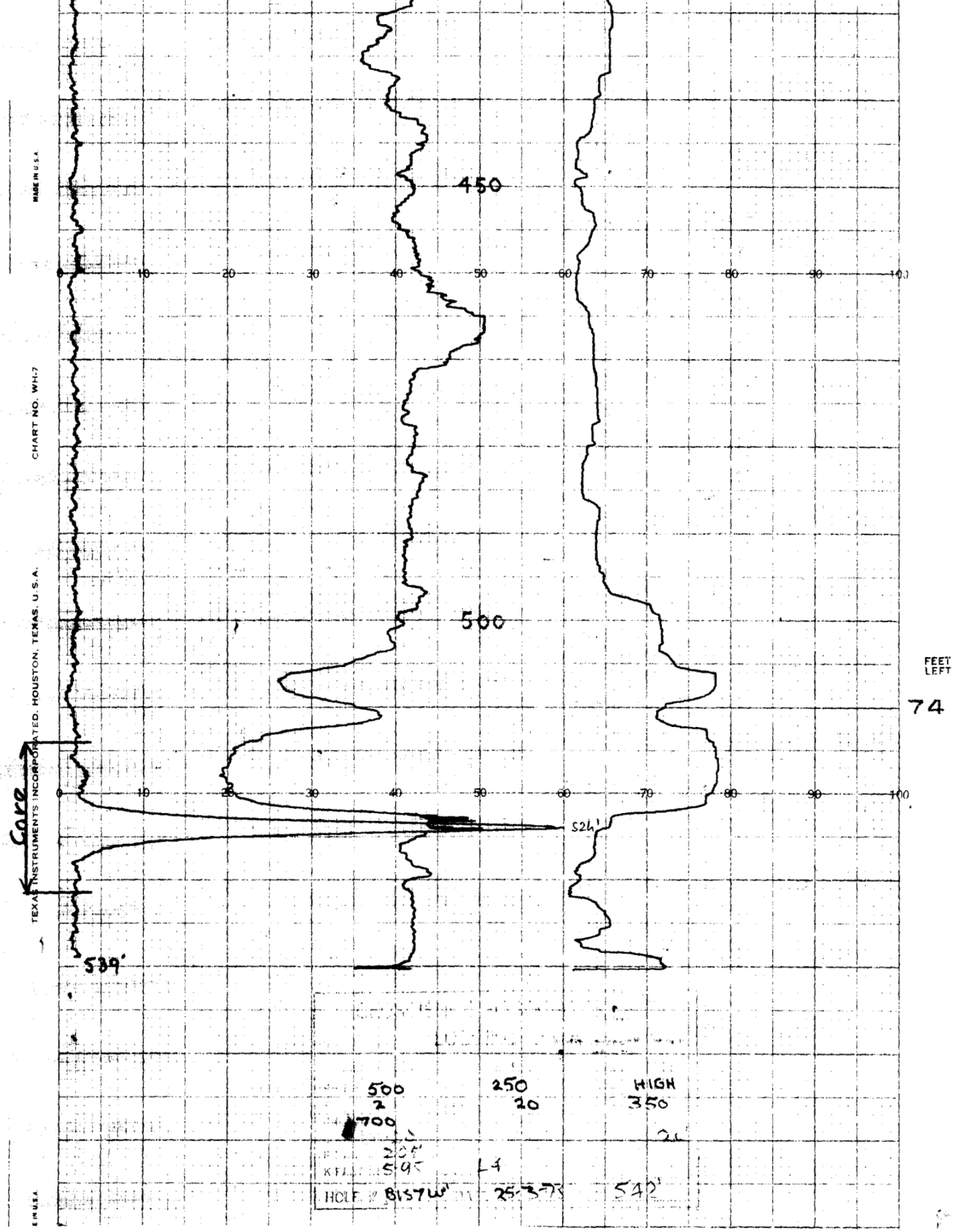
400
FEET LEFT
73


450
500
0 10 20 30 40 50 60 70 80 90 100
0 10 20 30 40 50 60 70 80 90 100
FEET LEFT
74
Core
524'
539'
500
2
700
250
20
HIGH
350
HOLE
CHART NO. WH-7
TEXAS INSTRUMENTS INCORPORATED, HOUSTON, TEXAS, U.S.A.
MADE IN U.S.A.

Geoscience Associates Inc. 2176-6

LOGGING DATA

Date 13-4-73

LOCATION				HOLE NUMBER: A2NIE		CLIENT: AFMECO
State/County: South Australia				Collar elev. ft.		Claim:
Region: WOOLTANA				Depth drilled: 555 ft.		Owned by:
Project: EL-19 CORING PROG.				CASING DATA	HOLE DATA	Operated by:
Prospect:				Wall size in.	Dia. 8 from 0 to T.D.	Unit operator: G. MACZKOWIACK
Sec.	Twp.	Rng.		Dia.(Inside) in.	Dia. from to	Unit No. L4 Office ADELAIDE
				Cased from to ft.	Dia. from to	
				Cored hole ☒	Non-cored hole ☐	

GAMMA RAY	INITIAL RUN	2	3	4
Logged depth (ft.)	547			
Range (Full scale)	200			
Time constant (Sec.)	2			
Paper speed (ft/in.)	10			
Logging speed (ft/m)	20			
Bkgnd count (cps)	13			
Probe No.	205			
Size (dia.) (in)	2			
Type	ORE			
Standard (cps)	665			
Dead time	8.0			4 sec.
Amp. Gain	700			
Ratemeter No.				
Bore hole medium				
Mud density	←			
Digital readout (ft)	½'			
Time Base	1SEC			
Upper Disc.				
Lower Disc.				

INTERPRETATION DATA		
Probe No.	Standard (cps)	K factor
205	665	6.31×10^{-8}

Type
H2O

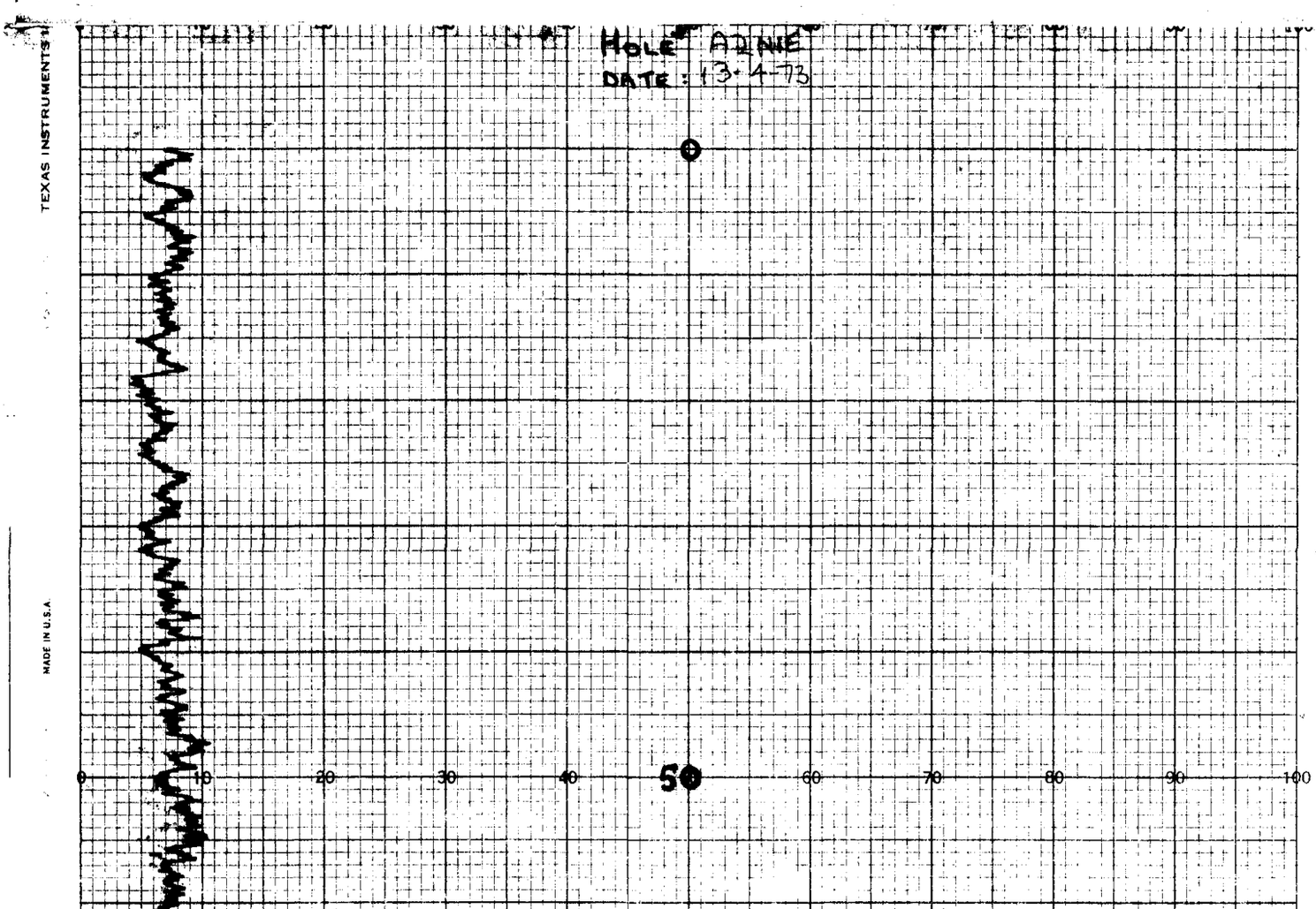
REMARKS

T.D. 550'

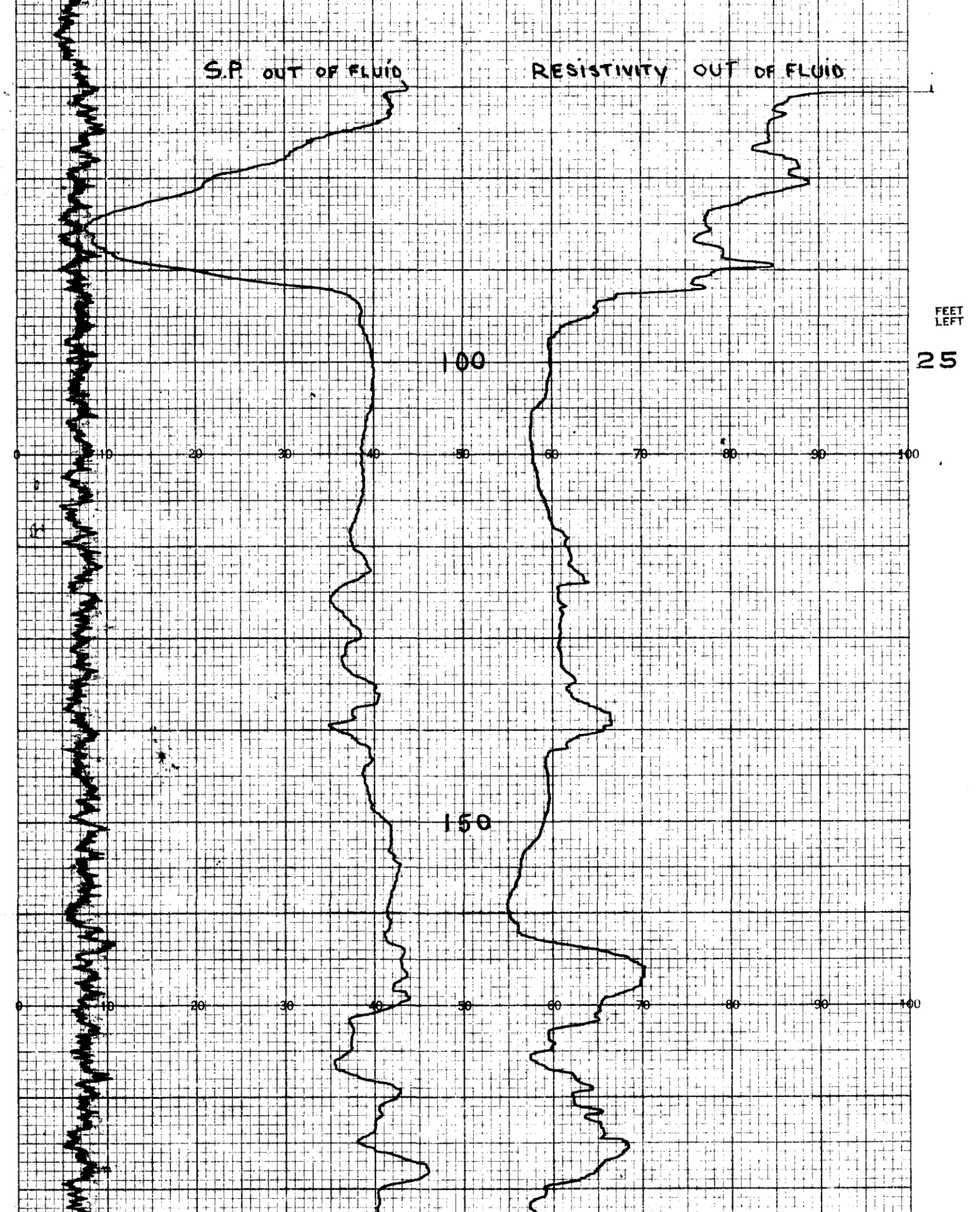
RIG: THOMPSON DRILLING. CO.

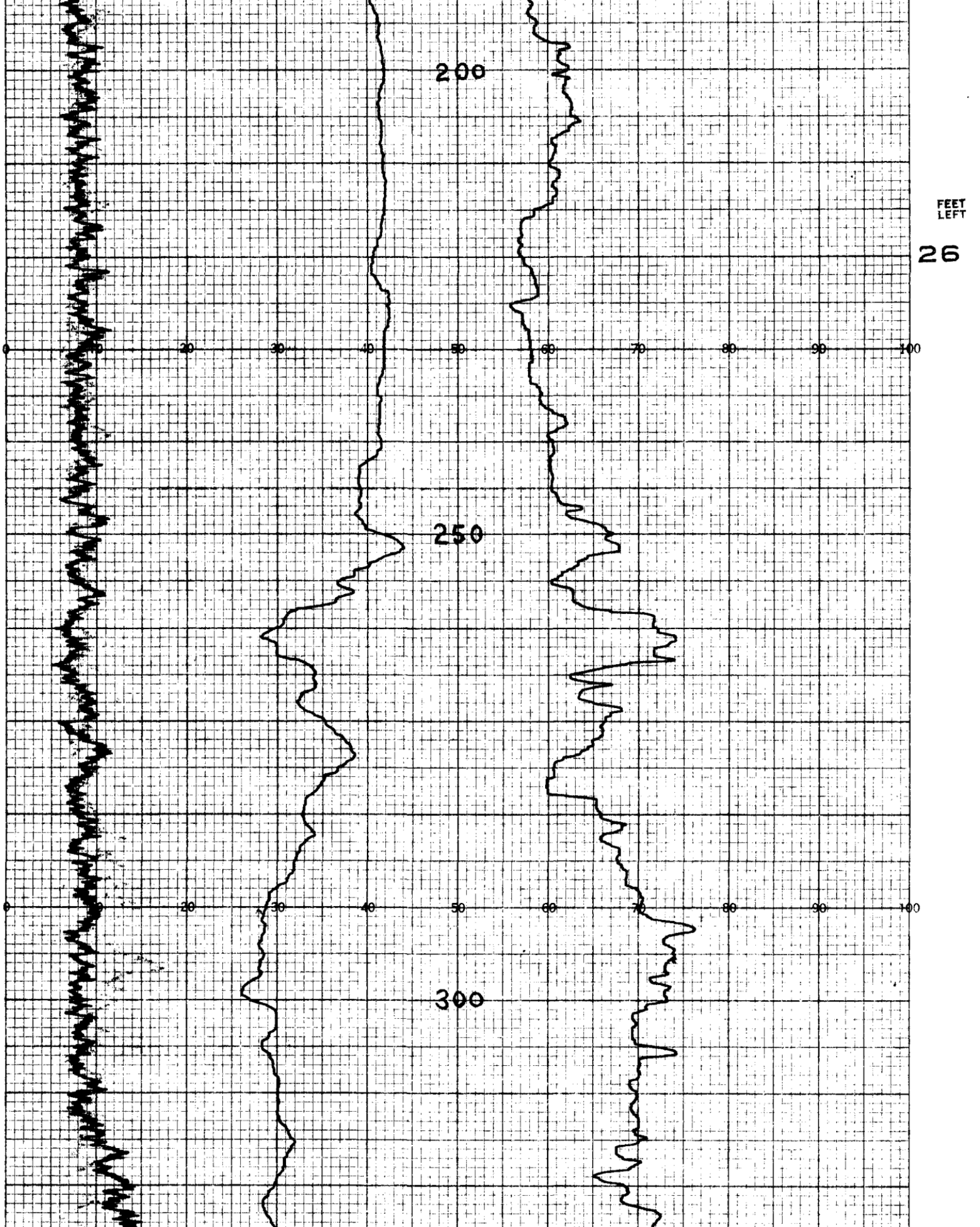
ELECTRIC	1	2	3	4
Logged depth	547 ft.	547		
Resist. scale	HIGH ohm/in			
S.P. scale	mv/in	180		
Paper speed	10 ft/in	10		
Logging speed	20 ft/m	20		
Probe size	2 in	2		
Type	ORE w/d	ORE		
BIAS	850			

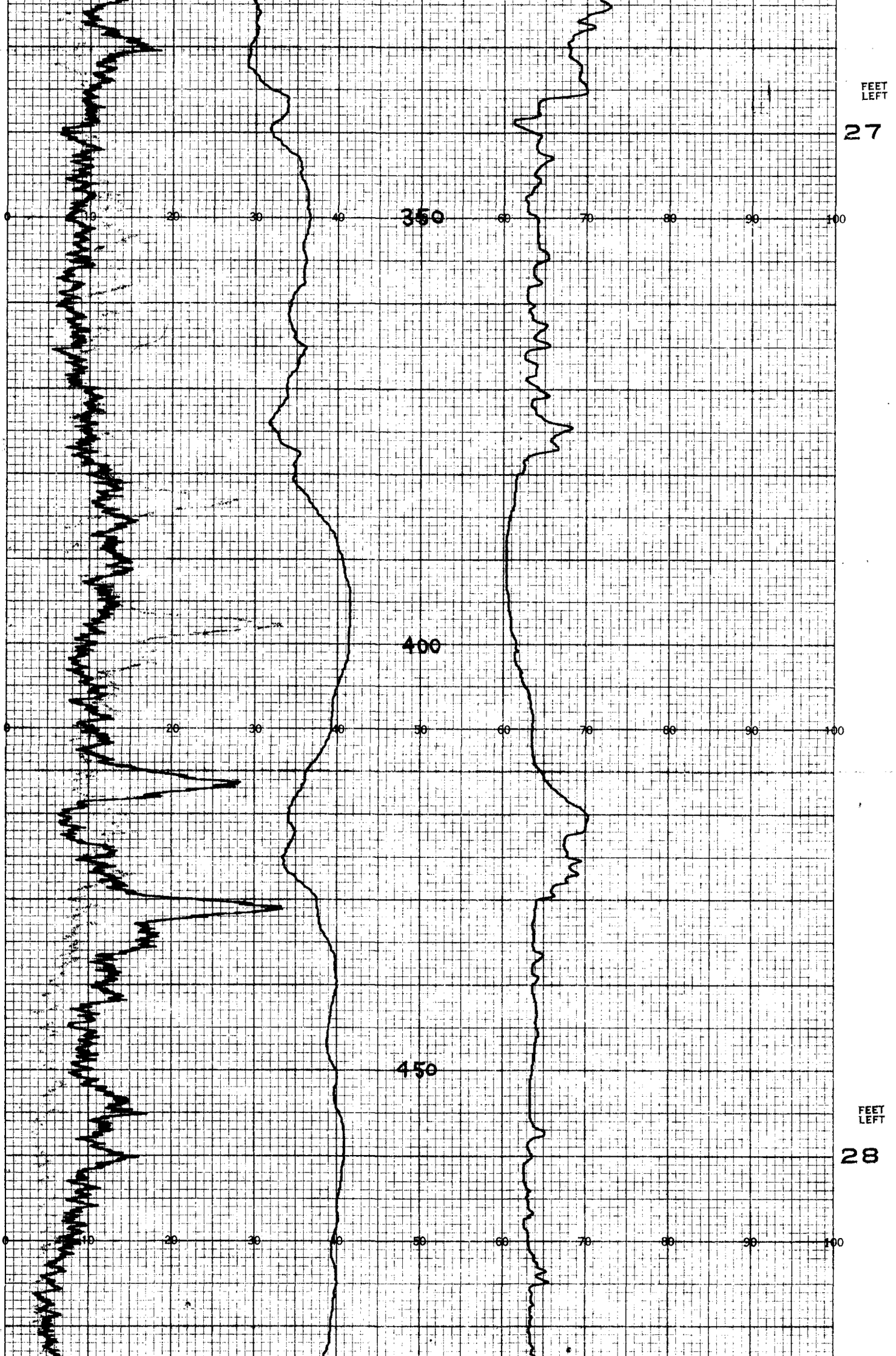
CALIPER				
Logged depth	ft.			
Scale	in/in def			
Paper speed	ft/in			
Logging speed	ft/m			
Arm length	in			
Max. Def.	in			

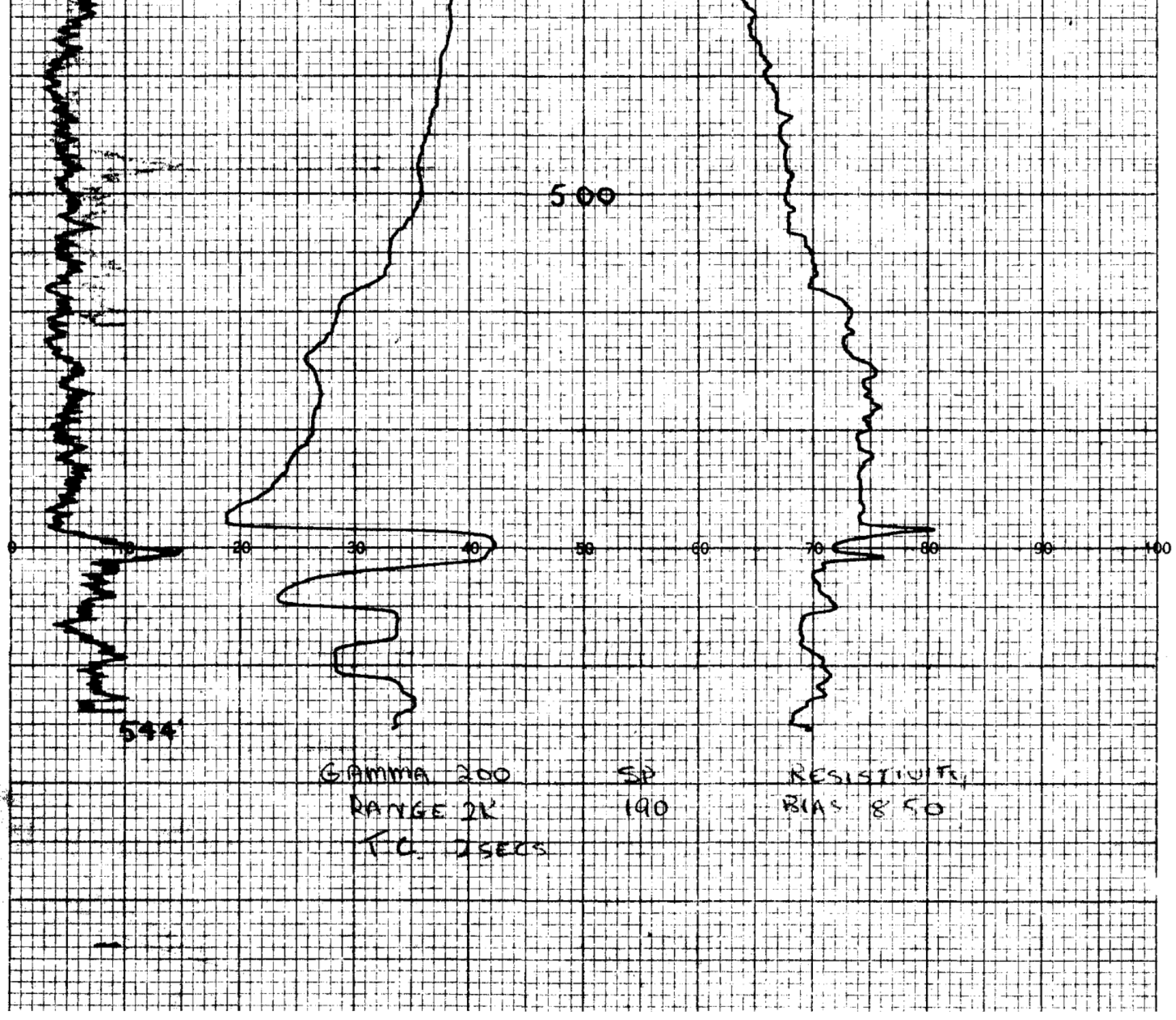


ENV. 2176-6


S.P. OUT OF FLUID
RESISTIVITY OUT OF FLUID
FEET LEFT
25
100
150
0
10
20
30
40
50
60
70
80
90
100
CHART NO. WH-7
TEXAS INSTRUMENTS INCORPORATED, HOUSTON, TEXAS, U.S.A.
MADE IN U.S.A.
CHART NO. WH-7


200
250
300
0
20
30
40
50
60
70
80
90
100
FEET LEFT
26
TEXAS INSTRUMENTS INCORPORATED, HOUSTON, TEXAS, U.S.A.
MADE IN U.S.A.
CHART NO. WH-7D


FEET LEFT
27
0
10
20
30
40
350
60
70
80
90
100
400
50
450
FEET LEFT
28
TEXAS INSTRUMENTS INCORPORATED, HOUSTON, TEXAS, U.S.A.
MADE IN U.S.A.
CHART NO. WH-7
TEXAS INSTRUMENTS INCORPORATED, HOUSTON, TEXAS, U.S.A.



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MADE IN U.S.A.
CHART NO. WH-7
S. U.S.A.

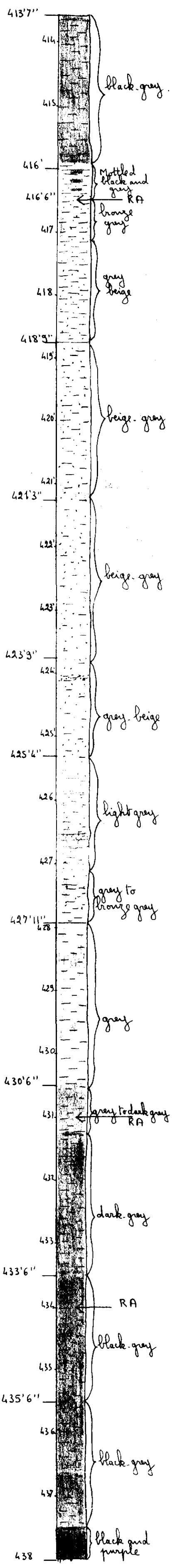
A. Hopkins and P. Leblanc.

11-7-73.

[redacted]

2176-7

A2N1E"



413'7" – 416' – Soft black grey clay becoming silty towards the bottom
Many pebbles at the top
Mottled hematite and limonite particularly at the top foot.

416' – 416'4" – Black silty clay becoming bronze at the bottom.

416'4" – 418'9" – Very silty clay, more silty towards the bottom.
Patches of dark grey clay. RA is probably associated with black clay.
Minor specks of limonite
Traces of carbonaceous material
Rare quartzite pebbles.

418'9" – 423'9" – Very silty clay (or perhaps very fine sandy clay)
Traces of black clay more evident towards the top.
Lighter to the bottom.

Slowly becoming very finely sandy.

423'9" – 425'4" – Very fine sandy clay with grey soft clay
Minor white nodules
Black clay at the top and patches of limonite + hematite - scattered through out.
Pebbles present towards the top

425'4" – 425'9" – Grey silty clay with mina very fine sandy interbeds. Mottled hematite and limonite

425'9" – 427'1" – Fine sandy clay with fine grained conglomerate angular quartz up to 2 m/m. Cement: compacted silty clay. Irregular boundaries. Width: 4" – Limonite staining.

427'1" – 427'11" – Compacted and dry grey silty clay
Limonite moderately abundant.

427'11" – 430'6" – Compacted and dry grey silty clay.
Homogeneous.
Some limonite and hematite.

430'6" – 431'3" – Silty dark grey clay – RA.

431'3" – 433'6" – Dark grey soft clay. Patches of limonite and some white nodules + small fracture with hematite.

433'6" – 435'6" – Soft black grey clay with disseminated limonite hematite and white nodules.
Quartz pebbles: up to 4 cm.
RA seems associated with brown yellow nodules - up to 4 m/m - but not definite.

435'6" – 437'5" – As above, with hematite and white nodules becoming more abundant until 437'9".

437'5" – 438' – As above with hematite, limonite, purple clay and white nodules.

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