MAR 19780005: NORTHEAST ALBERTA

Received date: Dec 31, 1978

Public release date: Jan 01, 1980

ELDORADO NUCLEAR LIMITED
EXPLORATION DIVISION
OTTAWA, ONTARIO

PROJECT 508

NORTH-EAST ALBERTA PERMITS

(Quartz Mineral Exploration Permits No's 207, 214, 215, 216, 217 and 218)

PROGRESS REPORT ON RESULTS OF WORK DONE DURING WINTER, 1978

(January to April, 1978)

File: 508-09 (1978)

Hugo Laanela
Project Geologist
Project 508 (NE Alberta Permits)

June, 1978, Ottawa

SUMMARY

The Project 508 area in NE Alberta consists at present of six permits, totalling 175,200 acres. These permits will expire in early 1979, after their third term.

Eldorado Nuclear Limited has been engaged in the Uranium search in the Project area since May, 1975. This work included regional surveys, such as lake geochemistry, boulder mapping traverses, airborne and ground radiometric prospecting, airborne magnetic and INPUT-EM surveys. A number of problems have been caused by lack of outcrop, depth of overburden, almost ubiquitous presence of "far-traveled" glacial deposits (i.e. Cree Lake End Moraine), uncertainty regarding the location of the Athabasca sandstone edge (=unconformity), and unexpected presence of Devonian cover; each of the foregoing has hindered or complicated the carrying out of various phases of standard exploration practices, and in some cases, invalidated the results of the surveys carried out. Examples: The initial work, in 1975, was done on now relinquished three permits to the north which were found to be underlain by thick (over several hundred feet) Athabasca sandstone, in turn locally overlain by Devonian sediments. Second, the results of geochemical surveys, including the regional lake-sampling, are now deemed to be of doubtful value due to the presence of the far-traveled end-moraine deposits. The absence of uraniferous boulders has also severely limited the availability of possible detailed exploration target areas.

Two winter diamond-drilling programs (1976/77 and early 1978) have given sufficient information regarding the general location of the Athabasca sandstone edge, although the error could be locally in order of a mile or even several miles. This unconformity crosses Permits No's 214, 215 and the northern part of 216, - some 15 to 20 miles SW of where it

.....ii

was thought to be when the original three permits were applied for in 1974.

Starting with an airborne geophysical survey in April, 1977, the emphasis has shifted increasingly in favor of the geophysical methods. A number of Airborne INPUT-EM targets (conductors) were further pin-pointed by ground geophysics (Turam and Horizontal Loop E.M.) and subsequently drilled. Several E.M. conductors were intercepted, and were found to be graphite zones, without uranium mineralization; these are some distance from the unconformity and the favorable paleo-weathering (regolith) zone. A number of lower priority conductors, not drilled, are probably caused by overburden (surficial) conductivity. It appears that the overburden thickness and conductivity limit the choice of geophysical methods that can be succesfully used in the area.

Four DDH's have been drilled on a deeply altered breccia zone of basement on Permit 216 (DDH #508-2 area). The original hole (#508-2) was drilled in 1976, and a trace of uranium, with attendant radioactivity, was found in the core in a fracture. Three additional holes, along the same section, were drilled last winter, encountering some further radioactivity and minor uranium values (up to 0.024% U). This alteration zone is thought to be associated with a possible E-W fault zone as interpreted from aeromagnetic surveys. The area is several miles from the edge of Athabasca sandstone.

The Summer Program for 1978 is to consist of the following ground geophysical surveys:

.....iii

This unconformity crosses Permits No's 214, 216 and the

- a long-line resistivity survey along the Athabasca unconformity to find basement "off-sets" (Permits 214 and 215);
- a Horizontal Loop E.M. survey on a number of INPUT-EM anomalies located near the Athabasca unconformity in order to find conductors associated with this unconformity (Permit 214);
- a "follow-up" survey near the DDH #508-2 area (on Permit 217) to test the presence and extent of the deep alteration zone; to consist of detail resistivity and magnetic surveys.

Limited radiometric prospecting and boulder hunting program is also scheduled for later in the summer, to check the areas of more locally derived till and to prospect some geochemical uranium anomalies along Richardson River. Total Budget for the 1978 Summer Program is about $90,000.

It appears that most of the ground held at present under the Permits can be relinquished after the expiry of the third term in early 1979. If the Summer Program is successful, leases should be applied for in the remaining area to permit further follow-up work, including drilling.

-----0----

CONTENTS

		Page
I	Location and Access	1
II	Properties, Tenures and Fees	2
III	Review of Previous Work (1975-1977)	3
IV	Ground Geophysics - Winter, early 1978	5
	A) General	5
	B) Follow-up Surveys of Questor's	6
	Airborne INPUT-E.M. Conductor Zones:	
	(1) Questor's Zone 3 (on Permit 216)	
	(2) " " 5 (" " 207/215)	
	(3) " " 10 and 11 (on Permit 214)	
	(4) " " 12 (" " 214)	
	(5) " " 15 (" " 214)	
	C) Surveys in the DDH #2 Area	10
	D) VLF-EM Surveys in other Areas	11
V	Diamond Drilling (DDH^S No's 508-17 to 29).....	13
	A) General	13
	B) Summary of Drill-Hole Data (table).....	14
VI	Estimated Costs of Winter, early 1978, Drilling and Geophysical Program	16
VII	Proposed Program and Budget: Summer 1978	18
	A) Schedule of Geophysical Surveys: Summer, 1978	18
	B) Other Work	20
	C) Allocation of Budget for Summer 1978 Field Season	21

APPENDICES:

APPENDIX "A": Surficial Geology (by L.A. Bayrock)

" "B": Diamond Drill Hole Logs (DDH^S No's 508-17 to 29, incl.

" "C": Sections of Diamond Drill Holes (#20-24)

" "D": Certificates of Analysis (Bondar-Clegg & Co. Ltd.)

" "E": Down-hole Gamma-ray Logs (#17-29)

508 MAPS & SECTIONS

A) In report:

Project 508 - Location Map, 1":150mi (before page 1)
Status of Eldorado's Permits, 1":6mi (after page 1)
Generalized Pre-Cambrian Geology 1":20mi (after page 2)
DDH Sections No's 508-20 to 24 (Appendix "C").

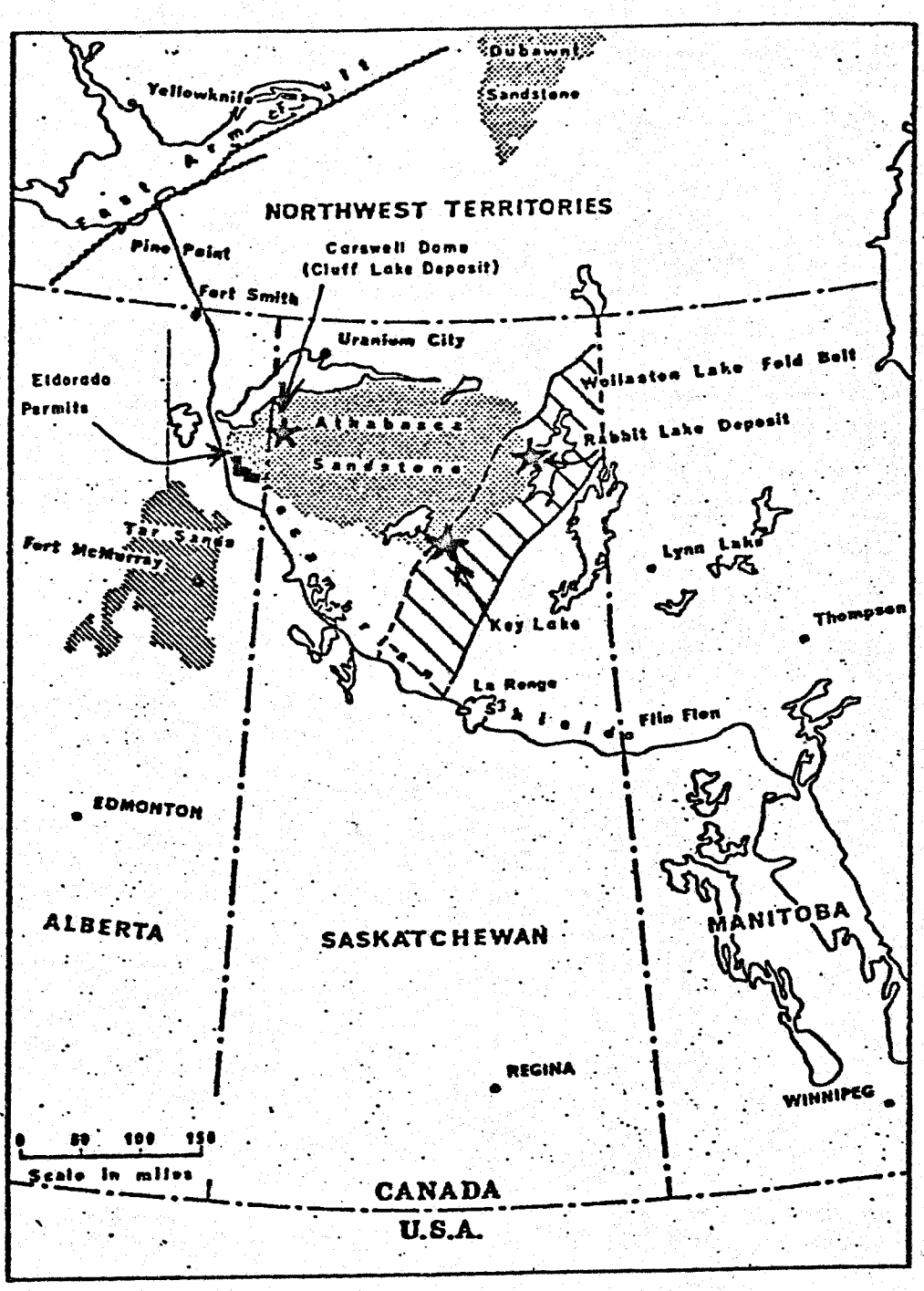
B) Separately:

Map Index #:	Map Title:	Scale:
Map #1:508-22 (1977)	Surficial Geology (L.A. Bayrock)	1:50,000
Map #2:508-26 (1976/77/78)	Location Map of Diamond Drill Holes No's 508-1 to 29 and Line Grids (1976-1978)	1:50,000
Map #3:508-26 (1976/77/78)	Locations and Sections Diamond Drill Holes No's 508-1 to 29	1:50,000
Map #4:508-22 (1978)	Surface Contours of Pre-Cambrian Basement and Athabasca Sandstone	1:50,000
Map #5:508-22 (1978)	Isopach Map of Athabasca Formation	1:50,000
Map #6:508-22 (1978)	Isopach Map of Devonian Sediments	1:50,000
Map #7:508-22 (1978)	Isopach Map of Total Cover Over Basement/unconformity	1:50,000
Map #8:508-22/26 (1976 to 1978)	Main Grid Area: Permits No's 215, 216, 217 and 218	1:20,000
Map #9:508-26/30 (1978)	Index Map: Detail Grids "A" & "B"	1:20,000

.....vi

B) Con't

Map Index:	Map Title:	Scale:
Map #10:508-30 (1978)	Questor's Zone 3: Horizontal Loop E.M. Survey (E-W, 90m)	1:5,000
Map #11:508-30 (1978)	-------- ditto ------- -----"----- (E-W, 120m)	1:5,000
Map #12:-----"------	-------- ditto ------- -----"----- (N-S, 90m)	1:5,000
Map #13:-----"------	-------- ditto ------- -----"----- (N-S, 120m)	1:5,000
Map #14:-----"------	Questor's Zones 10 & 11: Horizontal Loop E.M. Survey (90m)	1:5,000
Map #15:-----"------	-------- ditto -------- -----"----- (NW-SE, 120m)	1:5,000
Map #16:-----"------	-------- ditto -------- -----"----- (NE-SW, 120m)	1:5,000
Map #17:-----"------	Questor's Zone 15: Horizontal Loop E.M. Survey (120m)	1:5,000
Map #18:508-26 (1976/78)	Section of DDH^{s} No's 2, 27, 28 and 29	1:500
Map #19:508-26 (1978)	Section of DDH^{s} No's 14, 22, 23, 25 and 26	1:5,000



PROJECT 508

LOCATION MAP

ASAMERA INC.

Mining Division

EVALUATION REPORT

FARMER CHEMICALS URANIUM PROPERTY

NORTHERN ALBERTA

LOCATION

The property visited is located north of the Lake Athabasca in Alberta; approximately 144 km, by air, west of Uranium City, and 51 km, by air, north of Fort Chipewyan. Although no definite information was supplied to the author, the property is assumed to be bounded by 59°-60° north latitude and 110°-111.3° west longitude. Access to the area is by air only.

REGIONAL GEOLOGY

The bed rock consists of intensely folded and fractured metamorphased Precambrian rocks composed mainly of paragneisses and granites. Two major faults are found to the north of the property trending in a north-south direction. Numerous minor faults are indicated throughout the property, trending in an east-west and north-east, south-west direction. (See Map 4).

Outcrop exposure throughout the area is approximately 90%.

WORK DONE & LOCAL GEOLOGY

On August 27th, 1980, Leigh Dauphin and the author travelled from Asamera's Dawn Lake camp to Farmer Chemicals Uranium option property north of Lake Athabasca. The trip was made in a chartered Cessna 185, and travelling time from Dawn Lake was approximately 2 hours.

In all, 10 hours were spent on the option property inspecting three preselected areas. The areas visited were selected on the strength of 1) areas indicated anomalous by the property holders (Map 4); 2) areas determined anomalous by examination of G.S.C. Airborne Gamma-Ray spectrometry maps (Maps 2 & 3); and 3) by accessability once on the ground.

The anomalous areas selected were covered by walking a loose grid pattern over the area looking for changes in rock type and high scintillometer readings. While walking to the anomalous areas, the scintillometers were always on and changes in rock type or alteration were watched for.

Two of the areas were selected because of coincident airborne

...2/

SURFICIAL GEOLOGY
PROJECT 508
ALBERTA

19780005

MARCH 1978

Prepared for

ELDORADO NUCLEAR LTD.

by

L.A. BAYROCK
BAYROCK SURFICIAL GEOLOGY LTD.
#201, 1429 Dominion St.,
North Vancouver, B. C.

SUMMARY

The Project 508 area in NE Alberta consists at present of six permits, totalling 175,200 acres. These permits will expire in early 1979, after their third term.

Eldorado Nuclear Limited has been engaged in the Uranium search in the Project area since May, 1975. This work included regional surveys, such as lake geochemistry, boulder mapping traverses, airborne and ground radiometric prospecting, airborne magnetic and INPUT-EM surveys. A number of problems have been caused by lack of outcrop, depth of overburden, almost ubiquitous presence of "far-traveled" glacial deposits (i.e. Cree Lake End Moraine), uncertainty regarding the location of the Athabasca sandstone edge (=unconformity), and unexpected presence of Devonian cover; each of the foregoing has hindered or complicated the carrying out of various phases of standard exploration practices, and in some cases, invalidated the results of the surveys carried out. Examples: The initial work, in 1975, was done on now relinquished three permits to the north which were found to be underlain by thick (over several hundred feet) Athabasca sandstone, in turn locally overlain by Devonian sediments. Second, the results of geochemical surveys, including the regional lake-sampling, are now deemed to be of doubtful value due to the presence of the far-traveled end-moraine deposits. The absence of uraniferous boulders has also severely limited the availability of possible detailed exploration target areas.

Two winter diamond-drilling programs (1976/77 and early 1978) have given sufficient information regarding the general location of the Athabasca sandstone edge, although the error could be locally in order of a mile or even several miles. This unconformity crosses Permits No's 214, 215 and the northern part of 216, - some 15 to 20 miles SW of where it

.....ii

was thought to be when the original three permits were applied for in 1974.

Starting with an airborne geophysical survey in April, 1977, the emphasis has shifted increasingly in favor of the geophysical methods. A number of Airborne INPUT-EM targets (conductors) were further pin-pointed by ground geophysics (Turam and Horizontal Loop E.M.) and subsequently drilled. Several E.M. conductors were intercepted, and were found to be graphite zones, without uranium mineralization; these are some distance from the unconformity and the favorable paleo-weathering (regolith) zone. A number of lower priority conductors, not drilled, are probably caused by overburden (surficial) conductivity. It appears that the overburden thickness and conductivity limit the choice of geophysical methods that can be succesfully used in the area.

Four DDH's have been drilled on a deeply altered breccia zone of basement on Permit 216 (DDH #508-2 area). The original hole (#508-2) was drilled in 1976, and a trace of uranium, with attendant radioactivity, was found in the core in a fracture. Three additional holes, along the same section, were drilled last winter, encountering some further radioactivity and minor uranium values (up to 0.024% U). This alteration zone is thought to be associated with a possible E-W fault zone as interpreted from aeromagnetic surveys. The area is several miles from the edge of Athabasca sandstone.

The Summer Program for 1978 is to consist of the following ground geophysical surveys:

.....iii

This unconformity crosses Permits Nos. 214, 216 and the

- a long-line resistivity survey along the Athabasca unconformity to find basement "off-sets" (Permits 214 and 215);
- a Horizontal Loop E.M. survey on a number of INPUT-EM anomalies located near the Athabasca unconformity in order to find conductors associated with this unconformity (Permit 214);
- a "follow-up" survey near the DDH #508-2 area (on Permit 217) to test the presence and extent of the deep alteration zone; to consist of detail resistivity and magnetic surveys.

Limited radiometric prospecting and boulder hunting program is also scheduled for later in the summer, to check the areas of more locally derived till and to prospect some geochemical uranium anomalies along Richardson River. Total Budget for the 1978 Summer Program is about $90,000.

It appears that most of the ground held at present under the Permits can be relinquished after the expiry of the third term in early 1979. If the Summer Program is successful, leases should be applied for in the remaining area to permit further follow-up work, including drilling.

-----0----

In report:

		Page
I	Location and Access	1
II	Properties, Tenures and Fees	2
III	Review of Previous Work (1975-1977)	3
IV	Ground Geophysics - Winter, early 1978	5
	A) General	5
	B) Follow-up Surveys of Questor's Airborne INPUT-E.M. Conductor Zones:	6
	(1) Questor's Zone 3 (on Permit 216)	
	(2) " " 5 (" " 207/215)	
	(3) " " 10 and 11 (on Permit 214)	
	(4) " " 12 (" " 214)	
	(5) " " 15 (" " 214)	
	C) Surveys in the DDH #2 Area	10
	D) VLF-EM Surveys in other Areas	11
V	Diamond Drilling (DDH^S No's 508-17 to 29)	13
	A) General	13
	B) Summary of Drill-Hole Data (table)	14
VI	Estimated Costs of Winter, early 1978, Drilling and Geophysical Program	16
VII	Proposed Program and Budget: Summer 1978	18
	A) Schedule of Geophysical Surveys: Summer, 1978	18
	B) Other Work	20
	C) Allocation of Budget for Summer 1978 Field Season	21

APPENDICES:

APPENDIX "A": Surficial Geology (by L.A. Bayrock)

" "B": Diamond Drill Hole Logs (DDH^S No's 508-17 to 29, inc

" "C": Sections of Diamond Drill Holes (#20-24)

" "D": Certificates of Analysis (Bondar-Clegg & Co. Ltd.)

" "E": Down-hole Gamma-ray Logs (#17-29)

A) In report:

Project 508 - Location Map, 1":150mi (before page 1)

Status of Eldorado's Permits, 1":6mi (after page 1)

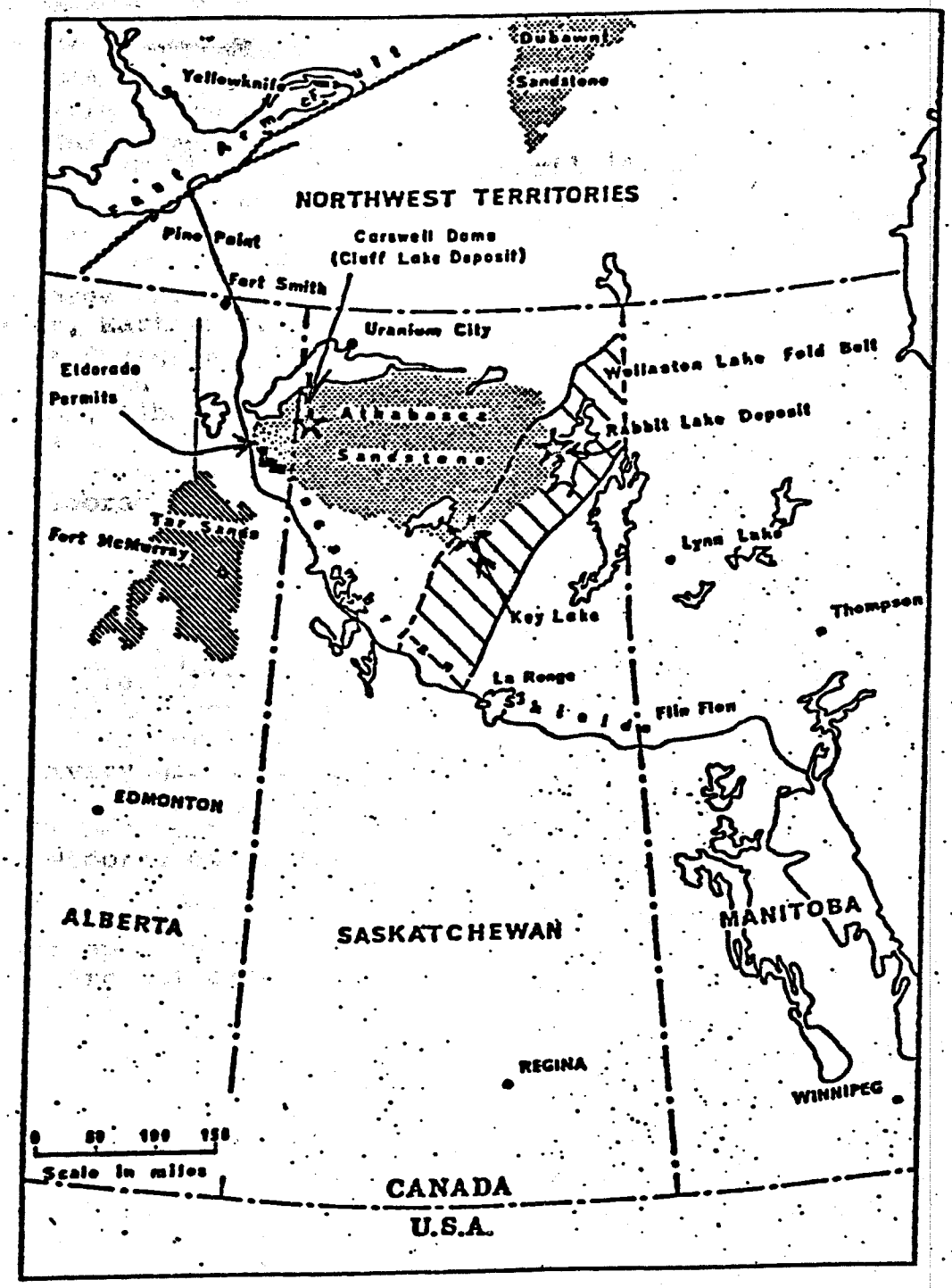
Generalized Pre-Cambrian Geology 1":20mi (after page 2)

DDH Sections No's 508-20 to 24 (Appendix "C").

B) Separately:

Map Index #:	Map Title:	Scale:
Map #1:508-22 (1977)	Surficial Geology (L.A. Bayrock)	1:50,000
Map #2:508-26 (1976/77/78)	Location Map of Diamond Drill Holes No's 508-1 to 29 and Line Grids (1976-1978)	1:50,000
Map #3:508-26 (1976/77/78)	Locations and Sections Diamond Drill Holes No's 508-1 to 29	1:50,000
Map #4:508-22 (1978)	Surface Contours of Pre-Cambrian Basement and Athabasca Sandstone	1:50,000
Map #5:508-22 (1978)	Isopach Map of Athabasca Formation	1:50,000
Map #6:508-22 (1978)	Isopach Map of Devonian Sediments	1:50,000
Map #7:508-22 (1978)	Isopach Map of Total Cover Over Basement/unconformity	1:50,000
Map #8:508-22/26 (1976 to 1978)	Main Grid Area: Permits No's 215, 216, 217 and 218	1:20,000
Map #9:508-26/30 (1978)	Index Map: Detail Grids "A" & "B"	1:20,000

Map Index:	Map Title:	Scale:
Map #10:508-30 (1978)	Questor's Zone 3: Horizontal Loop E.M. Survey (E-W, 90m)	1:5,000
Map #11:508-30 (1978)	-------- ditto ------- -----"----- (E-W, 120m)	1:5,000
Map #12:-----"------	-------- ditto ------- -----"----- (N-S, 90m)	1:5,000
Map #13:-----"------	-------- ditto ------- -----"----- (N-S, 120m)	1:5,000
Map #14:-----"------	Questor's Zones 10 & 11: Horizontal Loop E.M. Survey (90m)	1:5,000
Map #15:-----"------	-------- ditto -------- -----"----- (NW-SE, 120m)	1:5,000
Map #16:-----"------	-------- ditto -------- -----"----- (NE-SW, 120m)	1:5,000
Map #17:-----"------	Questor's Zone 15: Horizontal Loop E.M. Survey (120m)	1:5,000
Map #18:508-26 (1976/78)	Section of DDH's No's 2, 27, 28 and 29	1:500
Map #19:508-26 (1978)	Section of DDH's No's 14, 22, 23, 25 and 26	1:5,000



PROJECT 508

LOCATION MAP

ELDORADO
ELDORADO NUCLEAR LIMITED Suite 400, 255 Albert Street, Ottawa, Canada K1P 6A9, (613) 238-5222

April 14, 1977

Mr. George Fulford
Manager, Earth Sciences
Alberta Energy and Natural Resources
9915 - 108th Street
Edmonton, Alberta
T5K 2C9

Re: Eldorado's Project 508 - N.E. Alberta Permits
No's 185, 186, 187, 214, 215, 215, 217 and 218.
216

Dear Mr. Fulford,

We are mailing you a copy of our 1976-1977 Progress Report of the work done on the above Permits during summer 1976 and winter 1976-1977. Twenty-eight maps and six resistivity graphs are also enclosed.

We beg your pardon for not being able to submit the above Report, etc., earlier as promised. Last minute delays and revisions were the cause of this delay.

It appears that we will commence our 1977 field season in the Project area in about mid-May, as scheduled.

Yours very truly,

ELDORADO NUCLEAR LIMITED

[redacted]

H. Laanela
Project Geologist

HL/ca

Enclosure: 1 report
28 maps & 6 graphs

I - LOCATION AND ACCESS

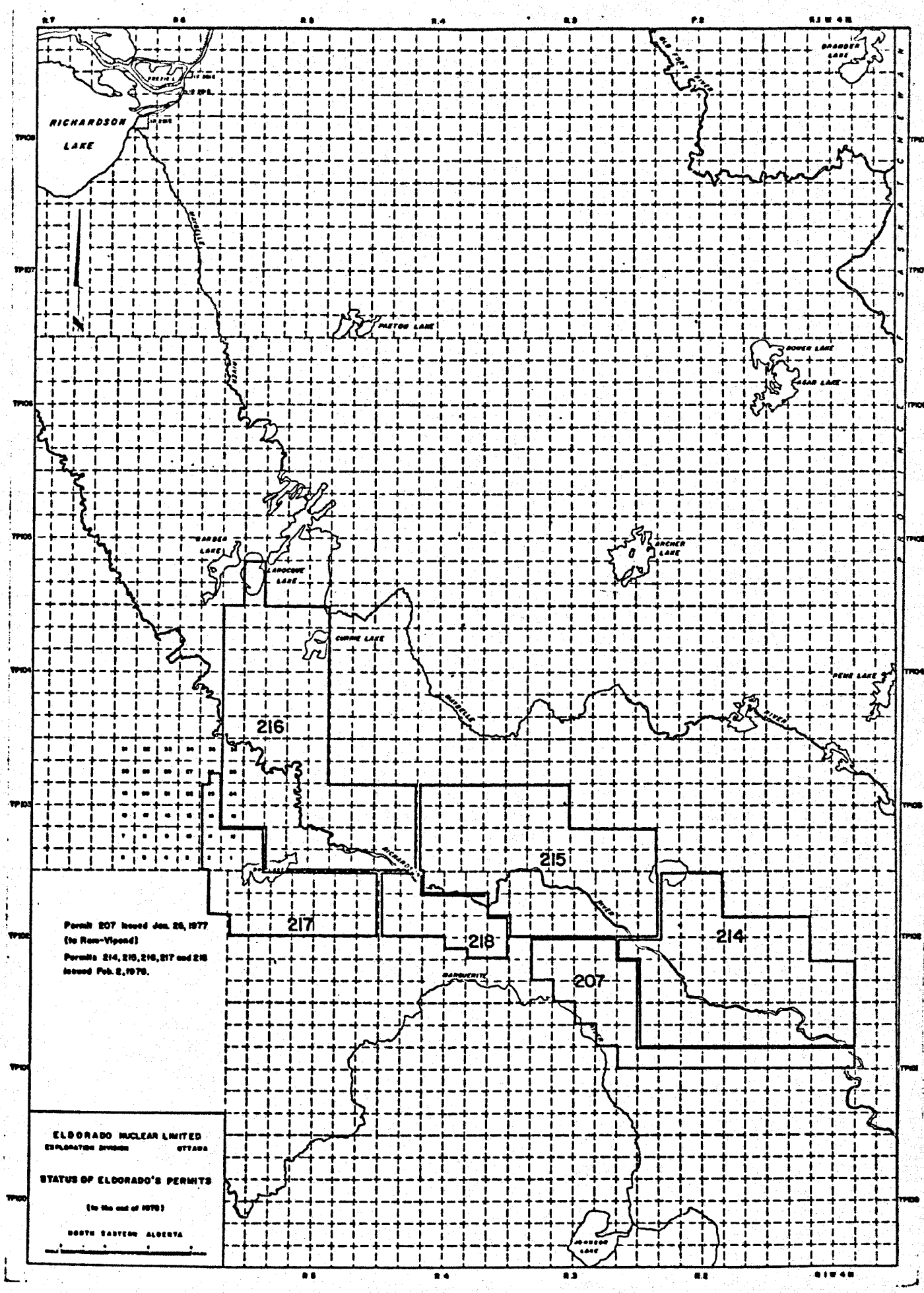
The Project 508 (Permits 207 and 214 to 218) area is within the SW edge of the Precambrian Shield in NE Alberta, about 40 to 60 miles south of the west end of Lake Athabasca, and about 100 miles NNE of Fort McMurray.

There are no roads in the permits area, although a winter road passes the Richardson airstrip which is about 12 miles WSW of the Eldorado Base Camp. Some winter roads used in the tarsands project also reach within 20 miles of the permits, to the south (in the Audet Lake area).

The Base Camp is at the south end of Eldorado Lake, located in Township 103, on the boundary of Ranges 4 and 5. This lake is about one mile long, suitable for any float-plane landing.

Large parts of the area are covered by muskegs and lakes, which greatly hinders traversing in the summer.

The project area can be reached by float-planes based in Fort McMurray (about 100 miles), Fort Chipewyan (about 60 miles) and Uranium City (about 140 miles). It is about 300 air miles north of Edmonton.


RICHARDSON LAKE
PISTON LAKE
BOWER LAKE
GOAD LAKE
ARCHER LAKE
HARDEN LAKE
LAROCQUE LAKE
CURRIE LAKE
PEINE LAKE
MARIELLE RIVER
RICHARDSON RIVER
MACKAY RIVER
216
215
217
218
214
207
Permit 207 issued Jan. 25, 1977
(to Rem-Vipond)
Permits 214, 215, 216, 217 and 218
issued Feb. 2, 1978.
ELDORADO NUCLEAR LIMITED
EXPLORATION DIVISION OTTAWA
STATUS OF ELDORADO'S PERMITS
(to the end of 1978)
SOUTH EASTERN ALBERTA

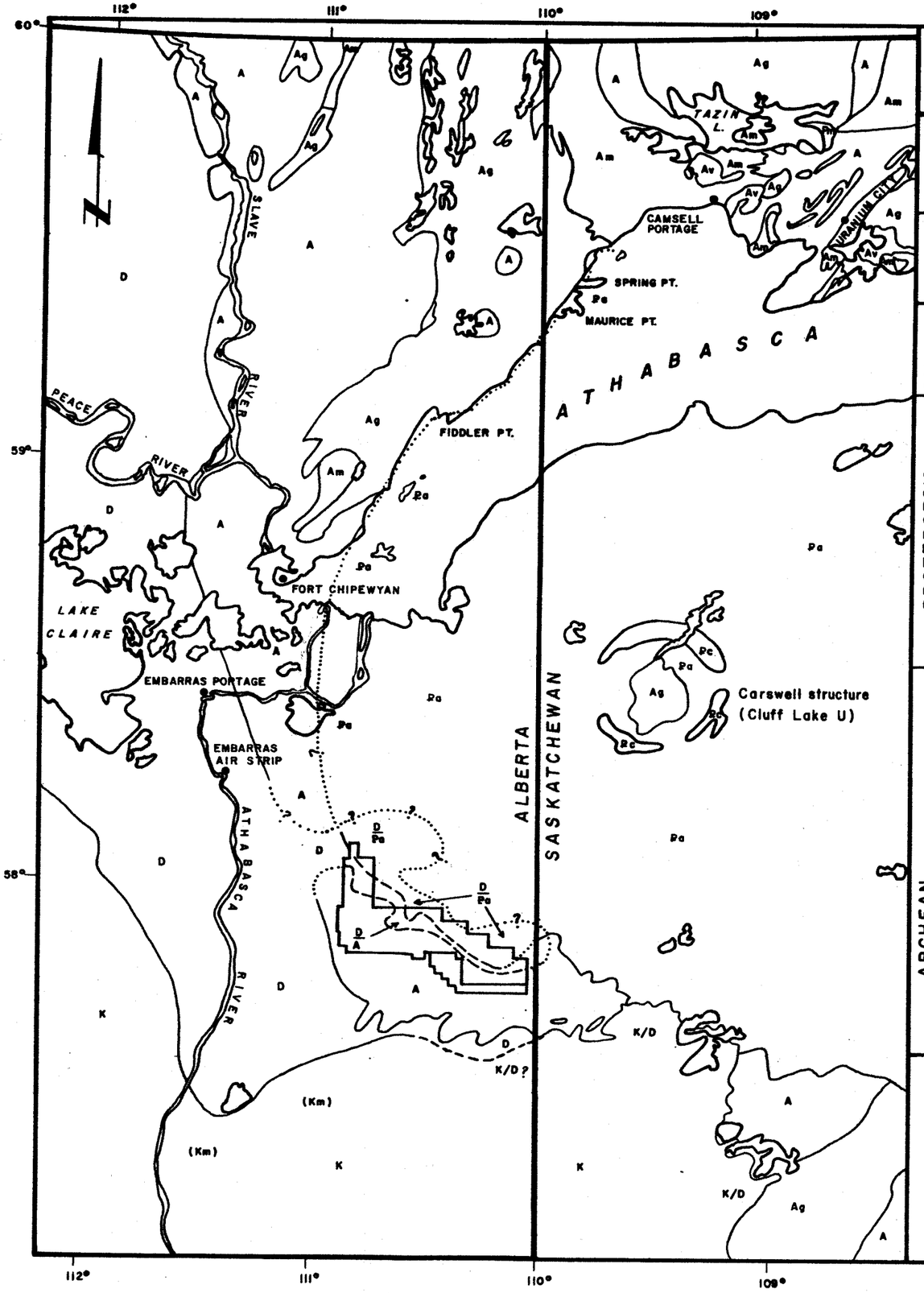
II - PROPERTIES, TENURE & FEES

The present Project 508 area consists of six Quartz Mineral Exploration Permits. All will expire early in 1979, after their third term. After the expiry date leases can be applied for @ a rate of $0.25/acre/year for the first 5 years, and thereafter @ a rate of $1.00/acre/year for the remainder of 21 year term*.

Permit #	Date Issued	Present acreage	Final (Expiring) Date	Remarks
207	Jan.28/76	18,560	Jan.28/79	optioned from Ram-Vipond**
214	Feb. 2/76	39,680	Feb. 2/79	
215	"	39,680	"	
216	"	47,360	"	
217	"	20,000	"	
218	"	9,920	"	
Total acreage:		175,200 acres (=273.75 sq. mi.=709.6km^2)		

* N.B. The rates and mining regulations may be soon subject to change by Alberta Government. (See present Regulation #377/67).

** Re Ram-Vipond option agreement - Permit 207: Original acreage (optioned by E.N.L. on June 22, 1977): 49,920 acres, reduced upon third term renewal by E.N.L. to 18,560 acres. Transfer to E.N.L. was registered by the Minister of Alberta Energy & Natural Resources on November 2, 1977. Option terms call for E.N.L. to carry out an exploration program costing at least $20,000 on Permit 207 over a period of not less than 18 months from the date of transfer (="effective date").



GEOLOGICAL REFERENCE & CORRELATION

EON	ERA	MAP SYMBOL	LITHOLOGY, FORMATIONS, ETC.	Correlation of 1:267,200 Provincial geology units: Alberta	Saskatchewan	G.S.C. Map of Canada
MESOZ.	CRETAC.	K 739.5	SEDIMENTARY ROCKS: Shales, Siltstone, Sandstones, "Oil sands" (Km)	Ks Kc Kg Km	Km	2uK 1K
PALEOZ.	DEVON.	D 740.5	SEDIMENTARY ROCKS: Limestones, Shales, Dolomite, Limy mudstones, Gypsum	Dc, Dw, Dn Dmg, Dk, Dm	Dm	uD mD
			MAJOR UNCONFORMITY			
PROTEROZOIC	HELIKIAN	Pc 752	CARSWELL FORMATION: Dolomite (domal structure)	—	Pc	5IP
		Pa 735	ATHABASCA FORMATION: Sandstone, Conglomerate, minor Shale	Pa	Pa	4IP
	APHEBIAN	Pm 928	MARTIN FORMATION: Siltstone, Shale, Sandstone, Conglomerate, some diabase & Volcanics	—	Pm	uA
			UNCONFORMITY			
ARCHEAN			ARCHEAN BASEMENT COMPLEX	*	*	*
		A 746	UNDIFFERENTIATED: Plutonics with Gneiss & Metasediments (Alberta) Pelitic Schist & Gneiss grading into Migmatite & Mylonite (Sask.) includes Tazin Group rocks	A	P4 grading into P9	A1gn An
		Am 737	METASEDIMENTS: Quartzite, Biot. Sch., Amphibolite Gneiss, undifferentiated Metasediments, Schists & Gneisses	Am	P3, P5, P6	2An
		Av 739	METAVOLCANICS: with Graywacke & Schist.	—	P2	2An
		Ag 744	GRANITE: and Granitic Gneiss	Agg, Ag and Ap	P1	A1gn An 2An

(* Correlation subject to revision)

☐ Permits held in 1977/78 # 207, 214, 215, 216, 217 & 218.)

N.B. Geological boundaries on Eldorado permits areas are based on interpretation of 1976/1977 and 1978 diamond drilling results (H.L.)

ELDORADO NUCLEAR LIMITED
OTTAWA

GENERALIZED PRECAMBRIAN GEOLOGY OF N.E. ALBERTA AND N.W. SASK.

SCALE 20 10 0 20 40 MILE

H.L. / W.J.S. Scale: 1" = 20 Miles.

508-22(1978)

III - REVIEW OF PREVIOUS WORK (1975-1977)

Eldorado Nuclear Limited has been engaged in Uranium search in Project 508 area since May, 1975*.

Originally, during 1974-1975, the Project area consisted of 3 permits (185, 186 and 187), now relinquished (see Footnote 2). Additional five Permits (214 to 218), totalling 244.75 square miles, were granted in early 1976. Permit 207 was obtained from Ram Petroleum Limited/Vipond Oil and Gas International Limited by transfer during late 1977. The total area of the currently held 6 permits is now 273.75 square miles (=175,200 acres or 709.6 km^2); these will expire in early 1979.

The search area is along the geologically favourable SW edge of the Athabasca Formation sandstone. Except for some granitic outcrops in and near the SW part of the Project area, there are no other outcrops in the area. The glacial overburden is thick, often in excess of 100 feet. Uncertainty regarding the actual location of the edge of the Athabasca Formation has been a major problem since the inception of the exploration program. In 1974 it was thought that this edge, which marks the unconformity between the Athabasca sandstone and Precambrian basement, lies along the NE boundary of Permit 185.

---

* See: 1) Progress Report on Results of Work Done During Summer 1976 and Winter 1976/77, March, 1977, by H. Laanela (Permits 185 to 187 and 214 to 218).

2) Summary Report on Exploration Activities during 1975, 1976 and 1977, Parts I and II; September, 1977, (Permits 185, 186 and 187) by H. Laanela.

3) Progress Report on Results of Work Done During Spring & Summer, 1977, December 1977 (Permits 207, 214 to 218) by H. Laanela.

Field work during 1975 indicated that this edge is much farther toward the SW, between Maybelle and Richardson Rivers. Hence the five additional permits (No's 214 to 218) were obtained in the Richardson River area and the 1976 and 1977 work was done mostly here. The Winter Drilling Programs, 1976-1977, and 1978 were carried out to test this assumption, and the results indicate that the edge of the Athabasca Formation is within the Permits 214, 215 and 216, between the above two rivers. The exact shape and location of the edge is by no means yet certain, and can only be determined by further work. The former Permits 185, 186, and 187 were found to be underlain entirely by thick (400'±) Athabasca Formation sandstone, which, in turn, is partly overlain by remnants of calcareous Devonian mud- and sandstone.

Aside from the above, the three past summers (1975, 1976 and 1977) were spent doing various regional surveys. These included regional sediment, water and muskeg geochemistry, semi-detailed soil sampling, radiometric prospecting, outcrop geology and boulder mapping. The 1975 work was done on the Permits 185, 186 and 187, and in the adjacent areas. The 1976 and 1977 work was done on the Permits 214 to 218, and in the areas adjacent to these; this work was more productive since it outlined several water and sediment geochemical anomalies by the end of summer 1976. A geochemical muskeg sampling program was started in late 1976 and continued in 1977.

Several grids, consisting to date of about 250 miles of linecutting, were also laid out on Permits 207, 214, 215, 216, 217 and 218. The "main grid" was soil sampled during 1976 and 1977. Parts of this grid were also

geophysically surveyed (resistivity, magnetics and VLF-EM) during 1976-1977, on ground. A number of granitic outcrops were located and mapped near and on these permits during 1976.

An airborne Mag.-EM survey, covering an area of about 230 square miles over the six permits (207, 214 to 218) was done during April, 1977. The results of this survey indicated a number of EM conductors in the area. (The subsequent work in early 1978, which is the topic of this report, consisted of various ground geophysical surveys (Turam, Horizontal Loop E.M., VLF-EM and magnetics) to define these airborne E.M. anomalies on the ground; these were followed up by diamond drilling in early 1978. A number of holes were also drilled during early 1978 to check the position of the Athabasca sandstone edge further and to test a deep alteration zone encountered during the 1976 drilling.)

IV - GROUND GEOPHYSICS - WINTER, EARLY 1978

A) GENERAL:

The ground geophysical surveys were carried out during January to April, 1978, in the project area to test a number of Airborne INPUT-EM anomalies and to locate these on ground accurately as drill targets. Two new line grids, "A" and "B", were cut on Permits 207, 214 and 215 for control. Additional and detail linecutting was also done on the "main grid" to the west to permit more detail geophysical surveys; this usually consisted of blazing, chaining and tagging lines by compass.

The "breakdown" of the geophysical work done during early 1978 is as follows (figures in kilometres):

Survey \ Permit #	207	214	215	216	217	218	Total Kms
Magnetic	31.6	67.8	___	___	___	___	99.4
VLF-EM (EM-16)	31.6	67.8	35.8	21.9	17.9	___	175.0
Hor.Lp.-EM (EM-17)	___	24.6	___	43.9	2.7	___	71.2
Turam EM	27.6	74.9	2.5	8.8	___	___	113.8
Linecutting (contractor only)	28	49.3	40.8	N/A	N/A	N/A	118.1

In the following discussion of results of geophysical surveys, reference is made to specific areas surveyed, for convenience, rather than to specific surveys, to enable comparison of results as related to each area.

Reference is made to drill holes, although these are more fully described in the next chapter.

B) FOLLOW-UP SURVEYS OF QUESTOR'S AIR-BORNE INPUT-EM CONDUCTOR ZONES:

(1) QUESTOR'S ZONE 3 (on Permit 216):

This airborne INPUT-EM Conductor Zone (anomaly) is located about 4 km west of E.N.L. Base Camp. The original airborne survey indicated a E-W trending anomalous zone, crossing a small lake. An 100-metre interval line grid was cut there during summer 1977 and a VLF-EM (EM-16) survey was run over this anomalous area subsequently. The results of it seemed to confirm the INPUT anomaly, indicating possibly several drill targets.

During the Winter 1978 it was decided to check this anomaly further by a Horizontal Loop EM (EM-17) survey, in order to determine the dip and exact location of the conductor. However, this survey failed to find the anomaly. Several N-S lines were also run with TURAM-EM, with very indefinite results. It now appeared that the original anomaly might have been caused by conductive overburden, eg. a E-W trending swampy area, centered on the lake.

More H. Loop EM was then run in E-W direction over the best of the original INPUT single line conductors and a short but definite bedrock anomaly was detected East of the lake. This was drilled (DDH^{S} ##508-20 and 21) and graphite was found to be the cause of the conductor. Because of this (no uranium mineralization was found) and also because of lack of regolith zone, and the distance from the edge of the Athabasca sandstone, no further work was recommended here.

Conclusion: The zone probably consists of a series of short en-echelon N-S trending graphitic conductors, lined up in a E-W trend (not confirmed); it is too far from the edge of the sandstone (and unconformity) in order to fill all the requirements of a model used in typical Athabasca Basin uranium deposit.

(2) QUESTOR'S ZONE 5 (on Permits 207/215):

(Detail Grid "A")

This INPUT-EM Conductor Zone, trending NE, on south side of Richardson River, is almost entirely in muskeg, paralleling a swampy creek.

A line grid was cut over the anomaly, 1.2km x 1.6km, with lines at 100m and 200m intervals, on which Turam EM and magnetic surveys were consequently run.

Although originally the Zone 5 was classified as a priority EM conductor, the Turam Survey failed to confirm it. It is now thought to be caused by conductive overburden (which may be related to the creek?). Hence it was not drilled.

(3) QUESTOR'S ZONES 10 AND 11 (Permit 214):

(Detail Grid "B")

Zone 10 was classified as top priority anomaly by Questor. It trends NE, and intersects the original Zone 11 to the SW.

A 2km x 2km line grid was cut, with lines @100x100 to 200x200 metre intervals to facilitate the follow up surveys.

Both zones were then confirmed with the subsequent Turam surveys, and later pinpointed with Horizontal Loop EM (Geonics EM-17) surveys. Zone 11, originally interpreted as arc-shaped conductor zone appears now to be consisting of two intersecting zones: a SE part trending NE, parallel to Zone 10, and a NW part trending SE and intersecting both NE trending zones; the total configuration of both Zones 10 and 11 appears to be Z-shaped.

Three diamond drill holes (DDH^S No's 508-22, 23 and 24) were drilled on these zones, using EM-17 survey results to determine the optimum locations and dips, one on Zone 10, and one each on each segment of Zone 11.

Zone 10 was apparently not intersected, as no conductive material was seen in the DDH #23.

The NW part (trending SE) of Zone 11 was intersected by DDH #22, encountering a strong graphite interval in core.

The SE part (trending NE) of Zone 11 was also intersected by DDH #24, which encountered a strong graphite zone adjacent to a fault.

Since both DDH[S] No's 22 and 24 intersected the conductors which appeared to dip away from the hole, rather than toward it (as originally interpreted), it is possible that the DDH #23 failed to intersect Zone 10 for the same reason, i.e. the conductor may have dipped away from the hole.

Since the lack of regolith indicated that the Athabasca sandstone edge may be farther north than thought, i.e. somewhere north of the river (substantiated by later drilling) no further drilling was done on this grid ("B").

In view of the Zone 10 possibly extending farther to the NE, across the river and possibly continuing under the sandstone edge there, Grid "B" was extended 1.2 km toward NE, across the river, and additional Turam Survey was run. The results were indefinite, i.e. no definite extension of the Zone 10 could be detected. However a small isolated Turam conductor was drilled (DDH #25) without intersecting either the conductor nor the sandstone.

Conclusions: Conductor Zone 11 was found to be caused by graphite-cum-fault. Being some distance from the edge of the sandstone (and unconformity), as well as being in the rather unaltered basement, without regolith zone, it does not seem to fill the requirements of the model used in Athabasca Basin type exploration.

Zone 10 was not confirmed by drilling, but is assumed to be similar to Zone 11, i.e. probably caused by graphite, and too far from the sandstone.

(4) QUESTOR'S ZONE 12 (Permit 214):

This INPUT-EM conductor is located SE of Zone 11, about 2.5 km SE of Esker Lake, and was interpreted by Questor as a wide, poorly conductive zone in basement rocks. It appears to be several km's from the sandstone edge.

An attempt was made to find it on ground by running a number of crossing reconnaissance lines with EM-17 over some of the multi-channel Questor's anomalies. This work was unsuccessful.

(5) QUESTOR'S ZONE 15 (Permit 214):

It consists of one good and one poor INPUT-EM anomaly on the edge of the airborne survey area, - hence not well defined. A set of criss-crossing reconnaissance lines were run with EM-17 over the multi-channel anomaly location, some 4 km south of Grid "B", but no definite conductors were found on ground.

It appears to be at least several km's from the sandstone edge.

C) SURVEYS IN THE DDH #2 AREA:

(On Permit 217, also 216)

Diamond Drill Hole #508-2, drilled in late 1976, indicated a zone of deep alteration and brecciation south of Richardson River, along the common boundary of Permits #216 and 217. Very minor uranium mineralization was found in a fracture @ depth of about 400'.

Since the location is several miles (about 4 km) from the known edge of Athabasca sandstone (and unconformity), the deep weathering seems to be related more to a fault zone than to the regolith zone (=paleoweathering) associated with the Athabasca unconformity. (Possibly the paleo-weathering or the regolith zone may extend downwards along the proposed fault zone here?).

That such a fault may indeed be present here is indicated by a low magnetic E-W trend, starting from Dog Lake to the West and extending toward Richardson River in the SW corner of Permit 215, as evidenced both on previous G.S.C. mag survey*, and Questor's aeromagnetic mag survey (April, 1977) maps. If so, the fault does not appear to be a good conductor.

Horizontal Loop EM (EM-17) surveys were run over the area during Winter, 1978, which failed to locate a conductor. VLF-EM (EM-16) surveys run over the same area indicated some possible conductors, although these could be interpreted as being caused by overburden, i.e. swamp and ponds in the area.

Three additional DDH^{s} were drilled here in 1978, indicating more alteration @ depth. More geophysical work is planned here (magnetics and resistivity) during 1978.

D) VLF-EM SURVEYS IN OTHER AREAS:

Very Low Frequency EM surveys were done over large part of the "main grid" during summer 1977, mostly on Permit 216, some on 215. Additional VLF-EM was done during last winter, mainly over lakes and swamps to fill the gaps in the last summer work.

---

* See: Map 468G: Richardson River, Alberta, Sheet 74^{E}/15, and Geophysics Paper 468, G.S.C., 1952.

The resulting work has shown a number of EM "cross-overs" (conductors) throughout the area. It has been suggested that most of these may be overburden-caused anomalies, and that until they can be checked and confirmed by other EM methods (eg. Horizontal Loop), not much can be said about them.

If any of these VLF-EM conductors were ever to be followed up, it is suggested that the ones in the muskeg area in the west part of Permit 215, presumably closest to the unconformity, may warrant priority.

N.B. - The final report and maps regarding the ground geophysics (magnetics, VLF-EM and Turam EM) done by Kenting Explorations Ltd., contractor, on detail Grids "A" and "B" were not yet available when this report was compiled. Only the preliminary field maps were used for reference.

V - DIAMOND DRILLING

(DDH^S No's 508 - 17 to 29, incl.)

A) GENERAL:

Thirteen BQ size DDH^S were drilled in the Project 508 area during March-April, 1978. The following table gives their locations, etc.:

(Located West of 4th Meridian)

DDH No.	Permit #	Twp	Range	Section	Depth (feet)	Date completed (1978)
508-17	216	104	5	19-NE	207	March 15
" -18	216	104	5	12-SW	370	" 18
" -19	outside	104	4	17-NE	704	" 21
" -20	216	103	5	15-NE	499	" 27
" -21	216	103	5	15-NE	344	" 24
" -22	214	102	2	7-NE	327	" 31
" -23	214	102	2	7-NE	503	Apr. 3
" -24	214	102	2	8-SW	451	" 8
" -25	214	102	2	17-SW	422	" 13
" -26	214	102	2	21-SE	357	" 17
" -27	217	102	5	36-NE	881	" 23
" -28	217	102	5	36-NE	327	" 25
" -29	217	102	5	36-NE	817	" 29
Total drilling: 6209 feet (=1145.4 metres)						

Amount of drilling per permit.:

Outside: 704 ft. (1 hole)
214 : 2060 ft. (5 holes)
216 : 1420 ft. (4 holes)
217 : 2025 ft. (3 holes)

The next table summarizes the data of drilling:

B) SUMMARY OF DRILL-HOLE DATA: DDH'S NO'S 508 - 17 to 29

(Holes #1-16 were drilled in Winter 1976-77)
(Metric figures are in parentheses)

DDH #	Dip°	Azim.° (true)	Depth ft. (metres)	Over-burden	γ-probed to*	Purpose	Major rock types (core): feet (metres)	Remarks
508-17	Vert.	——	207' (63.1)	72' (22)	200.1' (61)	stratigr./ /geol.	72'-207'(22-63.1): diorite/ gneissic	fresh basement rx. (no weathering)
508-18	Vert.	——	370' (112.8)	87' (26.5)	288.7' (88)	stratigr./ /geol.	87'-118'(26.5-36): Devon. sediments 118'-370'(36-112.8): metamorph. & granite	some alteration of basement
508-19	Vert.	——	704' (214.6)	52' (15.8)	689' (210)	stratigr./ /geol.	52'-566'(15.8-172.5): Athabasca sst. 566'-704'(172.5-214.6): garnet-schist	bitumen in sst. some weathering
508-20	-50°W	270°	499' (152.1)	85' (25.9)	485.6' (148)	EM conductor (Zone 3)	85'-499'(25.9-152.1): mainly schist, graphitic	intersected graphite; no weathering; blue quartz
508-21	-50°E	90°	344' (104.8)	63' (19.2)	328.1' (100)	-"- -"- (Zone 3)	63'-344'(19.2-104.8): -"- -"-, -"-	-"- -"-; -"- -"-; -"- -"-
508-22	-70°NE	50°	327' (99.7)	100' (30.5)	311.7' (95)	-"- -"- (Zone 11)	100'-327'(30.5-99.7): granitic gneiss	-"- -"-; -"- -"-;

(continues next page)

* Probed with Mount Sopris Model 1000 gamma-ray logger

V - Con't

- B) -

DDH #	Dip°	Azim.° (true)	Depth ft. (metres)	Over-burden	γ-probed to	Purpose	Major rock types (core): feet (metres)	Remarks
508-23	-50°NW	320°	503' (153.3)	107' (32.6)	482.3' (147)	EM conductor (Zone 10)	107'-503'(32.6-153.3): gneisses and metamorphics	conductor not intercepted; surficial weathering (minor)
508-24	-50°SE	140°	451' (137.5)	202' (61.6)	426.5' (130)	-"- -"- (Zone 11)	202'-451'(61.6-137.5): -"- -"- -"-	intersected graphite and fault zone; no weathering
508-25	-50°SE	140°	422' (128.6)	85' (25.9)	410.1' (125)	EM conductor (zone 10 Ext.)	85'-422'(25.9-128.6): gneissic rx	conductor not intercepted; minor alteration
508-26	Vert.	____	357' (108.8)	120' (36.6)	328.1' (100)	stratigr./ /geol.	120'-151'(36.6-46.0): Devon. sediments 151'-285'(46.0-86.9): Athabasca sst. 285'-357'(86.9-108.8): gneisses	red mudstone in lower sst.; regolithic zone
508-27	-57°S	180°	881' (268.5)	88' (26.8)	853' (260)	Alteration zone (DDH 508-2)	88'-881'(26.8-268.5): granitic rx, with quartz & pegmatite	altered; cataclastic breccia zones; bitumen; some R/A zones
508-28	Vert.	____	327' (99.7)	77' (23.5)	312' (95)	-ditto-	77'-327'(23.5-99.7): -ditto-	-ditto-
508-29	-60°S	180°	817' (249)	119' (36.3)	787.4' (240)	-ditto-	119'-817'(36.3-249): -ditto-	-ditto- increased R/A (in zones)

(End of Winter, 1978 drilling)

VI - ESTIMATED COSTS OF WINTER, EARLY 1978, DRILLING and GEOPHYSICAL PROGRAM

The following cost figures are estimated, inasmuch not all the bills are yet paid and hence the Accounting Department statements are incomplete. They cover the work done on Project 508 area during January-February-March-April, 1978. The costs are based on bills paid and/or totals calculated using contractors' rates per amount of work performed, rounded to nearest hundred dollars. The actual costs may be somewhat higher than shown here. Work done by E.N.L. personnel is covered by salaries.

FIELD COSTS:

	$
Linecutting (contractor)	20,900
Geophysics (contractors)	45,000
Drilling (contractor)	139,600
Helicopter (charter)	46,000
Fixed-wing (charter)	8,500
Salaries (E.N.L. personnel)	30,000
Fuels (incl. helicopter's)	10,000
Instrument rentals	5,500
Equipment rentals	2,500
Camp operation & Supplies	5,000
Tele-communication	2,000
Travel (E.N.L. personnel)	5,000
(SUBTOTAL: $	320,000)

NON-FIELD COSTS:

Surficial Geology (consultant)	2,700
Permit Renewals for 1978 (paid in Dec., 1977)	26,300
Drafting and supplies (H.O.)	1,000
TOTAL COSTS: $	350,000

VII - PROPOSED PROGRAM AND BUDGET: SUMMER 1978

Emphasis will be on geophysical work during the 1978 Summer Season. Some detail boulder prospecting, etc., is also to be carried out during the later part of the summer.

A) SCHEDULE OF GEOPHYSICAL SURVEYS - SUMMER 1978:

These surveys are to be run over three specific areas, each with a different purpose in mind. All surveys necessitate a cutting of line grids for survey control.

1) A long-line Resistivity Survey along the edge of Athabasca Formation, in NW-SE direction on Permits 214 and 215.

Work: - Cutting a 20km long baseline plus additional 20km of lines for detail work when and where warranted;
- running a resistivity survey on the above grid.

Purpose: - Map the basement topography to identify significant structures that may serve as drilling targets.

Budget: - about $29,000 including linecutting.

Timing: - Start linecutting in June, survey in July, 1978.

Logistics: - Fly-camping in area, using helicopter to move and supply.

2) Detail Resistivity and Magnetic Survey in DDH #2 area, mainly on Permits 217 and 216, some on 218, south of Richardson River.

Work: - cutting about 40km's of line grid, at 100 metre line intervals (in addition to a previously cut grid);
- running a detail magnetic and resistivity survey over this grid;

Purpose: - to further check and extend a deep alteration zone encountered in drill holes and to identify any subsurface structures that may serve as drilling targets.

Budget: - about $30,000, including linecutting.

Timing: - Early summer, 1978.

Logistics: - Using existing base camp on Permit 216.

3) Horizontal Loop E.M. Survey on Permit 214, North of Richardson River.

Work: - cutting a NE-SW base line and two line grids, totalling about 40 line km's to be extended if and where warranted.
- running a Horizontal Loop Electromagnetic survey over the above grids.

Purpose: - To confirm, locate and delineate on ground a number of Airborne INPUT-E.M. anomalies in order to define potential drilling targets at or/and within the sandstone edge.

Budget: - about $19,000, including linecutting.

Timing: - Depending on 1) and 2), but possibly during mid-summer, 1978.

Logistics: - Fly-camping near Richardson River, using helicopter to move and supply.

Total Budget for the above geophysical programs is $78,000, including supervision by E.N.L. personnel and logistics. The linecutting and resistivity surveys are to be done by contractors.

B) OTHER WORK:

Approximately another $9,000 is allocated for the following surveys to be carried out during the later part of the summer 1978:

- radiometric boulder prospecting in detail,
- mapping of locally derived glacial deposits,
- further evaluation of geochemical anomalies.

However, it has now been determined that practically the entire above permits area is covered by far-travelled Cree Lake End Moraine, and by outwash sands, etc., derived thereof, which renders the use of any surface exploration methods (geochemistry, boulder tracing, emanometry, etc.) impractical if not useless. Hence the emphasis is now on using the geophysical methods to define any favorable subsurface structures, followed by drilling.

The results of all previous geochemical surveys, traverses, etc., are being reviewed and evaluated in view of locating any areas where the far-travelled till, etc., is thin, or may have "windows" of more locally derived material in it.

Further drilling will be scheduled if and when the results of the Summer 1978 Program warrant it, at a later date.

508

C) ALLOCATION OF BUDGET FOR SUMMER 1978 FIELD PROGRAM

Table I: Allocation per Permit

	Activity \ Permit #	214	215	216	217	218	TOTAL $:
09	Reporting	800	400	400	300	100	2, 000
22	Geol. & Prospecting	3 ,500	3 ,000	1 ,000	500	725	8, 725
30	Hor. Loop E.M.	8, 575	-------	-------	-------	-------	8, 575
30	Magnetic Surv.	-------	-------	2, 650	2 ,650	600	5, 900
30	Resistivity Surv.	8, 500	9, 500	7, 200	8, 200	1, 300	34, 700
74	Linecutting	15, 000	5, 000	3, 900	3, 900	865	28, 665
	TOTAL $:	36,375	17, 900	15, 150	15, 550	3, 590	88, 565

June, 1978

Table II Allocation per Cost Element

Cost / Activity Element	09 Reporting	22 Geol.	30 H.L.E.M.	30 Mag.	30 Resist.	74 Linecut.	TOTAL $
Salaries	1,550	2,500	2,500	1,000	2,000	750	10,300
Burden on -"-	250	375	375	150	300	115	1,565
General Supplies	-------	200	200	200	100	100	800
Fuels	-------	500	300	250	1,000	1,000	3,050
Contractor	-------	-------	-------	-------	25,000	21,000	46,000
Tools	-------	50	50	100	-------	-------	200
Travel expenses	-------	500	500	500	500	-------	2,000
Telecommunications	-------	100	200	200	100	-------	600
Food & Meals	-------	500	500	300	-------	-------	1,300
Camp Supplies	-------	200	200	200	-------	-------	600
Helicopter	-------	2,500	2,000	1,600	5,700	5,700	17,500
Fixed-wing	-------	500	600	600	-------	-------	1,700
Rent Recovery	-------	400	200	200	-------	-------	800
Office Supplies	200	-------	-------	-------	-------	-------	200
Instrument Rental	-------	200	650	500	-------	-------	1,350
Shipping Charges	-------	200	300	100	-------	-------	600
TOTAL $	2,000	8,725	8,575	5,900	34,700	28,665	88,565

APPENDIX "A"

SURFICIAL GEOLOGY

(by L.A. Bayrock, March, 1978)

PROJECT 508, ALBERTA

TABLE OF CONTENTS

	Page No.
INTRODUCTION	1
Terms of Reference	1
Area	1
Background Materials	1
SURFICIAL GEOLOGY	2
BEDROCK GEOLOGY	5
SURFACE BOULDER RATIOS	7
SEDIMENT AND WATER ANOMALIES	8
SUMMARY	9

MAPS:

- Lake Geochemistry showing U, Cu, Ni and Co Analyses Results
- Surface Boulder Ratios of Oil Stained Versus Clean Sandstone
- Diamond Drill Holes, and drill logs of the 1976-1977 Winter Drilling Program
- Surface Boulders Ratios of Athabasca Sandstone Versus Basement Rocks
- Airphoto Mosaic

Included with Report - Under Separate cover

SURFICIAL GEOLOGY
PROJECT 508
ALBERTA

INTRODUCTION

Terms of Reference:

To describe surficial geology and to examine available data on the area in view of surficial geology results.

Area:

Project 508 of Eldorado Nuclear Ltd. encompasses Quartz Mineral Exploration Permits Nos. 185, 186, 187, 214, 215, 216, 217 and 218, northeastern Alberta. The exploration permits are located just north of the Marguerite River crystalline window.

Background Materials:

Aerial photographs for the area were obtained from Bayrock Surficial Geology Ltd. files.

Eldorado Nuclear Ltd. supplied maps to a scale of 1:50,000 showing the locations and results of the following:

(1) Lake geochemistry showing U, Cu, Ni, and Co, analyses results.

(2) Surface boulder ratios of oil-stained versus clean sandstone.

(3) Diamond drill holes, and drill logs of the 1976-1977 winter drilling program.

(4) Surface boulders ratios of Athabasca Sandstone versus basement rocks.

(5) Airphoto mosaic.

All of the maps were used in this report in their original state.

SURFICIAL GEOLOGY

The area is located along the Cree Lake moraine which is one of the largest end moraines in North America and maybe in the world. The moraine is of Late Wisconsin time and may date at about 10,000 to 12,000 years before present.

Glacial advance directions in the area were generally from the north-northeast. Detailed advance directions are shown on the map of surficial geology of Fort Bitumount sheet, Bayrock (1971). The variations in glacial directions throughout the area are due to spreading of individual ice lobes.

The following units of surficial deposits are delineated on the surficial geology map: outwash sand, pitted outwash sand, ground moraine, end moraine (Cree Lake end moraine), esker and recent alluvium.

End moraine in the area forms a portion of the Cree Lake end moraine which runs from the shores of Lake Athabasca in Alberta to close to the Saskatchewan-Manitoba border, more-or-less along the edge of the Athabasca Sandstone. The end moraine is comprised of a thick accumulation of till and related outwash in the form of crevasse fillings and moulin kames. The thickness of glacial materials in the end moraine is from 100 to over 300 feet. All of the materials including glacial erratics in the end moraine have been derived a considerable distance in the glacial upstream direction from the location of the moraine. The distance may be anywhere from 10 to over 50 miles. In this respect, all glacial erratics and analyses results of material of the end moraine do not show local bedrock conditions but refer to distant bedrock.

Ground moraine is a till sheet generally thin, from 20 to 40 feet in thickness, and of relative local bedrock origin. Generally, the derivation of materials and ground moraine is from one to three miles in a glacial upstream direction for over fifty percent of the ground moraine mass. In this respect ground moraine materials may be used for exploration of the local bedrock.

Ground moraine in the area is drumlinized. The drumlins of the ground moraine are well developed. Some drumlins are present in exploration permits 214 and 215. These drumlins are surrounded by outwash derived from the Cree Lake moraine and may be described as till islands surrounded by outwash sand.

Drumlins, although composed of ground moraine, have materials of relative distance origin as compared to ground moraine outside of drumlins. In this respect, drumlins occurring in permit 214 and 215 also cannot be used for local bedrock exploration.

Outwash derived from Cree Lake moraine covers most of the ground in front of the moraine and most of permits 214 to 217. The outwash has been divided into two categories:

(1) Pitted outwash
(2) Non-pitted outwash.

Pitted outwash was deposited around and over some residual ice blocks which upon later melting produced kettleholes. Most of the kettleholes in the pitted outwash plain form lakes. The outwash thickness in the kettleholes or in the lakes is of course less than in the surrounding area.

The non-pitted outwash has been deposited over an area where no residual ice blocks were present. Both types of outwash in the area are composed predominately of sand. The thickness of the outwash is from 20 to over 50 feet. The outwash sand has been derived from the Cree Lake moraine. The materials in the glacier from which Cree Lake moraine was derived are of distant origin and do not reflect local bedrock composition. Thus, the outwash derived from the moraine is also of distant origin and does not reflect local bedrock.

The pitted and the non-pitted outwash was deposited over ground moraine. The underlying ground moraine may reflect local bedrock composition.

A number of eskers are present in permits 185 and 186. These eskers are relatively large and composed predominately of sand with some pebbles and boulders.

Recent alluvium is present in places along the Richardson River. Most of recent alluvium is concentrated in permit 216. The alluvium is made of sand and silt.

Richardson River has incised itself into the outwash. At certain locations boulders are present in the river bed. These boulders may represent the exposure of the ground moraine underlying the outwash. Such locations are present all along the course of the river. Examination of the boulders in the river may reveal the composition of the underlying ground moraine and thus the composition of the underlying bedrock. This unfortunately is the only area of Project 508 where surficial geology may be helpful in the exploration.

BEDROCK GEOLOGY

Bedrock geology as deduced from outcrops and drilling data is shown on a separate map. The boundaries of the different bedrock types underlying surficial deposits have been compiled by Eldorado Nuclear Ltd.

The crystalline basement - Athabasca Sandstone border runs more-or-less in the southeast-northwest direction across permits 214, 215 and 216.

The sandstone is overlain in places by devonian limestone and dolomite. The area of the limestone cannot be clearly delineated because of lack of outcrops and sparcity of drill holes. Nevertheless it is clearly shown that the limestone occupies large areas.

Examination of satellite imagery revealed some interesting structures. Photographs for the area designated as 45-19 and only Band 7 were used.

The Marguerite River crystalline window shows up as a round, even circular, structure somewhat similar to the Carswell Dome. A major fault from 1/4 to 1 mile in width is located in the window. It continues in the northeast direction to Muddy Lake. The location of the fault is shown by a solid line within the crystalline outcrop and by a broken line outside of it on the aerial photo mosaic. Outside of the crystalline rocks along the continuation of the fault are present some peculiar features in muskegs which are parallel to the fault. It is not known what these features represent. The bedrock map shows a gap in the limestone area a short distance to the northeast of the postulated fault. Any further speculation on the significance of the above feature is left for Eldorado Nuclear Ltd.

SURFACE BOULDER RATIOS

The map showing surface boulder ratios of oil stained versus clean sandstone has been compiled from numerous boulder counts throughout the area. A significant concentration of oil stained Athabasca Sandstone is present in permits 185 and 186. That area more-or-less coincides with the ground moraine at that location. The ground moraine is of local derivation and consequently it should be underlain by oil stained Athabasca Sandstone.

The map showing the ratios of basement rocks versus Athabasca Sandstone also gives data on the occurrence of limestone and dolomite. The dolomite and limestone locations are circled in green. Referring to the bedrock map it is seen that there is no correspondence between the occurrence of limestone and the area underlain by it. The limestone area has no limestone boulders. This is interpreted that all of the materials throughout the area of the end moraine and the outwash are of distant derivation. Otherwise, considerable number of limestone rocks would have been found in the limestone area.

The same reasoning as stated above for the carbonate rocks also applies to the crystalline rocks. The result is that the Athabasca Sandstone-crystalline basement contact cannot be deduced from surficial deposits as all of the surficial rocks are of distant origin.

The significance of the high basement-sandstone ratio in the area surrounding Dog Lake cannot be readily explained. This high ratio is partly derived from end moraine segments and thus partly represent relatively distant bedrock composition, over 3 miles.

The high ratio of basement-sandstone rocks along the Richardson River east and north of Dog Lake probably represents the composition of ground moraine underlying the outwash. These high ratio locations along the Richardson River should be explored in detail as they are the only ones that may supply a clue to local bedrock.

SEDIMENT AND WATER ANOMALIES

All anomalies of sediments and water as compiled by Eldorado Nuclear Limited for U, Cu, Ni, and Co are shown on a separate map. All anomalies which are derived from areas of end moraine or outwash may thus be eliminated from any significance. These anomalies are derived from glacial materials which have distant bedrock origin.

This in effect, leaves anomalies along the Richardson River as significant for further consideration. As has been stated previously, the Richardson River most likely exposes at certain locations the underlying ground moraine. The ground moraine may be of local origin and thus may reflect the composition of the local bedrock.

SUMMARY

Surficial geology techniques cannot be used to the full advantage in Project 508 area of Eldorado Nuclear Ltd. because most of surficial deposits are of distant origin.

Exploration of Richardson River boulders, which may show the underlying ground moraine, are the only means of derivation of local bedrock composition for the area.

APPENDIX "B"

DIAMOND DRILL HOLE LOGS
for DDH^{S} No's 508-17 to 29 (incl.)

PROJECT 508

(CONVERSIONS: 1m=3.281' and 1'=0.3048m) DIP TESTS

78-508-26 page 1/2

TEST	FROM	TO	TOTAL	DIP CORR.	LATITUDE CUM.	DEPARTURE CUM.

DIAMOND DRILL HOLE LOG

Project 508/ALBERTA

ELDORADO NUCLEAR LIMITED

LOCATION Permit 216
SECTION
LATITUDE
DEPARTURE
ELEVATION SURFACE
CORE BQ
STORAGE Eldorado, Sask.

HOLE No. 508-17
AZIMUTH
DIP VERTICAL
LENGTH 207' (=63.1m)
PURPOSE Recon./stratigr
COMPLETED 15-03-78
LOGGED BY H. Laanela

METERAGE FROM	METERAGE TO	(metric depths in brackets) DESCRIPTION
	0'	Collar. Casing from 0' to 73' (all recovered). Plastic tubing (4.5cm=1 and 3/4" inside diam.) to E.O.H.
0'	72' (22m)	Overburden: sandy; boulders in bottom 20'.
		(72' to 207' @EOH (=22m to 63.1m): UNWEATHERED PRE-CAMBRIAN BASEMENT) Start in fresh rock; no regolith or alteration. No sedimentary cover.
		General description of core: Recovery nearly 100%. Fresh unweathered, massive, dark to light gray metamorphic rock of generally dioritic appearance; varying composition. Medium to coarse grained, locally fine grained. White to very light pink feldspars, quartz, mafic minerals. Very coarsely banded (±1 to several feet), with alternate lighter, felsic and darker, mafic sections throughout; felsic section more predominant nearer the bottom. Fracturing uncommon; minor garnet and disseminated pyrite in places. No anomalous radioactivity in core.
72' (22m)	93' (28.4m)	Mainly medium grained gray dioritic rock, some parts more quartz-rich or mafic-rich. White sodic plagioclase, locally some (minor) pink K-feldspars, microcline (? - pale greenish), quartz. Some large feldspar (1-2cm) phenocrysts. Biotite and amphiboles/pyroxenes are fine grained. Kaolinized feldspars along fractures ±90° to core axis. No regolith or weathering, all rock fresh looking.
93' (28.4m)	95' (29m)	Light (whitish) section of felsic rock, mostly feldspars, some quartz, with segregated blebs of dark greenish-black fine grained mafics. Has no definite boundaries.
95' (29m)	99.5' (30.3m)	Mainly dioritic, with patches of felsic material, both as above; boundaries indistinct.
99.5' (30.3m)	101' (30.8m)	Dark grey, very fine grained mafic section, possibly dike containing disseminated (and also blebs of) pyrite. Boundaries indistinct.

CORE SAMPLES FROM	TO	WIDTH	%	AVERAGES

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 2/2 HOLE 508-17

METERAGE FROM	METERAGE TO	DESCRIPTION	CORE SAMPLES FROM	CORE SAMPLES TO	CORE SAMPLES WIDTH	CORE SAMPLES %	CORE SAMPLES AVERAGES
101' (30.8m)	118' (36m)	Alternating dioritic and felsic material (as before), gradual changes. Pale pinkish and greenish feldspars in increasing amounts; a few garnets appear.					
118' (36m)	120' (36.6m)	Light colored felsic section; probably associated with ±2x B.G. radioactivity in down-hole gamma-ray log (peak @36.7m=120.4'); no above B.G. R/A in core (scanned with SPP2 scint.).					
120' (36.6m)	130' (40m)	Mixture of dioritic-to-granitic and felsic material, boundaries very indistinct. Garnets (2-5mm) in felsic material. Pale pink and greenish feldspar more common here.					
130' (40m)	182' (55.5m)	As above, but generally of more dioritic appearance.					
182' (55.5m)	196' (60m)	The above becomes finer grained grey dioritic gneiss; wavy banding. Reddish-brown feldspars in lower part of section.					
196' (60m)	207' (63.1m)	Gray dioritic rock as above.					
		E.O.H. (End of hole) @207' (=63.1m). Core scanned with SPP2 scint., no anomalous R/A. Down-hole gamma-ray probed with Mt. Sopris 1000, from collar to 61m (=200.14'); B.G. 40-50 cps, up to 118 cps @120.4' (37m)					
		Drilled by Canadian Longyear Limited, North Bay, Ontario.					

(CONVERSION: 1m=3.281' and 1'=0.3049m)

DIP TESTS

TEST FROM	TO	TOTAL	DIP CORR.	LATITUDE CUM.	DEPARTURE CUM.

DIAMOND DRILL HOLE LOG

Project 508/ALBERTA

ELDORADO NUCLEAR LIMITED

LOCATION Permit 216
SECTION
LATITUDE
DEPARTURE
ELEVATION SURFACE
CORE BQ
STORAGE Eldorado, Sask.

HOLE No. 508-18
AZIMUTH
DIP VERTICAL
LENGTH 370' (112.8m)
PURPOSE Recon./stratigr
COMPLETED 18-03-78
LOGGED BY H. Laanela

SURFACE FROM	SURFACE TO	(metric depths in brackets) DESCRIPTION	CORE SAMPLES FROM	TO	WIDTH	%	AVERAGES
	0'	Collar. BW casing 0' to 90' (80' left in hole, not recovered). Plastic tubing to EOH,					
0'	87' (26.5)	Overburden; sandy					
		(87' to 118' (=26.5m to 36m): POST-ATHABASCA SEDIMENTS) Core recovery about 90%. No R/A. Devonian.					
87' ↑ (26.5m)	106' ↑ (32.3m)	Devonian mudstone: Very fine, light to medium grey, generally massive clayey rock, becoming slightly coarser (gritty) near bottom of section. Slightly limy. Top part broken, pebbly; also some broken irregular fractures filled with bitumen (tar). No obvious layering, banding, bedding or sorting; in places soft and crumbly.					
106' ↑ (32.3m)	117' ↑ (35.7m)	The above has become coarser, crumbly, pitted and more porous, with "dead-oil-stain" and bitumen in pores and fractures. Contains clasts of highly altered feldspars and quartz grains. Feldspars altered to clay.					
117' ↑ (35.7m)	118' ↑ (36m)	Very broken section (mostly missing) on top of Basement, similar to above, consisting mainly of very altered Basement fragments. (No Athabasca Formation in cores)					
		(118' to 370' (=36m to 112.8m): PRE-CAMBRIAN BASEMENT) Pre-cambrian metamorphics. Core recovery good.					
118' ↑ (36m)	127±' ↑ (39m)	Highly weathered and altered (in situ) Pre-cambrian Basement rocks in which original minerals are completely altered to fine greenish to grey clay-like minerals. Some relict texture and highly altered reddish feldspars appear in lower part. Irregular fracturing @ ±45° to core axis.					
±127' ↑ (39m)	147' ↑ (45m)	The above becomes more reddish and granular, with granite-like general appearance; still strongly altered, with light to dark-green patches (epidote? and/or chlorite). Irregular fracturing @ 30°-60° to core axis, some clay mineral. Core broken in places but recovery is good. Original texture not very apparent. (gamma probe: about 2-3X B.G. @ 135.5')					
147' ↑ (45m)	148.5' ↑ (45.3m)	Broken core; dark greenish highly altered metamorphic rock.					

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 2/ 3 HOLE 508-18

METERAGE FROM	METERAGE TO	DESCRIPTION
148.5 ↑ (45.3m)	174' ↑ (53m)	As in 127'-147' above, similarly altered but original texture less apparent. Reddish to brown with greenish patches. Bitumen in some fractures. Quartz grains are the only remaining unaltered mineral. Becomes more fine grained and massive toward the bottom of section, grading into section below. Fine hair-like fissures filled with reddish (hematitic) and light greenish to whitish (calcite?) material, parallel to sub parallel to what may be original gneissic(?) structure.
174' ↑ (53m)	182'± ↑ (55.5m)	Above grades into darker greenish-gray fine grained altered metamorphic rock, alternating with reddish patches as above. Less altered parts show gneissic banding ∅45° to core axis. At bottom grades back into more reddish rock (similar to previous section).
182'	185'	Similar to 148.5'-174' above. Red, altered, texture not apparent.
185' ↑ (56.4m)	198' ↑ (60.4m)	The above section has graded into fine grained, generally massive reddish - brown rock. Texture indistinct. A dike? Fine intersecting fractures, 30°-60°, filled with calcite, hematite(?) and clay minerals; bitumen in layer fractures.
		N.B.: 180.5'-200.1' (=55m-61m) wide downhole gamma-ray log R/A anomaly of about 5-6x B.G. (±200 cps/30 to 40 cps B.G.) - see graph. Scanning core with SPP2 scint. indicates 1.5 to 2x B.G. R/A along this section.
198'	201'	As in 182'-185' and 148.5'-174', above.
201'	202.5'	As in 185'-198' above; fine grained, light reddish. No R/A.
202.5'	203.5'	Fractured (30°-45°); dark purplish-red strongly altered metamorphics.
203.5'	212'	Dark greenish, fine grained metamorphic rock with altered red feldspars.
212' ↑ (64.6m)	220' ↑ (67.1m)	Coarser grained, more altered metamorphic rock. Alternating red feldspar - rich and dark greenish mafic sections. Original texture not apparent in parts.
220' ↑ (67.1m)	236' ↑ (72m)	Dark greenish, fine to medium grained metamorphic rock similar to section 203.5'-212' above.
236' ↑ (72m)	238' ↑ (72.6m)	Reddish, feldspar - rich granitic rock similar to 212'-220' above.

CORE SAMPLES FROM	TO	WIDTH	% U	Th	Cu	Pb	Zn	Co	Ni
#6001 186' (56.7m)	188' (57.3m)	2' (.61m)	<0.001	.013					
#6002 188' (57.3m)	190' (58m)	2'	<0.001	.012					
#6003 190' (58m)	192' (58.5m)	2'	<0.001	.016					
#6004 192' (58.5m)	194' (59.1m)	2'	<0.001	.017					
#6005 194' (59.1m)	196' (60m)	2'	<0.001	.017					

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 3/3 HOLE 508-18

METERAGE FROM	METERAGE TO	DESCRIPTION
238'	252.5'	Dark greenish, fine to medium grained metamorphic rock as before.
252.5 ↑ (77m)	258' ↑ (78.6m	Mainly reddish, granitic appearing rock with greenish metamorphic bands, fine to medium grained. Fractures ∅30° to core axis. (NB. contains 10-12 cm(=4-5") section ∅about 253' (=77.1m) showing 2-3x B.G. R/A on gamma probing. No anomalous R/A when scanned with SPP2 scint.).
258' ↑ (78.6m)	271' ↑ (83m)	Mainly greenish metamorphic rock with reddish granitic patches. Broken core 262' to 265'. Folding and banding ∅about 268'-269'. (NB. contains 269' (=82m) which on gamma-probe 4-5x B.G. R/A. No anomalous R/A when scanned with scint.)
271' ↑ (83m)	280' ↑ (85.4m	Fine to medium grained, mainly reddish granitic rock, partly fractured, 4-5cm wide part ∅274' (95.4m) broken and altered with some greenish fault gouge, ∅45°.
280'	285.5'	Fine, green metamorphics, as before. Fine fractures ∅various angles.
285.5	290'	Reddish granitic rock, as before. Partly broken.
290'	298'	Fine, green metamorphics, as before.
298' ↑ (91m)	322' ↑ (98.1m	Reddish granite; 10cm (4") wide, dark greenish-black mylonitic shear zone ∅299', ∅30° to core axis.
322'	327'	Greenish metamorphics, as before.
327'	333'	Reddish granitic rock, mixed with greenish metamorphics.
333'	338'	Greenish metamorphics, as before.
338' ↑ (103m)	370' ↑ (112.8m)	Mainly reddish granitic rock, as before; mixed with some greenish metamorphics. E.O.H. ∅370' (=112.8m). Core scanned with SPP2 scint. Downhole gamma-ray probed with Mt. Sopris 1000, from collar to 88m (=288.7'); blocked below that.
		Drilled by Canadian Longyear Limited.

CORE SAMPLES FROM	TO	WIDTH	%	AVERAGES

(CONVERSION: 1m=3.281' and 1'=0.3048m)

page 1/3 78-508-26

DIAMOND DRILL HOLE LOG

Project 508/ALBERTA

ELDORADO NUCLEAR LIMITED

LOCATION N of Permit 216
SECTION
LATITUDE
DEPARTURE
ELEVATION SURFACE
CORE BQ
STORAGE Eldorado, Sask.

HOLE No. 508-19
AZIMUTH
DIP VERTICAL
LENGTH 704'(=214.6m)
PURPOSE Recon./stratigr
COMPLETED 21-03-78
LOGGED BY H. Laanela

DIP TESTS

TEST	FROM	TO	TOTAL	DIP CORR.	DIP CUM.	LATITUDE CUM.	DEPARTURE CUM.

METERAGE FROM	METERAGE TO	(metric depths in brackets) DESCRIPTION
	0'	Collar. Casing from 0' to 55' (50' left in hole). Plastic tubing to E.O.H.
0'	52' (15.8m)	Overburden; sandy
		(52' to 566' (=15.8m to 172.5m): ATHABASCA FORMATION "dead-oil-stained" Athabasca sandstone, core recovery very good.
52' (15.8m)	110' (33.5)	Athabasca sandstone: Estimate 70-75% of sandstone is "dead-oil-stained", black bituminous coating on sand grains. "Clean" sandstone sections are from < 1cm to 10-20cm wide, with bands ("fingers") of oil-stain paralleling bedding. (Oil-stain appears to be restricted to more porous sections of sandstone). "Clean" sandstone is white to pale pink. Bedding (+oily bands) from 90° to ±60° to core axis. About 4' (1.2m) long section of broken core due to fracturing almost parallel to the core; bituminous clay fills fractures. Sandstone in general is fine grained, quartzose; good porosity. (Top 5' of section is about 99% oil-stained, from surface down). Grades into less oily but otherwise similar sandstone below.
110' (33.5m)	168' (51.2m)	Quartz sandstone (as above), oil-staining about 15%-20%. Light pinkish, fine grained, minor crossbedding and sorting. "Oily" streaks are 0.5 to several cms wide, mostly 80°-90° to core axis, paralleling porous layers of bedding. Occasional purplish banding. Part of section 130'-135(±) has about 50% oil-stain.
168' (51.2m)	184' (56.1m)	"Clean" Athabasca sandstone, very minor oil stain. Pinkish to buff white, mostly fine grained, some narrow (few cm's) wide medium grained intervals with increased porosity and sorting; minor cross-bedding, low porosity, minor whitish interstitial clay.
184' (56.1m)	307' (93.6m)	Quartz sandstone, as in 110'-168'. Buff to pinkish white, oily "fingers" ¼ to 1cm, some several cm's, 5% to 15% of rock. Minor sorting and cross-bedding. Cementing with whitish clay increases toward bottom of this section.
307' (93.6m)	333.5' (101.7m)	Heavily "oil-stained" (98%-100%) throughout. Interstitial spaces filled with bitumen.

CORE SAMPLES

FROM	TO	WIDTH	%	AVERAGES

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 2/3 HOLE 508-19

METERAGE FROM	METERAGE TO	DESCRIPTION	CORE SAMPLES FROM	TO	WIDTH	%	AVERAGES
333.5' (101.7m)	337' (102.7m)	Heavily indurated - bitumen saturated section, very viscous black tar oozing out. Strong petroleum odor. (N.B. Drilling difficulties were encountered in this section: bitumen packing around rods, clogging bits, etc, needed fuel oil, etc, to wash it off. "Globs" of very viscous black tar-like material were collected. No R/A).					
337' (102.7m)	344' (105m)	Bitumen saturated intervals (as above), alternating with bands of low-porosity, fine, hard, white quartz sandstone soaked with and smelling of petroleum. Grades into sandstone with "dead-oil-staining" only (as in 184'-307').					
334' (105m)	348' (106.1m)	As in 184'-307'					
348' (106.1m)	352' (107.3m)	As in 307'-333.5'					
352' (107.3m)	443' (135.1m)	Pale buff to white sandstone, uniform throughout, no sorting, low porosity. A few "fingers" of "dead-oil-stain" at infrequent intervals, 5% to 15% of core. A few mud chips surrounded by reddish to purplish zoning. Some interstitial clay. Fractures 90°-70° to the core axis. Oil-stain layers mainly 80°-70° core axis.					
443' (135.1m)	452' (138m)	As above, but light pinkish in color, with indistinct pale-purple banding. Oily stain ±20% of core.					
452' (138m)	486' (148.2m)	As in 352'-443'					
486' (148.2m)	519' (158.2m)	As above, but dead-oil-stained intervals toward the bottom of section contain indurated bitumen oozing out of cracks and core spaces. Oily (petroleum) odor. A couple of ±1cm wide mud chips. Core uniformly massive, no apparent bedding or sorting.					
519' (158.2m)	525' (160.1m)	As in 352'-443'. Minor sorting toward bottom of section. Grades into section below.					
525' (160.1m)	542' (165.2m)	Pinkish sandstone, with increasingly more interstitial clay and mud chips. Minor (2-3cm wide) fissile reddish to purplish bands; minor brownish mottling. Oily staining about 10-15% of core. Grades into next section.					
542' (165.2m)	546' (166.5m)	Sandstone has gradually become impure; with reddish and purplish fissile banding also becoming more frequent. Mud chips and occasional clasts. Oily stains have disappeared. Clay content increases downward.					
546' (166.5m)	549' (167.4m)	Above becomes more gritty, coarser grained, more impure sandstone. A 15cm wide interval of purplish brown fissile rock encloses about 4cm wide finely clastic interval. Fracturing 90° to core axis.					

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 3/3 HOLE 508-19

METERAGE FROM	METERAGE TO	DESCRIPTION	CORE SAMPLES FROM	CORE SAMPLES TO	CORE SAMPLES WIDTH	CORE SAMPLES %	CORE SAMPLES AVERAGES
549' (167.4m)	550.5' (168m)	A section of purplish-brown slightly fissile mudstone, fine grained. Sharp breaks with sections above and below, @ 85° to 45°, resp., to core axis. Some green mineral (chlorite?) in a longitudinal fracture.					
		(±550.5' to 566' (=167.8m to 172.5m): TRANSPORTED REGOLITH Approaching Regolith zone.					
550.5' (168m)	560±' (171m)	Approaching transported regolith zone: Quartz pebbles, rounded to subrounded, size <1cm to several cm's, in light fleshy-pink to brownish fine-to-gritty mudstone matrix. Some large clasts appear to be deeply weathered and altered gneiss.					
560' (171m)	566' (172.6m)	Transported regolith; in gradual change from abo ve section: Mostly angular to sub-angular quartz pebbles in gritty red-brown mudstone matrix.					
		(566' to 590' (=172.5m to 179.8m): ALTERED-WEATHERED PRE-CAMBRIAN BASEMENT					
566' (172.6m)	590±' (180m)	Weathered (in situ) and strongly altered schist; mixture of grey and reddish-brown minerals. Structure largely indistinct; gneissosity (?) @ 90° ± to core axis. (Rock appears to be either altered garnet schist or gneiss). Changes into somewhat less weathered rock below.					
		(590' to 704' (=179.8m to 214.6m): PRE-CAMBRIAN BASEMENT Garnet schist, partly altered.					
590' (180m)	605' (184.4m)	Garnet schist: schistosity about 70° to core axis. Kaolinization of feldspars. Grey with brown specks (altered garnets); still slightly altered.					
605' (184.4m)	690' (210.4m)	Quartz - feldspar - garnet schist. Light grey with brown garnets, partly altered to chlorite (green); feldspars kaolinized. Schistosity about 45°.					
690' (210.4m)	704' (214.6m)	As above, but garnets largely altered to greenish chlorite. Feldspars kaolinized (white to buff). Schistosity 50°-70° to core axis.					
		E.O.H. @ 704' (214.6m). Core scanned with SPP2 scint. Downhole gamma-ray probed to 210m (=689') with Mt. Sopris 1000. B.G. R/A only.					
		Drilled by Canadia Longyear Limited.					

DIP TESTS

TEST	FROM	TO	TOTAL	DIP CORE	LATITUDE	LATITUDE CUM.	DEPARTURE	DEPARTURE CUM.
100'	(30.49m)			-51°				
200'	(60.98)			-50°				
300'	(91.46)			-49°				
400'	(121.95m)			-48°				
499'	(153.13m)			-47°				

DIAMOND DRILL HOLE LOG

Project 508/ALBERTA

ELDORADO NUCLEAR LIMITED

LOCATION PERMIT 216
SECTION
LATITUDE 10.70N } Main
DEPARTURE 8.625E } Grid
ELEVATION SURFACE
CORE BQ
STORAGE ELDORADO, SASK.

HOLE No. 508-20
AZIMUTH 270° West (True)
DIP -50° West
LENGTH 499' (152.1m)
PURPOSE Test INPUT zone3
COMPLETED 27-3-78
LOGGED BY P. FORTUNA

METERAGE FROM	METERAGE TO	DESCRIPTION (metric depths in brackets)
	0	Collar: BW casing to 88' (26.83); 80' (24.39) left in hole (not recovered). Plastic tubing to E.O.H.
0	85' (25.9)	Overburden: Generally fine sand; boulders in bottom 10' (3.05); minor recovery. Boulders are white to buff Athabasca sandstone (some bitumen), and pegmatite. No anomalous radioactivity indicated in down-hole gamma log; B.G. - 10 c.p.s.
85' (25.9	499' 152.1)	Unaltered Pre-Cambrian Basement: core recovery nearly 100%:
85' (25.9	373' 113.7)	Schist: The rock is light to dark grey in colour, with some minor reddish-brown hematitized sections. H=6 but can be as low as 3 in the red altered sections. Schistosity is well developed at 30-90° to the core axis. Generally, the rock is fine to medium grained; minor coarser grained sections showing a pegmatitic texture are present within the unit. Fracturing is not well developed. Anomalous radioactivity (up to 870 c.p.s.) was detected in the down-hole gamma log.
		Major structures: Graphite shear zone from 206.5'-220' (62.96-67.1).
		86'-93' (26.22-28.35) Coarse grained, massive texture; 60-70% quartz.
		93'-127' (28.35-38.72) Schist; banding at 30-45° to core axis; bands are 1mm-3cm wide. Chlorite, biotite and quartz with minor sulphides (pyrite) on fractures. Some minor felsic sections, pegmatitic in nature. Minor kaolinization.
		127'-136' (38.72-41.46) Massive silicious section, with minor sections of schist (as described above). About 60-70% quartz; pegmatitic.
		136'-144' (41.46-43.9) Red altered schist. 20-30% red hematite. Banding at 30-45° to core axis.

CORE SAMPLES

FROM	TO	WIDTH	%	AVERAGES

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 2/4 HOLE 508-20

METERAGE FROM	METERAGE TO	DESCRIPTION	Sample Number	CORE SAMPLES FROM	TO	WIDTH	% U	% Th	% Cu	% Pb	Zn	Co	% Ni
		144'-161' (43.9-49.1) Intermixed light grey and red altered schist; 30% red altered in short sections up to 3cm wide.											
		161'-167.5' (49.1-51.07) Dark grey schist; locally schistosity poorly developed.											
		167.5'-172' (51.07-52.44) As described from 136'-144' (41.46-43.9).											
		172'-197' (52.44-60.06) Dark grey schist; locally gneissic. Texture poorly developed.											
		197'-206.5' (60.06-62.96) Above schist strongly altered, approaching graphite shear zone; 40-50% red altered; texture well defined.											
		206.5'-220' (62.96-67.07) Graphite shear zone. Contacts sharp and well defined, both at 60° to core axis. Rock is grey in colour, with red alteration on fractures. Graphite coats fractures throughout the section.											
		206.5'-208' (62.96-63.4) Intensely fractured, broken section.											
		218.5'-220' (66.6-67.07) Intensely fractured, broken section.											
		220'-263' (67.07-80.18) Fine grained section, mainly quartz and chlorite; massive texture. The rock is red altered along fractures. Red alteration of feldspar common throughout the section.											
		264'-265' (80.49-80.79) Weak radioactivity (maximum count rate - 150 c.p.s., SPP2). This section registers 870 c.p.s. on the down-hole gamma log.	6006	263.5' (80.33	265.5' 80.94)	2' (.61)	<0.001	0.046	Tr.				Tr
		263'-305' (80.18-92.99) Generally fine grained schist, light to dark grey. Schistosity poorly developed locally; 70-90° to core axis.											

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 3/4 HOLE 508-20

METERAGE FROM	METERAGE TO	DESCRIPTION	Sample Number	CORE SAMPLES FROM	TO	WIDTH	U	Th	Cu %	Pb	Zn	Co	Ni
		279'-282' (85.06-85.98) Gneissic section; 60-70% white quartz bands up to 15cm wide.											
		305'-309' (92.99-94.2) Coarse grained granite/pegmatite (?); 20-30% pink feldspar grains, up to 1cm in diameter.											
		309'-311' (94.2-94.8) Schist (as (93'-127' (28.35-38.72).											
		311'-312.5' (94.8-95.27) As described from 305'-309' (92.99-94.2).											
		312.5'-371.5' (95.27-113.26) Light to dark grey schist; minor red alteration.											
		356'-359' (108.54-109.45) Quartz-rich, pegmatitic section.											
		371.5'-373' (109.45-113.7) As described from 305'-309' (92.99-94.2).											
373' (113.7	499' 152.1)	Gneiss: The rock varies between leucocratic and mafic gneiss. Leucocratic sections generally contain 20-30% pink to flesh-coloured feldspar. Gneissic banding is well developed throughout at 45-90° to the core axis. H=6 throughout. The unit is about 50% ± quartz overall. No major structures are present, Minor schist. Anomalous radioactivity (up to 430 c.p.s.) detected in down-hole gamma log.											
		373'-406' (113.7-123.8) Mafic gneiss; 40-50% mafics (chlorite and biotite). Some minor sections of schist are massive granite/ pegmatite (?).											
		406'-426' (123.8-129.9) Leucocratic gneiss,with some minor mafic-rich sections.											
		414'-415' (126.2-126.5) Weak radioactivity (maximum count rate - 170 c.p.s., SPP2). This section registered 430 c.p.s. on down-hole gamma log.	6007	413.5' (126.)	415.5' 126.68)	2' (.61)	↓ 0.001	↓ .029	↓ Tr				↓ Tr

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 4/4 HOLE 508-20

METERAGE FROM	METERAGE TO	DESCRIPTION
		423' (128.96) Gneissic banding @60° to core axis.
		426'-453' (129.9-138.1) Mafic gneiss.
		436' (132.9) Gneissic banding at 60° to core axis.
		445'-446' (135.67-135.97) Gneissic banding sub-parallel to core axis.
		453'-499' (138.1-152.1) Leucocratic gneiss; 30% pink feldspar. Well developed gneissic banding at 45° to core axis.
	499' (152.1)	END OF HOLE (E.O.H.). Core scanned with SPP2. Sampled sections split as 2' (.61m) samples.

CORE SAMPLES FROM	TO	WIDTH	%	AVERAGES

DIAMOND DRILL HOLE LOG

Project 508/ALBERTA

ELDORADO NUCLEAR LIMITED

LOCATION PERMIT 216
SECTION
LATITUDE 10.75N } "Main
DEPARTURE 8.52E } Grid"
ELEVATION SURFACE
CORE BQ
STORAGE ELDORADO, SASK.

HOLE No. 508-21
AZIMUTH TRUE (grid E)
DIP -50°E
LENGTH 344' (104.8)
PURPOSE Test INPUT Zone3
COMPLETED 24-3-78
LOGGED BY H. LAANELA

DIP TESTS

TEST	FROM	@ TO	TOTAL	DIP CORR.	LATITUDE CUM.	DEPARTURE CUM.
		100'	(30.48)	-49°		
		200'	(60.98)	-48°		
		300'	(91.5)	-43°		

METERAGE FROM	TO	(metric depths in brackets) DESCRIPTION	CORE SAMPLES FROM	TO	WIDTH	U %	Th %	Ca %	Ni %
	0	Collar: Casing 0' to 65' (0-19.8). (30' (9.15) left in hole, not recovered). Plastic tubing to E.O.H. Core recovery > 95%.							
0	63' (19.2)	Overburden: Sandy.							
		(NO REGOLITH ZONE).							
63'	344'	(19.2 to 104.8): PRE-CAMBRIAN BASEMENT)							
		Mainly blue quartz-chlorite schist and gneiss; no weathering.							
63' (19.2	65.5' 20)	Fresh, bluish medium-grey blue-quartz schist: mafic minerals sheared and altered (chlorite). Fine grained sulfide (pyrite) along fractures parallel to schistosity (20-25% to core axis). Quartz (bluish) in bands 0.3 to 1cm, mafic bands a few mm's. Some cross-fracturing. R/A (SPP2 scint.) ± 25 c.p.s., B.G. only, in core.							
65.5' (20	73.5' 22.4)	Bluish medium-gray, medium grained blue-quartz gneiss (less sheared than above). Speckled with brownish-red spots in blue quartz (no sharp boundaries); Gneissosity about 30° to core axis. A band of material (K-feldspar?, blue quartz and quartz) several cm wide @70' to 70.5' (21.3-21.5); about 5-10° core axis, cutting across gneissosity. R/A (SPP2) of core 25-30 c.p.s. (B.G.).							
73.5' (22.4	81' ± 24.7 ±)	Coarse grained section of pegmatitic appearance (pegmatoid) metamorphic rock, irregular boundaries 10-30° to core axis. Feldspars (K, Na?) up to 2cm; blue quartz, dark mafics. Contains intervals of blue-quartz gneiss (as before). Lower part of core broken. R/A of core (with SPP2) higher, up to 50 c.p.s. (2x B.G.); 75-80 c.p.s. @77' (23.5), decreasing downwards.	#6008 77'	79'	2'	<0.001	0.015	tran	tran
			#6009 79'	81'	2'	<0.001	0.004	"	"
81' ± (24.7 ±	130.5' 39.8)	Blue-quartz gneiss, similar to section 65.5'-73.5' (20-22.4). Broken on top, with 2cm quartz vein @45°. Small cavities and fracture contain minor bitumen. Some fractures hematite filled. Gneissosity ± 30° @96' to 100' (29.3-30.49), 10-15° @129' (39.3), and 45° @110' (33.5); fractures bitumen filled. Chloritic shear zone in broken rock @114' (34.8), @ ± 15° to core axis, at least several cm's wide. Pegmatoid section @115.5' (35.2) to 116.5' (35.5); large K-feldspars	#6010 81'	83'	2'	<0.001	0.016	"	"

METERAGE FROM	METERAGE TO	DESCRIPTION	CORE SAMPLES FROM	CORE SAMPLES TO	CORE SAMPLES WIDTH	CORE SAMPLES %
		(several cm's), broken and fractured, R/A 25-35 c.p.s. (B.G. only); quartz fracture filling with small cavities. Sharp break with section below.				
130.5' (39.8	132' 40.24)	Reddish, hematitic, very altered shear zone, very sharp contact above, gradual below, shearing @±15° to core axis, irregular break. Contains blue quartz. Grades into section below.				
132' (40.24	135.5' 41.3)	Blue-quartz schist, with chlorite; darker bluish grey. Broken core @133.5'-134' (40.7-40.8). Lower part of section becomes reddish and pegmatoid, with K-feldspars and blue quartz.				
135.5' (41.3	136.5' 41.6)	Chloritic greenish-black shear zone in pegmatoids. R/A (SPP2 on core) ±50 c.p.s., up to 80 c.p.s. (3-4x B.G.) in lower half.				
136.5' (41.6	137' 41.8)	Continuation of above pegmatoid. Ends sharply in dark chloritic mylonite, several cm's wide @40° to core axis, below.				
137' (41.8	142' 43.3)	Blue-quartz gneiss, in sharp contact with above mylonite. Gneiss as @81'-130.5' (24.7-39.8). Dark bluish grey toward bottom of section.				
142' (43.3	145.2' 44.3)	Coarse, reddish pegmatoid, with K-feldspars, blue quartz, quartz and chlorite; crushed appearance. Definite boundaries: upper ±10°, lower 30° to core axis, adjacent sheer fractures chlorite filled. R/A up to 30-40 c.p.s. in core (SPP2).				
145.2' (44.3	147.5' 45)	Chloritic blue-quartz schist (25-30° to core axis). Dark bluish gray, some reddish mottling. R/A at core 30-40 c.p.s.				
147.5' (45	148' 45.1)	Pegmatoid, as before.				
148' (45.1	148.5' 45.3)	Chorite mylonite, shear @30° to core axis. Broken core.				
148.5' (45.3	174.5' 53.2)	Dark bluish green, fine grained rock containing fine (up to few mm) blue quartz grains in chloritic matrix, becoming slightly coarser downward. Gneissosity/ schistosity not apparent in upper part. Hairline fissures and fractures @ varying intersecting angles. Brown mottling (hematitic alteration?). Lower contact: a few mm wide fissure filling @45° of pale greenish-yellow mineral.				

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 3/4 HOLE 508-21

METERAGE FROM	METERAGE TO	DESCRIPTION
174.5' (53.2	178.5' 54.4)	Blue quartz-chlorite schist (or fine gneiss?), dark bluish-grey. Schistosity ±35° to core axis. Grades into section below.
178.5' (54.4	180.5' 55)	Chlorite mylonite (?), with grains of blue quartz. Red hematization along shear planes (@40° to core axis).
180.5' (55	183' 55.8)	Graphitic chlorite mylonite; soft broken core. Blue quartz in lower part. Grades into section below.
183' (55.8	186' 56.7)	Chlorite mylonite. Fine, soft, dark greenish-gray.
186' (56.7	192' 58.5)	Graphitic chlorite schist. R/A ±25 c.p.s. (B.G.) on SPP2.
192' (58.5	193' 58.8)	Chloritic blue-quartz schist, with lager blue quartz grains.
193' (58.8	230'± 70.1±)	Chloritic schist, becomes graphitic toward bottom of section. Blue quartz grains 216'-218' (65.8-66.5), 223'-225' (68-68.6).
230'± (70.1±	256' 78)	Chloritic schist has become increasingly graphitic. Graphite schist; schistosity 60-70° to core axis. R/A of core 25-30 c.p.s. on SPP2 (B.G. only).
256' (78	258'± 78.7±)	Above grades into chloritic blue-quartz schist. R/A of core ±25 c.p.s. (B.G. only).
258' ± (78.7±	269'± 82±)	Above schist grades into coarser, more gneissic, hematized rock with blue quartz grains in chlorite matrix. Strongly altered (hematized in coarsest mid-section).
269'± (82 ±	287'± 87.5±)	The above becomes fine grained chloritic blue-quartz schist, with some hematization; coarser parts contain blue quartz.
287' ± (87.5±	291'± 88.7±)	Above grades into chlorite schist, with some crushed and flattened blue quartz grains. Schistosity 25° to core axis.
291' (88.7	334' 101.8)	The above grades into medium-gray to greenish chloritic blue-quartz gneiss, with more schistose intervals. Some parts contain abundant quartz. Speckled with chloritic blebs (up to 1cm). Gneissosity @298' (90.8) is ±45° to core axis, @310' (94.5) ±30°, @322' (98.2) ±45°, @326' (99.4) ±40°. Last 10' (3.05) becomes more schistoze.

CORE SAMPLES

FROM	TO	WIDTH	U %	Th %	Cu %	Ni %
#6011 260'	262'	2'	<0.001	0.010	Trace	Trace
#6012 262'	264'	2'	<0.001	0.037	"	"

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 4/4 HOLE 508-21

METERAGE FROM	METERAGE TO	DESCRIPTION	CORE SAMPLES FROM	CORE SAMPLES TO	CORE SAMPLES WIDTH	CORE SAMPLES %	CORE SAMPLES AVERAGES
		Schistosity @342' (104.3) ±30° to core axis; reddish hematitic alteration parallels schistosity. R/A of core ±25 c.p.s., B.G. only. Deformed and altered garnets (up to 1-2cm) and minute specks of sulfides (pyrite) appear in this section. E.O.H. @344' (=104.8). Core scanned with SPP2 scint. Downhole gamma-ray probed to 100m (=328'), first through rods/casing, later through plastic tubing (see graphs). Drilled by Canadian Longyear Limited. (N.B. This hole was drilled before DDH #508-20).					

DIAMOND DRILL HOLE LOG

Project 508/ALBERTA

ELDORADO NUCLEAR LIMITED

LOCATION PERMIT 214
SECTION
LATITUDE 20.925 NE } GRID
DEPARTURE 20.45 SE } "B"
ELEVATION SURFACE
CORE B.Q.
STORAGE ELDORADO, SASK.

HOLE No. 508-22
AZIMUTH 50° True
DIP 70° NE (Grid NE)
LENGTH 327' (99.7m)
PURPOSE Test INPUT zone11
COMPLETED 31-3-78
LOGGED BY LAANELA/FORTUNA

DIP TESTS

TEST	FROM	TO	TOTAL	DIP CORR.	LATITUDE CUM.	DEPARTURE CUM.
		100'	30.49m	-70°		
		200'	60.98m	-71°		
		327'	99.7m	-71°		

METERAGE FROM	METERAGE TO	(metric depths in brackets) DESCRIPTION
	0	Collar: BW casing to 100' (30.5) (all recovered. Plastic tubing to E.O.H.
0	100' (30.5)	Overburden: Sandy.
100' (30.5	327' 99.7)	Pre-Cambrian basement:
100' (30.5	184' 56.1)	Unweathered granitic gneiss. No regolith, no sedimentary rocks. Section starts with unweathered, fresh medium grained, reddish-brown granitic gneiss. Contains reddish K-feldspars, some quartz and biotite. Gneissosity 45-60° to core axis near top of section, poorly developed. Kaolinization of feldspar along fracture zones, particularly 115.5'-116.5' (35.2-35.5). Bitumen in longitudinal fractures. Broken core from 144'-147' (43.9-44.8); 175'-179' (53.4-54.6). Gneissosity becomes better developed from 121' (36.9) down, about 50-55° to core axis @123' (37.5); 60° @150' (45.7); 60-70° @160' (48.8); 60° @173' (52.7); 60° @182' (55.5). R/A (SPP2) at core B.G. only 25-30 c.p.s.
184' (56.1	188' 57.3)	Fine to medium grained dark greenish gneiss, with some elongated K-feldspars along gneissosity; fine grained mafic matrix. Upper contact sharp @45°; lower sharp @70° to core axis. Contains red hematitic and yellow limonitic alteration zones; 4cm interval of quartz @188' (57.3).
188' (57.3	219' 66.8)	Granitic gneiss as before; reddish-grey, medium grained. Well developed gneissosity in places; 60° @188.5' (57.5); 65° @196' (59.8); 60° @215' (65.5). Hairline fractures near bottom of section.
219' (66.8	229' 69.8)	Strongly banded and altered gneiss with zones of darker greenish-grey fine grained and finely banded intervals alternating with coarse pegmatitic looking intervals.
229' (69.8	232.5' 70.9)	Granitic gneiss, intensely altered. Feldspars have been kaolinized to yellow-green colour.

CORE SAMPLES

FROM	TO	WIDTH	%	AVERAGES

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 2/2 HOLE 508-22

METERAGE FROM	METERAGE TO	DESCRIPTION	CORE SAMPLES FROM	CORE SAMPLES TO	CORE SAMPLES WIDTH	CORE SAMPLES %	CORE SAMPLES AVERAGES
232.5' (70.9	254.5' 77.6)	GRAPHITE SHEAR ZONE. Strong alteration by graphite; kaolinization secondary. Greasy texture; graphite present in massive form as well as fracture coating material. Gneissic texture somewhat preserved. The rock is dark grey to greenish-grey in colour. Lower 3' (.91) of section as described from 229'-232.5' (69.8-70.9).					
254.5' (77.6	276.5' 84.3)	Fresh, medium grained granitic gneiss, reddish-brown colour. Generally as in 100'-184' (30.49-56.1). Gneissosity @70-90° to core axis.					
276.5' (84.3	292.5' 89.2)	Coarse grained massive granite, almost pegmatitic. Minor chloritic sections, light green in colour, up to 10cm wide.					
292.5' (89.2	327' 99.7)	Granitic gneiss (as 254.5'-276.5' (77.6-84.3)). Local pegmatitic sections in lower portion. Banding @70-90° to core axis.					
	327' (99.7)	END OF HOLE (E.O.H.). Scanned with SPP2. No R/A.					

DIP TESTS

TEST	FROM	TO	TOTAL	DIP CORR.	LATITUDE CUM.	DEPARTURE CUM.
		100'	30.49m.	-53°		
		200'	60.98	-55°		
		300'	91.46m	-54°		
		400'	121.95m	-55°		
		500'	152.4m	-57°		

DIAMOND DRILL HOLE LOG

Project 508/ALBERTA

ELDORADO NUCLEAR LIMITED

LOCATION PERMIT 214
SECTION
LATITUDE 21.600NE } Grid
DEPARTURE 20.550SE } "B"
ELEVATION SURFACE
CORE B.Q.
STORAGE ELDORADO, SASK.

HOLE No. 508-23
AZIMUTH 320° True
DIP -53° NW
LENGTH 503'(153.3m)
PURPOSE Test INPUT zone10
COMPLETED 2-4-78
LOGGED BY H. LAANELA

FOOTAGE FROM	FOOTAGE TO	(metric depths in brackets) DESCRIPTION
	0	Collar: BW casing to 108' (32.9) (100' (30.49) left in hole; not recovered). Plastic tubing to E.O.H.
0	107' (32.6)	Overburden: Collared in muskeg; 3' (.91) of core recovered from boulders consist of: 20cm's Athabasca sandstone (top), 1"±(2.54cm) across, one piece of limy Devonian mudstone; 5.5" (14cm) of core of limy Devonian mudstone. This followed by 2' (.61m) section of core consisting of consolidated gray mud containing small rock fragments and rounded pebbles (not limy), apparently of recent origin (river channel?); the last few inches of it are very coarse, containing highly leached and weathered (kaolinized) soft, crumbly fragments and rubble of granitic rock, which grades into solid bedrock @ about 107' (32.6).
		(107' to 503' (32.6-153.3): PRE-CAMBRIAN BASEMENT)
		Mainly dioritic and granitic gneisses.
107' (32.6	126.8' 38.7)	Weathered and altered granite, probably close to the original regolithic paleo surface. First 2' (.61m) are crumbly, pitted and porous, indicating more recent weathering near present surface. Remainder of section contains highly altered medium to coarse grained reddish granitic rock with altered (kaolinized) feldspars, quartz and micas. Alteration decreases downward. Fractured in places, with clay and limonitic filling; some fractures contain bitumen. Gneissosity not apparent. R/A (radioactivity) of core 25-35 c.p.s. (Background only) on SPP2 scint.
126.8' (38.7	129.5' 39.5)	Felsite dike. Reddish fine grained rock, altered to chloritic and clay minerals. Upper contact 70° (to core axis), lower 50° (with some shearing) to core axis; both are sharp. R/A of core 25-35 c.p.s. (B.G. only).
129.5' (39.5	140' 42.7)	Altered granite, similar to 107'-126.8' (32.6-38.7) above. Coarse gneissic texture becoming very apparent. Clay minerals and bitumen in fractures; core broken in places. Fresh appearing sections (with red feldspars) alternate with some more weathered and kaolinized intervals. Gneissosity about 45° @138' (42.1).

CORE SAMPLES

FROM	TO	WIDTH	%	AVERAGES

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 2/3 HOLE 508-23

METERAGE FROM	METERAGE TO	DESCRIPTION	CORE SAMPLES FROM	CORE SAMPLES TO	CORE SAMPLES WIDTH	CORE SAMPLES %	CORE SAMPLES AVERAGES
140' (42.7	167' 50.9)	Granite, similar to above, but fresher. Gneissosity poorly developed, about 30-40° to core axis @160' (48.8).					
167' (50.9	198' 60.4)	Dark, reddish to greenish grey fine grained rock, altered in upper part of section; probably a dike?. Chlorite, hematite and kaolinized feldspars in altered part. 2-5mm veinlets and fissures at various angles, filled with pale greenish to yellowish mineral (calcite and/or siderite?), locally hematitic; includes about 8cm wide vuggy vein @45° @186' (56.7) containing brecciated wallrock. Some fissures show slickensides. R/A B.G. only.					
198' (60.4	219' 66.8)	Dark, reddish to brownish granitic gneiss. Mostly medium grained with some coarser, less gneissic intervals (pegmatitic). Strongly altered (hematite, chlorite, kaolinite) interval from 212.5' to 214' (64.8-65.2). Fine fissures, filled with reddish hematite and siderite. Gneissosity: 70° to core axis @198' (60.4), 60° @211' (64.3), 70° @217' (66.2).					
219' (66.8	224' 68.3)	As in 167'-198' (50.9-60.4) (dike?).					
224' (68.3	226' 68.9)	Reddish gray, fine to medium grained granitic gneiss.					
226' (68.9	228' 69.5)	Quartz vein; milky white, massive, irregular contacts.					
228' (69.5	257' 78.4)	Mixture of fine grained reddish and greenish grey rock and gneissic granite, alternating intervals. Siderite in fissures. Gneissosity 50° to core axis @246' (75).					
257' (78.4	264'± 80.5±)	As above, but very broken and altered. Chloritic; vuggy siderite filled interval about 261' to 262' (79.6-79.9).					
264'± (80.5±	266' 81.1)	Coarse, pegmatitic, with highly altered intervals both above and below.					
266' (81.1	320' 97.6)	As in 228'-257' (69.5-78.4); Mixture of greenish grey, fine grained gneissic rock and coarser more granitic gneiss. Hard red hematite, 5-6cm, @283' (86.3); fine pyrite along fractures @ about 283.5' (86.4), 308' (93.9), 312' (95.1). Gneissosity: 40° to core axis @277' (84.4), 30° @288' (87.8), 45° @302' (92.1), 35° @318' (96.9).					

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 3/3 HOLE 508-23

METERAGE FROM	METERAGE TO	DESCRIPTION	Sample Number	CORE SAMPLES FROM	TO	WIDTH	U %	AVERAGES
		(Core, in general, has become darker, grayer, finer grained intermediate-dioritic gneiss downwards; some intervals appear argillaceous and contain pyrite along fractures. Coarser intervals are granitic, with reddish K-feldspars and some quartz.)						
320' (97.6	324'± 98.8±	Dark greenish-black very fine grained chloritic rock, argillaceous appearance. Pyrite smeared along fractures. No sharp contacts; contains some more gneissic intervals (about ±45°).						
324'± (98.8±	410' 125)	The above section has graded into more dioritic looking gneissic rock, similar to 266'-320' (81.1-97.6). Dark to medium gray, with some lighter intervals and bands containing coarse quartz and reddish feldspars. Gneissosity usually well developed, eg: 50° @325' (99.1), 25° @333' (101.5), 25° @348' (106.1), 30° @358' (109.1), 45° @362' (110.4), 35° @366' (111.6), 30° @381' (116.2), 40° @393' (119.8), 50° @407' (124.1). Pyrite common in fractures. Some small veinlets and fissures (less than 1cm), mostly parallel to gneissosity are filled with reddish-orange mineral (siderite?). An argillaceous interval @361'-362' (110.1-110.4) is broken, with calcite and finely crystalline pyrite blebs along fractures. Bottom most 10' (3.05m) becomes finer grained, chloritic; gneissic texture barely apparent, contains some very finely disseminated pyrite (see: grab sample for sulfides).	# 6013	400' (121.9)	grab	2" (5.08cm)	—	% (Cu, Ni, Co) trace only
410' (125	412.5' 125.8)	Lighter colored dull gray-green rock, fine to medium grained, consisting mainly of a mineral of same colour: laminated appearance due to cleavage, glassy lustre on cleavage, medium hard. Parts slightly reactive to HCl. Contains some irregular quartz and mica filled veinlets toward bottom of section, also fine pyrite where it grades into next section.						
412.5' (125.8	503' 153.3)	Dark to medium gray dioritic gneiss, as in 324'-410' (98.8-125). Pyrite in fractures, particularly in more argillaceous, finer grained intervals (eg. 481'-484' (146.6-147.6), 496'-497' (151.2-151.5)). Gneissosity: 60° to core axis at 416' (126.8), 40° @427' (130.2), ±45° @441' (134.4), 45° @458' (139.6), 40° @470' (143.3), ±40° @478' (145.7), ±40° @491' (149.7), 50° @502' (153). Irregular quartz veins @472'-474' (143.9-144.5).						
		E.O.H. @503' (=153.3). Drilled by Canadian Longyear Limited.						
		Core was scanned with SPP2 scint: -no anomalous R/A. No anomalous R/A was detected with downhole gamma-ray probe.						
		E.M. Conductor was not intercepted (assume dip away from hole).						

DIP TESTS

TEST	FROM	TO	TOTAL	DIP CORR.	DIP CUM.	LATITUDE	LATITUDE CUM.	DEPARTURE	DEPARTURE CUM.
		100'	30.49m	-51°					
		438'	133.54m	-50°					

DIAMOND DRILL HOLE LOG

Project 508/ALBERTA

ELDORADO NUCLEAR LIMITED

LOCATION PERMIT 214
SECTION
LATITUDE 20.800NE } Grid
DEPARTURE 21.625 } "B"
ELEVATION SURFACE
CORE B.Q.
STORAGE ELDORADO, SASK.

HOLE No. 508-24
AZIMUTH 140° True
DIP -52° SE
LENGTH 451'(137.5m)
PURPOSE Test INPUT zoneII
COMPLETED 8-4-78
LOGGED BY H. LAANELA

METERAGE FROM	METERAGE TO	(metric depths in brackets) DESCRIPTION	Sample Number	CORE SAMPLES FROM	TO	WIDTH	U %	AVERAGES
	0	Collar: BW casing to 205' (62.5) (195' (59.4) casing left in hole; not recovered). Plastic tubing from 0' to 386' (117.7); blocked by caving-in below this level.						
0	202' (61.6)	Overburden: Sand, with numerous large sandstone boulders, particularly near and above the basement surface. No sandstone subcrop. Difficult drilling.						
		(202' to 451' (61.6-137.5): ALTERED PRE-CAMBRIAN BASEMENT) In-situ regolith zone, gneissic rocks, graphite, fault gouge.						
202' (61.6	250'± 76.2±)	Pre-Cambrian Regolith Zone: deeply altered (in-situ) granitic gneisses. Original minerals, except quartz, are destroyed. Gneissic texture apparent in places. (Assume closeness to original Pre-Athabasca paleosurface.) Color of alteration is dark reddish brown (hematized). Kaolinization of all feldspars. Broken soft crumbly core, porous in places. Fractures clay filled. Original grain size probably coarse to medium. Core recovery about 90-95%. Gneissosity: 50-60° to core axis @211' (64.33), about 40° @218' (66.46), about 30° @223' (67.98), 30° @230' (70.12), 30-35° @238' (72.56), about 30° @250' (76.22). R/A of core about 20 c.p.s. (B.G.) with SPP2 scint. Becomes chloritic, in patches, and grades into section below.						
250'± (76.2	272' 82.9)	Core has become largely chloritic; speckled, dark greenish to reddish in places. Broken core. Reddish clay in fractures (has metallic coppery sheen when wet). Strongly altered rock. Gneissosity about 45° to core axis @259'-260' (78.96-79.27); feldspars kaolinized. Quartz in coarser, granitic intervals. R/A of core ±25, increases to 40-50 c.p.s. (2x B.G.) toward bottom, using SPP2 scint. (N.B. Downhole gamma-probing of hole indicates a radioactive section between 269' and 276' (82-84.15), reading to 138 on Mt. Sopris 1000, about 4-5x B.G.).	6014	256.5' (78.2)	spm.	2" (5.08cm)	—	% (Cu, Ni, Co, Pb, Zn) trace only Th: —

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 2/5 HOLE 508-24

METERAGE FROM	METERAGE TO	DESCRIPTION	Sample Number	CORE SAMPLES FROM	TO	WIDTH	U %	Th %	Cu %	Ni %
272' (82.9	276' 84.15)	Strongly altered, reddish, coarsely granular rock, Granite? No gneissic texture. Red K-feldspars abundant, partly altered. R/A of core about 40-55 c.p.s. (2x B.G.). (This R/A section, plus the lower part of previous section above correspond with the downhole gamma-probe "high".) Some pale, apple-green mineral occurs in top of this section, also elsewhere.	6015	273' (83.2	275' 83.8)	2' (.61)	0.001	0.012	trace	0.01
276' (84.15	283' 86.28)	A finely gneissic, almost schistoze, altered section. Bands of chlorite alternate with kaolinized feldspars, @30° to core axis. R/A of core about 50 c.p.s. (2x B.G.).								
283' (86.28	287' 87.5)	Altered granitic section, becomes finer grained and light greenish gray in center.								
287' (87.5	294' 89.6)	Dark greenish chloritized gneissic section; core partly broken. Gneissosity about 30° to core axis.								
294' (89.6	299'± 91.16±)	Altered granite; soft, broken core. R/A of core about 30 c.p.s.								
299'± (91.16	330'± 100.6)	Chloritized and kaolinized gneiss, as before. Gneissosity: 60° @309' (94.21); 60° @316' (96.3); about 45° @323' (98.47). Grades into section below:								
330'± (100.6	335' 102.1)	Very dark greenish black, fine grained altered and partly brecciated argillaceous looking rock; contains finely disseminated pyrite. Locally some gneissosity, eg. 60° @332' (101.2). Grades into next section:								
335' (102.1	336' 102.4)	Sheared and fractured hard argillaceous rock. Many hairline fractures are filled with quartz (@30°±). Contains finely disseminated pyrite. Greenish black. Rather sharp contact, 30° to core axis, with section below:								
336' (102.4	337'± 102.7±)	Graphite; contains minor disseminated pyrite. Lower, contact sharp, @25° to core axis. Estimate: ±30% core lost.								

DIAMOND DRILL HOLE LOG

78-508-26 PAGE No. 3/5 HOLE 508-24

METERAGE FROM	METERAGE TO	DESCRIPTION	Sample Number	CORE SAMPLES FROM	TO	WIDTH	Cu %	Pb %	Zn %	Co %	Ni %
337'± (102.7	338.5' 103.2)	Hard, coarse grained crystalline rock, located between the graphite sections. Lower contact sharp, about 40-45° to core axis. Mottled with light gray (quartz), green, and brown (hematitic) mineral grain; inter granular fine sulfides (also in fractures in the green mineral), - mainly pyrite, possible some chalcopyrite. Green mineral is undeterm- ined (dull lustre, no cleavage, dull grayish-green color, soft.) A sample of core taken for assay on sulfides.	6016 #	338' (103)	spm.	3" (7.62cm)	0.01	Tr.	Tr.	Tr.	0.03
338.5' (103.2	353' 107.6)	Section consists of very broken, estimate about 40% of core is lost. Mixture of graphite, and the rock described in previous section (337'- 338.5' (102.7-103.2)) which is highly sheared here and impregnated with fine sulfides (pyrite), 5-10% of rock, up to 25% in places. The contact between the graphite and the rock previously described appears to run subparallel to almost parallel to core axis. Graphitic side of core consists of fine fragments, most of it washed away from the core. The bottommost 4'± (1.22) of this section consists of fine graphite fragments only. The lower contact of this graphite interval with the section below is about 20° to core axis.	# 6017	339.5' (103.5)	spm.	2" (5.08cm)	0.01	Tr.	Tr.	0.01	0.05
			± 6018	341'	spm.	2"±	0.01	Tr.	Tr.	Tr.	0.06
353' (107.6	356' 108.5)	As in 337'-338.5' (102.7-103.2), but more crushed and altered. Sulfide (pyrite) content less than 0.5%, mainly as finely disseminated grains. Lower contact zone lost in the core.									
356' (108.5	356.5'± 108.69)	Soft, crushed rock, consisting of graphite and kaolinite; shearing about 45°. Grades into next section:									
356.5'± (108.69	358'± 109.1)	Very fine grained dark greenish (chloritic) to brownish (hematitic) soft schistoze rock. Shearing 30° or less to core axis. Contact with section below is gradual and appears to run subparallel to core axis; i.e. longitudinal "slices" of core consist of fault gouge and highly kaolinized material. Pyrite no longer evident.									
358'± (109.1	367'± 111.89)	Approaching the fault gouge zone: The above section has become more strongly sheared, containing fault gouge in places.									

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 4/5 HOLE 508-24

METERAGE FROM	METERAGE TO	DESCRIPTION	Sample Number	CORE SAMPLES FROM	TO	WIDTH	Cu %	Pb%	Zn%	Co%	Ni%
367'± (111.89)	387'± 117.99)	Main fault zone section: Very soft, crumbly, sheared and crushed chloritized-kaolinized rock containing quartz fragments. Surface of core washed away, pitted. Fracturing and shearing from 15-20° to core axis. The drill hole apparently follows this fault zone at an acute angle (15-30° to core axis); caving was reported from the foregoing ±40' (12.2) of hole section. Core recovery good, 90-95%.									
387'± (117.99)	397'± 121)	Similar to section 358'-367' (109.15-111.89); leaving fault zone. Core recovery good. Contains fault gouge; fractures 30-45° to core axis.									
397'± (121	405'± 123.5)	Fine grained dark greenish rock with red (hematitic?) alteration; argillaceous appearance. Chloritic, some kaolinite. Core broken in places. Becomes gradually more gneissic and medium to fine grained toward bottom of section, grading into next section:									
405'± (123.5	422'± 128.66)	Strongly altered, soft, dark greenish gneissic rock, medium grained. Contains chlorite, kaolinite and red (hematitic) bands along gneissosity: 30° to core axis @408' (124.4), 45° @412' (125.6), 50°± @415' (126.5). Feldspars altered red. No quartz seen. Grades into next section:									
422'± (128.66	427'± 130.18)	Fine grained, mainly pale to dark greenish (in bands), partly argillaceous altered rock with chlorite, kaolinite and red (hematitic) minerals. Quartz appears toward bottom of section where rock becomes harder and less altered; some intervals are siliceous. Feldspars and quartz are crushed and fractured. Gneissosity about 50° to core axis @425' (129.57). Grades gradually into next section.									
427'± (130.18	448'± 136.6)	The above has graded into fine grained, lighter colored (pale reddish to greenish) siliceous rock. Much crushing and shearing evident throughout the section. Some small intervals have altered granitic appearance, with much quartz and K-feldspars; other intervals are fine grained and argillaceous. Gneissosity/schistosity: about 50° @429' (130.8), 60° @441' (134.45), 70° @447' (136.3).									
448' (136.6	450'± 137.2)	Reddish, altered medium-fine grained rock, - a felsitic dyke? Upper contact about 50° to axis, lower contact indistinct.	# 6019	448' (136.6	450' 137.2)	2' (.61)	Trace	—	—	—	Trace
450' (137.2	451' 137.5)	As in 422'-448' (128.66-136.6). Gneissosity about 50° to core axis.					Also: U% = <0.001, Th% = 0.020				

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 5/5 HOLE 508-24

METERAGE FROM	METERAGE TO	DESCRIPTION	CORE SAMPLES FROM	CORE SAMPLES TO	CORE SAMPLES WIDTH	CORE SAMPLES %	CORE SAMPLES AVERAGES
		E.O.H. @451' (=137.5).					
		Drilling difficulties both in overburden and in graphite/fault zones; caving and blocking. Core was scanned with a SPP2 scint. Hole was downhole gamma-ray probed through rods and casing to 130m (=426.5').					
		Drilled by Canadian Longyear Limited.					

DIP TESTS

TEST	FROM	TO	TOTAL	DIP CORR.	LATITUDE CUM.	DEPARTURE CUM.
100'	(30.5m)			-54°		
200'	(61m)			-53°		
300'	(91.5m)			-49°		
400'	(122m)			-52°		

DIAMOND DRILL HOLE LOG

Project 508/ALBERTA

ELDORADO NUCLEAR LIMITED

LOCATION PERMIT 214
SECTION
LATITUDE 22.40NE) Grid
DEPARTURE 20.72SE)"B" ext
ELEVATION SURFACE
CORE BQ
STORAGE ELDORADO, SASK.

HOLE No. 508-25
AZIMUTH 140° True
DIP -52° SE
LENGTH 422' (128.6m)
PURPOSE Test Turam conduc-
COMPLETED 13-4-78 (tor
LOGGED BY P.A. FORTUNA

METERAGE FROM	METERAGE TO	DESCRIPTION (metric depths in brackets)
	0	Collar: Casing to 85' (25.9); left in hole.
0	85' (25.9)	Overburden: Sandy. No sedimentary rocks.
85' (25.9)	422' 128.6)	Pre-Cambrian basement:
85' (25.9	191' 58.2)	Altered Basement Rock (in situ regolith):
		The rock is reddish-brown and yellow in colour, with minor green sections. H=5 throughout the section, and the rock is fine to medium grained. Gneissosity has been partially preserved, with banding generally at 45-90° to the core axis. The rock has been intensely altered with hematitization and kaolinization dominant. Alteration by chlorite increases with depth. No major structures are present in the core. The rock is 80% quartz and feldspar and about 20% mafics; minor sulphides (pyrite).
		85'-86.5' (25.9-26.4) Red altered section; brecciated.
		86.5'-109' (26.4-33.2) Section is intensely kaolinized; feldspars generally yellow in colour, soft. Minor hematitized sections up to 1' (.30m) wide. Gneissic banding in upper portion of section @45° to core.
		98.5' (30) ¼" (.56cm) gouge on fracture @60° to core axis.
		109'-141' (33.2-43) Weakly to moderately hematitized; sections with kaolinization dominant. Gneissosity locally well defined.

CORE SAMPLES

FROM	TO	WIDTH	%	AVERAGES

METERAGE FROM	METERAGE TO	DESCRIPTION	Sample Number	CORE SAMPLES FROM	TO	WIDTH	% U	% Th	AVERAGES
		126' (38.4) Gneissic banding @80° to core axis.							
		141'-156.5' (43-48) Fine grained section; larger (2-3mm) clasts throughout, dark red (probably hematitized feldspar) and flecks of chlorite. Kaolinization throughout section.							
		156.5'-167' (48-51) Chloritized section, generally pale green in colour, minor kaolinization. Locally reddish-brown, intensely hematitized.							
		163'-164' (49.7-50) Medium to coarse grained brecciated section; 30-40% blue-grey quartz.							
		167'-176' (51-54) Intensely hematitized, reddish-brown section. Minor kaolinization. Gamma-log response to 115 c.p.s. Not detected on scintillometer.	# 6021	171' (52.1	173' 52.7)	2' (.61)	<0.001	0.013	
		176'-180' (54-55) Blueish-green section, weakly hematitized 30-40% blue quartz.							
		180'-186.5' (55-57) As described from 167'-176'(51-54). Minor dark green chloritic sections.							
		186.5'-191' (57-58.2) As described from 176'-180'(54-55).							
191' (58.2	199' 60.6)	Fine grained, mafic-rich section; argillaceous (?). Chloritized and hematitized. Strong hematite filled fractures, generally sub-parallel to core axis from 194'-195'(59.1-59.4). Upper contact at 70° to core, lower gradational.							
199' (60.6	422' 128.6)	FRESH BASEMENT ROCK (GRANITIC GNEISS) Orange-brown to pink in colour, locally mafic-rich, but generally alaskitic in nature; H=6. A moderately to well defined gneissic texture is present throughout the unit, with banding at 30-80° to the core axis. Minor massive sections, ranging in width to 2.5'(.76m), generally quartzite, are present within the section. The rock is fine to medium grained. Intrusive basic dykes (diabase?), green in colour, up to 11' (3.3) wide cut the section.							

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 3/4 HOLE 508-25

METERAGE FROM	METERAGE TO	DESCRIPTION	Sample Number	CORE SAMPLES FROM	TO	WIDTH	% U	% Th	AVERAGES
		Composition: 70-80% quartz and feldspar, 20% mafics. Fracturing is random. Minor radioactivity. Local alteration; kaolinization.							
		199'-235.5' (60.6-71.8) Granitic gneiss. Orange to reddish-brown in colour; banding @50-60° to core axis.							
		219.5'-221' (67-67.3) Light grey quartzite band.							
		229.5'-230' (70-70.1) Weak radioactivity (maximum count rate - 75 c.p.s., SPP2). This section registers 165 c.p.s. on down-hole gamma log. Within 2" (5.08cm) wide brecciated section.	6020	228' (69.5	230' 70.1)	2' (61)	<0.001	0.015	
		232'-234' (71-71.3) Light grey quartzite band.							
		235.5'-236' (71.8-72) BASIC DYKE (diabase?). Both margins sharp @80-90° to core axis and chilled. Dark green in colour, fine grained massive, H=7. Red, hematite-filled fractures.							
		236'-313' (72-95.4) Granitic gneiss as per general description.							
		249' (76) Gneissic banding @45° to core axis.							
		265' (81) Gneissic banding @50° to core axis.							
		275'-277' (84-84.4) Breccia. Large hematitized feldspar clasts in siliceous matrix.							
		292' (89) Gneissic banding @30° to core axis.							
		305' (93) Gneissic banding @45° to core axis.							
		313'-314' (95.4-96) BASIC DYKE. As described from 235.5'-236' (71.8-72) Both margins chilled; upper at 20°, lower at 45°.							
		314'-321' (96-98) Mafic gneiss. Generally reddish-brown to greenish-grey in colour. Banding at 40° to core axis. Local mafic sections.							

DIAMOND DRILL HOLE LOG 78-508-26

 HOLE 508-25

METERAGE FROM	METERAGE TO	DESCRIPTION
		321'-322' (98-98.2) BASIC DYKE. Contacts sharp at 60° and 45°.
		322'-328' (98.2-100) Generally as described from 314'-321'(96-98).
		328'-339' (100-103.3) BASIC DYKE. Rock similar to 235.5-236'(71.8-72). Contacts: upper @60°, lower poorly defined. Core is generally broken.
		339'-391' (103.3-119.2) Mafic gneiss, 20-30% mafics. Local quartz bands up to 1' (.30m) wide. Minor broken sections.
		360' (110) Gneissic banding @60° to core axis.
		370'-379' (113-115.5) Broken core.
		379.5'-380' (115.7-116) BASIC DYKE (?).
		385'-391' (117.4-119.2) Transition zone. Increasing alteration (kaolinization) into underlying section.
		391'-408.5' (119.2-124.5) Altered section. Rock has been strongly altered (talc and kaolinization). Generally yellowish in colour. The upper and lower portions of the section are strongly chloritized.
		405' (123.5) Gneissic banding @80° to core axis.
		408.5'-422' (124.5-128.6) Granitic gneiss. Banding generally at 60° to core axis. Reddish-brown.
	422'	E.O.H. End of hole. Hole scanned with SPP2. Minor R/A.

CORE SAMPLES FROM	TO	WIDTH	%	AVERAGES

DIP TESTS

TEST	FROM	TO	TOTAL	DIP	DIP CORR.	LATITUDE	LATITUDE CUM.	DEPARTURE	DEPARTURE CUM.

DIAMOND DRILL HOLE LOG

Project 508/ALBERTA

ELDORADO NUCLEAR LIMITED

LOCATION PERMIT 214
SECTION
LATITUDE
DEPARTURE
ELEVATION SURFACE
CORE BQ
STORAGE ELDORADO, SASK.

HOLE No. 508-26
AZIMUTH
DIP VERTICAL
LENGTH 357.0'(108.8m)
PURPOSE RECCO -STRAT
COMPLETED 17-4-78
LOGGED BY P.A. FORTUNA

METERAGE FROM	METERAGE TO	(metric deptns in brackets) DESCRIPTION
	0	Collar: Casing to 147.0' (45m); left in hole.
0	120'± (36.6m)	Overburden: sandy.
120'± (36.6m	151' 46.0m)	Post-Athabasca sediments: (Devonian) Mudstone to Sandy Mudstone: core recovery about 50%. Mostly clay and silt, but locally sand can make up about 40%. Generally grey to brown-grey in colour. Very soft. Fine grained. Increasingly "gritty" with depth. Gradational contact.
151' (46m	163' 49.6m)	Transitional zone between mudstone and underlying Athabasca sandstone. Seams of sandy mudstone up to 2' (.61m) wide intermixed with "dirty" sandstone.
163' (49.6m	285' 86.9m)	Athabasca sandstone (minor red mudstone) White, grey and pink in colour. Upper contact gradational, lower sharp at about 90° to core axis, although partially interrupted in core by large (5cm wide) quartz fragment. Generally medium to fine grained quartz sandstone; limonitic matrix. Local coarse grained sections have intergranular porosity. Bedding very shallow, 85-90° to core axis; local cross-bedding at 60°. Mudstone section has been intensely hematitized.
		No major structures present in the core
		163'-168' (50m-51.2m) "Dirty" sandstone; 20-30% grey silt and clay. Minor bituminous bands.
		168'-208' (51.2m-63.4m) Pink sandstone; homogeneous. Upper portion contains bituminous bands, conformable to banding. Generally fine grained, weakly hematitized. Local medium grained sections.
		208'-222' (63.4m-68m) White to grey sandstone. Locally very fine grained.

CORE SAMPLES

FROM	TO	WIDTH	%	AVERAGES

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 2/3 HOLE 508-26

METERAGE FROM	METERAGE TO	DESCRIPTION	CORE SAMPLES FROM	TO	WIDTH	%	AVERAGES
		217'-222' (66.2m-68m) Coarse grained section.					
		222'-233' (68m-71m) Pale pink sandstone, fine grained. Coarse grained from 223.5'-225' (68.1m-68.6m).					
		233'-247' (71m-75.3m) Banded section. Pink to red intermixed bands; section hematized to varying degrees. Banding @90° to core axis. Medium to coarse grained.					
		234.5'-235' (71.5m-71.6m) Cross bedding @60° to core.					
		247'-271' (75.3m-82.6m) Intermixed red mudstone and sandstone (medium to coarse grained). Fine grained, intensely hematitized mudstone bands up to 6" (13.44cm) wide, interbanded with sandstone; banding @90° to core axis. Section is about 50% of each.					
		271'-282.5' (82.6m-86.1m) Coarse grained sandstone, buff to grey in colour. Sand grains range in size up to 1c but generally < 2mm.					
		274' (83.5m) Artesian water (75 ± gal/min)). (Plugged)					
		282.5'-285' (86.1m-87m) Fine grained sandstone, banded @80° to core.					
	285' (86.9m)	Unconformity: Between Athabasca Formation and Pre-Cambrian Basement					
285' (86.9m)	341.6' (104.1m)	Altered Pre-Cambrian Basement (in situ regolith) Dark, reddish-brown to purple-brown in colour, H=6. The rock has been intensely hematitized throughout. Lower portion has been chloritized and kaolinized (weak). Relict gneissic texture somewhat preserved throughout the section; banding @60°-80° to the core axis. Upper portion fractured. No major structures are present in the section. Medium to coarse grained. About 50% quartz, 20-30% feldspar, 20-30% mafics.					
		285'-330' (87m-100.6m) Red altered regolith as per general description.					

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 3/3 HOLE 508-26

METERAGE FROM	METERAGE TO	DESCRIPTION	CORE SAMPLES FROM	CORE SAMPLES TO	CORE SAMPLES WIDTH	CORE SAMPLES %	CORE SAMPLES AVERAGES
		285'-287.8' (87m-88m) Breccia. Large, fractured sections of quartz up to 6" (13.44cm) wide.					
		290' (88.4m) Gneissic banding @80° to core axis. (Start of Basement (prisar)?)					
		291'-305' (89m-93m) Massive texture					
		308' (94m) Gneissic banding @65° to core axis.					
		315.5'-326' (96.2m-99.4m) Section has thin green chloritic bands conformable to gneissosity @60°-80° to core.					
		326'-330' (99.4m-100.6m) Coarse grained brecciated section.					
		330'-341.6' (100.6m-104.1m) Generally strongly chloritized, overall pale green colour, with red hematitized sections. Minor kaolinization.					
341.6' (104.1m)	357' (108.8m)	Fresh Pre-Cambrian Basement (Granitic Gneiss) Reddish-brown in colour, H=6. Medium to coarse grained. No major structures. Gneissosity well developed @70°-90° to the core axis. Composition: 60-70% feldspar, 20-30% quartz, 10-20% mafics.					
	357' (108.8m)	END OF HOLE (EOH). Scanned with SPP2 B.G. - Sandstone - 25 c.p.s. - Basement - 35-40 c.p.s. No anomalous R/A.					

DIAMOND DRILL HOLE LOG

Project 508/ALBERTA

ELDORADO NUCLEAR LIMITED

LOCATION PERMIT 217
SECTION 6.441 N } "Main
LATITUDE 11.314E } Grid"
DEPARTURE
ELEVATION SURFACE
CORE BQ
STORAGE ELDORADO, Sask.

HOLE No. 508-27
AZIMUTH 180°
DIP -57°
LENGTH 881' (268.5m)
PURPOSE FOLLOW-UP DDH2
COMPLETED 23-4-78
LOGGED BY P.A. FORTUNA

DIP TESTS

TEST	FROM	TO	TOTAL		DIP CORR.	LATITUDE CUM.		DEPARTURE CUM.	
COLLAR					-57°				
200'	61m				-57°				
400'	122m				-54°				
600'	183m				-52°				
880'	268.3m				-44°				

METERAGE FROM	METERAGE TO	(Metric depth in brackets) DESCRIPTION	CORE SAMPLES FROM	TO	WIDTH	%
	0	Collar: BW casing to 88' (26.8m). None recovered. (Location 75m N of collar DDH#508-2; elevation about 8' (2.44m) below collar of DDH #508-2). Plastic tubing to E.O.H.				
0	88' (26.8m)	Overburden: Sandy. No sedimentary rocks.				
88' (26.8m)	845.5' (257.7)	Altered Pre-Cambrian Basement (unaltered silicious bands). Generally the rock is quite variable. Mainly reddish-brown to greenish in colour, depending on the dominant alteration (hematization or chloritization). Quartz bands and quartzo-feldspathic sections are relatively unaltered. H=5-6 through most of the section. Fracturing and brecciation are well developed throughout, with shear zones present in the core. Fractures are commonly talc-coated in these zones, and alteration of feldspar (kaolinization) has occurred. Minor bitumen also coats fractures. Gneissic banding is locally preserved; but generally the intense alteration masks any of the original texture of the rock. Anomalous radioactivity detected by both the gamma log and scintillometer; samples taken.				
		88'-98.5' (26.8-30) Quartzite, dull grey in colour; 70-80% quartz. Lower contact gradational. H=7. Intensely fractured, random orientation.				
		98.5'-108' (30-33) Altered granite (?). Generally reddish-brown. Strong random fracturing. Hematitized throughout; silicified.				
		108'-115' (33-35) Quartzite, white to grey in colour, local mafic sections. Intensely fractured; bituminous.				
		115'-123' (35-37.5) As described from 98.5'-108' (30-33). Locally gneissic.				
		123'-124.5' (37.5-38) Quartzite as 88'-98.5' (26.8-30).				

METERAGE FROM	METERAGE TO	DESCRIPTION	CORE SAMPLES FROM	CORE SAMPLES TO	CORE SAMPLES WIDTH	CORE SAMPLES %
		124.5'-207' (38-63) Generally red altered granite and gneiss. Locally quartz-rich. Hematitization is intense.				
		137.5'-138.5' (41.9-42.2) Quartz vein, grey in colour. Most brecciated for 6" (15.24cm) at lower contact.				
		156'-157.5' (47.6-48) Irregular quartz veining.				
		166.5'-183.5' (50.7-56) Section is 40-50% white milky quartz. Random fracturing; intense.				
		192'-194' (58.5-59.1) Quartz-rich section.				
		207'-214' (63.1-65.2) Fault zone. Minor gouge and broken core at top of section. Long healed fractures at 25° to core axis. Minor yellow-green alteration - kaolinization.				
		214'-277' (65.2-84.4) Strongly altered, chloritized; green in colour. H=5. Locally gneissic. Pink felsic bands up to 1' (.30m) wide. Soft green mineral in lower portion of section.				
		214'-222.5' (65.2-67.8) Minor kaolinization; brecciation.				
		227' (69.2) Gneissic banding @35° to core axis.				
		236.5' (72.1) Gneissic banding @50° to core axis.				
		255'-257' (77.7-78.3) Fault zone; core generally broken and gouge smeared; ¼" (.63cm) gouge on fracture sub-parallel to core axis in centre of section.				
		257'-258' (78.3-78.6) Pink felsic band.				
		258'-277' (78.6-84.4) Intensely chloritized. Lower section greenish-yellow in colour and contains blebs of soft green mineral (H=3). Opaque Possibly carbonate.				

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 3/10 HOLE 508-27

METERAGE FROM	METERAGE TO	DESCRIPTION	CORE SAMPLES FROM	CORE SAMPLES TO	CORE SAMPLES WIDTH	CORE SAMPLES %
		277'-330' (84.4-100.6) Red altered granite, as from 124.5'-207' (38-63). Massive. Fractures in upper 10' (3.05) of section are coated with talc; generally @60° to core. Felsic bands.				
		300'-301' (91.5-91.8) Long, healed fracture, sub-parallel to core axis; up to 1/8" (.33cm) solidified gouge.				
		317'-323' (96.6-98.5) Fault zone. Core generally broken; angles sub-parallel throughout zone; 2" (5.08cm) gouge @323' (98.5).				
		327'-330' (99.7-100.6) Brecciated section; long fracture sub-parallel to core axis, up to ½" (1.27cm) gouge.				
		330'-336' (100.6-102.4) Quartz-rich band, generally grey in colour. Thin wisps of green mafics (chlorite) throughout. Red hematitized fractures.				
		336'-351' (102.4-107) Red altered, as from 124.5'-207' (38-63).				
		339.5' (103) ½" (1.27cm) gouge on fracture @60° to core axis. Minor brecciation for 3" (7.62cm) either side.				
		342.5'-343.5' (104.4-104.7) Locally chloritized; green. Also silicious.				
		351'-355.5' (107-108.4) Quartzite. Minor mafic, chloritized. 20-30% red altered feldspars.				
		355.5'-407' (108.4-124) Red altered, as from 124.5'-207' (38-63).				
		356.5' (108.7) 6" (15.24cm) gouge, core angles 55°. Large felsic fragments up to 1" (2.54cm).				
		364'-375' (111-114.3) Minor bitumen coating fractures. Lower 2' (.61m) of section broken.				
		368.5' (112.3) ¼" (.63cm) on irregular fracture.				

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 4/10 HOLE 508-27

METERAGE FROM	METERAGE TO	DESCRIPTION	CORE SAMPLES FROM	CORE SAMPLES TO	CORE SAMPLES WIDTH	CORE SAMPLES %	CORE SAMPLES AVERAGE
		374.5' (114.2) 1" (2.54cm) gouge on fracture @30° to core axis.					
		379'-385' (115.5-117.4) Increased quartz, milky white. Minor chloritization locally.					
		385'-395' (117.4-120.4) Core generally broken. Silica content increases at depth. Bottom section brecciated. Bitumen coated fractures.					
		387' (118) Gouge smeared fracture, minor.					
		391' (119.2) ½" (1.27cm) gouge on fracture @30° to core axis.					
		396' (121) 1" (2.54cm) gouge on fracture @50° to core. Brecciated quartzite above; minor brecciation for 2'-3' (.61-.91) below in red altered section. Gneissic banding somewhat preserved @40° to core. Minor chloritization.					
		398'-400' (121.3-122) Increased silica (30-40%).					
		402' (122.6) 1" (2.54cm) carbonate vein, irregular, cross-cutting @45°; vuggy.					
		406'-407' (124-124.1) Quartz-rich band; altered feldspars.					
		407'-419' (124.1-127.7) Red altered, minor silicious bands. Rock is intensely fractured, random. Locally brecciated. Chloritization throughout.					

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 5/10 HOLE 508-27

METERAGE FROM	METERAGE TO	DESCRIPTION	CORE SAMPLES FROM	TO	WIDTH	%
		419'-520.5' (127.7-158.5) The rock is strongly altered and generally varies between red altered granite and quartz-rich sections. Bitumen commonly coats fractures. Quartz/quartz-feldspar sections are yellow-grey in colour; feldspar has been kaolinized. Intense fracturing, gouge common; major shearing, about 20% broken core. Brecciated. Chloritization common throughout section to varying degrees.				
		419'-421' (127.7-128.3) Quartz-veining, irregular and sub-parallel. Strongly chloritized.				
		421'-422' (128.3-128.6) Broken core. Bitumen on fractures.				
		424.5'-426.5' (129.4-130) As 42I'-422' (128.3-128.6)				
		432'-442' (131.7-134.7) Core generally broken throughout; brecciation. Fault zone (?). Gouge @433' (132) (½" (1.27cm) @30°); 437' (133.2) (½" (1.27cm) @65°). Bitumen common on fractures. Feldspars are altered, yellow in colour.				
		442'-447' (134.7-136.3) Gneissic banding preserved, 60° @443' (135.1).				
		447'-486' (136.3-148.2) Generally as described from 432'-442' (131.7-134.7). Core more competent. Brecciation throughout. Predominantly reddish-brown. Bitumen on fractures. Kaolinization not as common.				
		463'-464' (141.2-141.5) Gamma-log high (235 c.p.s.), about 10 c.p.s. above B.G. (25 c.p.s.) on SPP2.				

METERAGE FROM	METERAGE TO	DESCRIPTION	Sample Number	CORE SAMPLES FROM	TO	WIDTH	%	
		466'-467' (142.1-142.4) Weak radioactivity (maximum count rate - 50 c.p.s. SPP2, 2x B.G.). Within locally brecciated band, about 2" (5.08cm) wide. Gamma log registers 200 c.p.s.	6022	466' (142.1)	468' (142.7)	2' (.61)		U: 0.007% Th: 0.001%
		480'-480.5' (146.3-146.5) Weak radioactivity (maximum count rate - 60 c.p.s., SPP2). Possibly controlled by fine fracture sub-parallel to core @480' (146.3). Poor gamma log response.	6023	479' (146)	481' (146.6)	2' (.61)		U: 0.003% Th: 0.002%
		483'-486' (147.2-148.1) Fault. Core broken throughout, bitumen on fractures. Upper foot contains up to 1" (2.54cm) gouge on irregular fracture sub-parallel to core axis; 30-40% angular fragments up to ¼" (.63cm).						
		486'-496.5' (148.1-151.4) Gneissic texture generally preserved, at about 30° to core. Brecciated quartz-rich sections up to 1'(.30m) wide.						
		493' (150.3) Weak radioactivity 10 c.p.s. above B.G. on SPP2. In locally brecciated section. Poor gamma log response.						
		496.5'-507.5' (151.4-154.7) Silicious section, yellow-grey in colour; feldspars kaolinized. Brecciation, fracturing throughout.						
		507.5'-513' (154.7-156.4) Red altered, gneissic banding locally preserved. Local brecciation associated with quartzo-feldspathic veining.						
		513'-518' (156.4-158) Generally as described from 496.5'-507.5' (151.4-154.7).						
		518'-520.5' (158-158.7) Intensely chloritized section, green in colour. Feldspars yellow, altered.						

METERAGE FROM	METERAGE TO	DESCRIPTION	CORE SAMPLES FROM	CORE SAMPLES TO	CORE SAMPLES WIDTH	CORE SAMPLES %
		520.5'-588' (158.7-179.3) Fractured, brecciated; as 496.5'-507.4' (151.4-154.7). 20-30% kaolinized feldspar, yellow. Local red altered sections are also chloritized. Strongly hematitized, rusty red fractures.				
		529.5' (161.4) Fracture @60° to core. Strongly hematized, rusty. 6" (15.24cm) incompetent, easily crumbled by hand.				
		540' (164.6) ¼" (.63cm) bitumen on fracture @60° to core axis.				
		551' (168) Gneissic banding @60° to core.				
		554' (169) 6" (15.24cm) broken core, fragments talc smeared.				
		561'-573' (171-174.6) Shear zone. Broken core, up to 1' (.30m) in sections. Fractures generally @30°, talc coated. Main fracture @571'-572' (174-174.4), sub-parallel to core. Minor bitumen on rock fragments.				
		579'-581' (176.5-177) Broken core.				
		583' (177.7) 6" (15.24cm) incompetent rock, intensely hematized and chloritized, crumbles very easily.				
		588'-596.5' (179.3-182) Red-brown brecciated granite. Intensely fractured. Medium to coarse grained. Gamma log indicates minor R/A (150 c.p.s.). Very weak in core, difficult to pinpoint; 10 c.p.s. above B.G. (25 c.p.s.) at about 594' (181.1).				
		596.5'-604.5' (182-184.3) Section is generally green in colour, chloritized. Minor quartzo-feldspathic bands up to 1" (2.54cm) wide.				

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 8/10 HOLE 508-27

METERAGE FROM	METERAGE TO	DESCRIPTION	Sample Number	CORE SAMPLES FROM	TO	WIDTH	%	
604.5' (184.3)	606.5' (185)	Fresh granite, fracture. Massive.						
606.5' (185)	622' (189.6)	Mafic section, generally greenish in colour; locally gneissic. Medium to coarse grained. Kaolinization of feldspar in lower portion of section.						
622' (189.6)	636' (194)	Intensely hematitized, red-brown granitic section. Chloritized towards bottom of section. Fractures sub-parallel to core, talc coated.						
636' (194	652' 198.8)	Generally unaltered red-brown granite/granitic gneiss. Fracturing common. Local green chloritic sections.						
652' (198.8	676' 206.1)	Greenish-grey, chloritized. Local red-brown quartzo-feldspathic bands.						
653' (199.1	658.5' 200.8)	Weak radioactivity (maximum count rates - 75 c.p.s. on fracture (50°) @654' (199.4); 50 c.p.s. @656.5' (200.2); 75 c.p.s. on fracture (30°) @657.5' (200.4), SPP2 values). Gamma log response to 360 c.p.s.	6024	653' (199.1	655' 199.7)	2' (.61)		in %: U:0.022 Th:0.004
			6025	655' (199.7	657' 200.3)	2' (.61)		U:0.013 Th:<0.001
659' (201	660.5' 201.4)	Broken core.	6026	657' (200.3	659' 201)	2' (.61)		U:0.012 Th:0.003
668' (203.6	671' 204.6)	Weak radioactivity (maximum count rate - 300 c.p.s., SPP2). Radioactivity confined to face of break @60° to core @670' (204.3). Source not visible. Poor gamma log response.	6027	669' (204	671' 204.6)	2' (.61)		U:0.024 (=0.48lbs/ton) Th:0.002
676' (206.1	707' 215.5)	Red altered, massive. Silicious sections. Feldspars kaolinized, yellow-brown in colour. Bitumen on fractures.						
688' (209.7	698' 212.8)	20% broken core. Bitumen abundant, contains oil, flows. At 690' (210.3) flowing tar seam caused drilling problems; seeping into hole, gumming up rods. Hole had to be washed with fuel in order to pass through.						
707' (215.5	728' 222)	Green, intensely chloritized section. Local red hematitized patches and schistose sections.						

DIAMOND DRILL HOLE LOG 78-508-26

METERAGE FROM	METERAGE TO	DESCRIPTION
	727' (221.6)	Talc coated slip, ¼" (.63cm) wide @15° to core axis. Minor brecciation associated.
	728'-738' (222-225)	Red altered, massive. Feldspars kaolinized. Local green chloritized sections.
	738'-745' (225-227.1)	As described from 707'-728' (215.5-222).
	740.5'-741.5' (225.8-226.1)	Irregular healed fracture sub-parallel to core axis.
	745'-809' (227.1-246.6)	Red altered local green chloritized sections. Feldspars locally kaolinized. Gneissic banding preserved in places, but generally massive.
	752' (229.3)	¼" (.63cm) gouge @20° to core axis. Kaolinization associated.
	756.5'-758' (230.6-231.1)	Green chloritized section.
	758'-769' (231.1-234.4)	Kaolinization of feldspars; yellow-brown in colour.
	781'-790' (238.1-241)	As described from 758'-769' (231.1-234.4). Fracturing; generally sub-parallel to core axis.
	806.5' (246)	Banding @45° to core axis.
	809'-814' (246.6-248.2)	Strongly altered yellow-brown; mainly kaolinization. Bitumen coated fractures. 814' (248.2) is bottom depth of bitumen occurence in this hole.
	814'-815.5' (248.2-248.6)	Chlorite-rich, banded @55° to core axis.
	815.5'-838' (248.6-255.5)	Red altered, locally green. Rock appears to be slightly silicified; glassy appearance. Local kaolinization.

CORE SAMPLES FROM	TO	WIDTH	%	AVERAGES

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 10/10 HOLE 508-27

METERAGE FROM	METERAGE TO	DESCRIPTION
		826' (251.8) 1' (.30m) long irregular talc coated fracture, sub-parallel to core.
		838'-845.5' (255.5-257.8) Generally pale green in colour; green mineral makes up 50-60%; soft (H=3-4).
845.5' (257.7	881' 268.5)	Fresh Pre-Cambrian Basement (minor altered sections).
		845.5'-862.5' (257.7-262.9) Generally pink to grey in colour. Impure quartzite. Local alteration on fractures. Glassy appearance; silicified. H=7.
		862.5'-881' (262.9-268.5) Red-brown, generally fresh. Local kaolinization on fractures. Granite to granitic gneiss. Locally porphyroclastic.
	881' (268.5)	END OF HOLE (E.O.H.) Scanned with SPP2. Anomalous sections sampled. Downhole gamma-ray probed with Mt. Sopris 1000.
		N.B. See also: DDH #508-2 (drilled 1976) " " -28 (same collar loc. as #27) " " -29 (All 4 holes are on same N-S section). Drilled by Canadian Longyear Ltd.

CORE SAMPLES FROM	TO	WIDTH	%	AVERAGES

DIP TESTS

TEST	FROM	TO	TOTAL	DIP CORR.	LATITUDE CUM.	DEPARTURE CUM.

DIAMOND DRILL HOLE LOG

Project 508/ALBERTA

ELDORADO NUCLEAR LIMITED

LOCATION PERMIT 217
SECTION
LATITUDE 6.442N } "Main
DEPARTURE 11.314E } Grid"
ELEVATION SURFACE
CORE B.Q.
STORAGE ELDORADO, SASK.

HOLE No. 508-28
AZIMUTH
DIP VERTICAL
LENGTH 327'(99.7m)
PURPOSE Follow-up DDH#2
COMPLETED 25-4-78
LOGGED BY H. LAANELA

METERAGE FROM	METERAGE TO	DESCRIPTION
		(Collar location and elevation same as DDH#508-27)
	0	Collar — BW casing to 77' (23.5m); 70' (21.3m) left in hole, not recovered. Plastic tubing to E.O.H.
0	77' 23.5m	Overburden — Sand and till; about 1' (.30m) of core from Athabasca sandstone boulders above 77' (23.5m). No sedimentary rocks.
		(77' to 327' (23.5m to 99.7m, EOH): PRE-CAMBRIAN BASEMENT)
		General description: Mainly red granitic rock, similar to DDH #508-27, cataclastically sheared, but somewhat less altered, more "fresher" looking, particularly toward bottom; the intense brecciation, seen in DDH #508-2, about 75m to South, is not so apparent here. Some silification and hematization; quartz veinlets. Contains sections of coarser grained pegmatitic rock which has been brecciated and healed. Red color largely due to hematite distributed throughout rock in hairline fractures and intergranulally. NO noticeable radioactivity seen in core. Regolithic zone (weathering) probably not well developed (?), aside from the alteration described. NO bitumen seen. (See logs for #2, 27 and 29 for comparison).
77' 23.5m	83' 25.3m	Red altered granite: Fine to medium grained; feldspars mainly altered; much hematite-filled veining in randomly oriented irregular hairline fractures; red color of rock mainly due to hematization. Rock is hard, has a "crushed-and-healed" appearance. Some kaolinite. Quartz about 20-30% of rock. Gneissic texture absent. R/A of core B.G. only.

CORE SAMPLES FROM	TO	WIDTH	%	AVERAGES

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 2/4 HOLE 508-28

METERAGE FROM	METERAGE TO	DESCRIPTION	CORE SAMPLES FROM	TO	WIDTH	%	AVERAGES
83' 25.3m	87' 26.5m	Lighter colored, coarser grained section, probably crushed and altered pegmatite. Kaolinization of large feldspar crystals; quartz is crushed. Rock is hard and massive (as above), having a "crushed-and-healed", silicified appearance. R/A of core B.G. only. (A 10-12cm piece of sandstone core @87' (26.5m) is apparently a "fall-in" when rods were pulled and greased).					
87' 26.5m	91'± 27.7m	As in 77'-83' (23.5m-25.3m); with small coarser intervals as in 83'-87' (25.3m-26.5m).					
91'± 27.7m	92'± 28m	Greenish-gray altered mafic section, gradual boundaries, core is broken, with some clay in fractures.					
92'± 28m	99'± 30.2m	Granitic as in 77'-83' (23.5m-25.3m)					
99'± 30.2m	102'± 31.1m	Coarser, altered pegmatitic (?) section, similar to 83'-87' (25.3m-26.5m)					
102'± 31.1m	113'± 34.45m	Predominantly granitic, as in 77'-83' (23.5m-25.3m)					
113'± 34.45m	119'± 36.3m	Coarser, altered pegmatitic granite similar to 99'-102' (30.2m-31.1m). Contains broken core 116'-117.5' (35.4m-35.8m) with clay in fractures.					
119'± 36.3m	123' 37.5m	Granitic, altered as in 77'-83' (23.5m-25.3m). Broken core, with clay in fractures 121'-122' (37m-37.2m). Small fault gouge zone 121'-122' (37-37.2m) @20° to core axis.					
123' 37.5m	125.5' 38.3m	Coarser; altered, pegmatitic, similar to 99'-102' (30.2m-31.1m). Feldspars are kaolinized; clay in fractures.					
125.5 38 .3m	158'± 48.2m	As in 77'-83' (23.5m-25.3m); aside from crushed appearance, with hematized hairline fracturing, rock looks quite unweathered and fresh.					

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 3/4 HOLE 508-28

METERAGE FROM	METERAGE TO	DESCRIPTION	CORE SAMPLES FROM	TO	WIDTH	%	AVERAGES
158'± 48.2m	179'± 54.6m	Coarse, whitish-gray to red quartz-rich granitic rock, showing much crushing and silicification. Red color caused by hematized veining of fractures; larger irregular fractures oriented parallel to sub-parallel to core axis. Hard, massive, locally some broken core. Grades slowly into medium grained, more granitic rock toward bottom of section.					
179'± 54.6m	182' 55.5m	Granitic, as in 125.5'-158' (38.3m-48.2m)					
182' 55.5m	184' 56.1m	As in 158'-179' (48.2m-54.6m)					
184' 56.1m	213' 65m	Granitic, as in 125.5'-158' (38.3m-48.2m)					
213' 65m	224' 68.3m	Mixture of both granitic and pegmatitic intervals with very gradual boundaries. Large flakes of white mica in pegmatitic (coarse) intervals. Fine, irregular quartz and hematite-filled veinlets parallel to ±20° to core axis.					
224' 68.3m	231' 70.4m	Granitic, as in 125.5'-158' (38.3m-48.2m); hematite-filled irregular hairline fractures. Quartz veinlets 20°-30° to core axis.					
231' 70.4m	240'± 73.2m	As in 213'-224' (65m-68.3m); some broken core					
240'± 73.2m	245'± 74.7m	Altered pegmatitic section (similar to 158'-179' (48.2m-54.6m)). Some original white feldspar crystals (now crushed) are several cm's across. Quartz veinlets, less than 0.5cm, 30°-40° to core axis. Hematite in randomly oriented hairline fractures.					
245'± 74.7m	250'± 76.2m	Mixture, as in 213'-224' (65m-68.3m)					
250'± 76.2m	274'± 83.5m	Fine grained, red (hematitic) granitic rock, similar to 125.5'-158' (38.3m-48.2m). Quartz veinlets, less than 0.5cm, are irregular and discontinuous. Grades into section below.					
274'± 83.5m	288' 87.8m	Predominantly quartz: Hole appears to intersect a quartz vein @ an acute angle, sub-parallel to core axis. Quartz is massive milky white, with slices of reddish fine altered granitic rock (as in 250'-274' (76.2m-83.5m)). Core is largely broken, with whitish clay minerals in fractures.					

78-508-26

DIAMOND DRILL HOLE LOG

METERAGE FROM	METERAGE TO	DESCRIPTION	CORE SAMPLES FROM	TO	WIDTH	%	AVERAGES
288' 87.8m	310'± 94.5m	Granitic, as in 250'-274' (76.2m-83.5m). Rock has very "fresh" appearance. Original fractures are healed with quartz, veinlets are irregular but predominantly sub-parallel to core axis.					
310'± 94.5m	312'± 95.1m	Coarse pegmatitic section; white mica; boundaries are gradual					
312' 95.1m	327' 99.7m	"Mixed" rock, as in 213'-224' (65m-68.3m); intervals of broken core					
	327' 99.7m	E.O.H.					
		Core was scanned with SPP-2 scint. - no anomalous R/A. Downhole gamma-ray probed with Mt. Sopris 1000 from 0 to 95m (312'): NO significant R/A anomalies. Background 20-60 c.p.s.; up to 100 c.p.s. @78m (256') and 92.2m (302.5')					
		Drilled by Canadian Longyear Ltd.					
		No samples.					

DIP TESTS

TEST	FROM	TO	TOTAL	DIP CORE	LATITUDE CUM.	DEPARTURE CUM.
		100'	30.5m	-56° S		
		200'	61m	-56° S		
		600'	183m	-55° S		
		700'	213.4m	-50° S		
		816'	248.8m	-50° S		

 78-508-26

DIAMOND DRILL HOLE LOG

Project 508/ALBERTA

ELDORADO NUCLEAR LIMITED

LOCATION PERMIT 217
SECTION
LATITUDE 6.311N } "Main
DEPARTURE 11.309E } Grid"
ELEVATION SURFACE
CORE B.Q.
STORAGE ELDORADO, SASK.

HOLE No. 508-29
AZIMUTH 180°
DIP -60° S
LENGTH 817'(249.02m)
PURPOSE Follow-up DDH 2
COMPLETED 29-4-78
LOGGED BY P.A. FORTUNA

METERAGE FROM	METERAGE TO	(metric depths in brackets) DESCRIPTION	CORE SAMPLES FROM	TO	WIDTH	%	AVERAGES
	0	Collar — BW casing to 119' (36.27m). (Located 55m S of collar DDH # 508-2. Elevation about 12' (3.6m) below collar of DDH #508-2). Plastic tubing to E.O.H.					
0	119' (36.3m)	Overburden — sandy with boulders NO sedimentary rocks					
119' (36.3m)	817' (249.1m)	Pre-Cambrian Basement					
		119'-221' (36.3m-67.4m) — Altered mafic-rich section. The rock is generally patchy green and red in colour, H=4 to 5. Fine to medium grained with local coarse grained sections. Appears to be about 60-70% mafics, altered to chlorite; alteration intense. The rock is generally massive, but locally gneissic texture has been preserved. Banding is at 30° to the core axis. Generally competent rock. Fracturing is random. Some weak radioactivity, up to about 15 c.p.s. above background (25 c.p.s.)					
		119'-121' (36.3m-36.9m) — Red altered; massive					
		121.5' (37m) — Gneissic banding at 30° to core axis					
		125.5' (38.3m) — Healed fracture (kaolin) at 30° to core axis					
		144.5' (44.1m) — Weak radioactivity (maximum count rate - 40 cps, SPP2). Gamma log response weak; in red altered section					
		157'-166' (48m-50.6m) — Milky white silica bands, up to 5mm wide. Core angles 30-40°, generally parallel to foliation.					

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 2/8 HOLE 508-29

METERAGE FROM	METERAGE TO	DESCRIPTION	CORE SAMPLES FROM	CORE SAMPLES TO	CORE SAMPLES WIDTH	CORE SAMPLES %	CORE SAMPLES AVERAGES
		169'-179' (51.5m-54.6m) Generally pale green in colour: section appears to be more strongly altered. Several healed fractures at random orientation; up to ¼" (.63 cm) gouge. Minor kaolinization. Gneissosity preserved at about 30° to core throughout section.					
		188'-189' (57.3m-57.6m) White quartz vein sub-parallel to core axis					
		198'-200' (60.4m-61m) Irregular fracture sub-parallel to core axis; coated with kaolin					
		203'-209' (62m-63.7m) Quartz-rich section; lower portion brecciated.					
		209'-221' (63.7m-67.4m) Transition with underlying section. Hematitization is becoming more prominent than chloritization.					
		221'-275' (67.4m-83.8m) Red Altered Section. Dark red-brown in colour, fine to medium grained; H=5. Generally gneissic; but upper portion is massive. Fractures are randomly oriented and filled with quartz; local brecciation. The core is generally competent. Anomalous R/A; weak.					
		221'-234' (67.4m-71.3m) Massive; red-brown in colour. Silica banding up to 2" (5.08cm) wide					
		234'-275' (71.3m-83.8m) Gneissic banding is fairly well preserved throughout this section.					
		235' (71.6m) Foliation at 55° to core axis					

METERAGE FROM	METERAGE TO	DESCRIPTION	CORE SAMPLES FROM	CORE SAMPLES TO	CORE SAMPLES WIDTH	CORE SAMPLES %	CORE SAMPLES AVERAGES
		241'-247' (73.5m-75.3m) Silicious section. Quartz makes up about 40%. Intensely fractured, brecciated. Lower portion broken.					
		253' (77.1m) Weak radioactivity (maximum count rate - 40 cps, SPP 2); in gneissic section. Gamma log response to 175 cps					
		259' (79m) Foliation at 30° to core axis					
		261'-262.5' (79.6m-80m) Quartz vein, cross-cutting at about 10° to core axis					
		263.5' (80.3m) Weak radioactivity (maximum count rate - 40cps, SPP2). Gamma log response to 200 cps					
		272' (83m) Foliation at 60° to core axis					
		275'-405' (83.82m-123.44m) Quartzite: White, pink and grey in colour, the rock is massive and has a hardness of 7. Varies locally with increased mafics on feldspar (approaching granite). The rock is intensely fractured and broken through most of the section; bitumen coating is common. Locally, fractures are coated with soft limonitic material. No anomalous R/A detected.					
		275'-299' (83.8m-91.2m) White to pink quartzite, broken from 283'-299' (86.3m-91.2m). Black mafic stringers. Upper portion may be up to 20% feldspar.					
		299'-317' (91.2m-96.6m) More reddish-brown in colour; increased feldspar; hematitized and brecciated					
		304'-313' (92.7m-95.4m) Core badly broken; angular fragments coated with bitumen.					
		317'-339.5' (96.6m-103.5m) Generally white quartzite. Broken core through most of section; bitumen coated. Minor pink felsic banding					

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 4/8 HOLE 508-29

METERAGE FROM	METERAGE TO	DESCRIPTION	CORE SAMPLES FROM	CORE SAMPLES TO	CORE SAMPLES WIDTH	CORE SAMPLES %	CORE SAMPLES AVERAGES
		339.5'-349' (103.5m-106.4m) Red-brown altered section, gneissic (as from 221'-275' (67.4m-83.8m)). Quartz veining common. Fractures bituminous.					
		346'-347' (105.5m-105.8m) Irregular. Vuggy carbonate vein, sub-parallel to core. Bitumen partially fills vugs and is on fractures.					
		349'-359' (106.4m-109.4m) Quartzite with intermixed red altered feldspar. Generally white in colour. Bitumen coats fractures; core blocky					
		359'-372' (109.4m-113.4m) Red altered, massive. Feldspar abundant. Lower 3' (.91m) of section broken and gouge smeared.					
		372'-405' (113.4m-123.5m) Quartzite is pink to grey in colour, becoming red-brown in lower 3' (.91m). Intense fracturing, brecciation. Fragments coated with bitumen. About 50% broken.					
		372'-391' (113.4m-119.2m) Core broken, gouge (sandy) smears fragments. Core angles flat, generally less than 30°					
		391'-395' (119.2m-120.4m) Bitumen coating on fractures is heaviest in this section.					
		405'-446' (123.5m-136m) Red altered hematitization very intense, and rock is reddish-purple in colour. Texture varies from massive to brecciated. Shear zone at 455.5' (139m). Anomalous R/A					
		405'-424' (123.5m-129.3m) Generally massive, but locally brecciated. Broken core @410' (125m) - 2' (.61m); 414' (126.2m) - 2' (.61m). Gouge smeared					

METERAGE FROM	METERAGE TO	DESCRIPTION	SAMPLE NUMBER	CORE SAMPLES FROM	TO	WIDTH	%	AVERAGES
	424'-446' (129.3m-136m)	Brecciated throughout. More silicious than above. Minor amount of broken core.						
	446'-478.5' (136m-146m)	The rock has been intensely altered. Fault at 453.5'-455'. (138.3m-138.7m), broken core, abundant gouge. Generally brecciated throughout. Hematitization most intense - deep brick red in colour. Bituminous. Weak R/A present in section: 50 cps @445' (135.7m), possibly fracture controlled; 457'-459' (139.3m-140m) (max. 65cps); 70 cps at 467' (142.4m); 60 cps at 477.5' (145.6m). Generally higher background. Gamma log response to 450 cps	D 2401	458' 139.6m	460' 140.2m	2' .61m		(Results to arrive) U: .001 % Th: .022 %
			D 2402	468' 142.7m	470' 143.3m	2' .61m		U: .001 % Th: .020 %
	478.5'-480' (146m-146.3m)	Increased chloritization	D 2403	478' 145.7m	480' 146.3m	2' .61m		U: .002 % Th: .008 %
	480' (146.3m)	Weak radioactivity (maximum count rate - 50 cps, SPP-2). Gamma log response to 400 cps						
	480'-817' (146.3m-249.1m)	Generally as described from 446'-478.5' (136m-146m). Becoming silicious and fresher looking with depth.						
	480'-515' (146.3m-157m)	Less hematitized than rest of section. Green to red in colour. Foliation locally preserved	D 2404	488' 148.8m	490' 149.4m	2' .61m		U: .002 % Th: .025 %
	487' (148.5m)	Healed fracture at 90° to core axis						
	491.5' (150m)	½" (.63cm) gouge on fracture @30° to core axis Core is broken and gouge smeared for 2' (.61m) below	D2405	499.3' 152.2m	501.3' 152.8m	2' .61m		U: .002 % Th: .025 % (0.5lbs/ton)
	514.5' (156.8m)	½" (.63cm) gouge on fracture at 30° to core axis						
	517.5'-520' (157.8m-158.5m)	Numerous healed fractures, up to ½" (.63cm) Core angles from 30° to sub-parallel	D 2406	508' 155m	510' 155.5m	2' .61m		U: .004 % Th: .022 %

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 6/8 HOLE 508-29

METERAGE FROM	METERAGE TO	DESCRIPTION	SAMPLE NUMBER	CORE SAMPLES FROM	TO	WIDTH	%	AVERAGES
		537'-558' (163.7m-170.1m) Strongly fractured; brecciated. More silicious than most of section (30%). Feldspar kaolinized. Fractures generally sub-parallel. Main fracture at 546' (166.5m), 6" (15.24cm) gouge; upper contact at 30°	D 2407	518' 158m	520' 158.5m	2' .61m		U: .007 % Th: .032 %
		565'-566' (172.3m-172.6m) Quartz veining; irregular						
		573'-575.3' (174.7m-175.4m) Silicious section. Long fracture running sub-parallel to core axis; kaolinized. Upper foot of section broken						
		602'-615' (183.5m-187.5m) Intensely brecciated throughout; cataclastic texture. Generally not as strongly hematitized. Minor gouge smearing, but no major structures						
		615'-617' (187.5m-188.1m) Broken core. Up to 1" (2.54cm) gouge, fractures are generally sub-parallel						
		625' (190.5m) Talc-coated fracture; 30° to core axis						
		631'-647' (192.4m-197.3m) Brecciated; 20-30% white quartz. Fractures commonly talc-coated, sub-parallel to core. Colour varies from pink to dark reddish-brown.						
		649.5' (198m) Talc coated fracture, 1/8" (.32cm) wide at 30° to core axis.						
		656'-817' (200m-249.1m) Brick-red to purple in colour. Hematitization very intense. Massive to brecciated. The section from 702'-740' (214m-225.6m) is generally more radioactive than rest	D 2408	658' 200.6m	660' 201.2m	2' .61m		in % U: .001, Th: .012

DIAMOND DRILL HOLE LOG 78-508-26 PAGE No. 7/8 HOLE 508-29

METERAGE FROM	METERAGE TO	DESCRIPTION	SAMPLE NUMBER	CORE SAMPLES FROM	TO	WIDTH	%	AVERAGES
								in %
	658'-672' (200.6m-205m)	Strongly kaolinized. Feldspars yellow in colour. Lower 2' (.61m) of section chloritized	D2409	668' 203.6m	670' 204.3m	2' .61m		U: .001 , Th: .011
	687'-689' (209.4m-210.1m)	Core brecciated and broken. Core angles from 30° to sub-parallel. Fragments are gouge smeared	D2410	678' 206.7m	680' 207.3m	2' .61m		U: .001 , Th: .012
			D2411	688' 209.8m	690' 210.4m	2' .61m		U: .001 , Th: .014
	698.5' (213m)	6" (15.24cm) broken core, angular fragments up to 1" (2.54cm). Minor gouge. Core angles about 30°	D2412	698' 212.8m	700' 213.4m	2' .61m		U: .002 , Th: .014
	708'-711' (215.8m-216.8m)	Rock kaolinized. Yellow-red in colour	D2413	708' 215.8m	710' 216.5m	2' .61m		U: .002 , Th: <0.001
	718.5'-719' (219.1m-219.2m)	Weak radioactivity (maximum count rate - 200 cps (70 above BG) SPP2). Possibly fracture controlled. Gamma log response to >500 cps	D2414	718' 219m	720' 219.5m	2' .61m		U: .003 , Th: .045
	724'-725' (220.7m-221m)	Fractures gouge smeared. Core angles about 45°						
	727'-734' (221.6m-223.8m)	Section is more silicious. White quartz makes up about 30-40%	D2415	728' 221.9m	730' 222.6m	2' .61m		U: <0.001, Th: .007
	728.5' (222m)	3" (7.62cm) broken core on fracture @30° to core axis	D2416	738' 225m	740' 225.6m	2' .61m		U: .001, Th: .011
	758' (231.1m)	¼" (.63cm) gouge on fracture @60° to core axis	D2417	748' 228m	750' 228.6m	2' .61m		U: .001, Th: .028
	761'-768' (232m-234.1m)	Brecciated; silicious. White quartz makes up about 30%						
	768'-775' (234.1m-236.3m)	Core generally broken; bitumen coated						

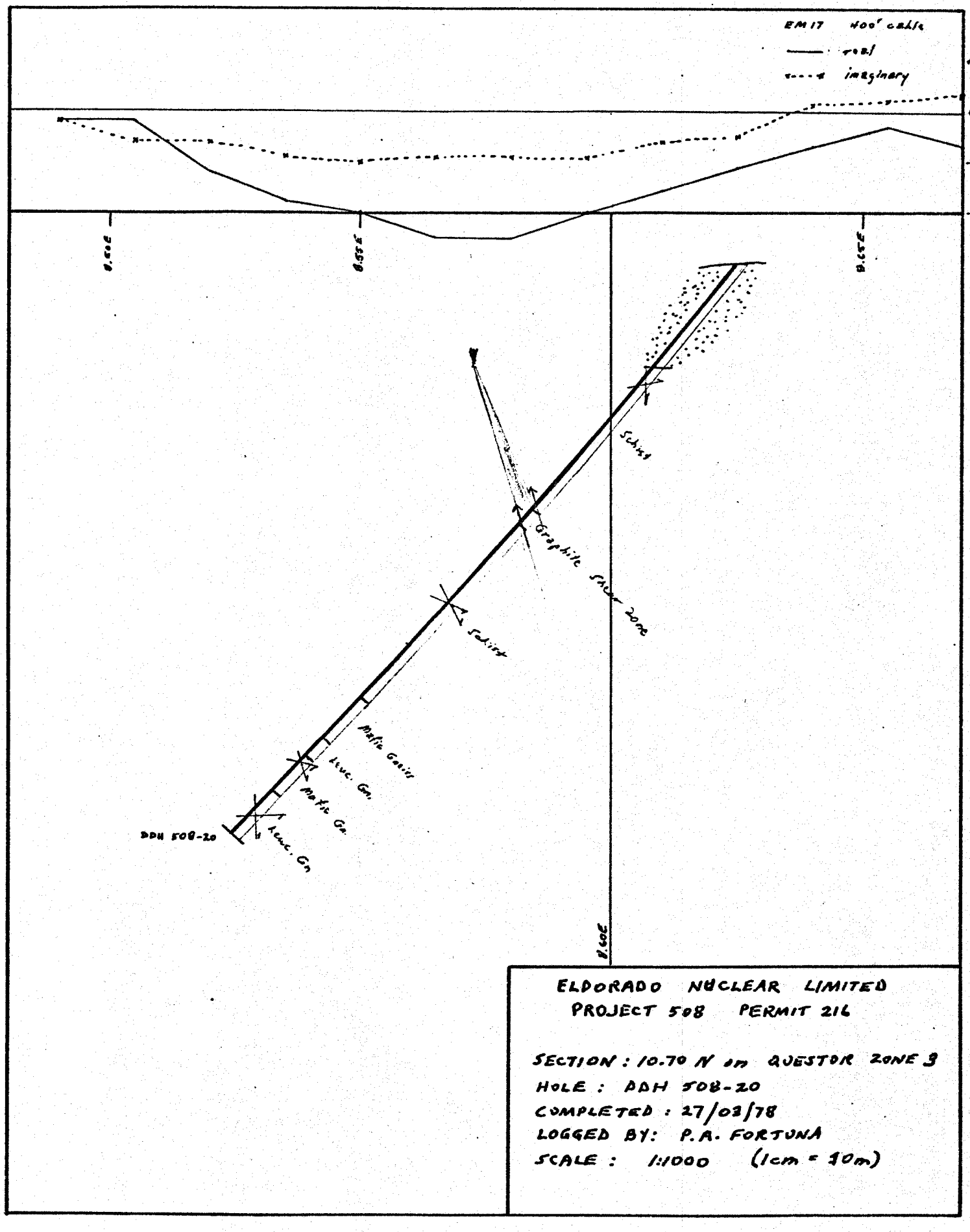
DIAMOND DRILL HOLE LOG 78-508-26

METERAGE FROM	METERAGE TO	DESCRIPTION	CORE SAMPLES FROM	TO	WIDTH	%	AVERAGES
		775'-817' (236.3m-249.1m) 30-40% white quartz; grains stretched and aligned at 45-60° to core axis. Local massive sections.					
	817' (249.1m)	END OF HOLE (E.O.H.) Scanned with SPP 2. Downhole gamma-ray probed with Mt. Sopris 1000.					
		Drilled by Canadian Longyear Ltd.					
		(End of drilling / Winter, 1978)					

APPENDIX "C"

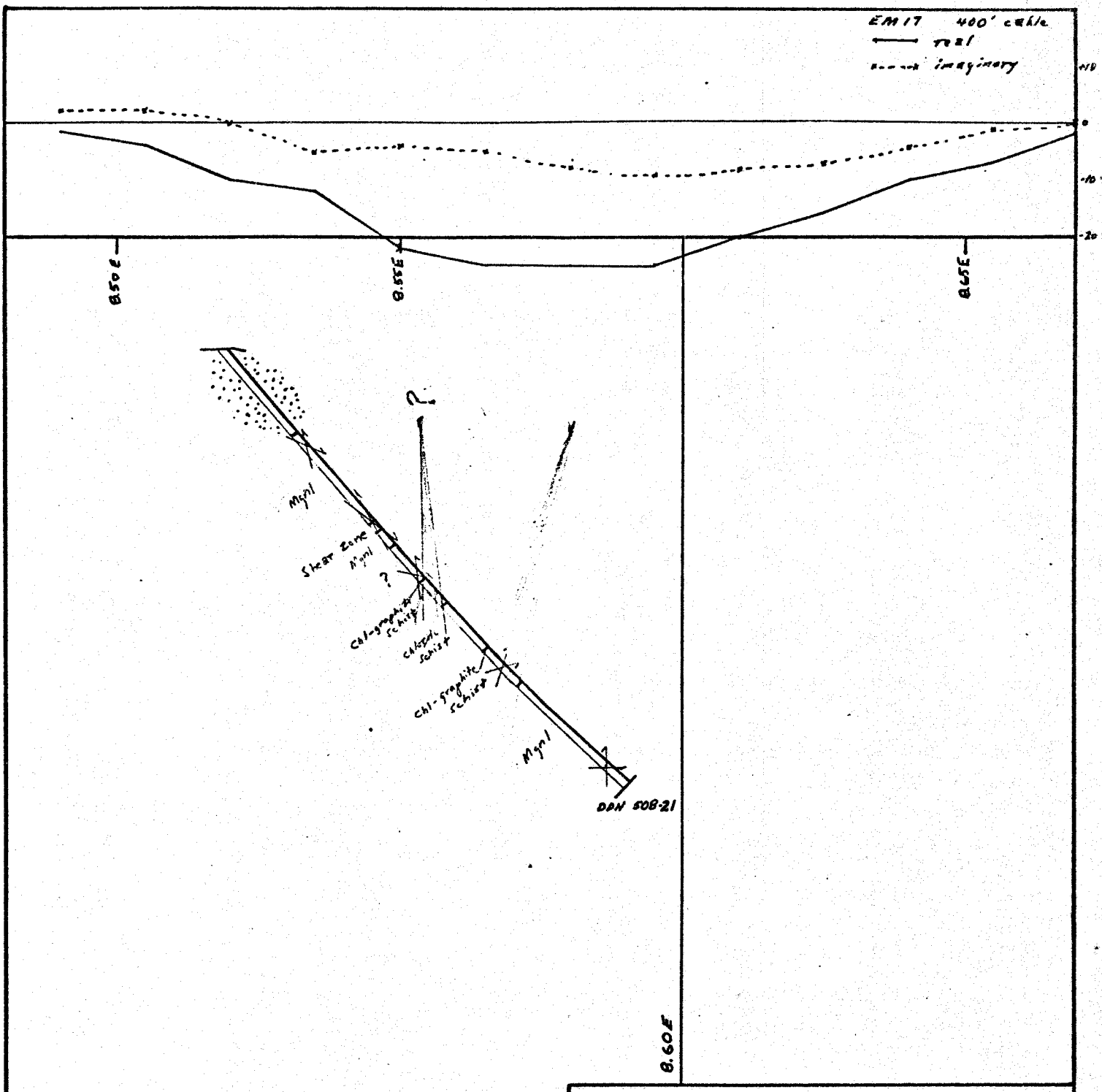
SECTIONS OF DIAMOND DRILL HOLES
for DDH^{s} No's 508-20 to 24 (incl.)

PROJECT 508, ALBERTA



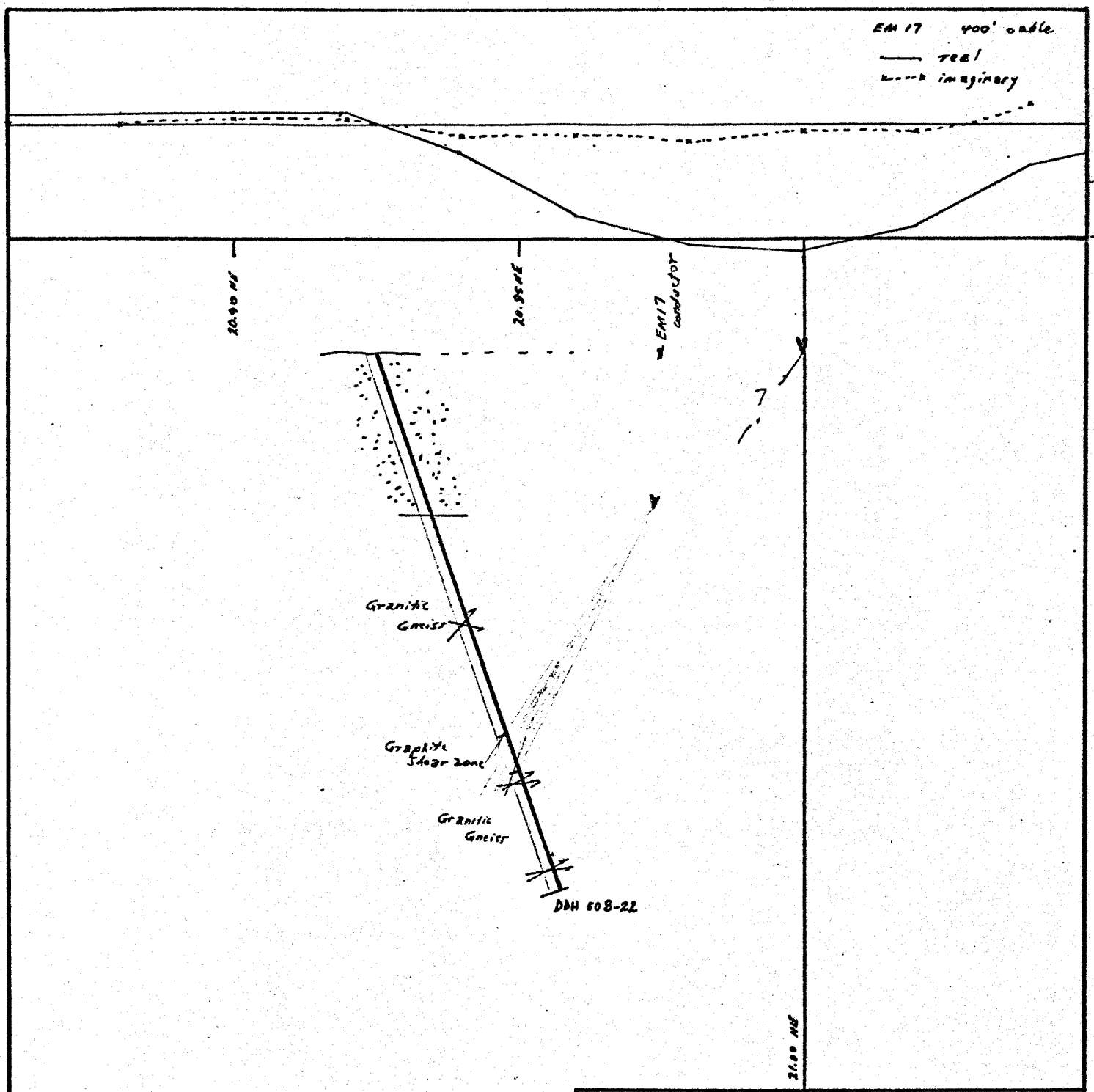
ELDORADO NUCLEAR LIMITED
PROJECT 508 PERMIT 216

SECTION : 10.70 N on AJESTOR ZONE 3
HOLE : DDH 508-20
COMPLETED : 27/03/78
LOGGED BY: P.A. FORTUNA
SCALE : 1:1000 (1cm = 10m)



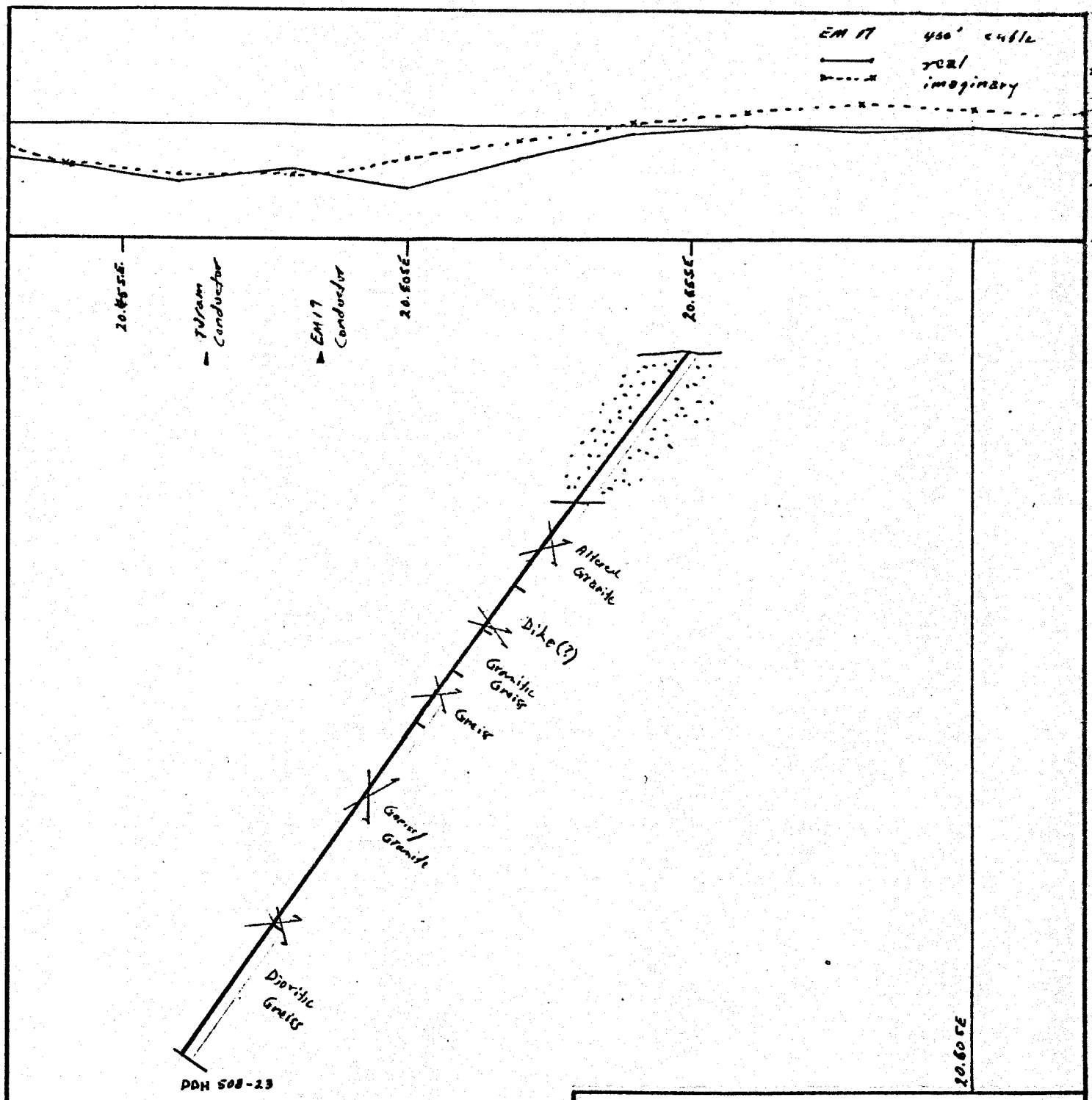
ELDORADO NUCLEAR LIMITED
PROJECT 508 PERMIT 216

SECTION : 10.75 N on QUESTOR ZONE 3
HOLE : DDH 508-21
COMPLETED : 24/09/78
LOGGED BY : M. LAANELA
SCALE : 1:1000 (1cm = 10m)



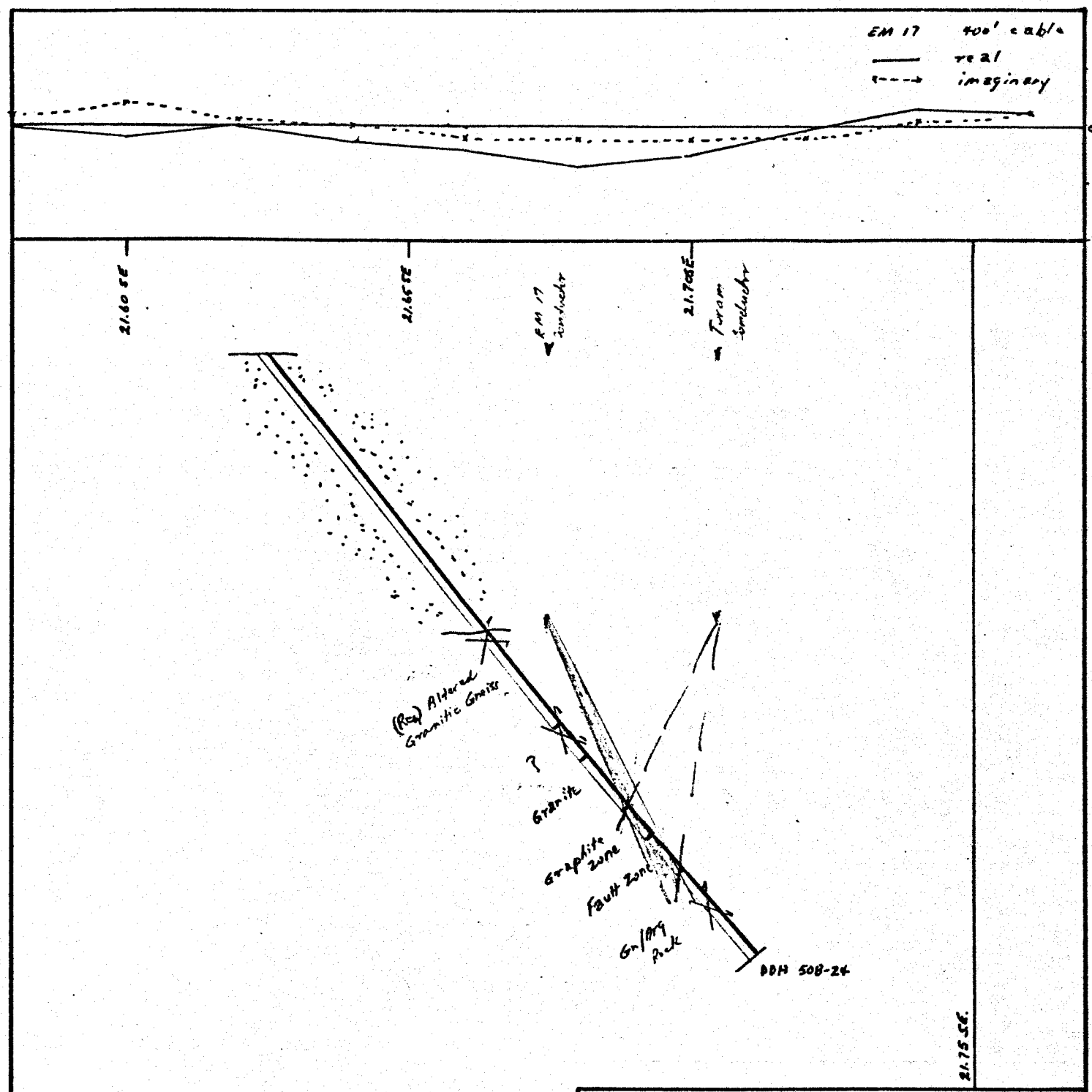
ELDORADO NUCLEAR LIMITED
PROJECT 508 PERMIT 214

SECTION : 20.45 SE on GRID "B"
HOLE : DDH 508-22
COMPLETED : 31.03.78
LOGGED BY : H.LAANELA / P.A. FORTUNA
SCALE : 1:1000 (1cm = 10 m)



ELDORADO NUCLEAR LIMITED
PROJECT 508 PERMIT 216

SECTION: 21.60 NE on GRID "B"
HOLE: DDH 508-23
COMPLETED: 02.04.78
LOGGED BY: N. LAMELA
SCALE: 1:1000 (1cm=10 m)



ELDORADO NUCLEAR LIMITED
PROJECT 508 PERMIT 214

SECTION: 20.80 NE on GRID "B"
HOLE : DDH 508-24
COMPLETED: 08.04.78
LOGGED BY: H. LAANELA
SCALE: 1:1000 (1 cm = 10 m)

APPENDIX "D"

CERTIFICATES OF ANALYSIS
for Diamond Drill Core Samples
(by Bondar-Clegg & Co. Ltd, May, 1978)

PROJECT 508, ALBERTA

BONDAR-CLEGG & COMPANY LTD.
784 BELFAST ROAD, OTTAWA, ONTARIO, K1G 0Z5 PHONE: 237-3110

508
D.D.

Certificate of Analysis p. 1

TO Eldorado Nuclear Ltd.,
300 - 255 Albert Street,
Ottawa, Ontario. K1P 6A9

REPORT NO. A-194-78
DATE May 8, 1978

I hereby certify that the following are the results of analyses made by us upon the herein described ...core..... samples

MARKED		% U	% Th	% Cu	% Pb	% Zn	% Co	% Ni		Reference	
6001		L0.001	0.013							508-18	186 - 188
6002		L0.001	0.012								188 - 190
6003		L0.001	0.016								190 - 192
6004		L0.001	0.017								192 - 194
6005		0.001	0.017								194 - 196
6006		L0.001	0.046	trace				trace		508-20	263.5 - 265.5
6007		0.001	0.028	trace				trace			413.5 - 415.5
6008		L0.001	0.015	trace				trace		508-21	77 - 79
6009		L0.001	0.004	trace				trace			79 - 81
6010		L0.001	0.016	trace				trace			81 - 83
6011		L0.001	0.010	trace				trace			260 - 262
6012		L0.001	0.037	trace				trace			262 - 264
6013				0.02			trace	trace		508-23	410'
6014				trace	trace	trace	trace	trace		508-24	256.5'
6015		0.001	0.012	trace				0.01			273 - 275

NOTE:
Rejects retained two weeks
Pulps retained three months
unless otherwise arranged.

BONDAR-CLEGG & COMPANY LTD.

[redacted]

BONDAR-CLEGG & COMPANY LTD.
784 BELFAST ROAD, OTTAWA, ONTARIO, K1G 0Z5 PHONE: 237-3110

508
D.D.

Certificate of Analysis p.2

TO Eldorado Nuclear Ltd.

REPORT NO. . . A-194-78. . . . . .

DATE . . . . . May 8, 1978. . . . . .

- 2 -

I hereby certify that the following are the results of analyses made by us upon the herein described . . . Core . . . . . samples

MARKED		% U	% Th	% Cu	% Pb	% Zn	% Co	% Ni		Reference	
6016				0.01	trace	trace	trace	0.03		508-24	338'
6017				0.01	trace	trace	0.01	0.05			339.5'
6018				0.01	trace	trace	trace	0.06			341'
6019		L0.001	0.020	trace				trace		508-24	448 - 450
6020		L0.001	0.015							508-25	228 - 230
6021		L0.001	0.013								171 - 173
6022		0.007	0.001							508-27	466 - 468
6023		0.003	0.002								479 - 481
6024		0.022	0.004								653 - 655
6025		0.013	L0.001								655 - 657
6026		0.012	0.003								657 - 659
6027		0.024	0.002								669 - 671

L Means less than.
Trace - Less than 0.01% Cu, Pb, Zn, Co, Ni.

NOTE:
Rejects retained two weeks
Pulps retained three months
unless otherwise arranged.

BONDAR-CLEGG & COMPANY LTD.

. . . . . [redacted] . . . . . .

0-21

BONDAR-CLEGG & COMPANY LTD.
764 BELFAST ROAD, OTTAWA, ONTARIO, K1G 0Z5 PHONE: 237-3110

508
D.D.

Certificate of Analysis p. 3

TO Eldorado Nuclear Ltd.,
400 - 225 Albert Street,
Ottawa, Ontario.

REPORT NO. ... A-203-78 .....
DATE ..... May 10, 1978 .....

I hereby certify that the following are the results of analyses made by us upon the herein described ... Rock ..... samples **Project: 508**

MARKED		% U	% Th							Reference
D- 2401		0.001	0.022							DDH 508-29 458-460
↓ 2402		0.001	0.020							468-470
2403		0.002	0.008							478-480
2404		0.002	0.025							486-490
2405		0.002	0.025							499.3-501.3
2406		0.004	0.022							508-510
2407		0.002	0.032							518-520
2408		0.001	0.012							658-660
2409		0.001	0.011							668-670
2410		0.001	0.012							678-680
2411		0.001	0.014							688-690
2412		0.002	0.014							698-700
2413		0.002	L0.001							708-710
2414		0.003	0.045							718-720
2415		L0.001	0.007							728-730
2416		0.001	0.011							738-740
2417		0.001	0.028							748-750
End				L Means less than						

BONDAR-CLEGG & COMPANY LTD.

[redacted]

NOTE:
Rejects retained two weeks
Pulps retained three months
unless otherwise arranged.

APPENDIX "E"

DOWN-HOLE GAMMA-RAY LOGS
of DDH^{S} ##508-17 to 29

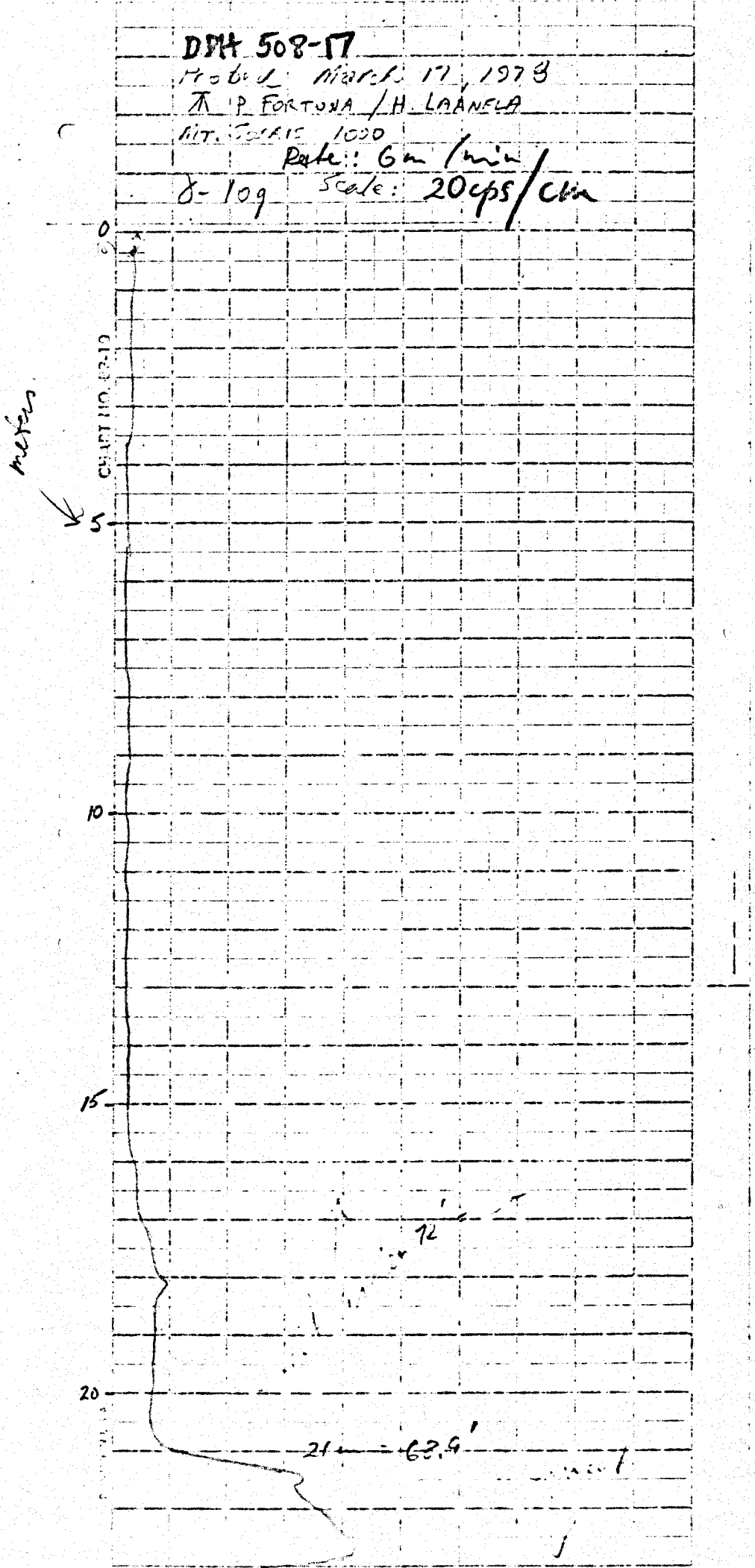
PROJECT 508, ALBERTA

Projects of NUE Assistance Program

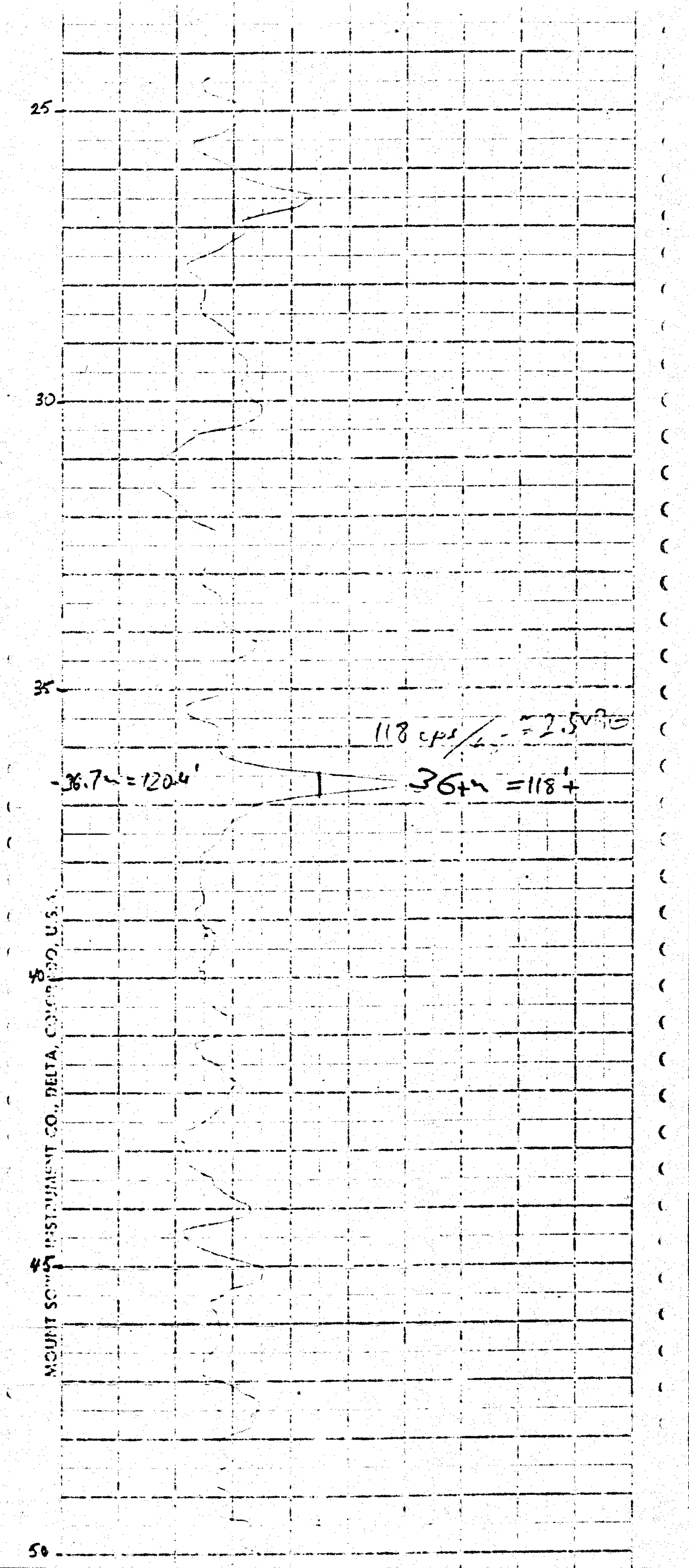
Downhole γ-ray logs - Winkler D.D. Program, 1978

Total count - Nl. Sonic 1000

508-17



508-17



508-17

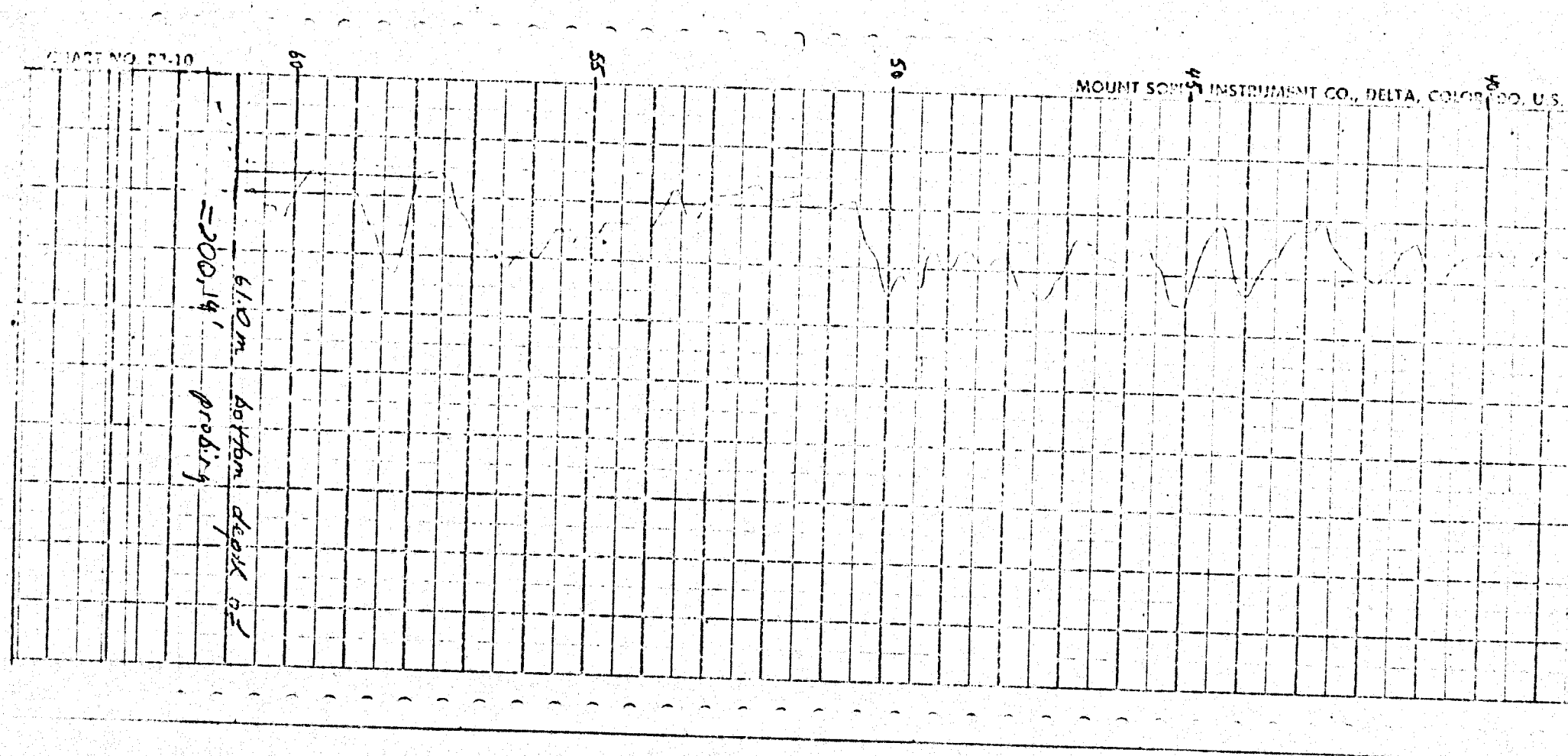


CHART NO. FT-10
60
55
50
45
40
MOUNT SOPRIS INSTRUMENT CO., DELTA, COLORADO, U.S.
61.0m bottom depth of
=200.14' probing

DDH 508-18
Probed March 19, 1976
H. LAANELA / P. FORTUNA
MT SOPRIS 1000

8-log Scale: 20 cps/cm

re-log: 51 m → 61 m 50 cps/cm

0

5

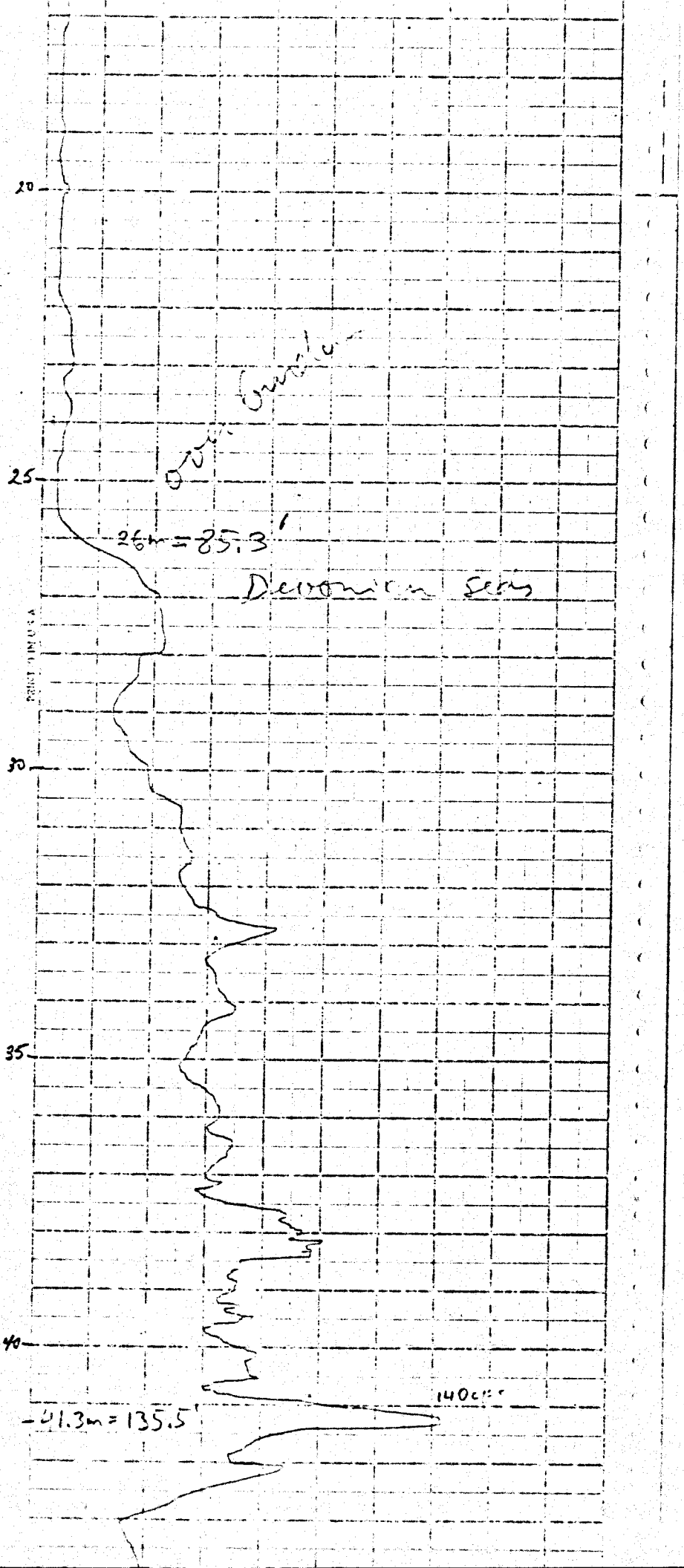
10

15

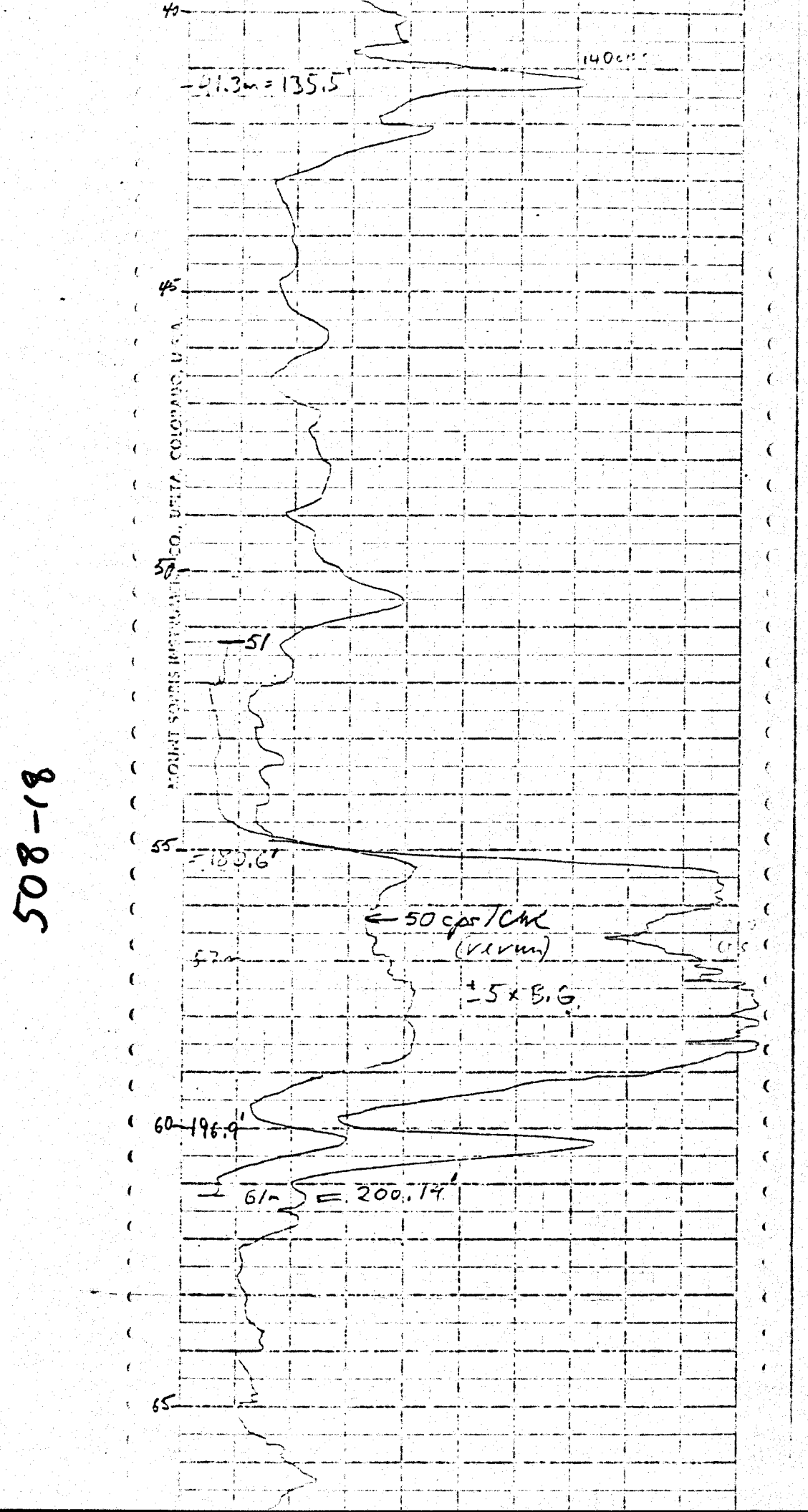
20

CHART NO. MP-10

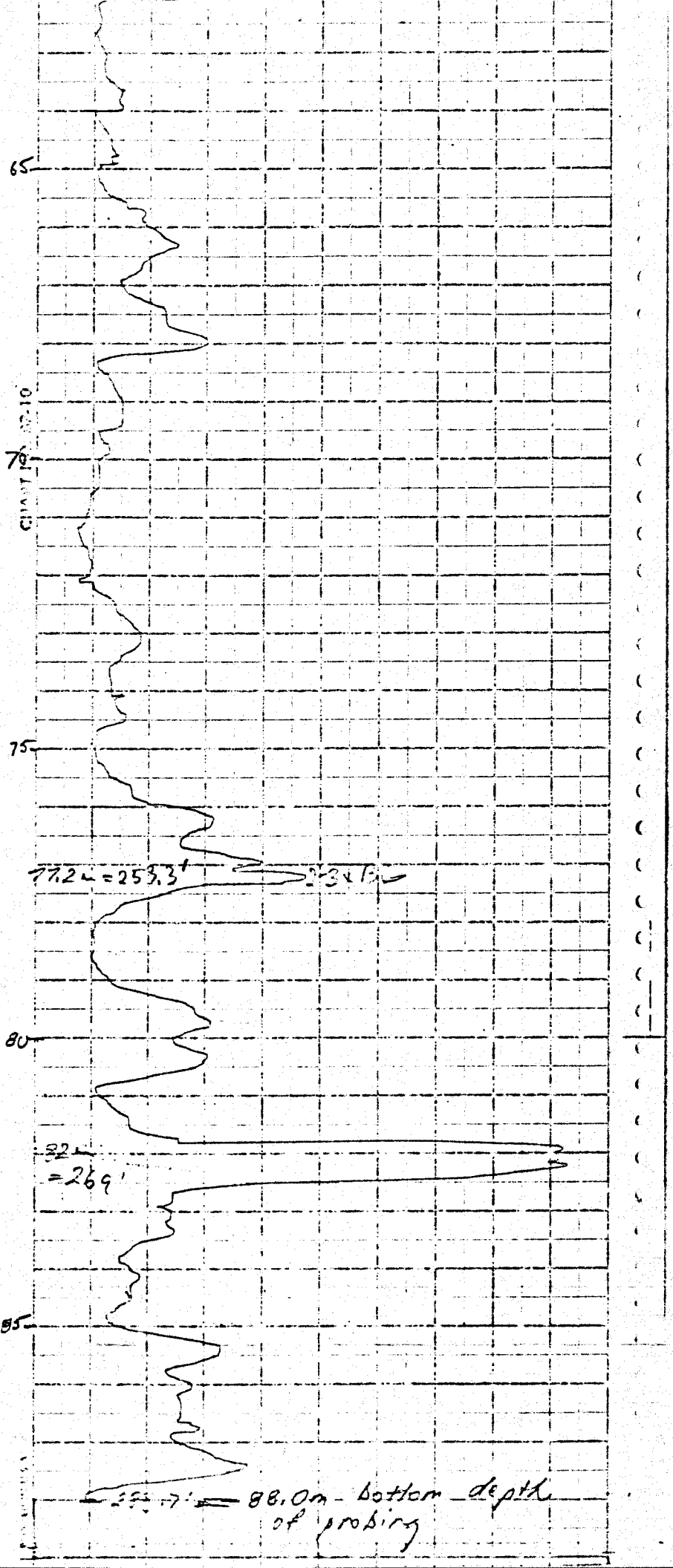
508-18



508-18


45
140'
-41.3m = 135.5'
45'
50
51
55
=180.6'
← 50 cps TCR
(rerun)
57m
+5 x B.G.
60
196.9'
61m = 200.74'
65
MOUNT SOPRIS INSTRUMENT CO., DELTA, COLORADO, U.S.A.

508-18



508-18

DDH 508-19
Probed March 23, 1978
K G. Mitchell + C. Oppelt
Mt. Sopris 1000
0 γ-ray scale: 20 cps / 1cm
1cm = 1m
Speed 6 m / min

5

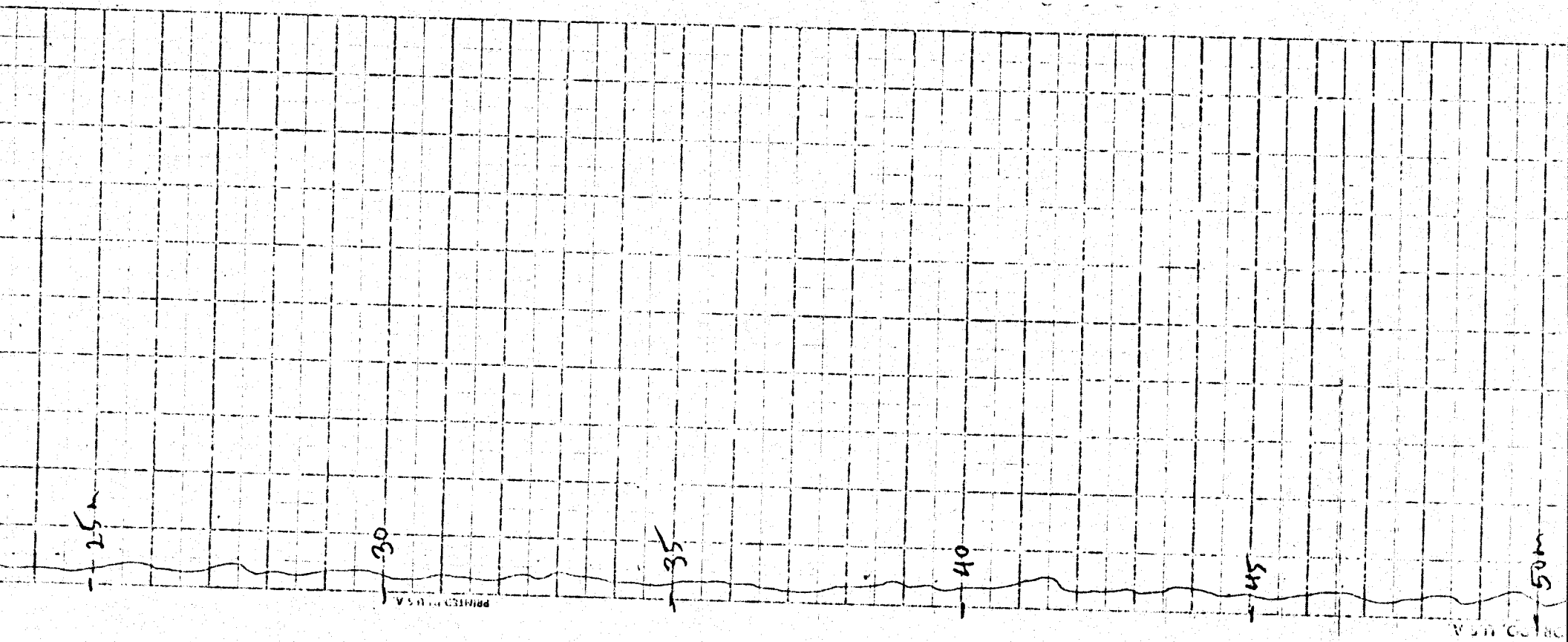
10m

15 m

20

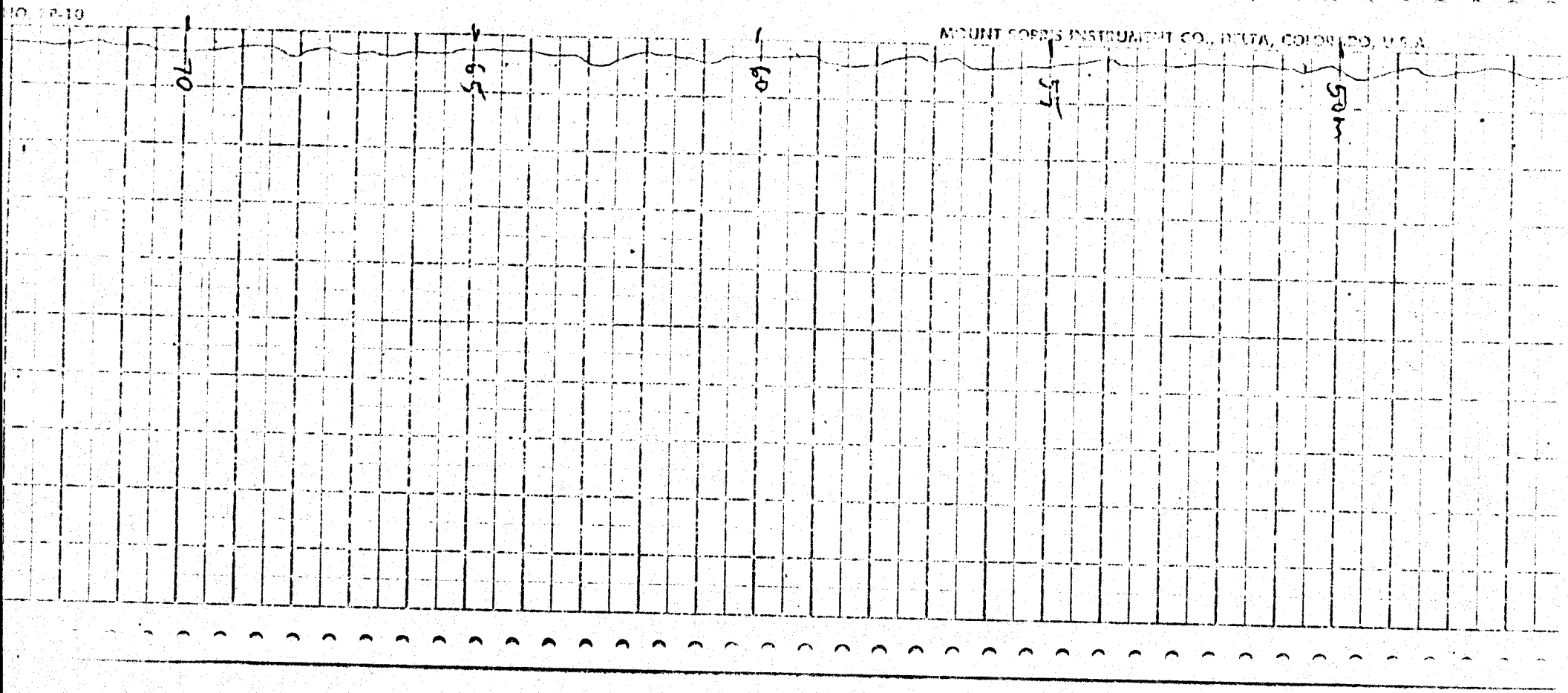
CHART NO. EP-10

508-19

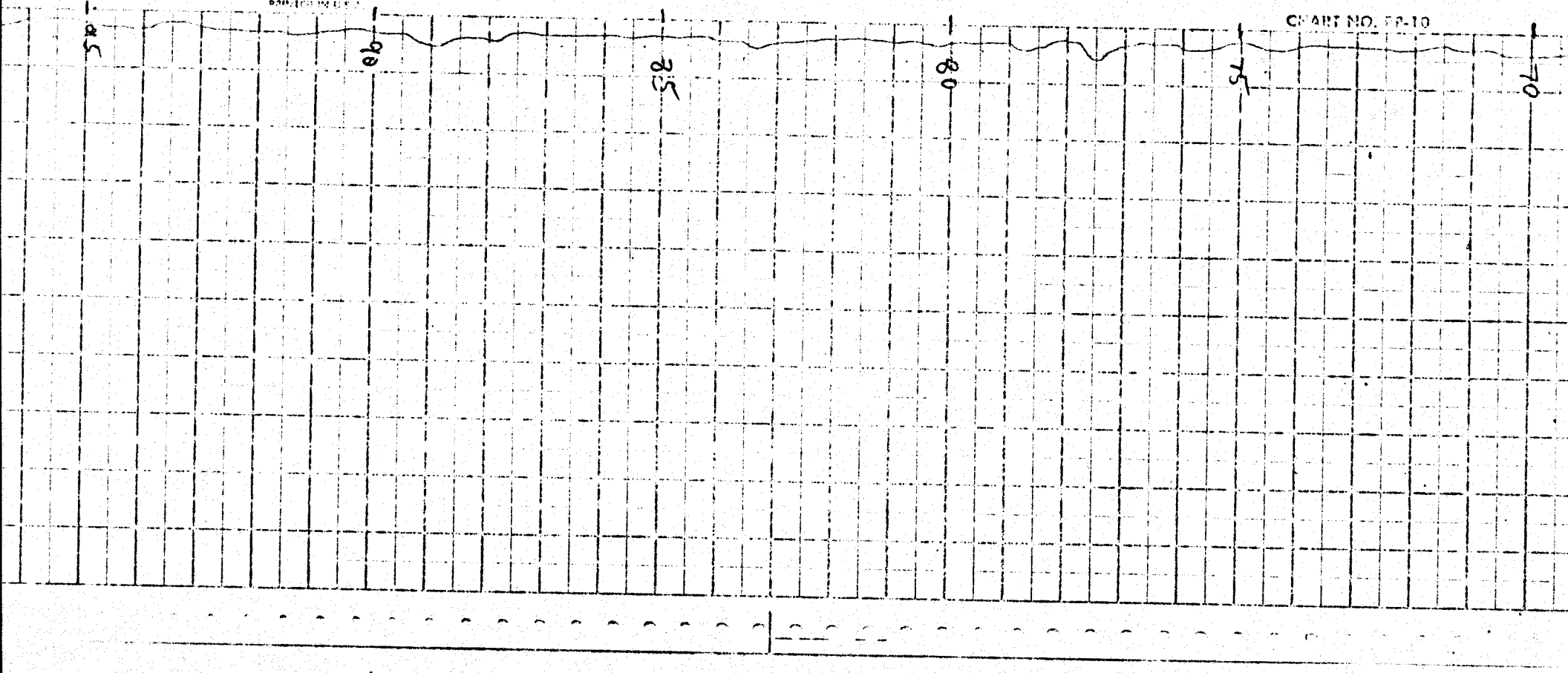


61-805

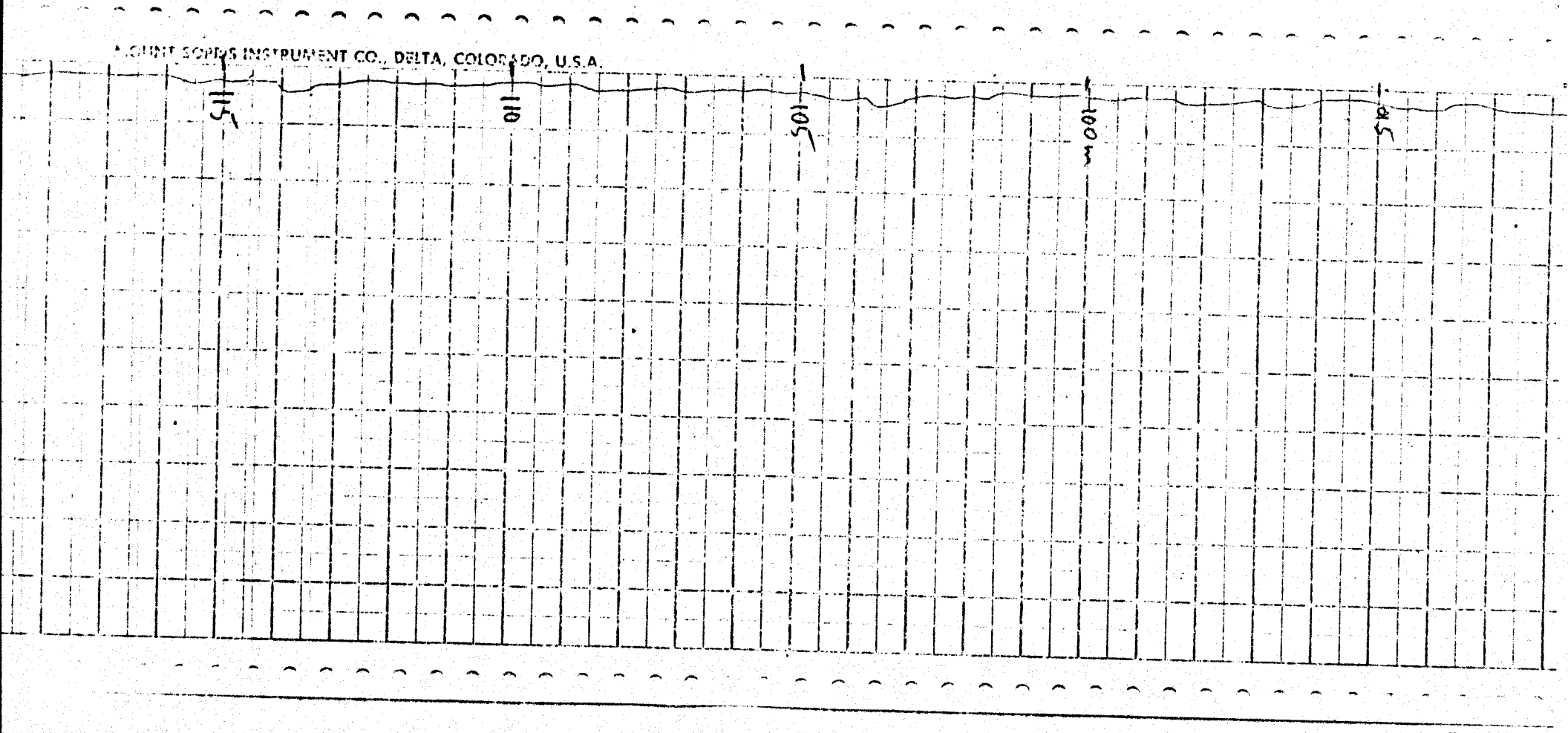
508-19



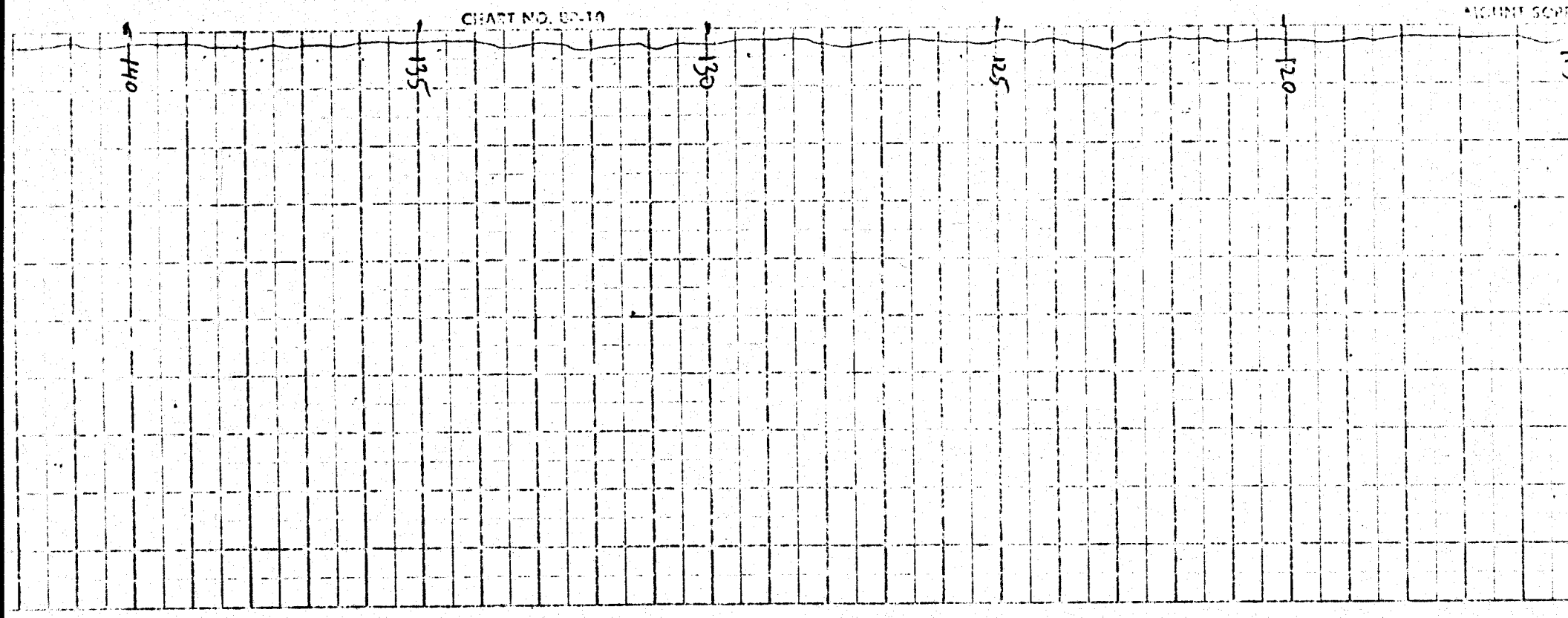
508-19



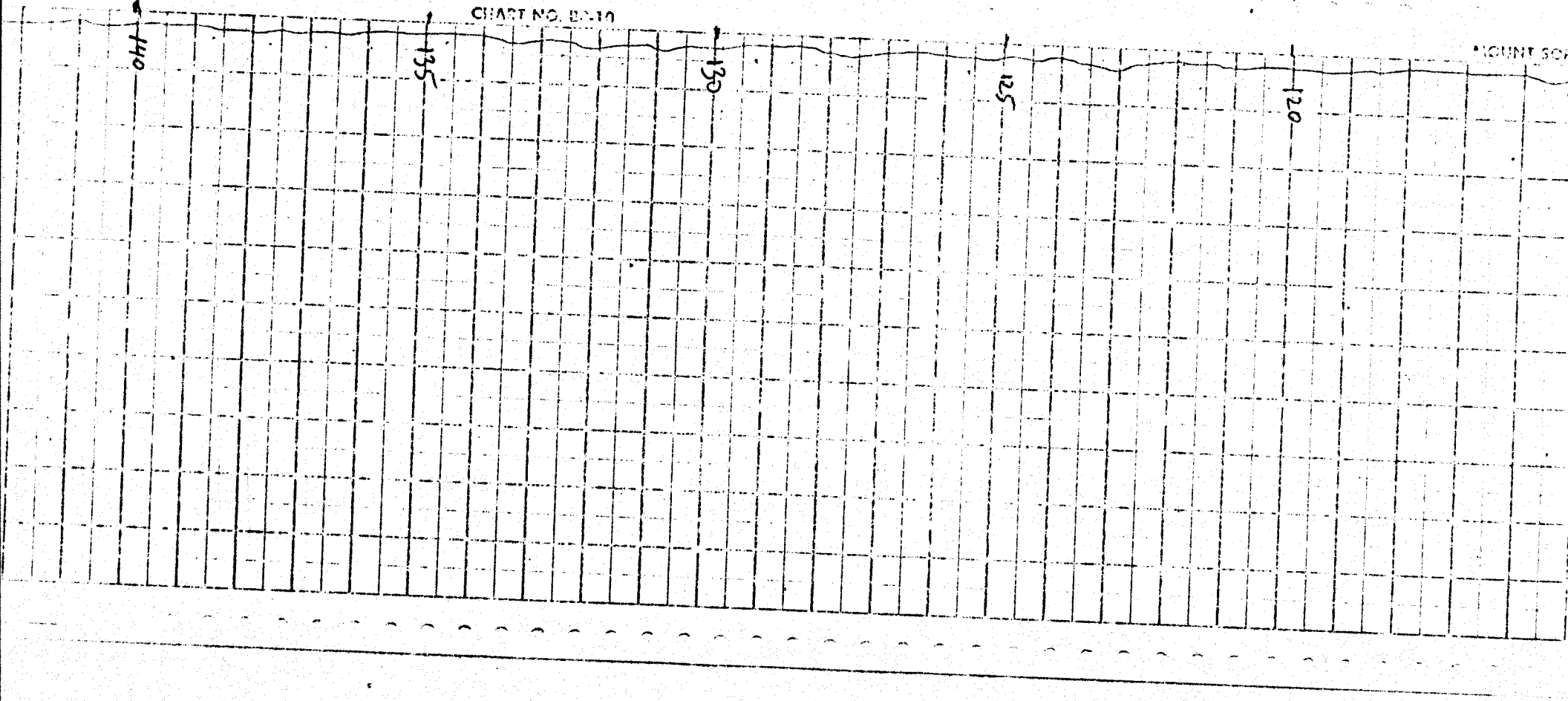
508-19

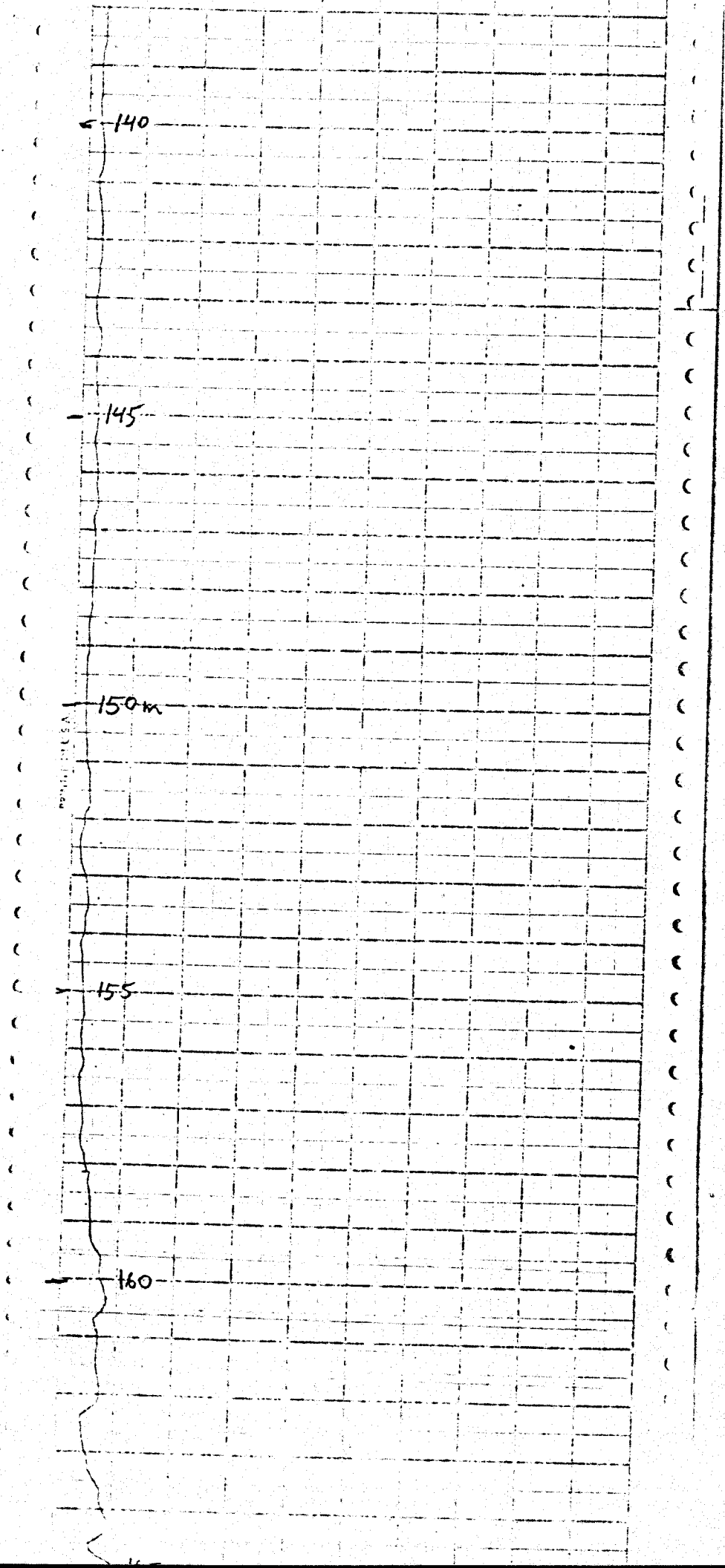


508-19

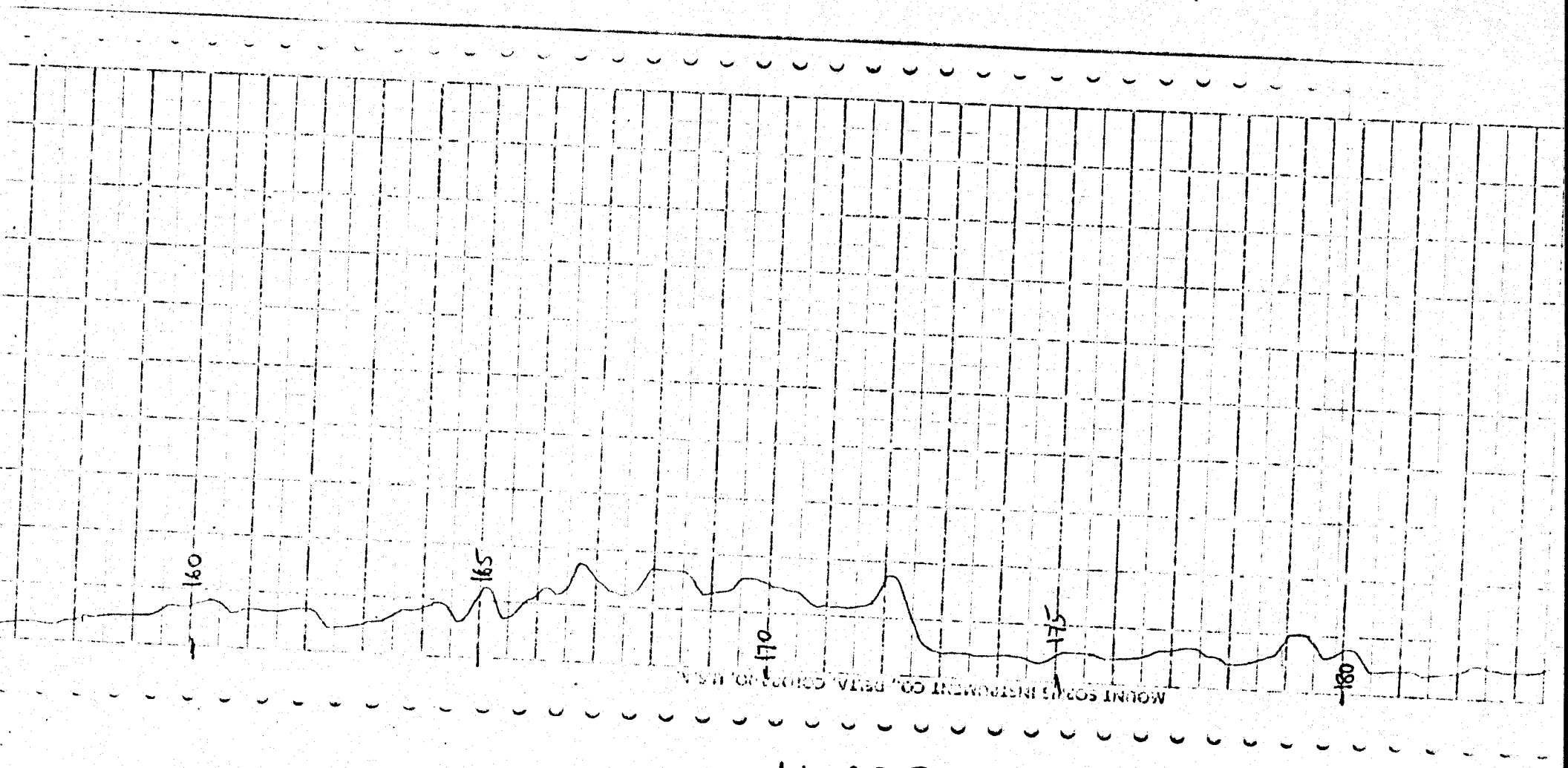


SDP-19



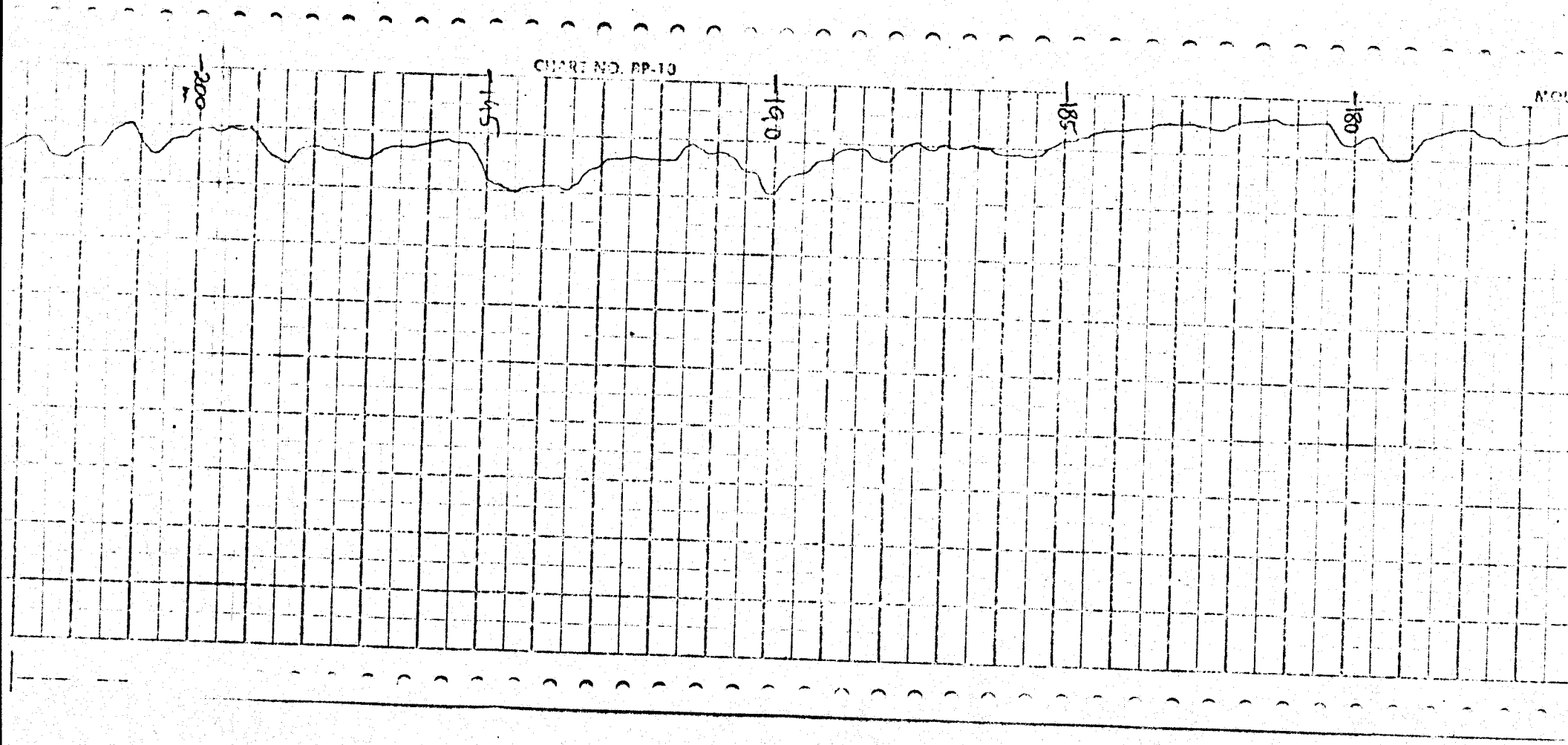


508-19

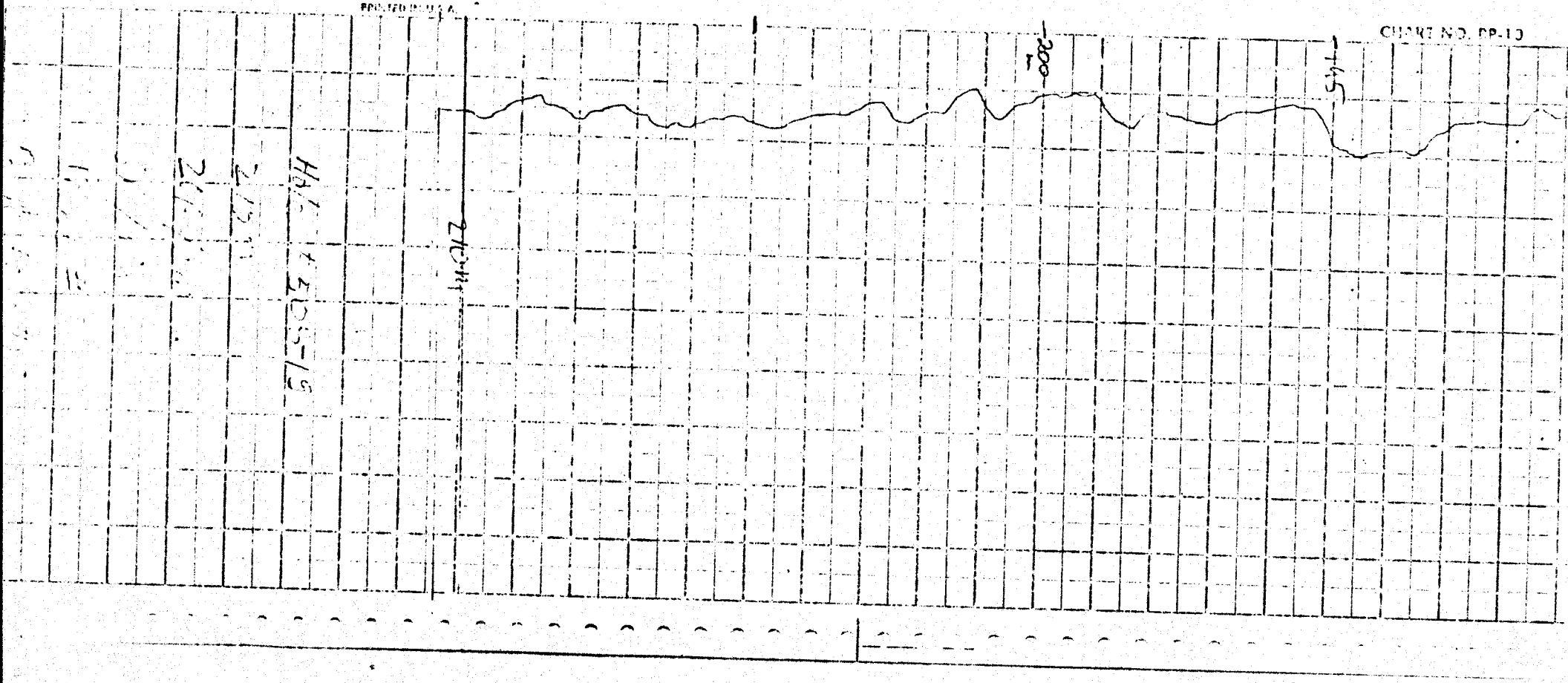


61-205

508-19



508-19



DDH #508-20

Probed March 30, 1978 (return T thru plastic)

K P. Fortune + H. Laemla

Mt. Sopris 1000

γ-ray scale: 1cm = 50cps

1cm : 1m

Speed 6m/min.

-0'=on collar

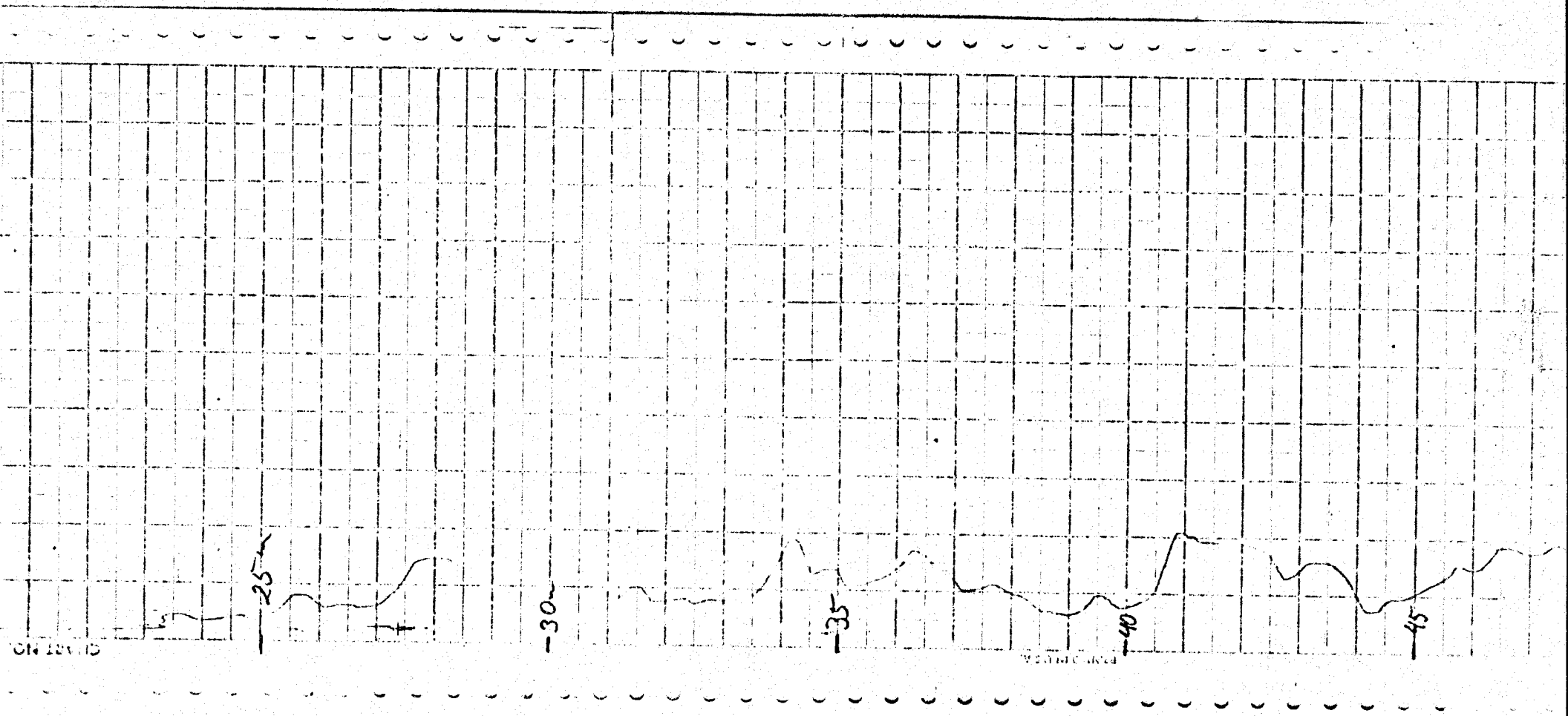
-5'

-10'

-15'

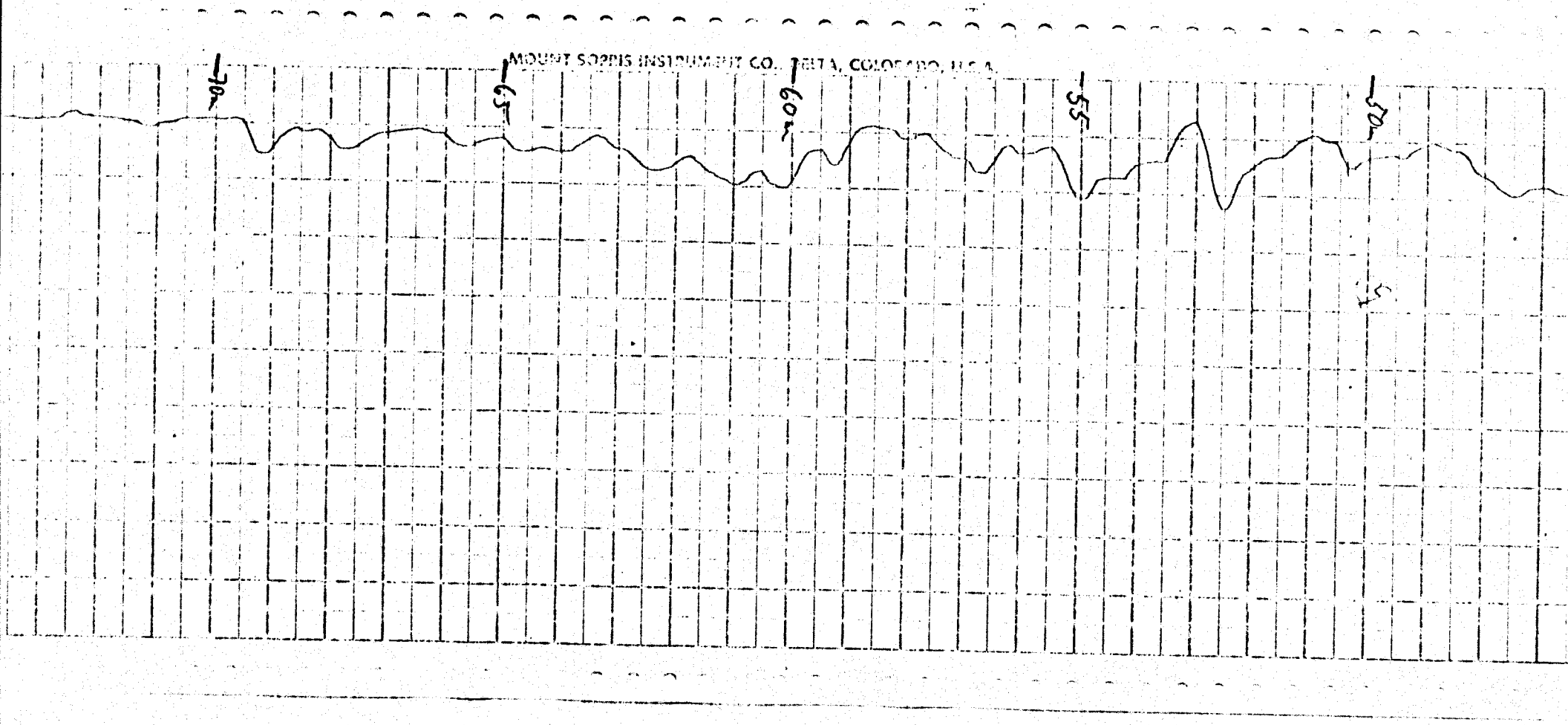
-20'

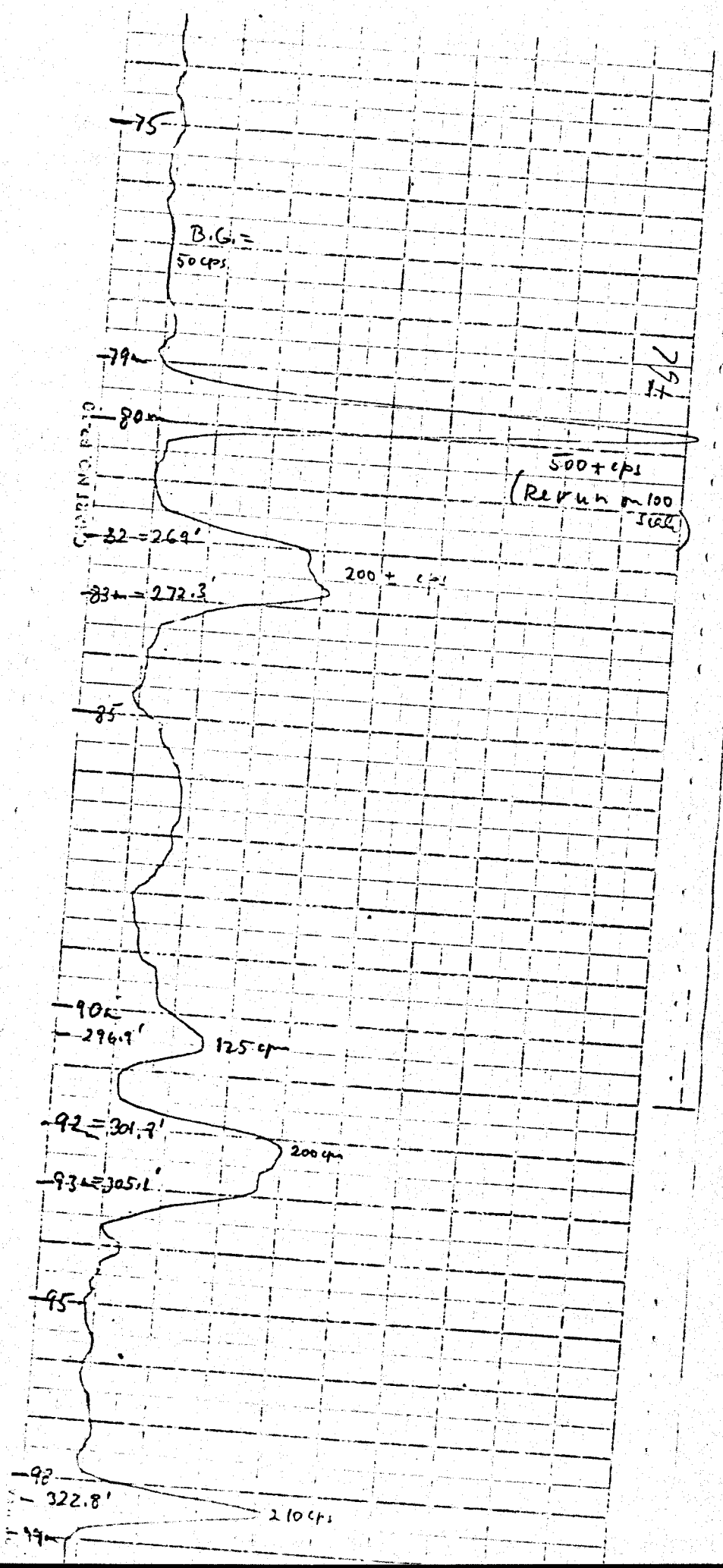
508-20



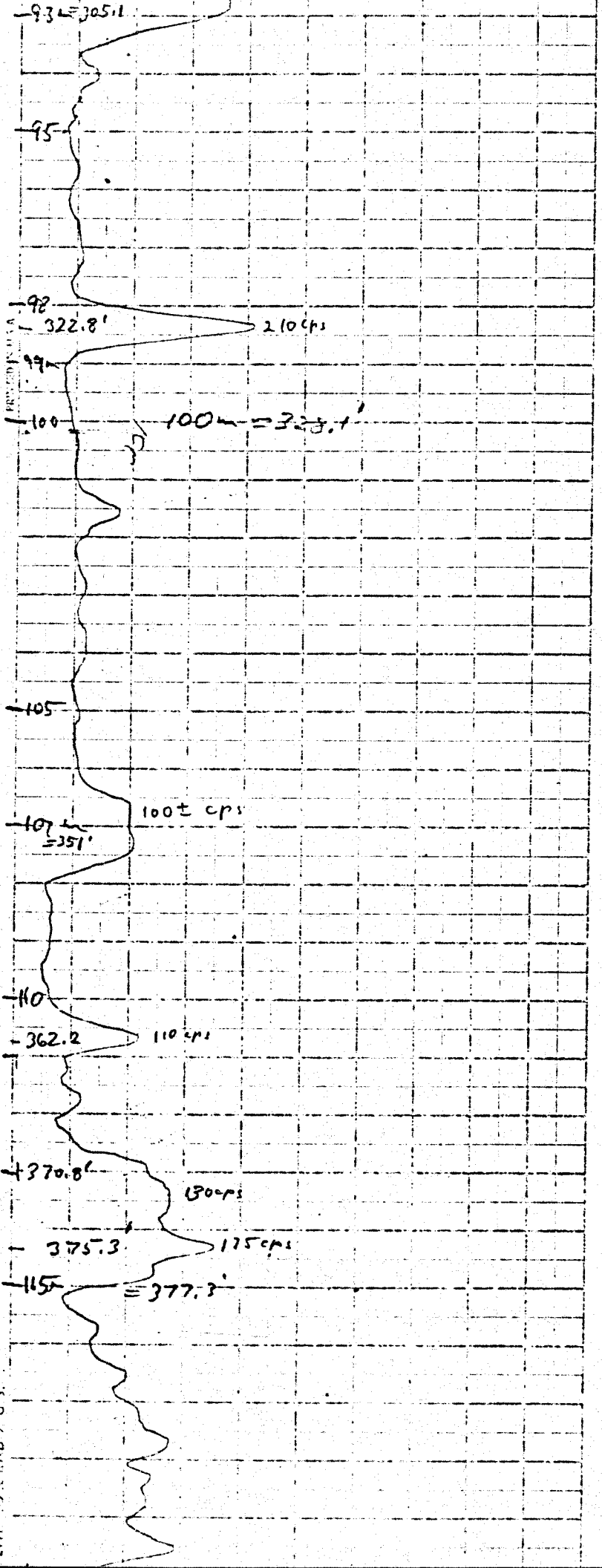
07-205

508-20

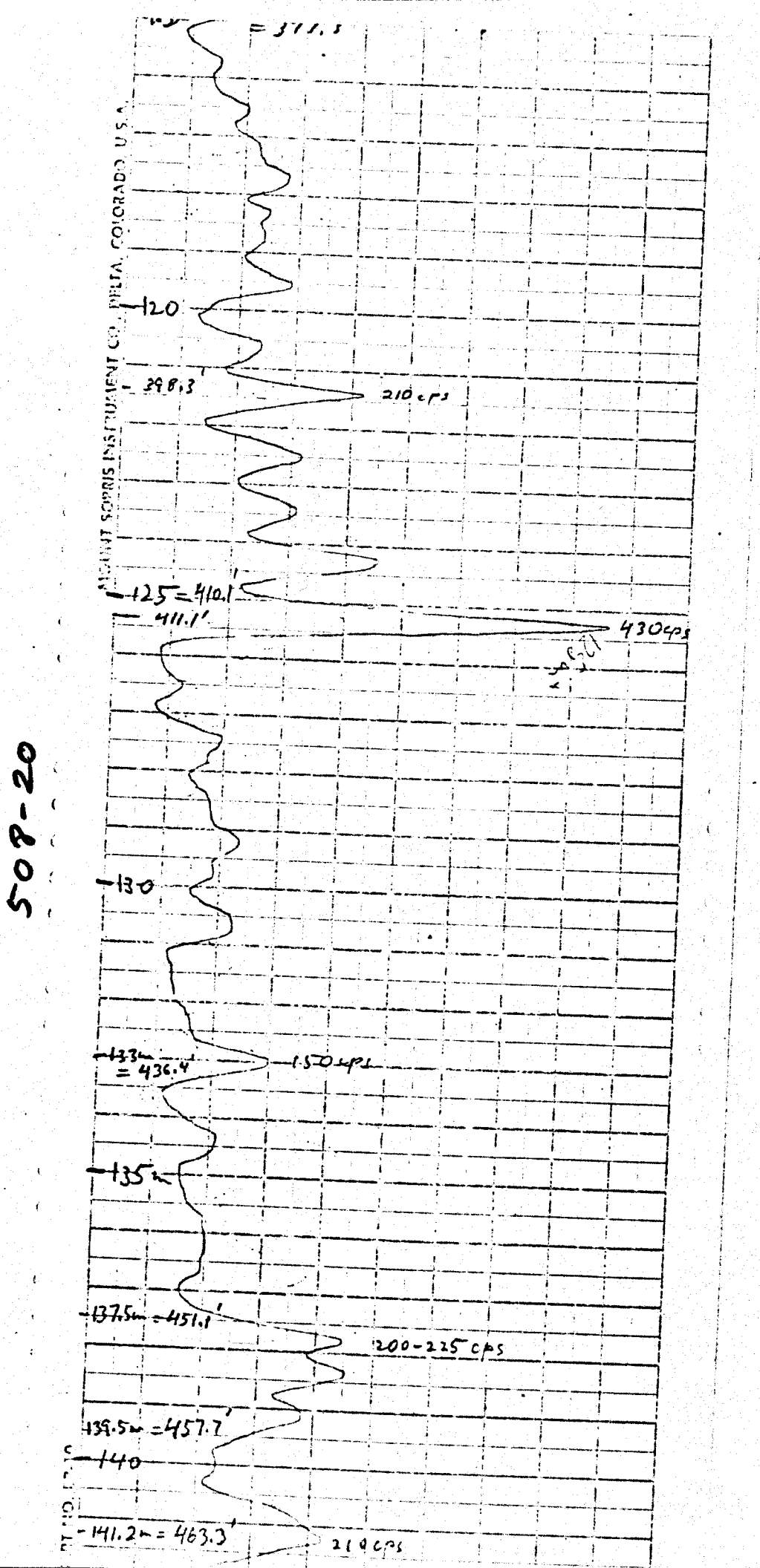



75
B.G. = 50 cps
79
80
500+ cps
(Rerun on 100 scale)
82 = 269'
200+ cps
83 = 272.3'
85
90
296.9'
125 cps
92 = 301.9'
200 cps
93 = 305.1'
95
98
322.8'
210 cps
99

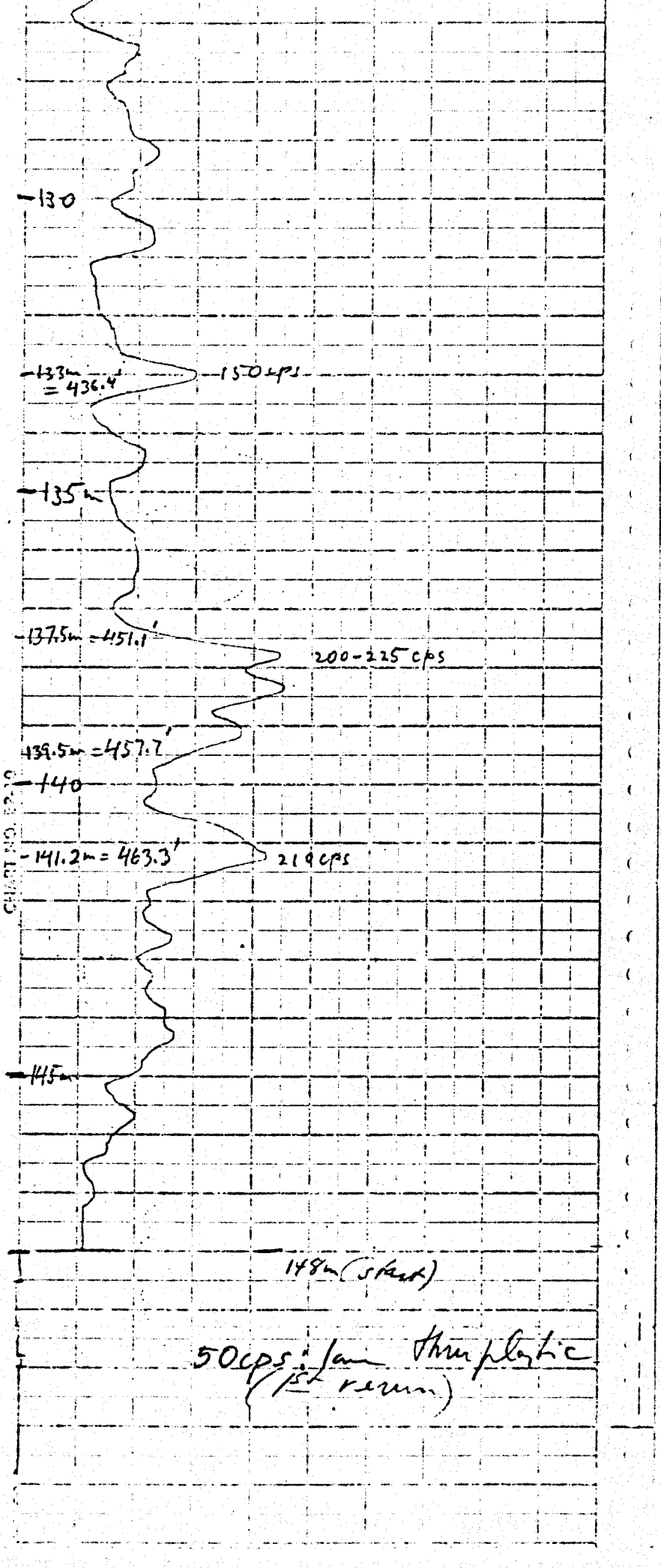
508-20


93 = 305.1
95
98
322.8'
210 cps
99
100
100 = 328.1'
105
107
= 351'
100± cps
110
362.2
110 cps
370.8'
130 cps
375.3
175 cps
115
= 377.3'

SDB-20


= 377.5
120
398.3'
210 cps
125 = 410.1'
411.1'
430cps
130
133m = 436.4'
1570cps
135m
137.5m = 451.1'
200-225 cps
139.5m = 457.7'
140
141.2m = 463.3'
210 cps

508-20


SDB-20
130
133m = 436.4'
150 cps
135m
137.5m = 451.1'
200-225 cps
139.5m = 457.7'
140
141.2m = 463.3'
219 cps
145m
148m (start)
50 cps / Jam thin plastic
(1st return)

DDH #508-20

Probed March 30, 1978 (rerun II thru plastic)

K. P. Fortune & H. Lagula

Mt. Sopris 1000'

Y axis scale: 1cm = 100 cps

Speed 6 m/min

Tape: 1 cm

70m

BG = ±50 cps

79m = 259.2'

~870 cps

80m = 262.5'

82m = 269'

±200 cps/1'

271.7'

85m

BG = 50-80 cps

90m (start rerun)

508-20 (rerun)

DDH #508-20

Rate 1cm = 100 cps (2nd rerun)

DELTA COLORADO U.S.A.

DDH #508-21

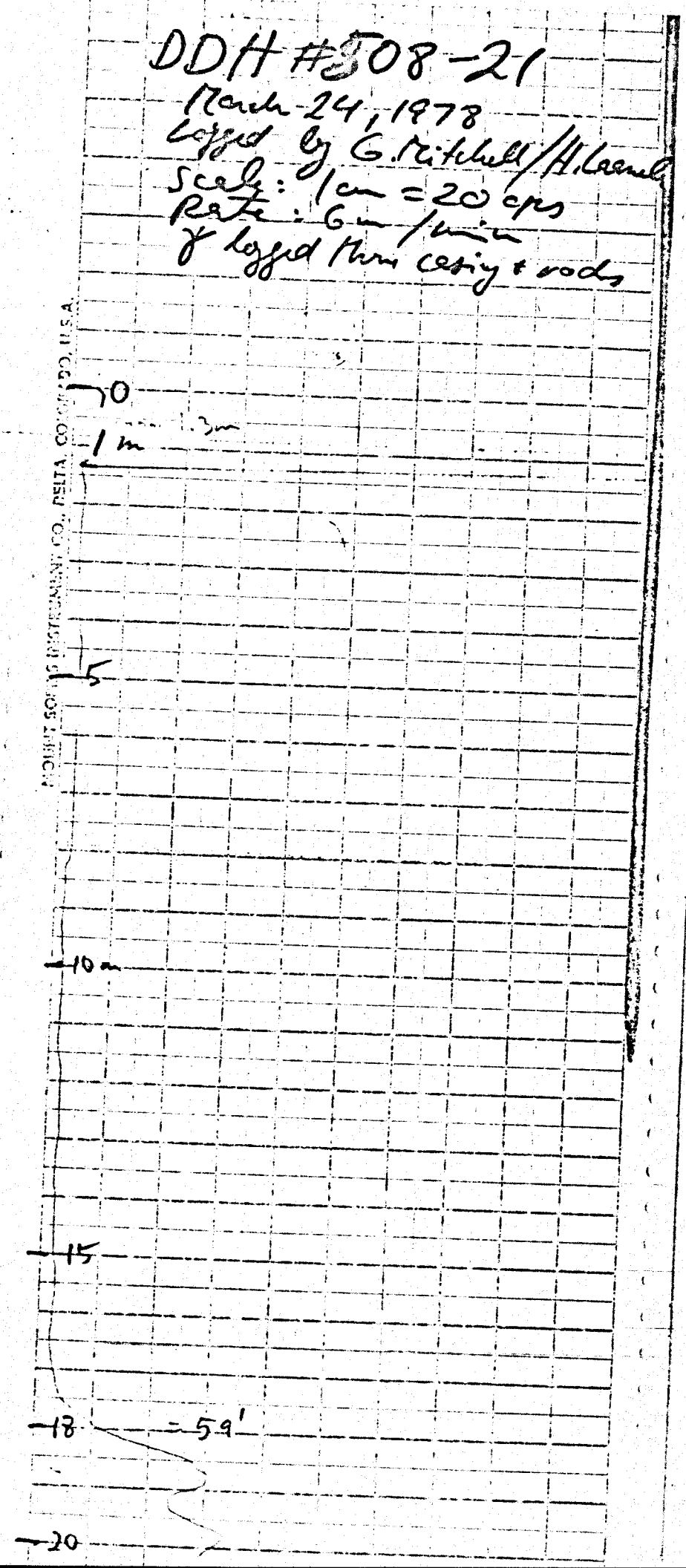
March 24, 1978

Logged by G. Mitchell / H. Laemlein

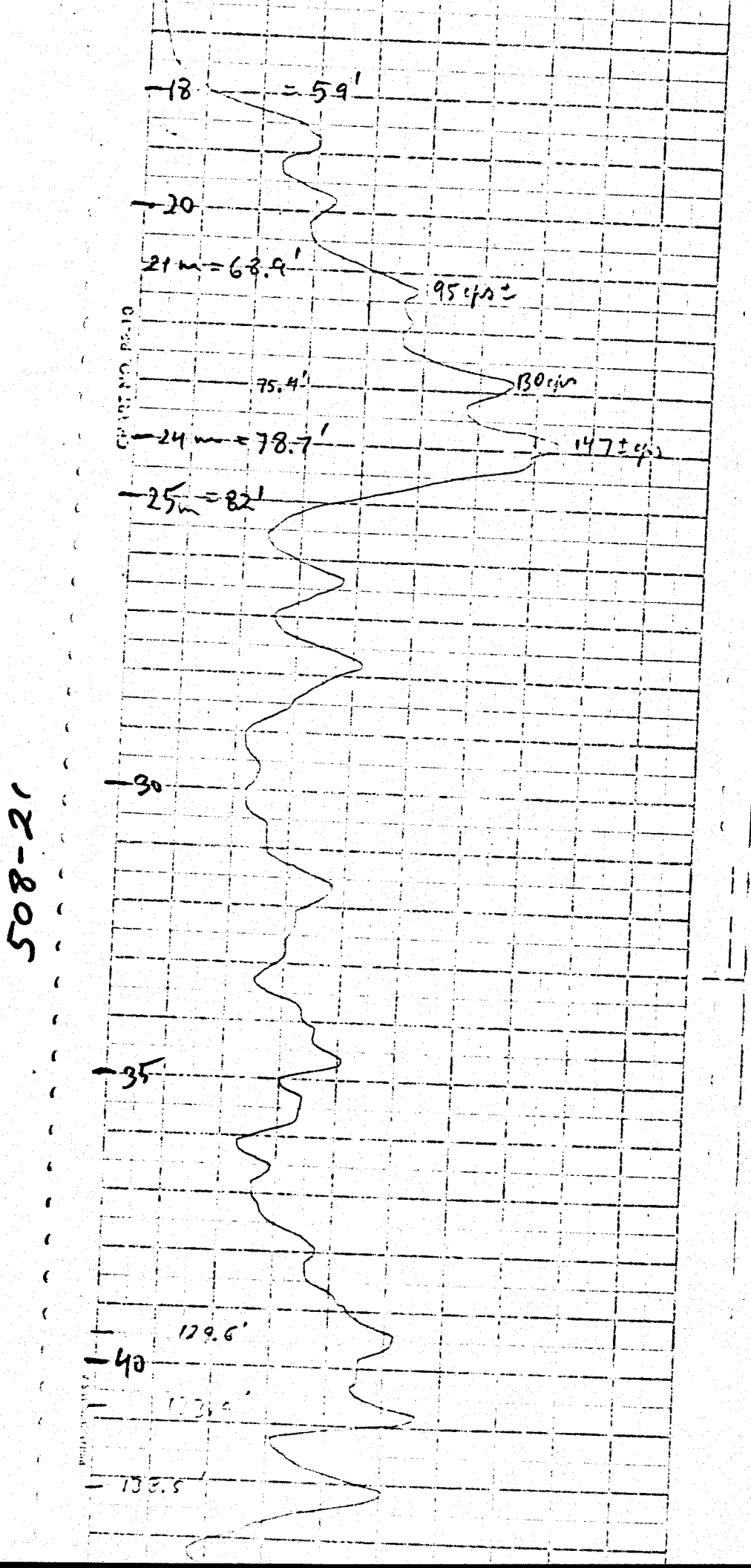
Scale: 1cm = 20 cps

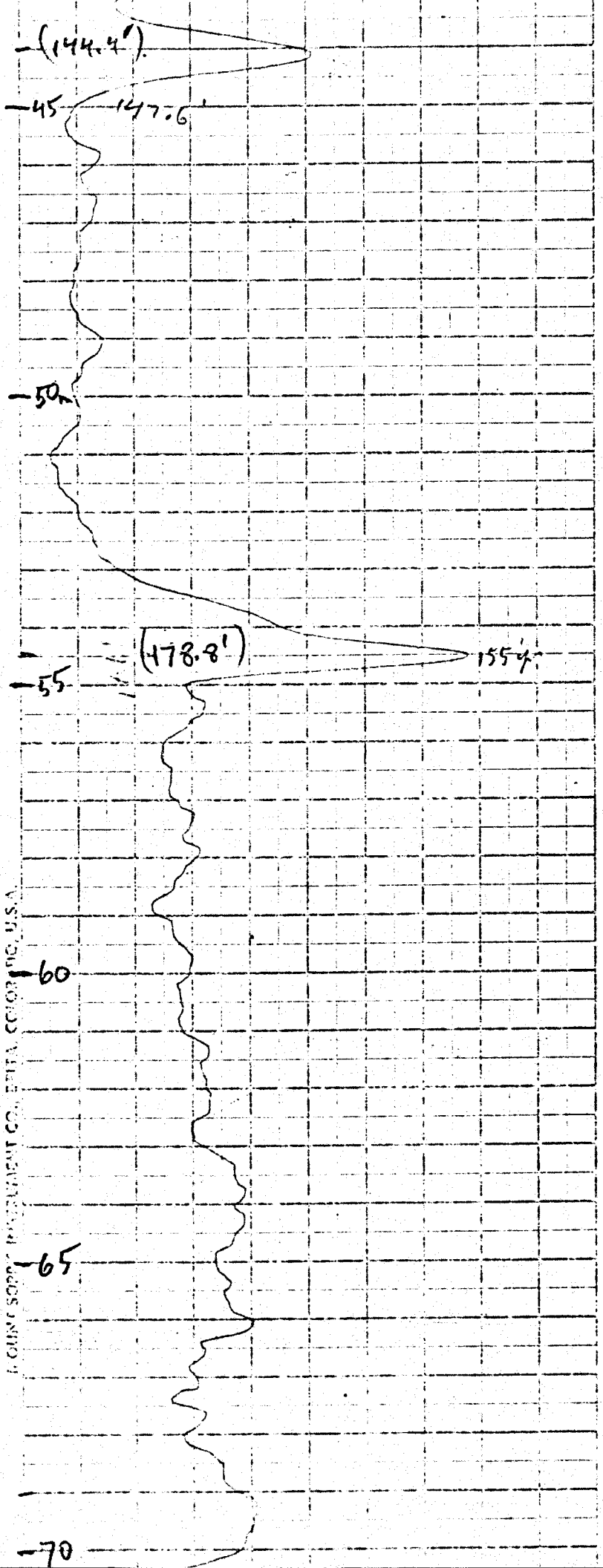
Rate: 6m / min

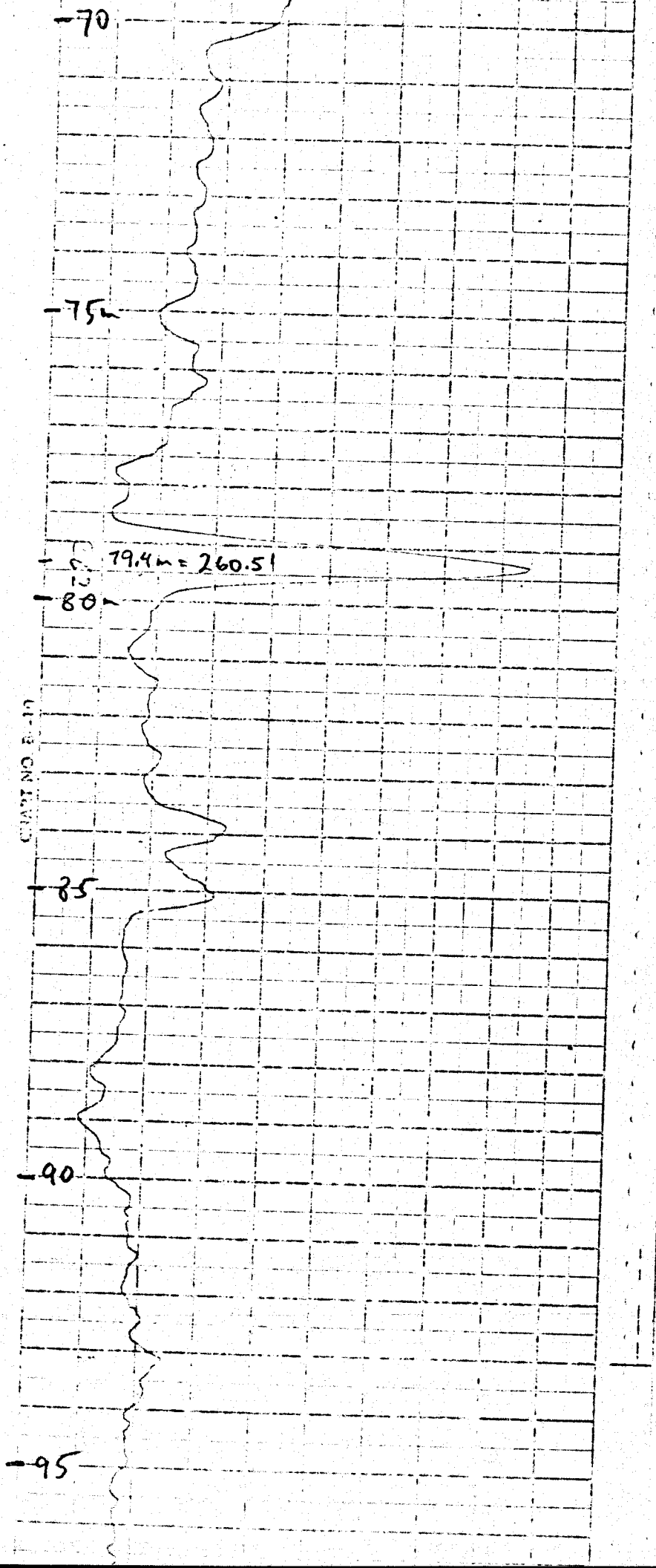
& logged from casing + rods



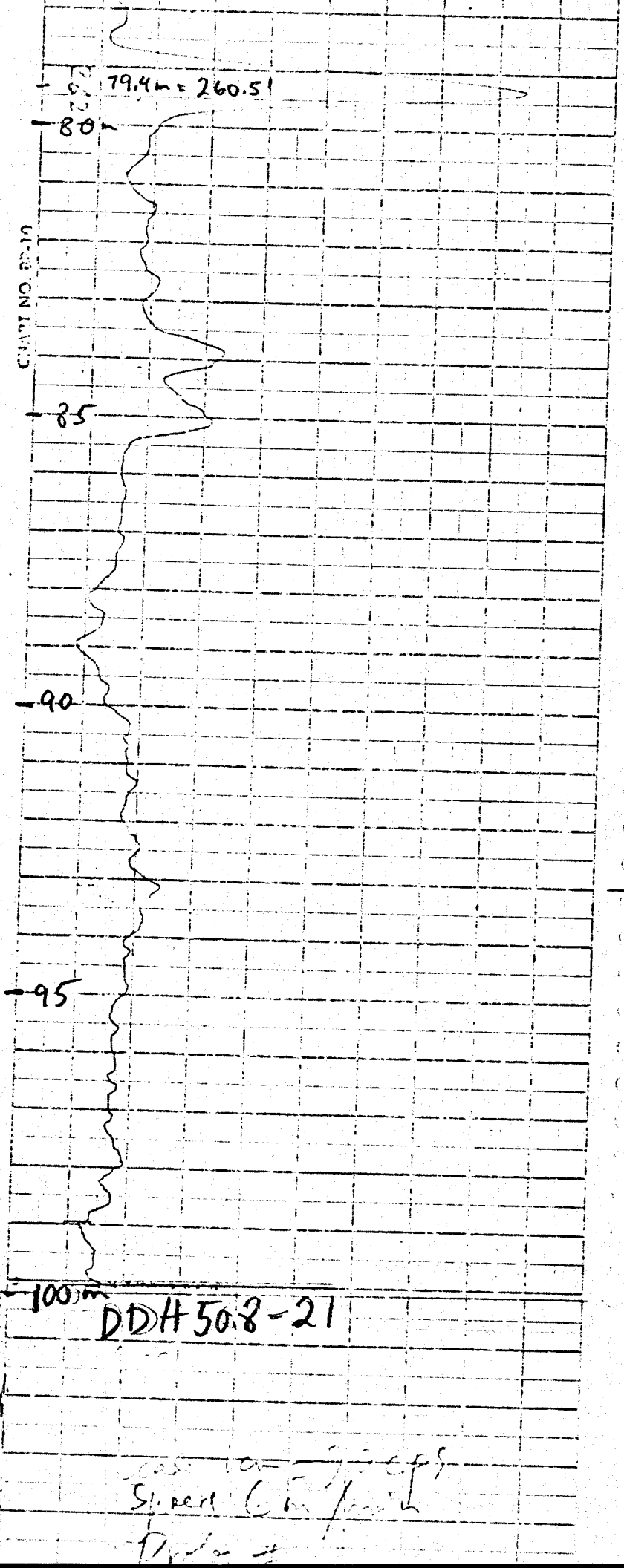
508-21


508-21
18
= 59'
20
21 m = 68.9'
95 μs ±
75.4'
130 μs
24 m = 78.7'
147 ± μs
25 m = 82'
30
35
179.6'
40


(144.4')
45
147.6'
50
(178.8')
155.4'
55
60
65
70
508-21



508-21

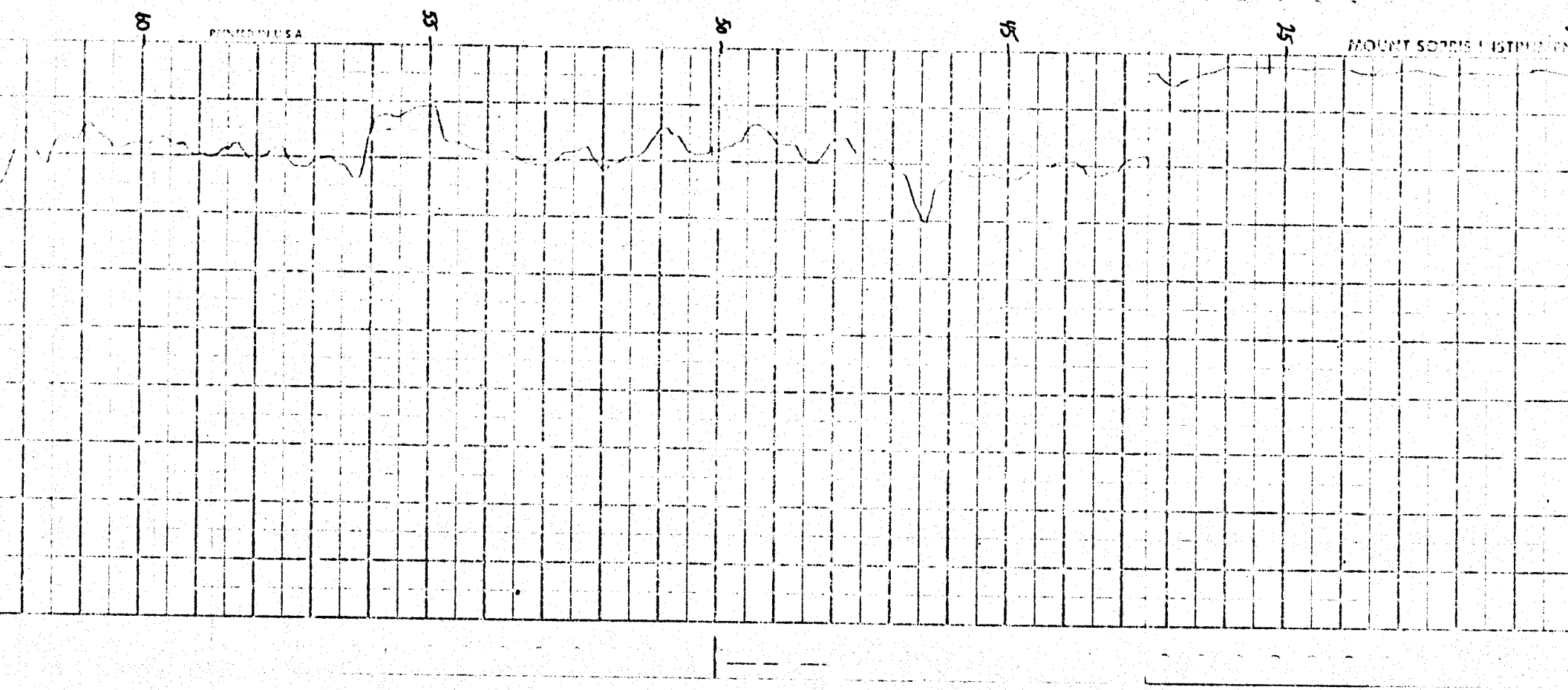

79.4m = 260.5'
80
85
90
95
100m
DDH 508-21
508-21

DDH 508-22
Probe April 1, 1978
π P. FORTIN / S. STEPHEN
MT SOPRIS 1000
γ-log Scale: 20 cps/div.

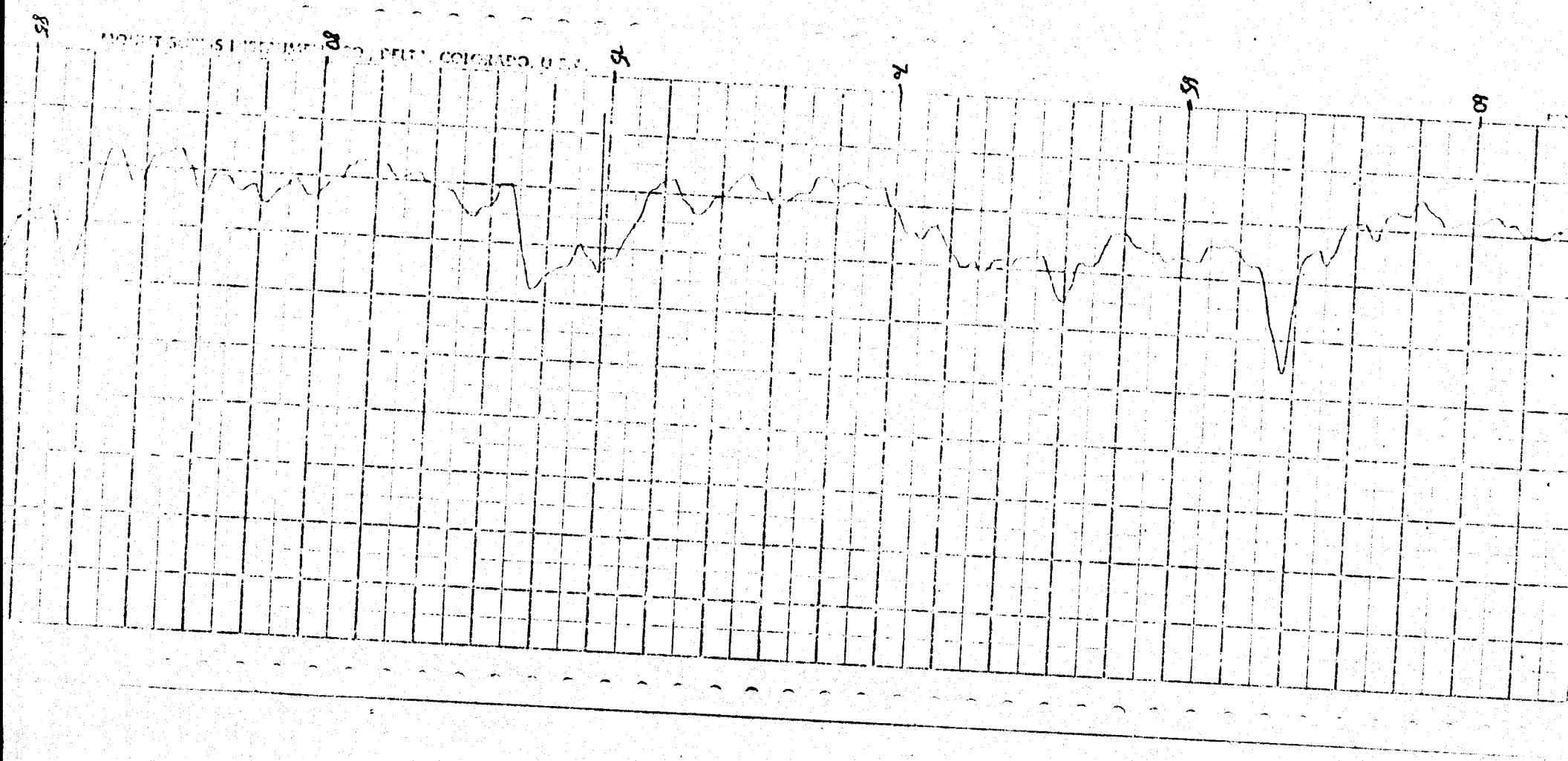
0
0.1 m
5
10
15
20

508-22

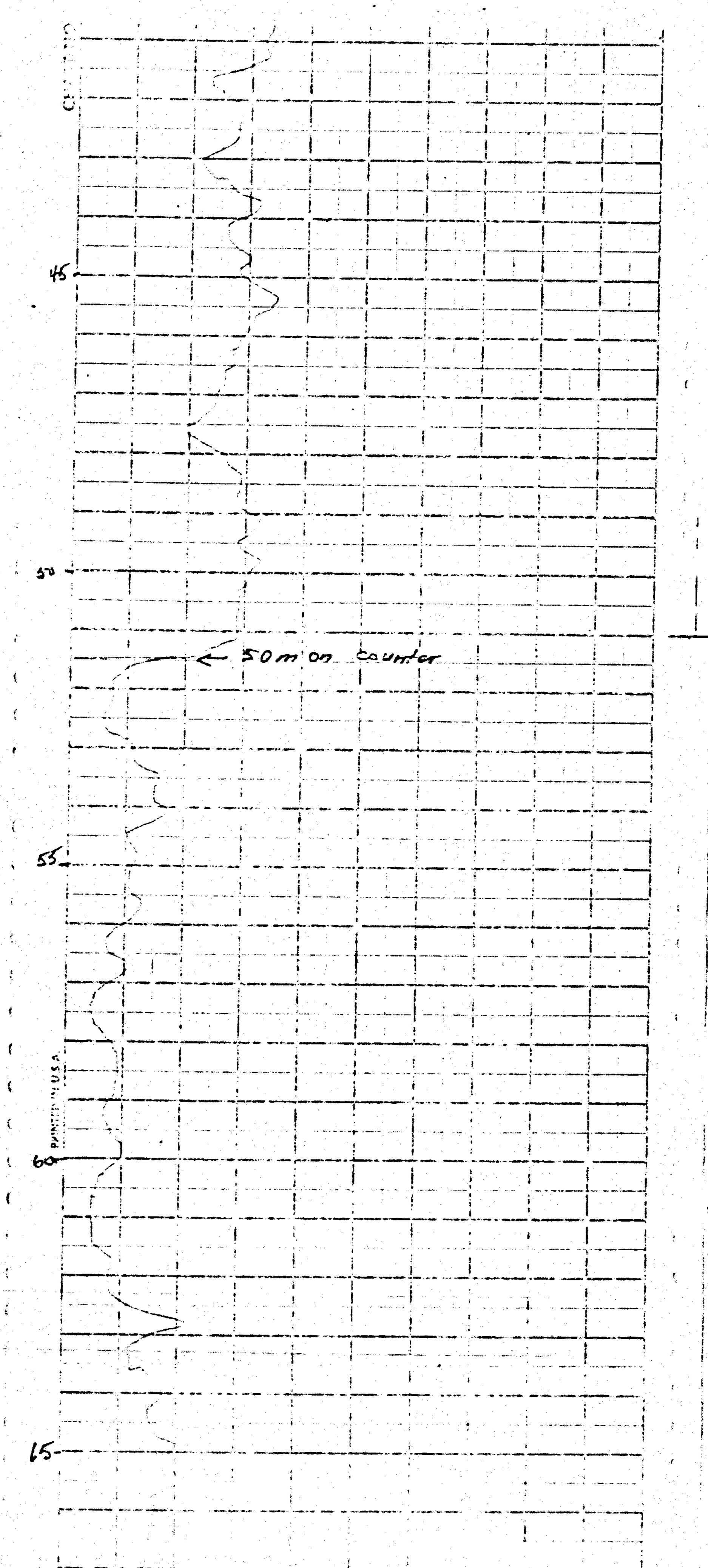
508-22



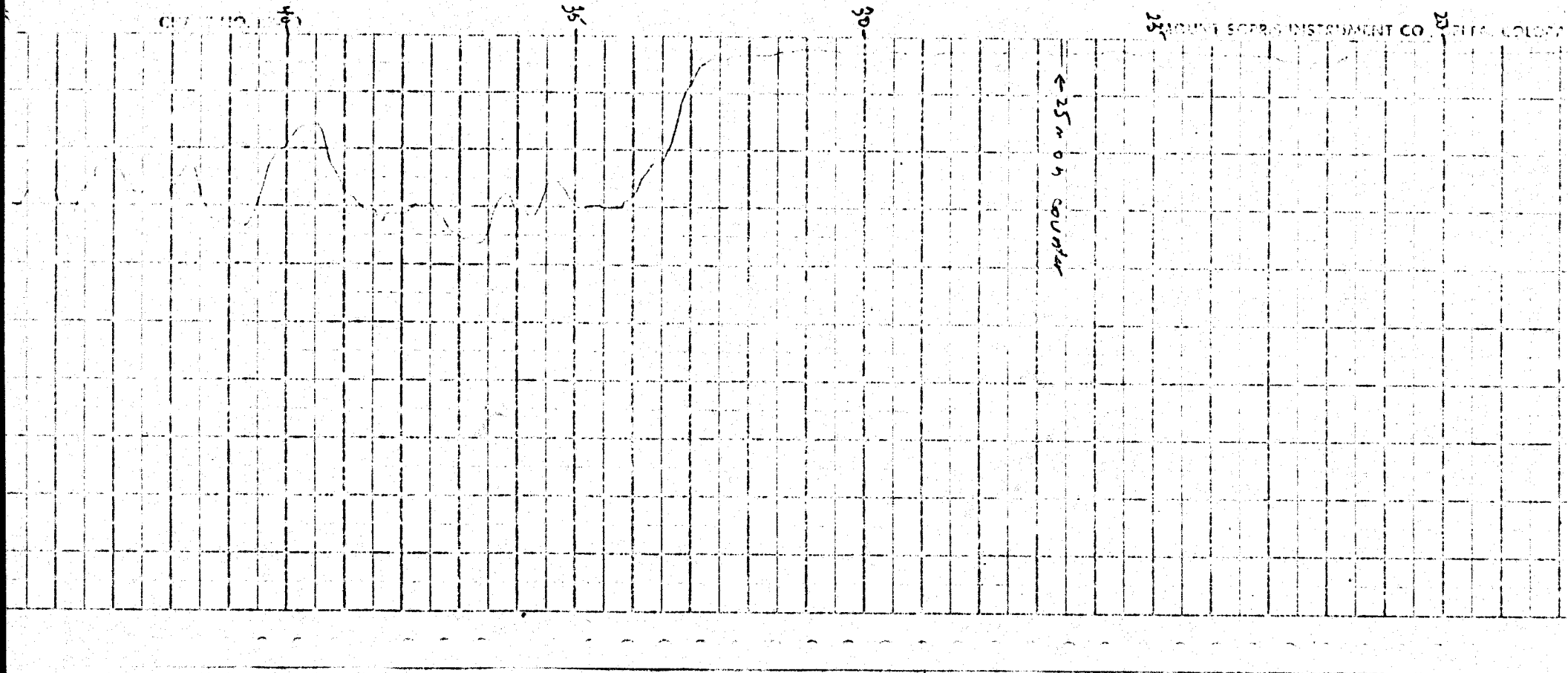
508-22



508-23



508-23



DDH 508-23

Probed April 5, 1978

TR S. STEPHEN / P. FORTUNA

MT. SOPHUS 1000 (007)

γ-log Scale: 20 cps/div.

0

0.6 m on counter

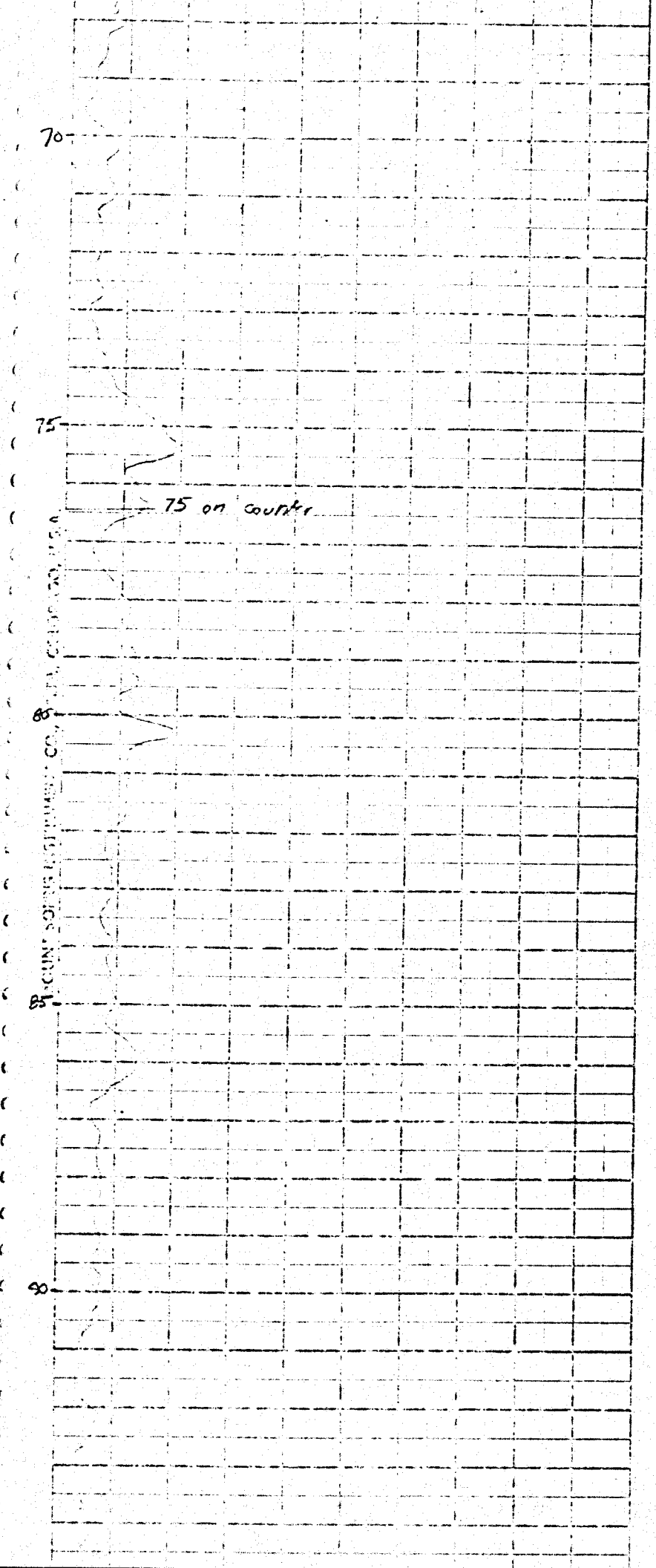
5

10

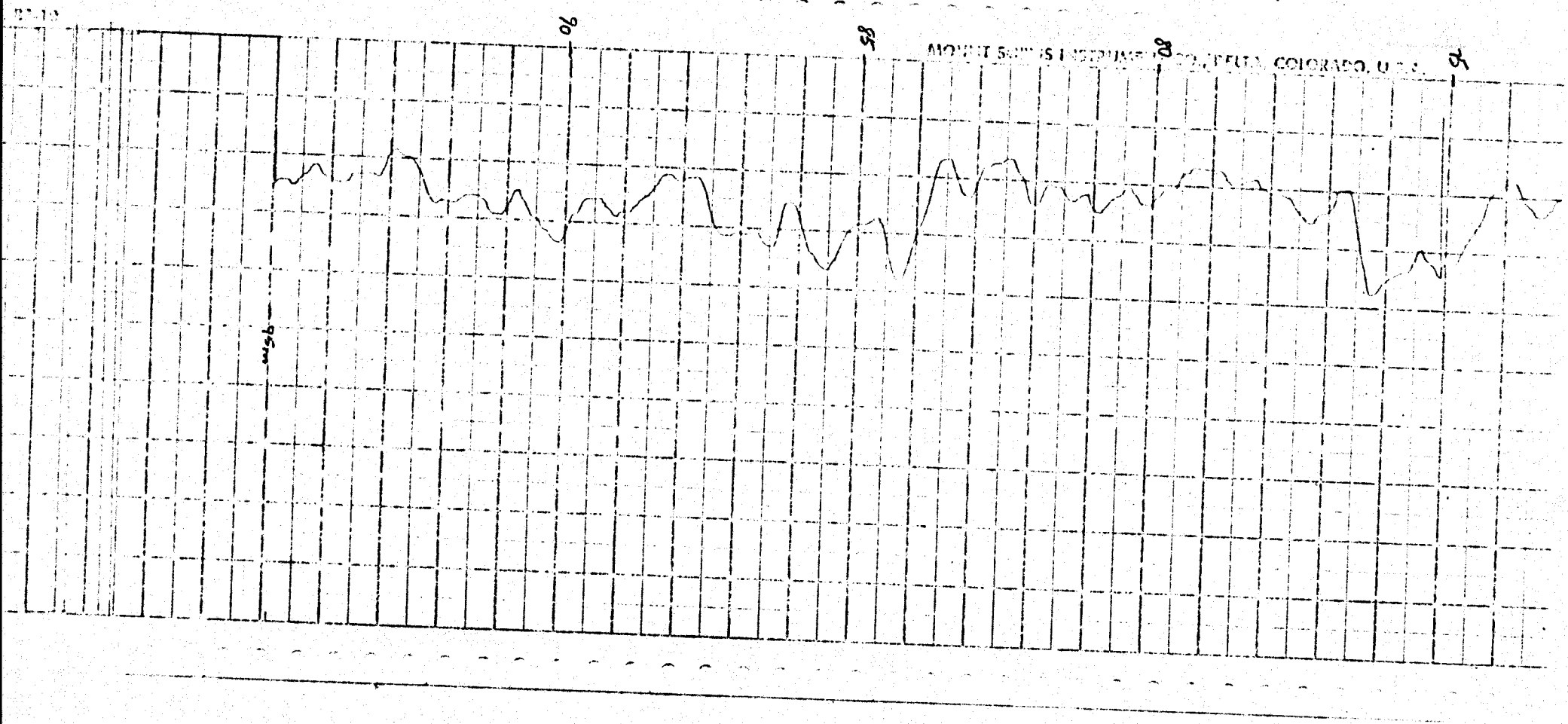
15

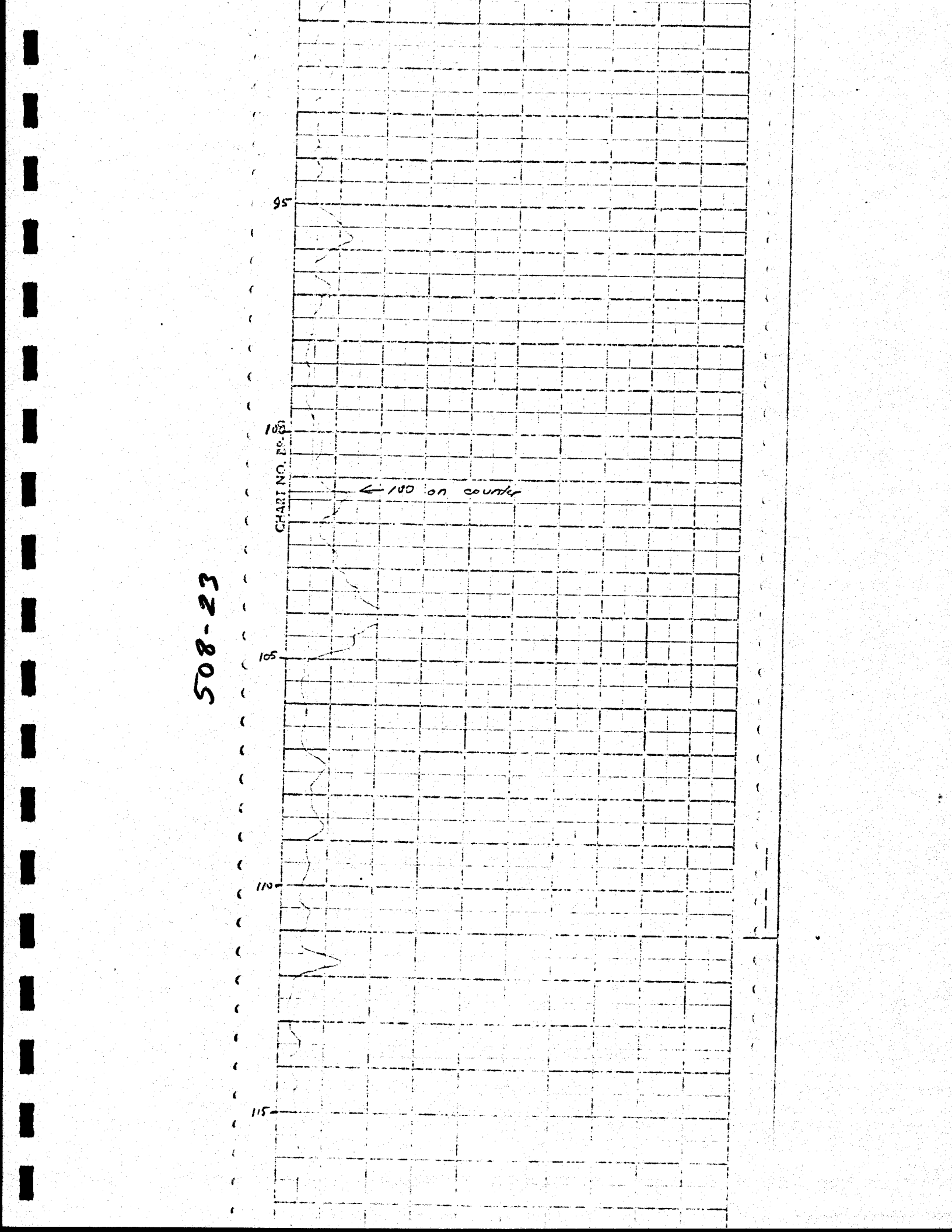
20

508-23

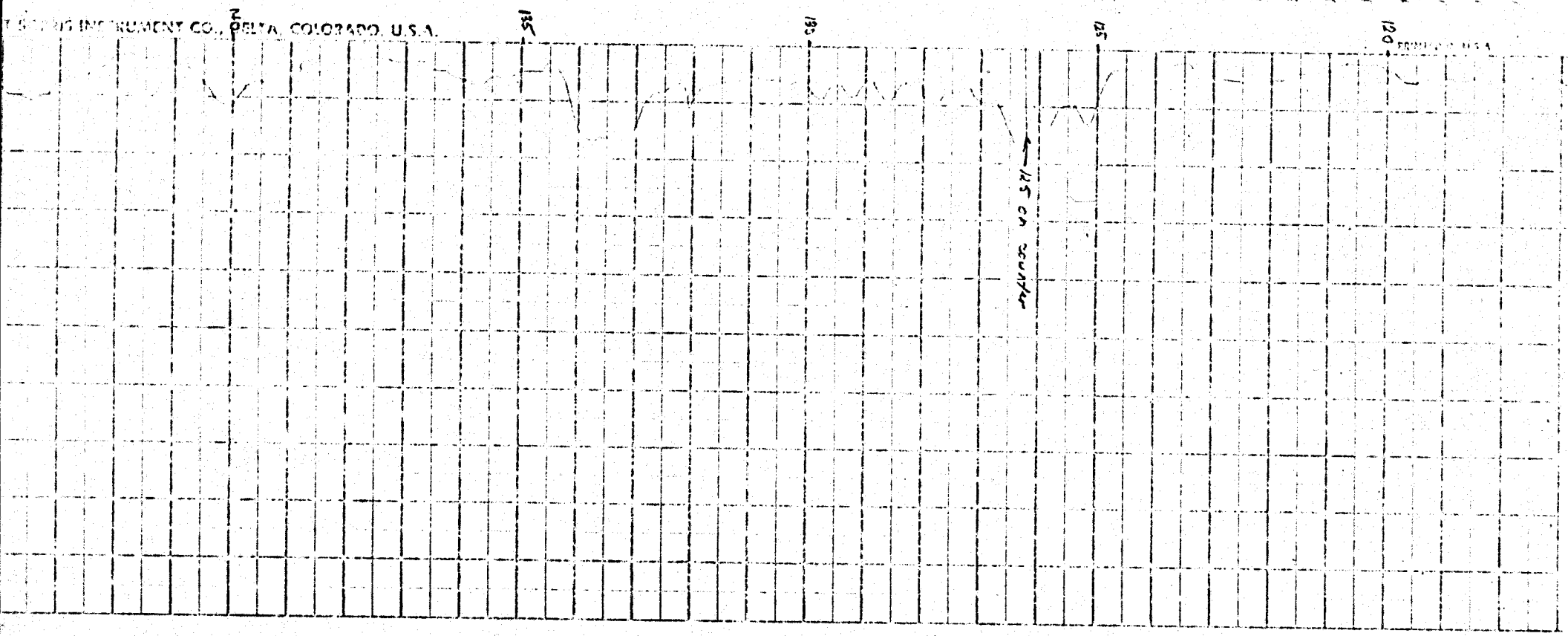

70
75
75 on counter
85
90
508-23

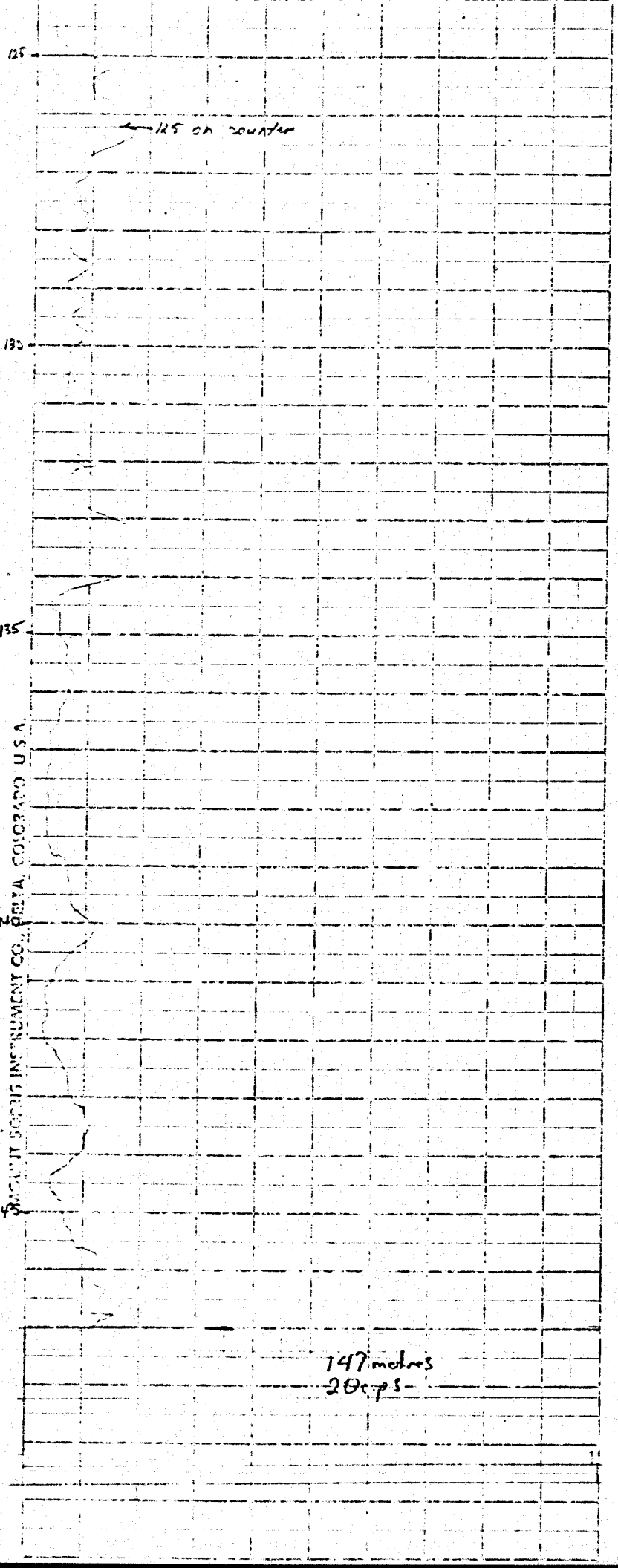
508-22



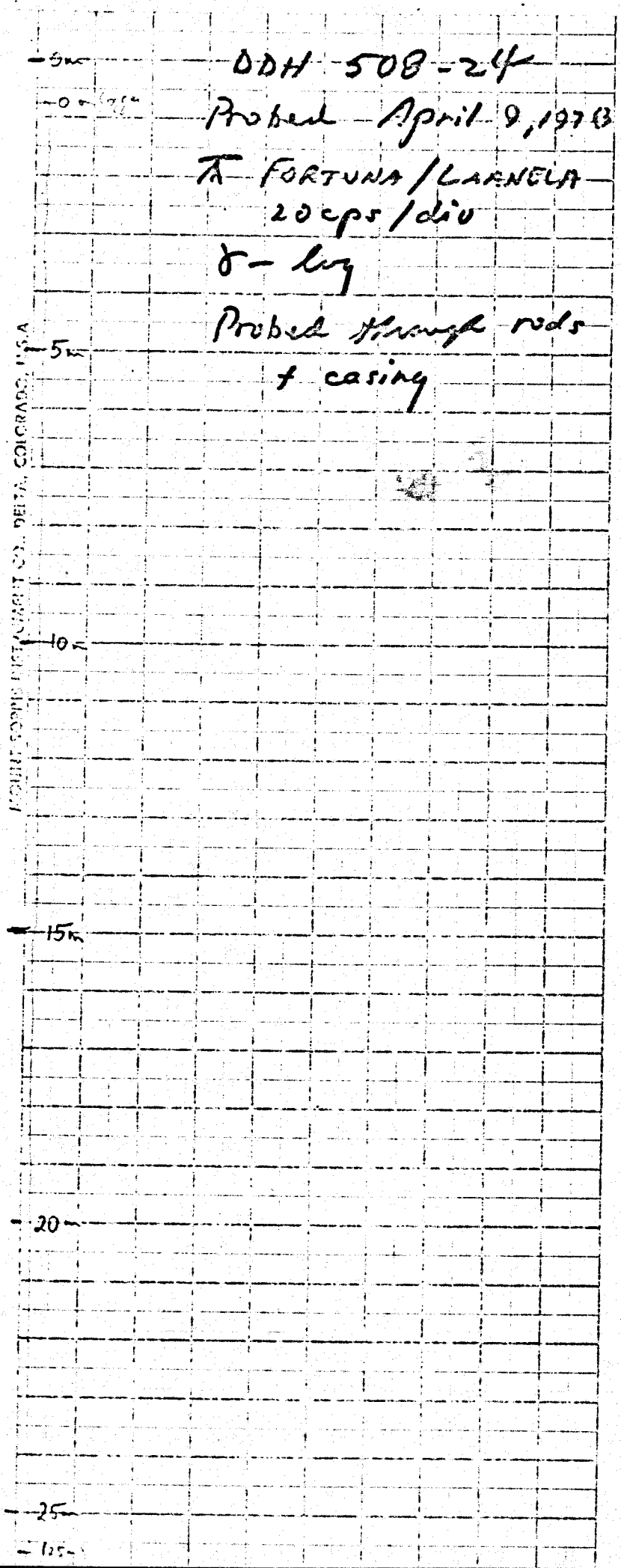

95
100
105
110
115
CHART NO. [illegible]
← 100 on counter
508-23

508-23



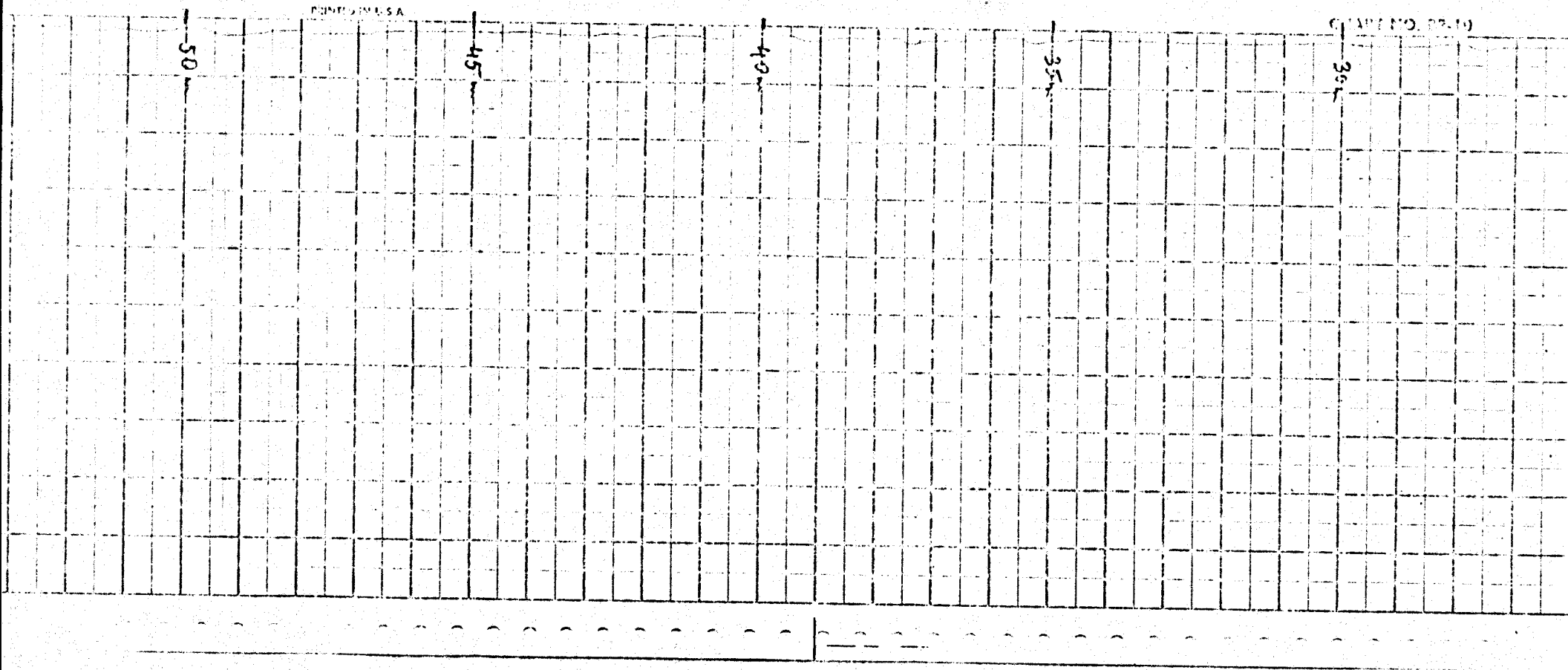

125
135
145
← 125 on counter
147 meters
20 cps
SOIL TEST INCORPORATED
SOIL TEST INSTRUMENT CO., DELTA, COLORADO U.S.A.

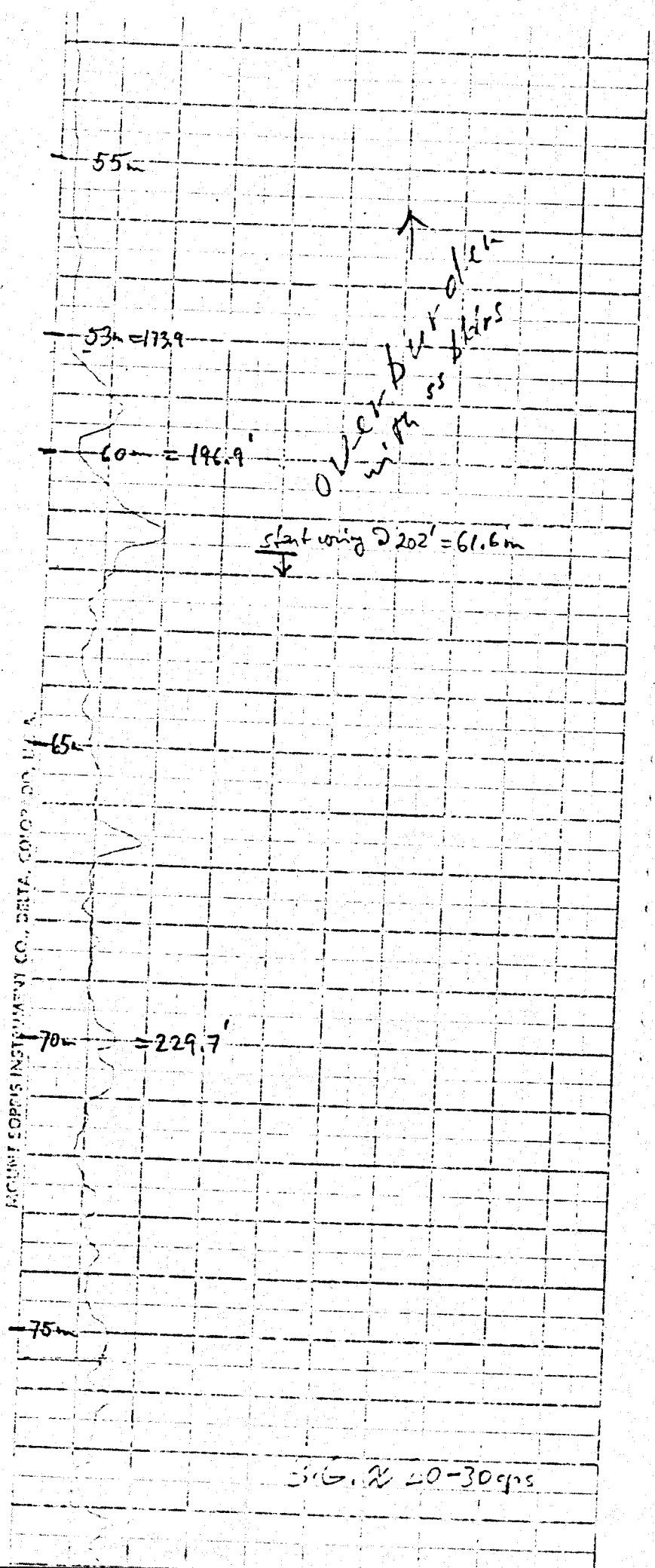
508-23


DDH 508-24
Probed April 9, 1973
FORTUNA / LARNDER
20 cps / div
γ - log
Probed through rods
+ casing
5m
0
5m
10m
15m
20
25
125

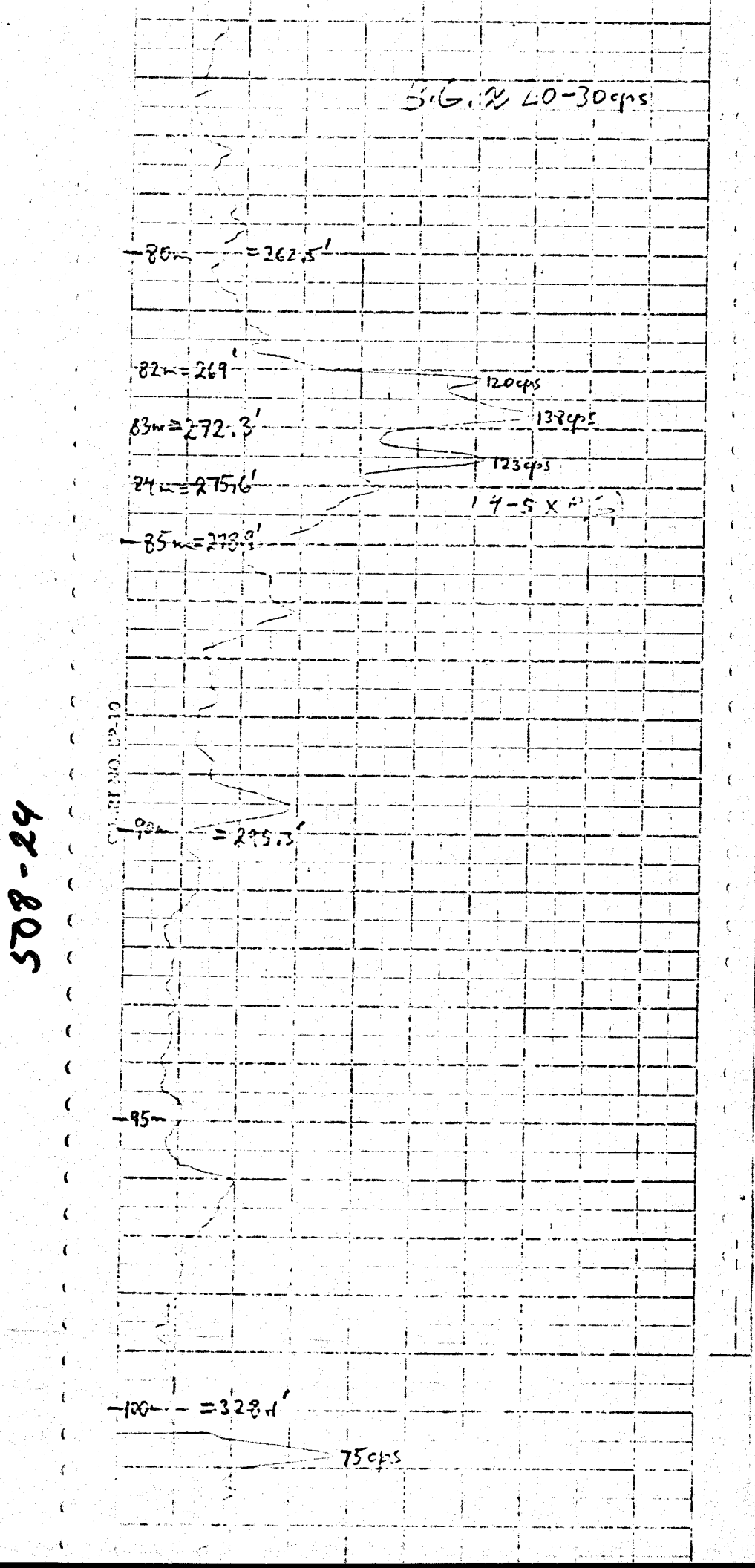
508-24

508-24



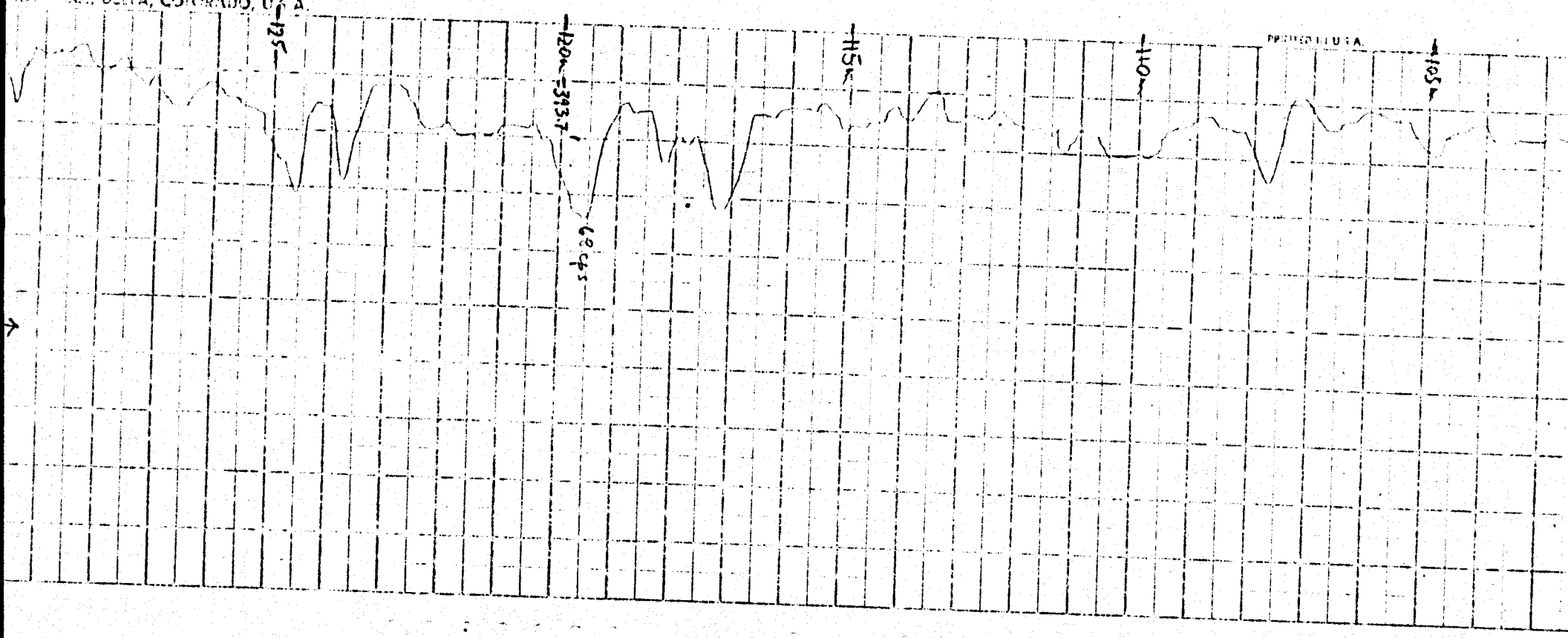


508-24

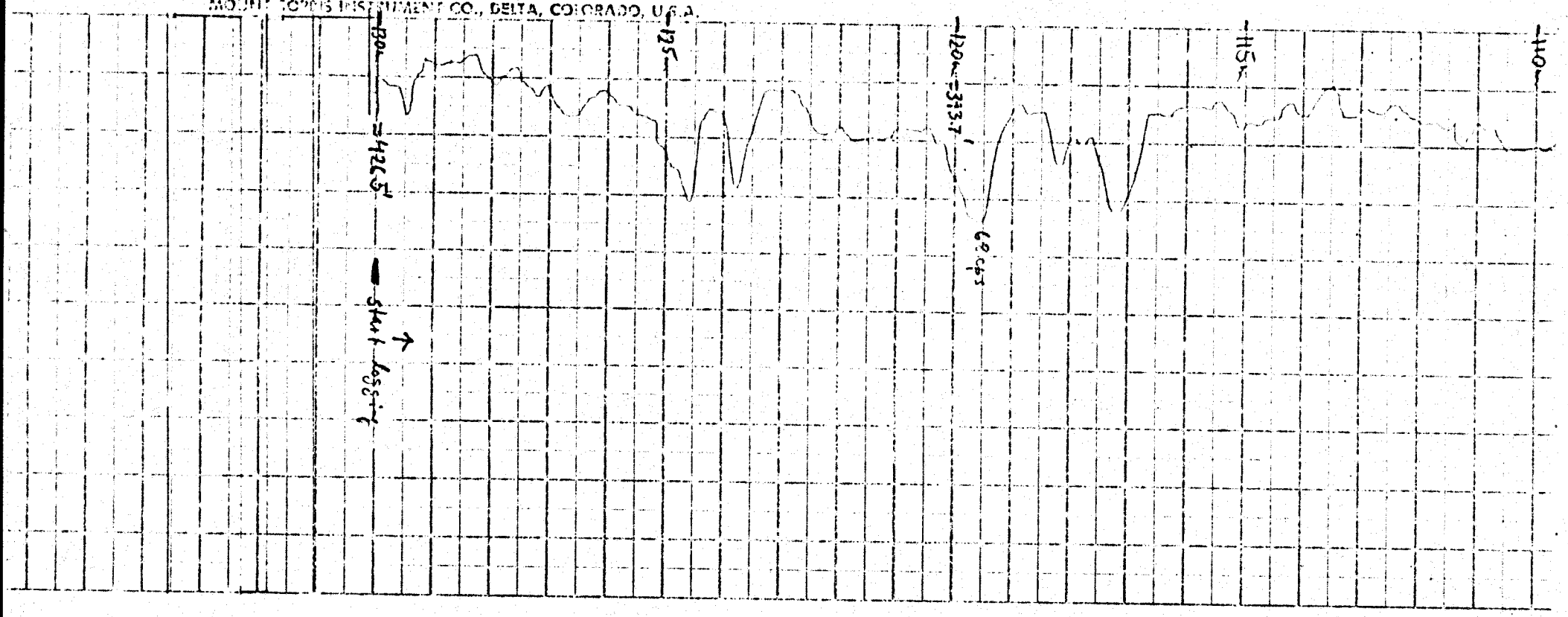

S.G. 2 40-30 cps
80m = 262.5'
82m = 269'
120 cps
138 cps
83m = 272.3'
123 cps
84m = 275.6'
14-5 x
85m = 278.9'
90m = 295.3'
95m
100m = 328.1'
75 cps

S08-24

508-24



508-24


MOUNT SOPRIS INSTRUMENT CO., DELTA, COLORADO, U.S.A.
130
125
120
115
110
=313.7'
69 cps
=426.5'
start logging

DDH 508-25
Probed April 15, 1978
R. S. Stephen P. Fortuna
Mt. Sopris 1000
γ log Scale: 50 cps/div.

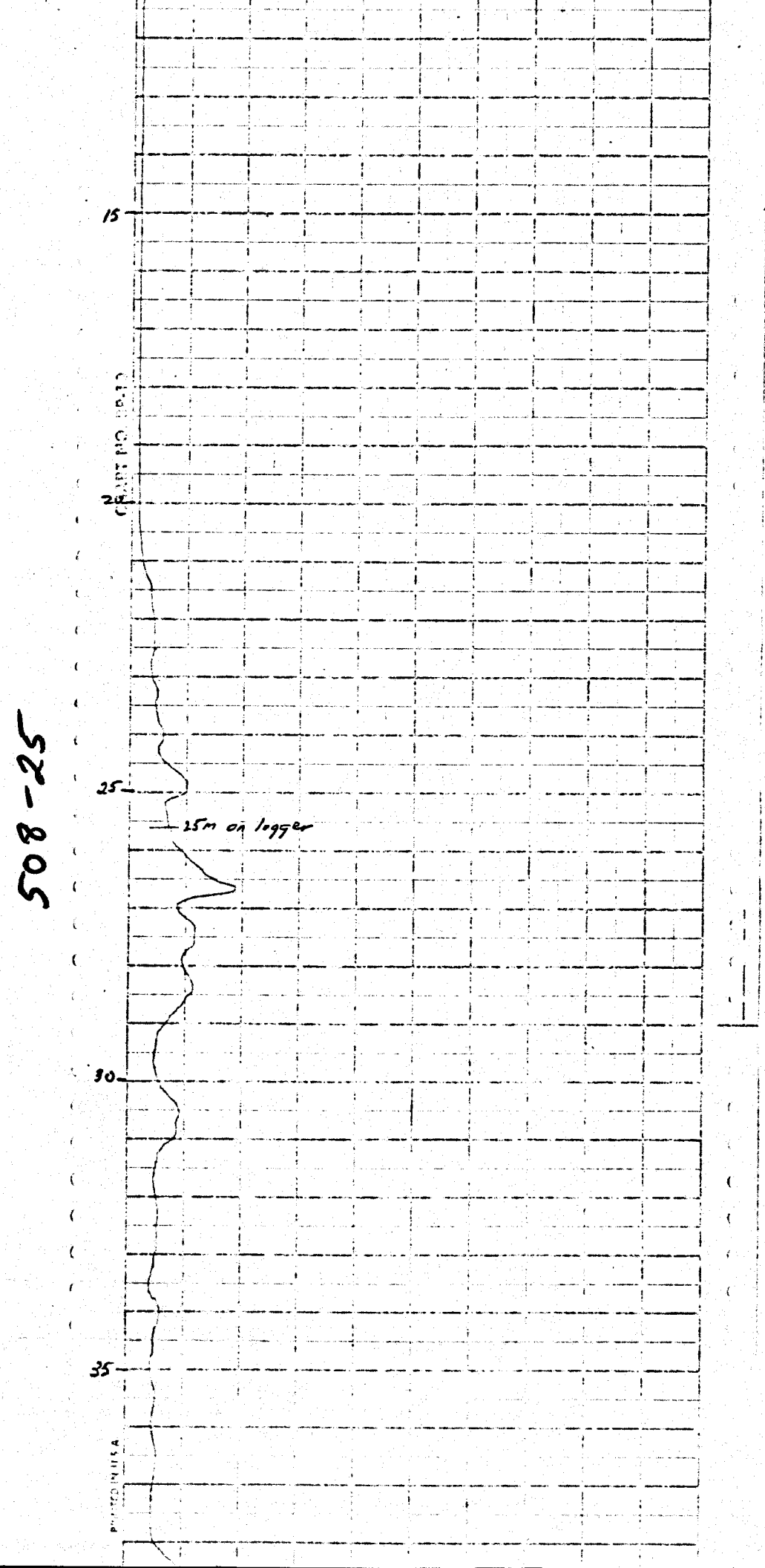
thru plastic pipe & casing (85')

0
+0 on logger

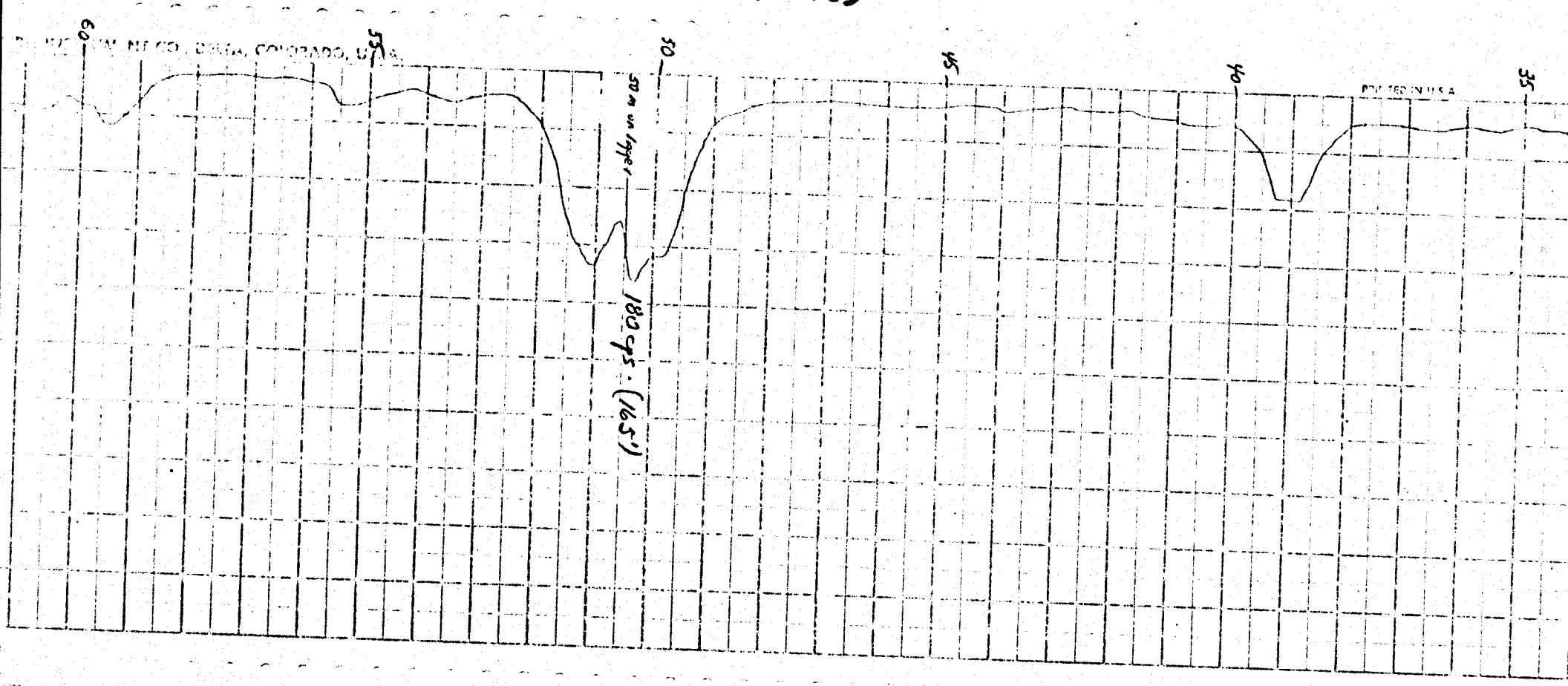
5

10

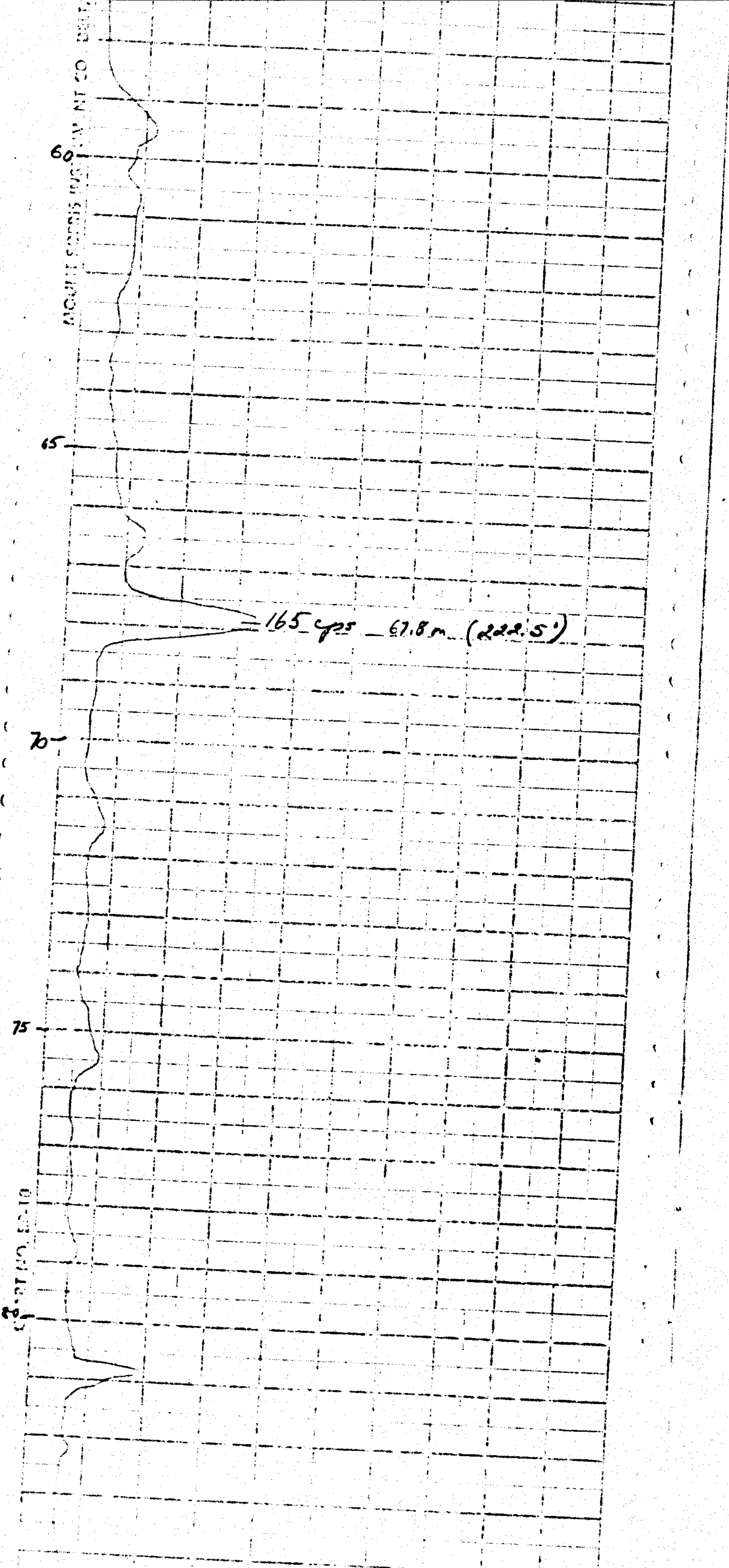
508-25

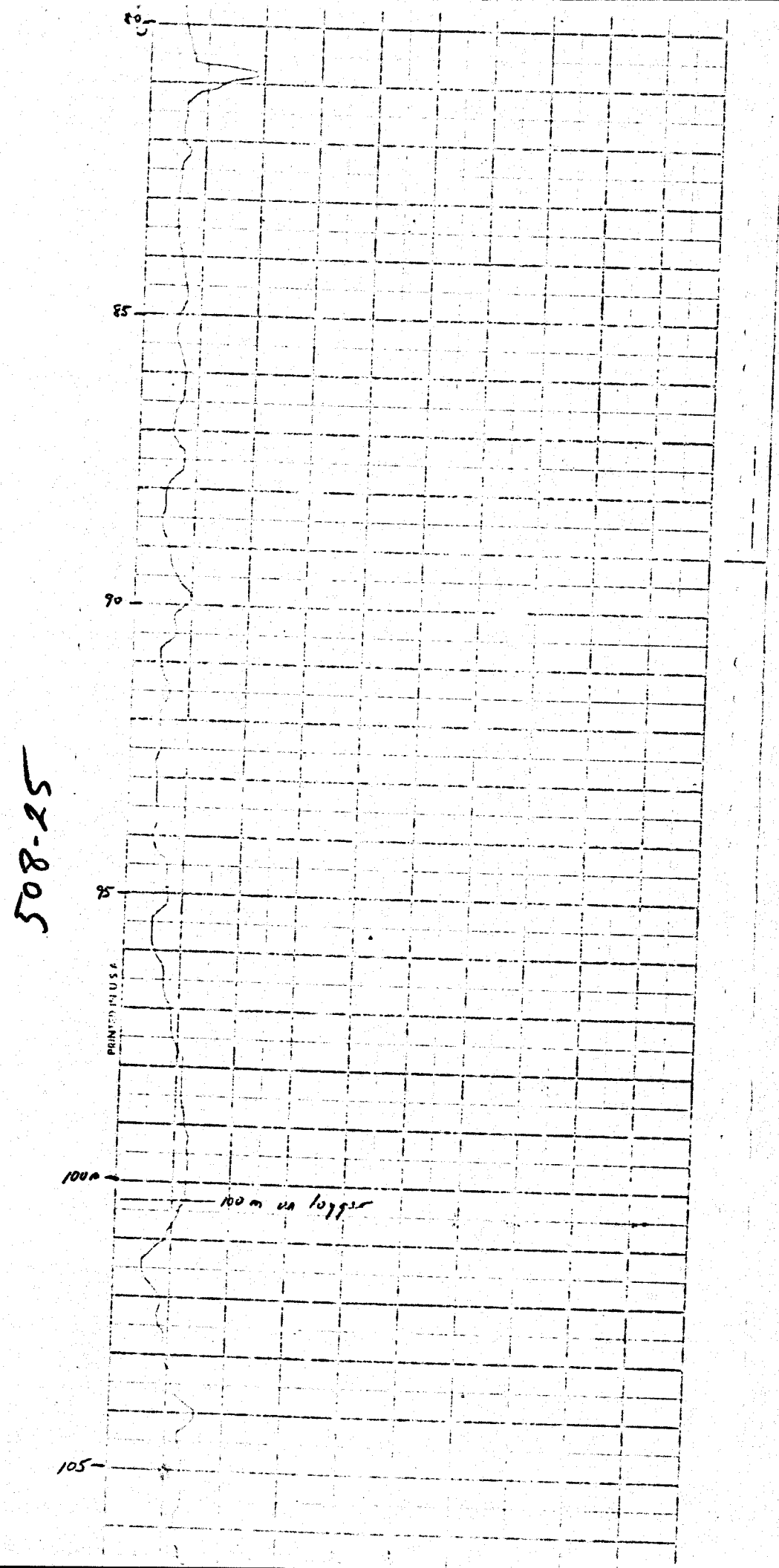

15
20
25
30
35
25m on logger
508-25

508-25

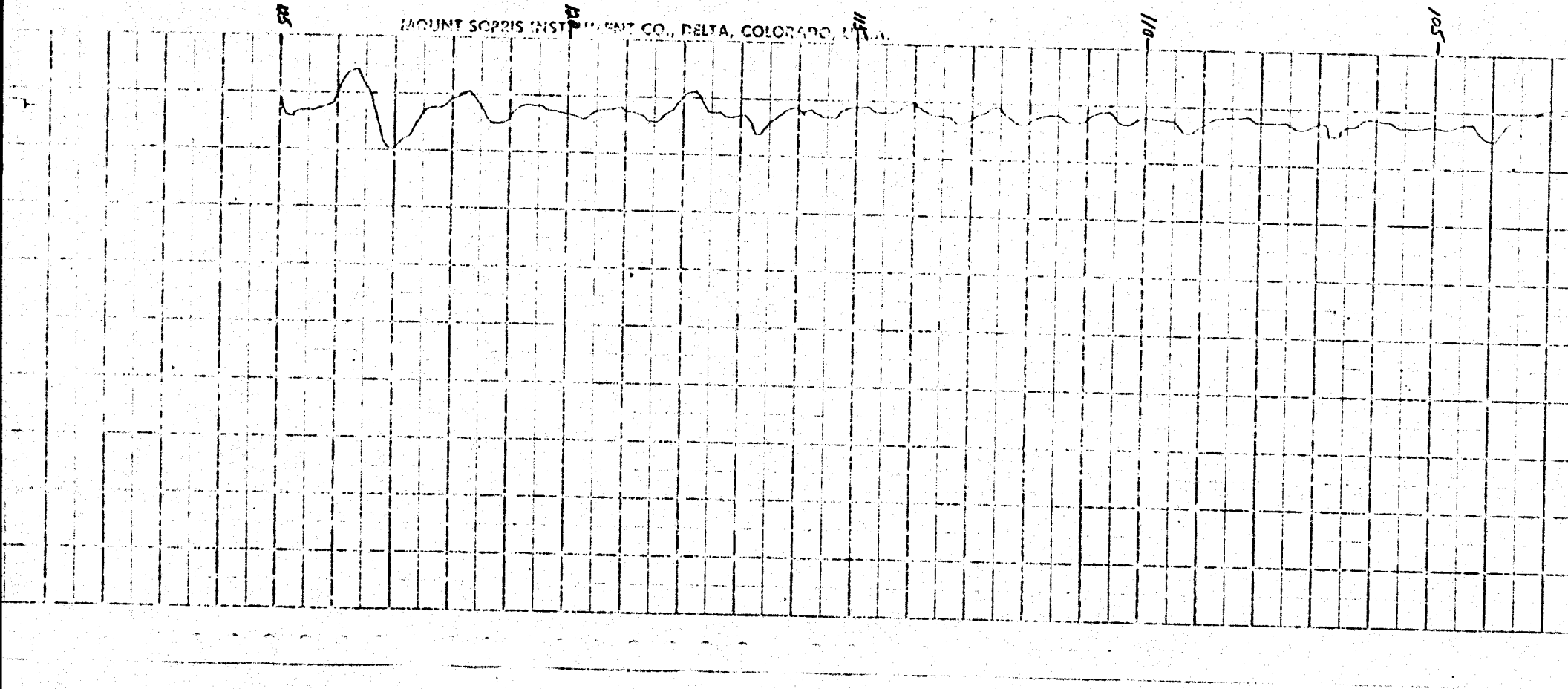


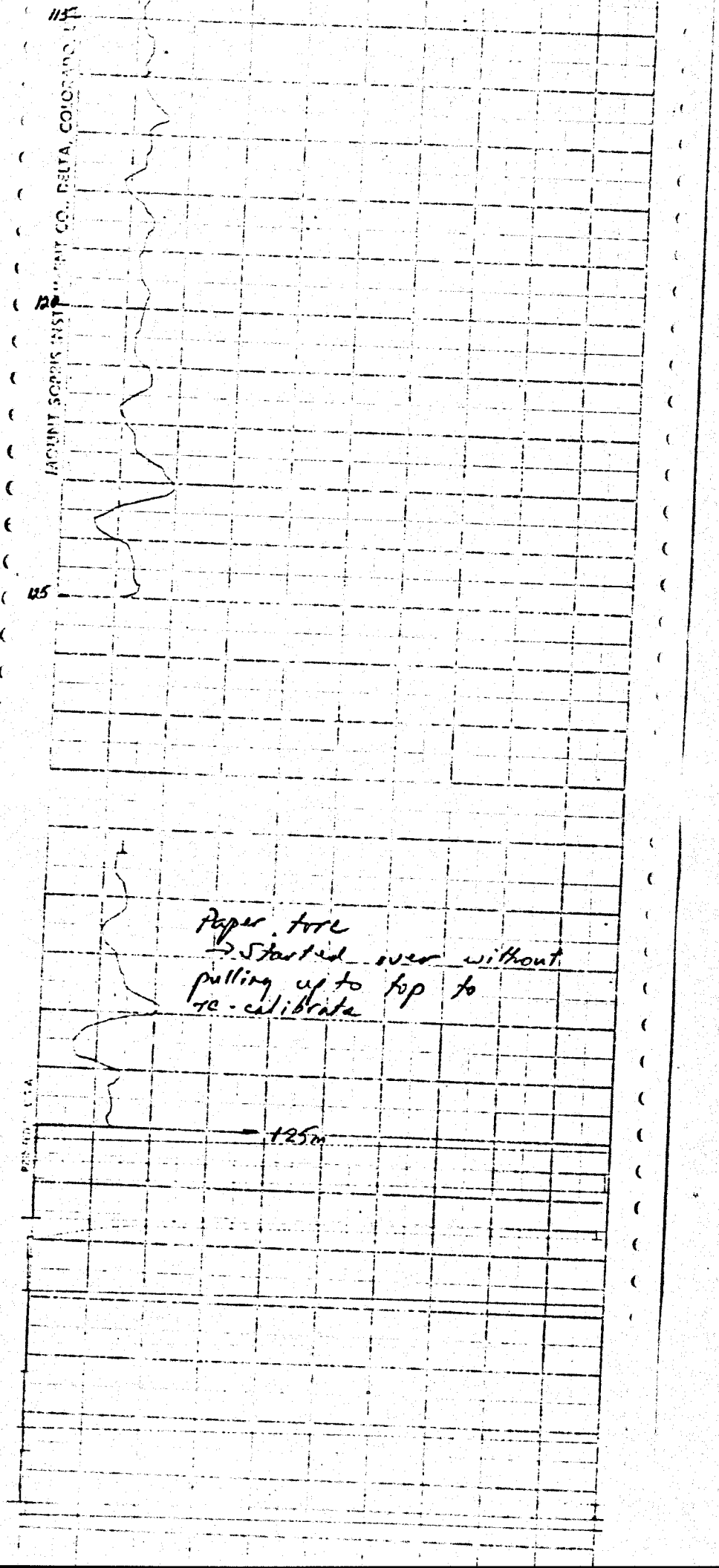
508-25




80
85
90
95
100
105
100 m via logger
508-25
PRINTED IN U.S.A.

508-25




115
120
125
LACOINT SCRIPS INST. CO., DELTA, COLORADO
508-25
Paper tore
→ Started over without
pulling up to top to
re-calibrate
125m

DDH 508-26
Probed April 17, 1970
↑ P. FORTUNA / S. STEPHEN
Mt. Sopris 1000
γ-log Scale: 20 cps/div

NOTE: thru rods & casing

0 = 0 on counter

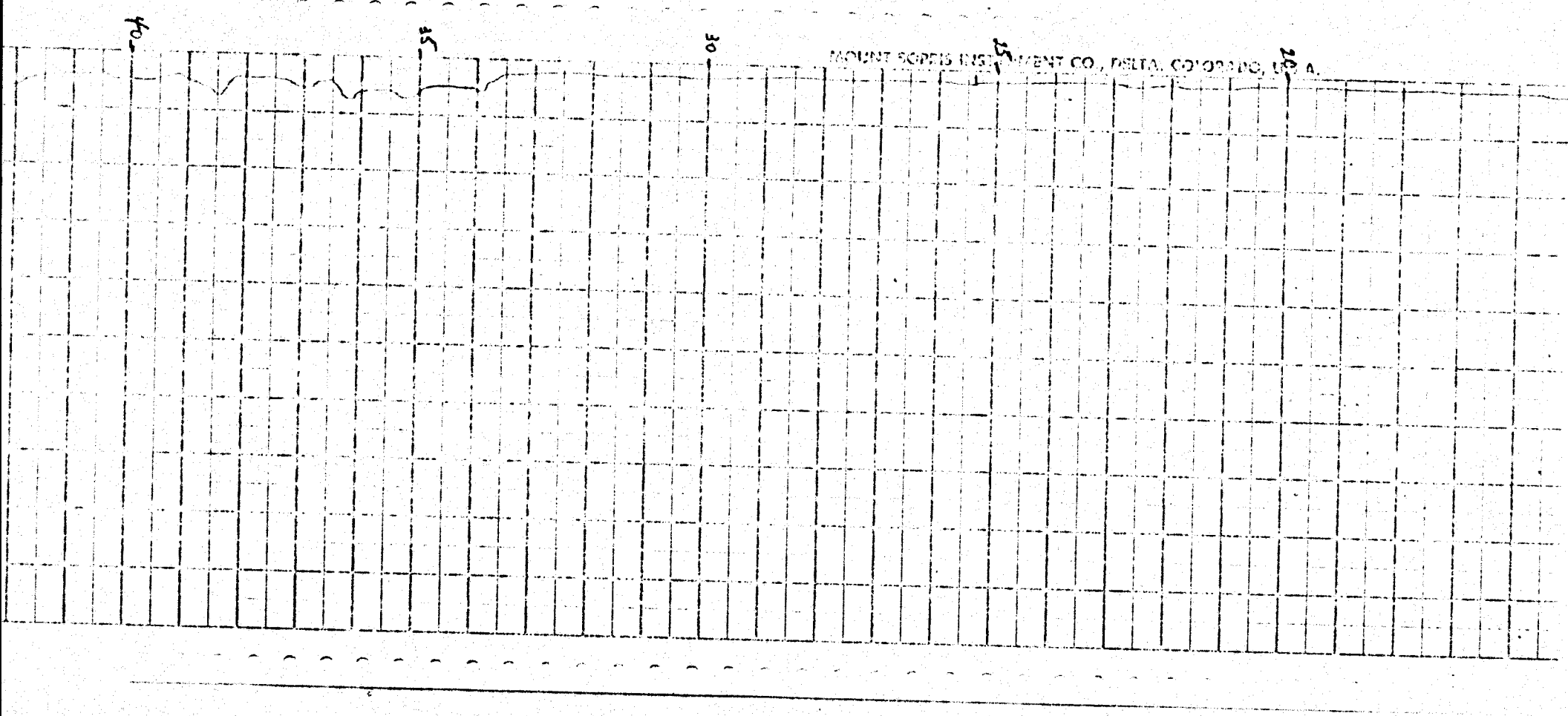
5

10

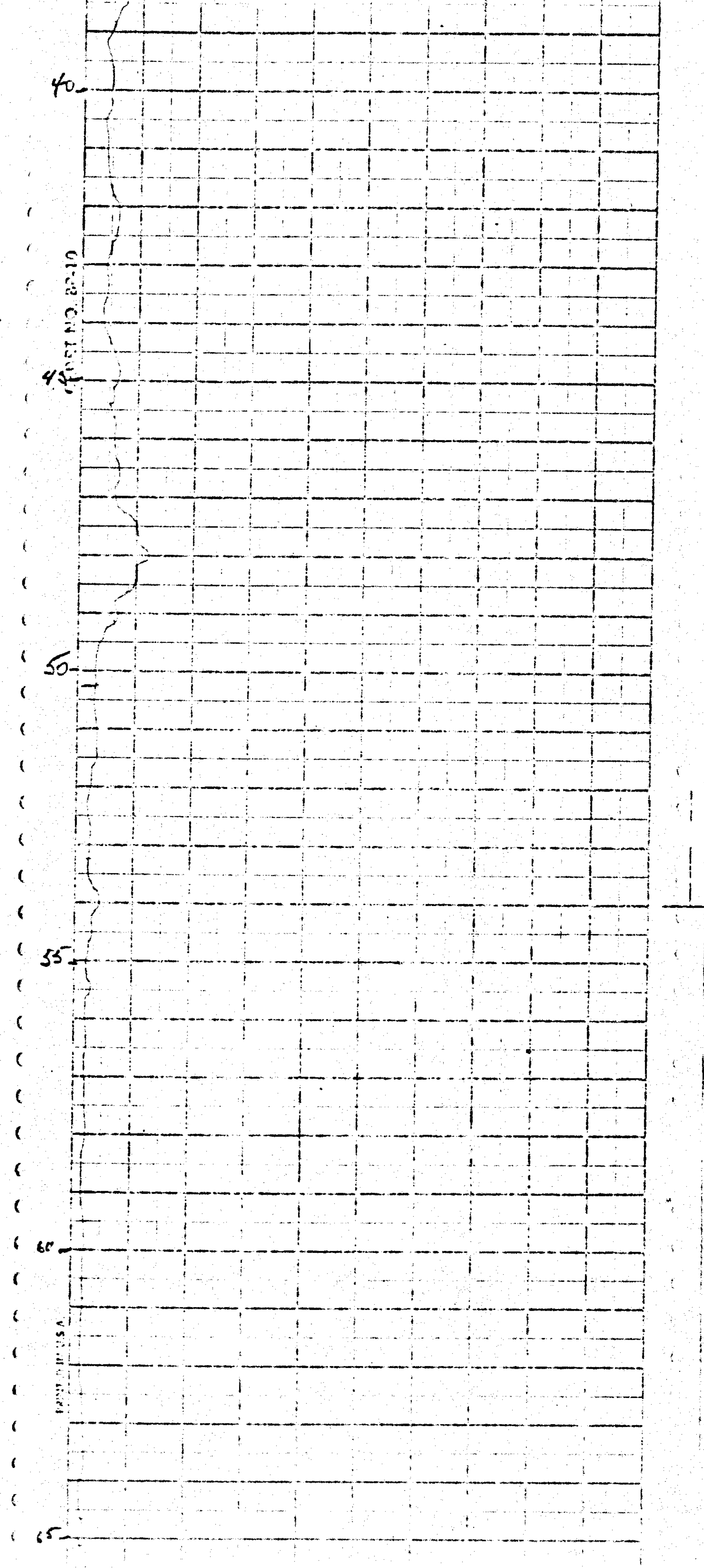
15

508-26

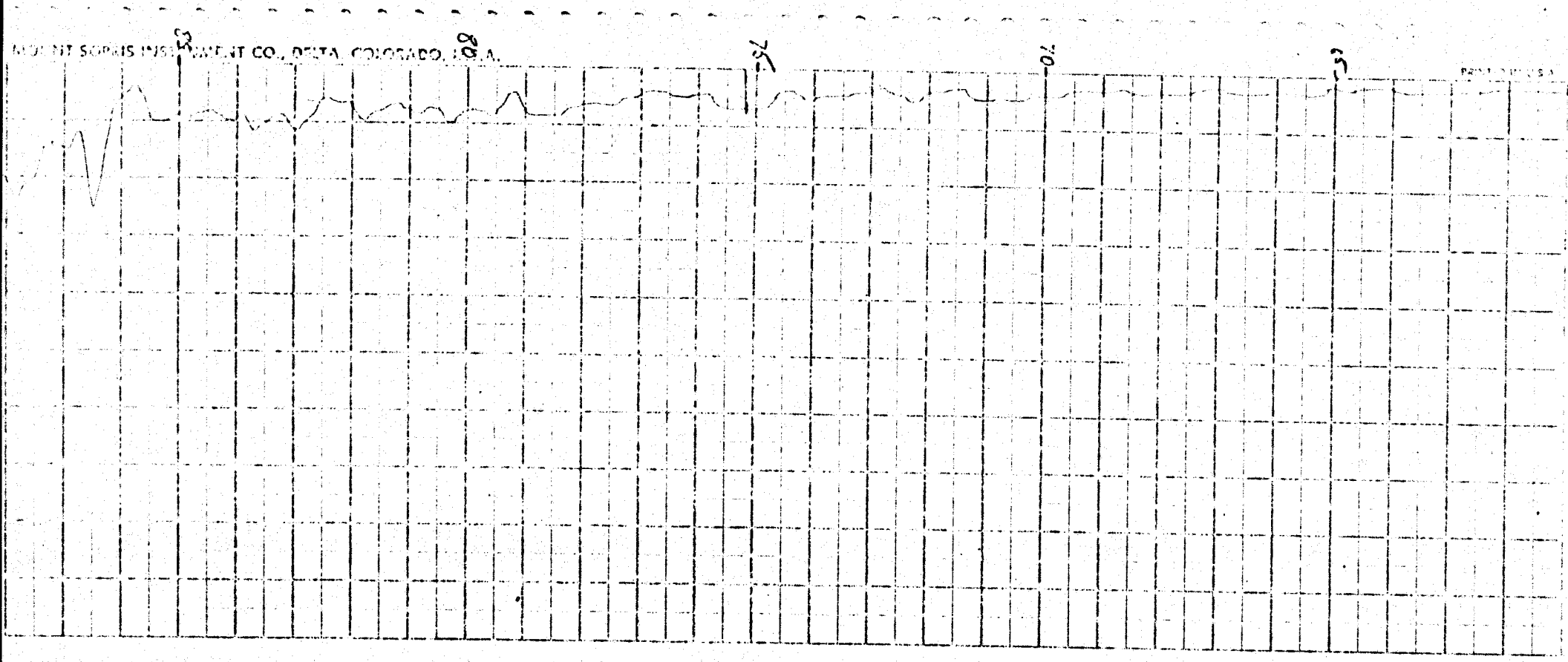
508-26



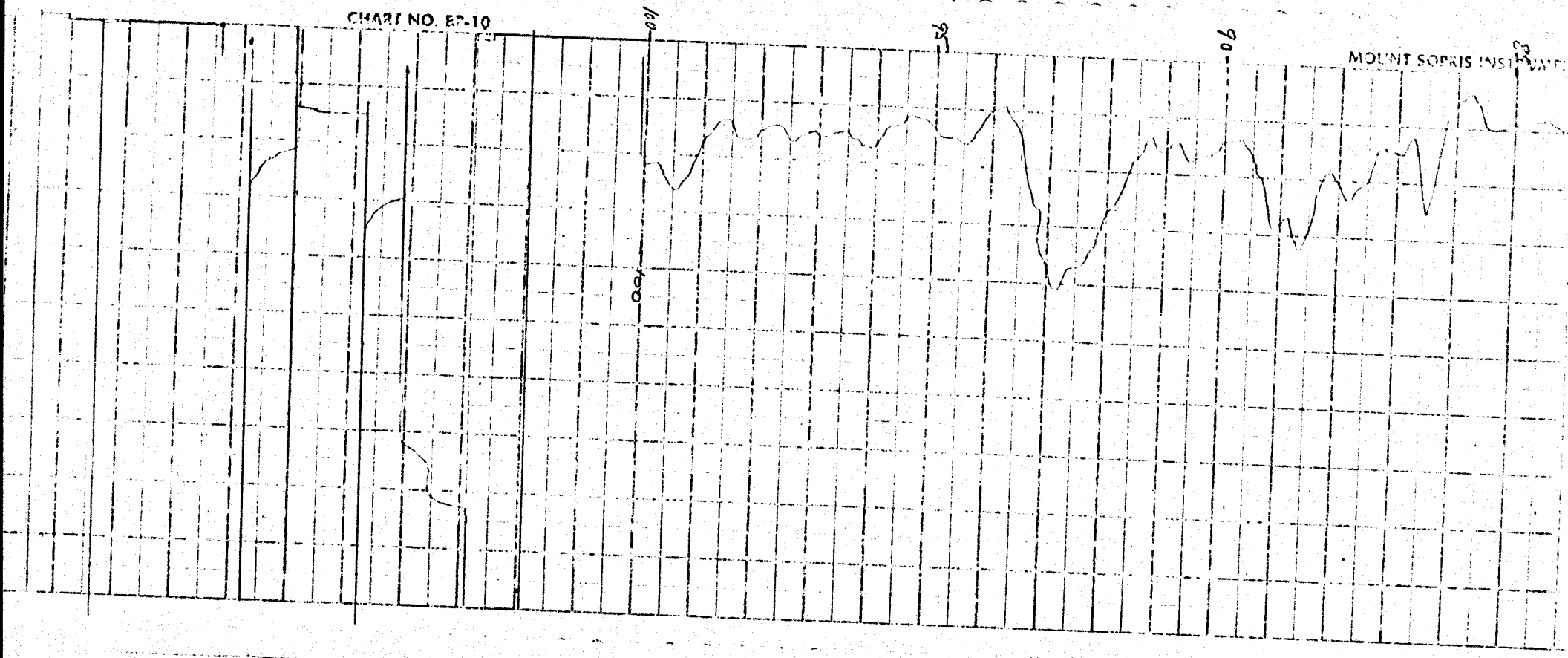
508-26



508-26



508-26



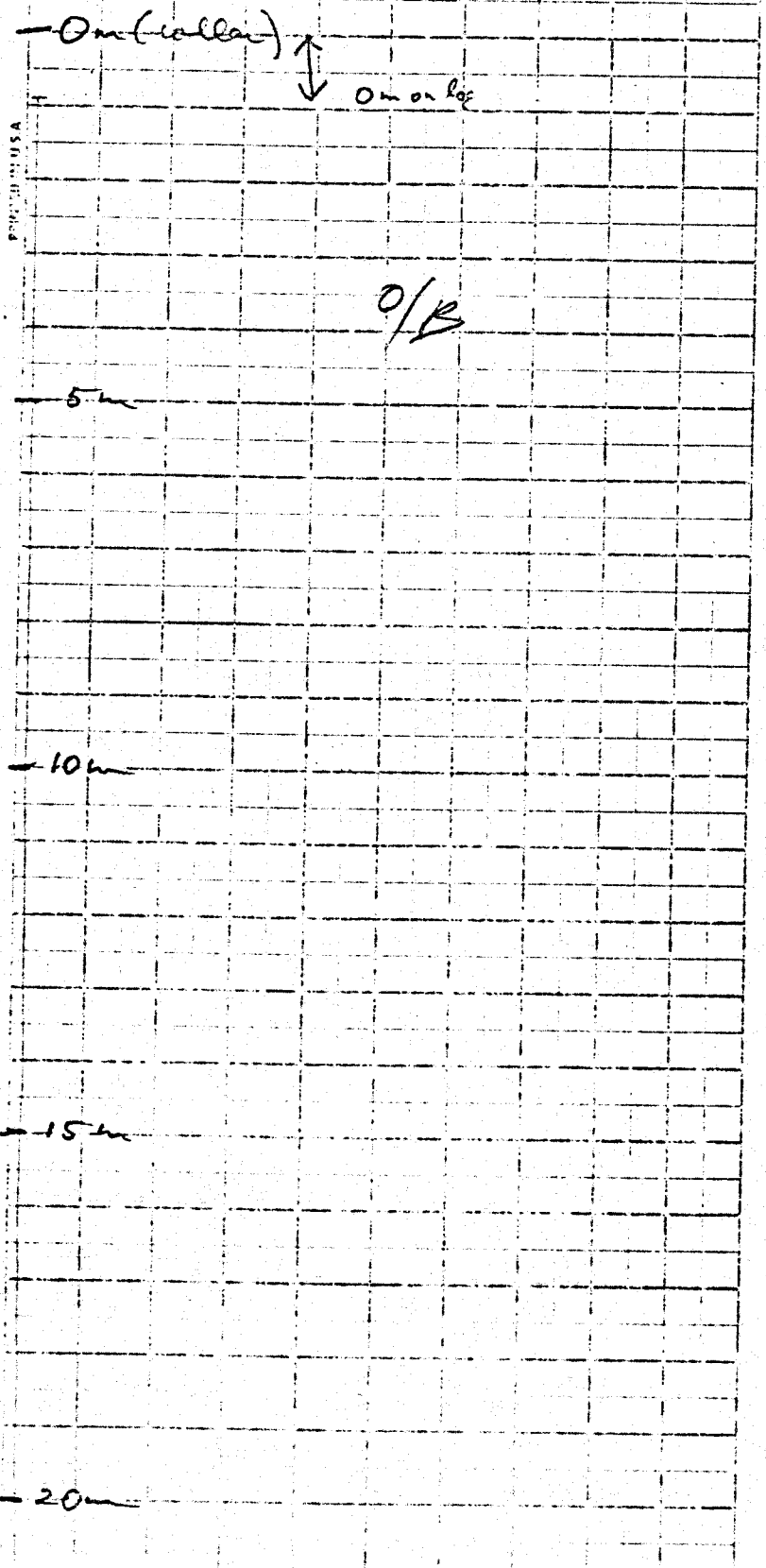
Probed: April 27, 1978

π P. FORTUNA, H. LABNEGA

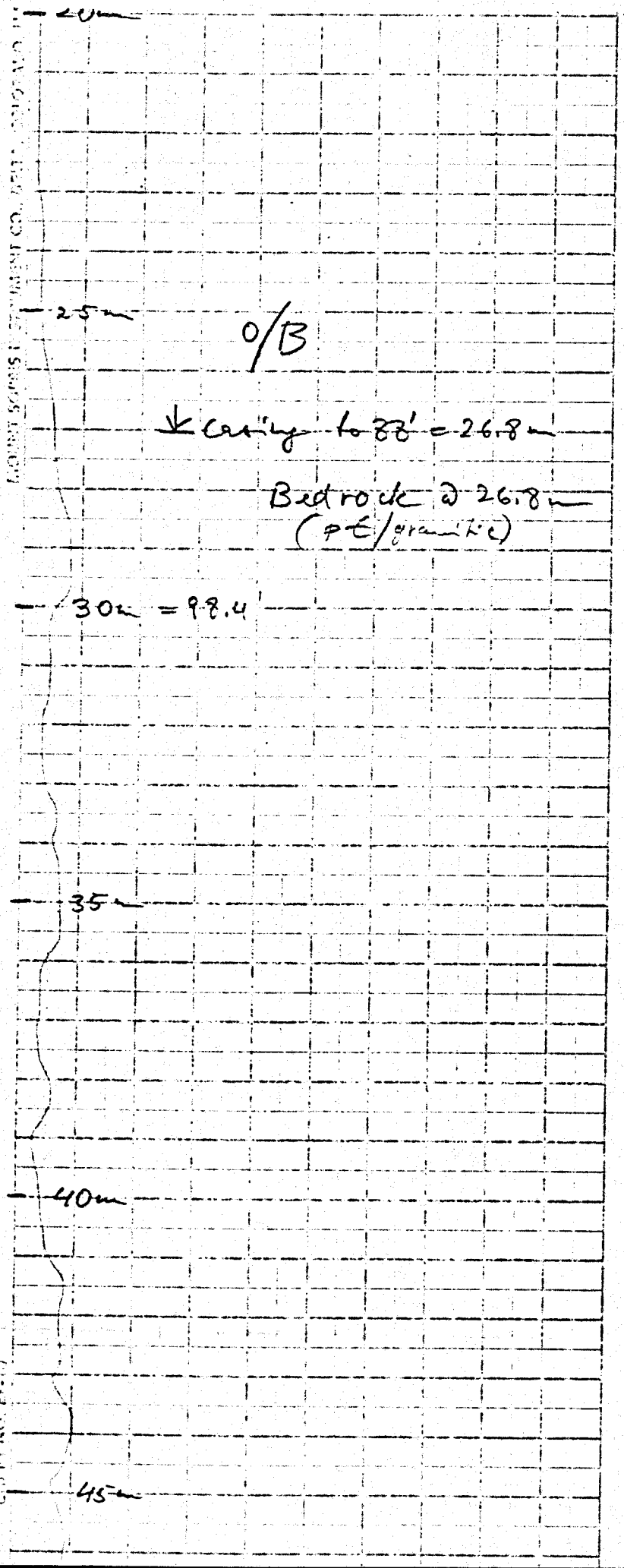
γ-log Scale: 50 cps/div.

Mt. Sopris 1000

Thru: casing & plastic pipe

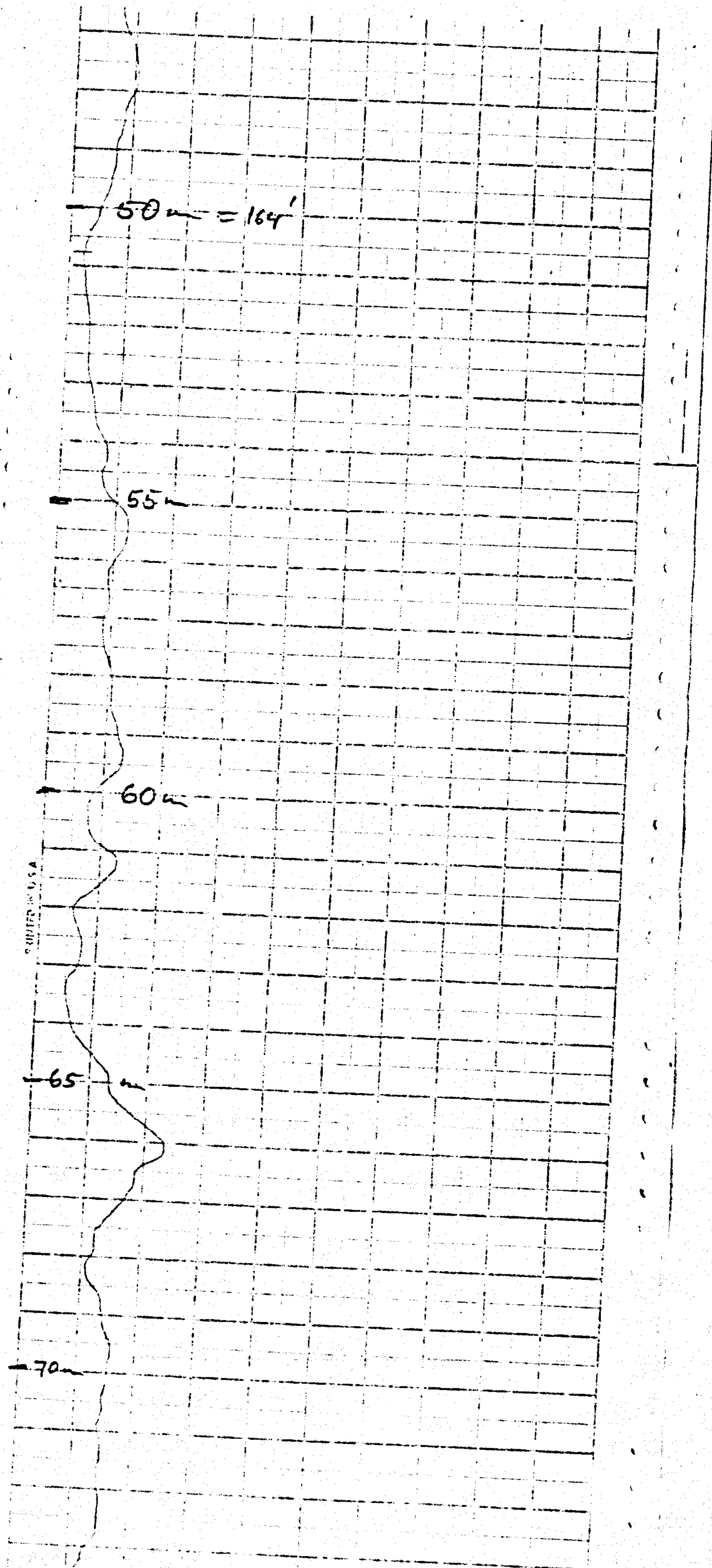


SDS-27

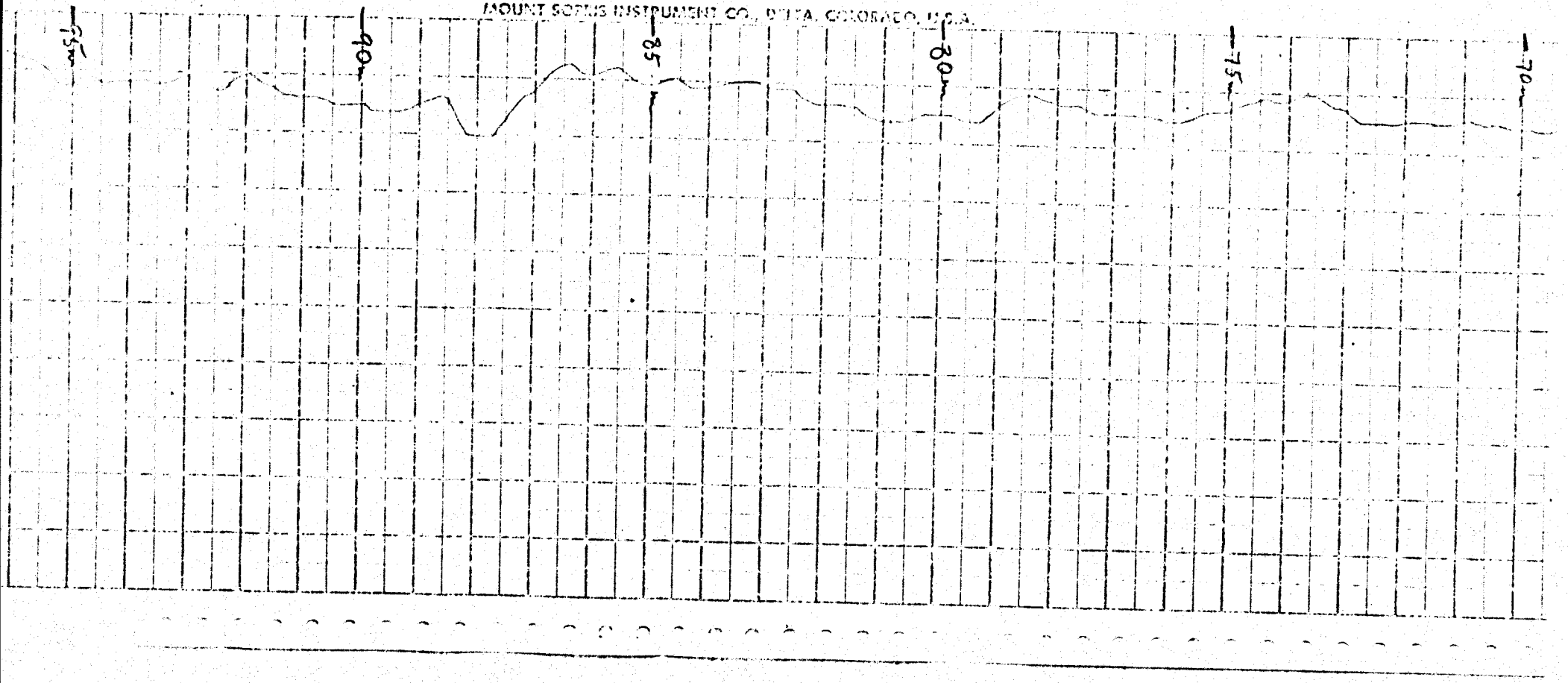

20m
25m
0/B
↓ casing to 88' = 26.8m
Bedrock @ 26.8m
(pE/granitic)
30m = 98.4'
35m
40m
45m

SB-27

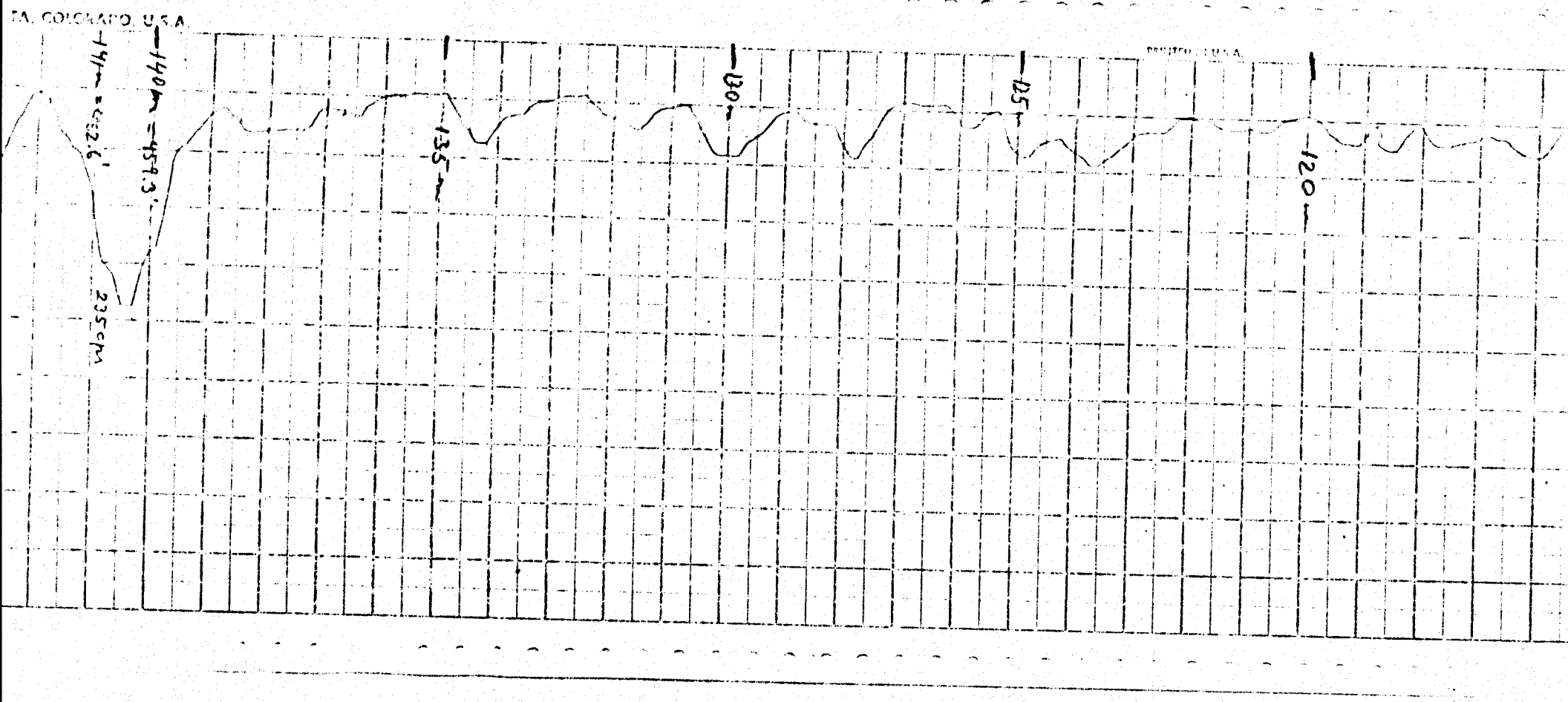
508-27

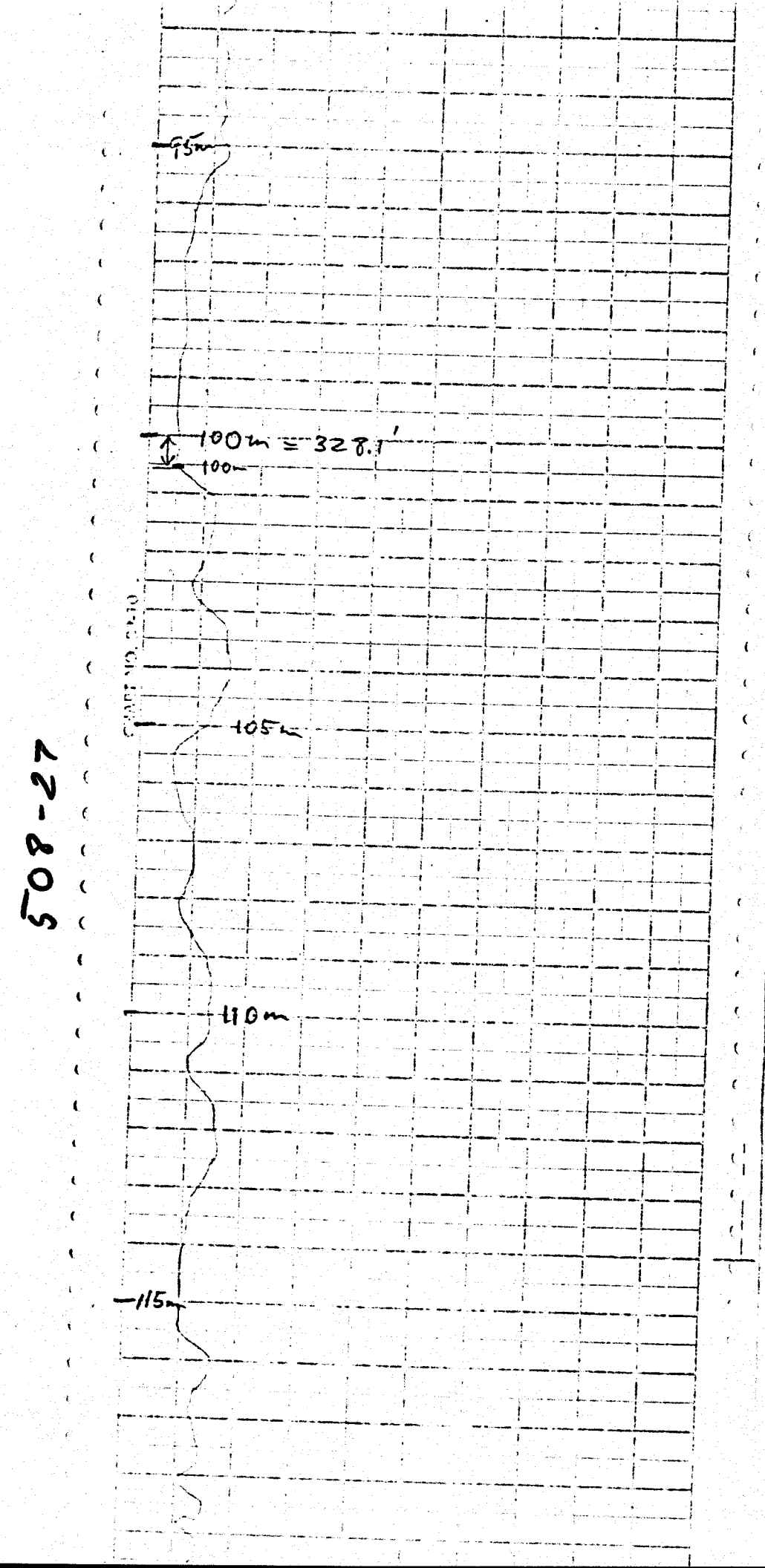


508-27


MOUNT SOPRIS INSTRUMENT CO., DELTA, COLORADO, U.S.A.
95
90
85
80
75
70

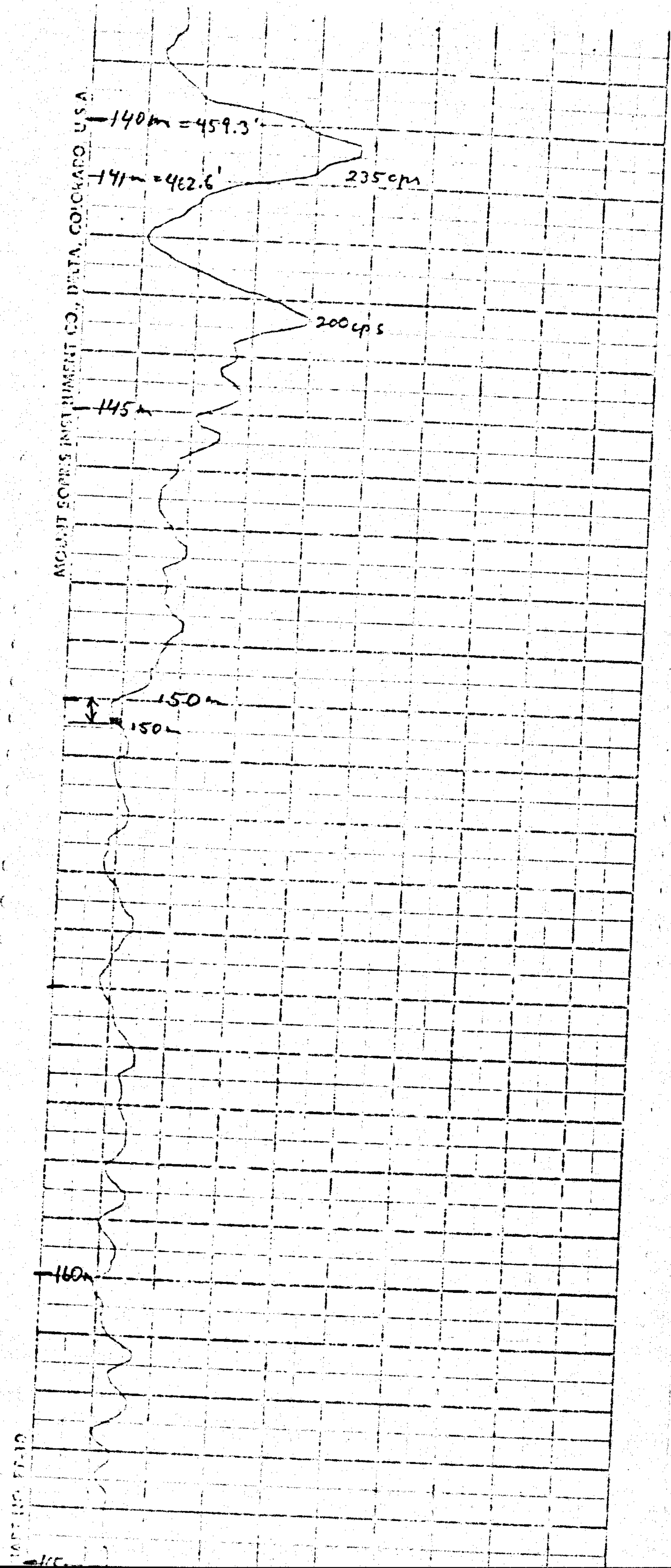
508-27



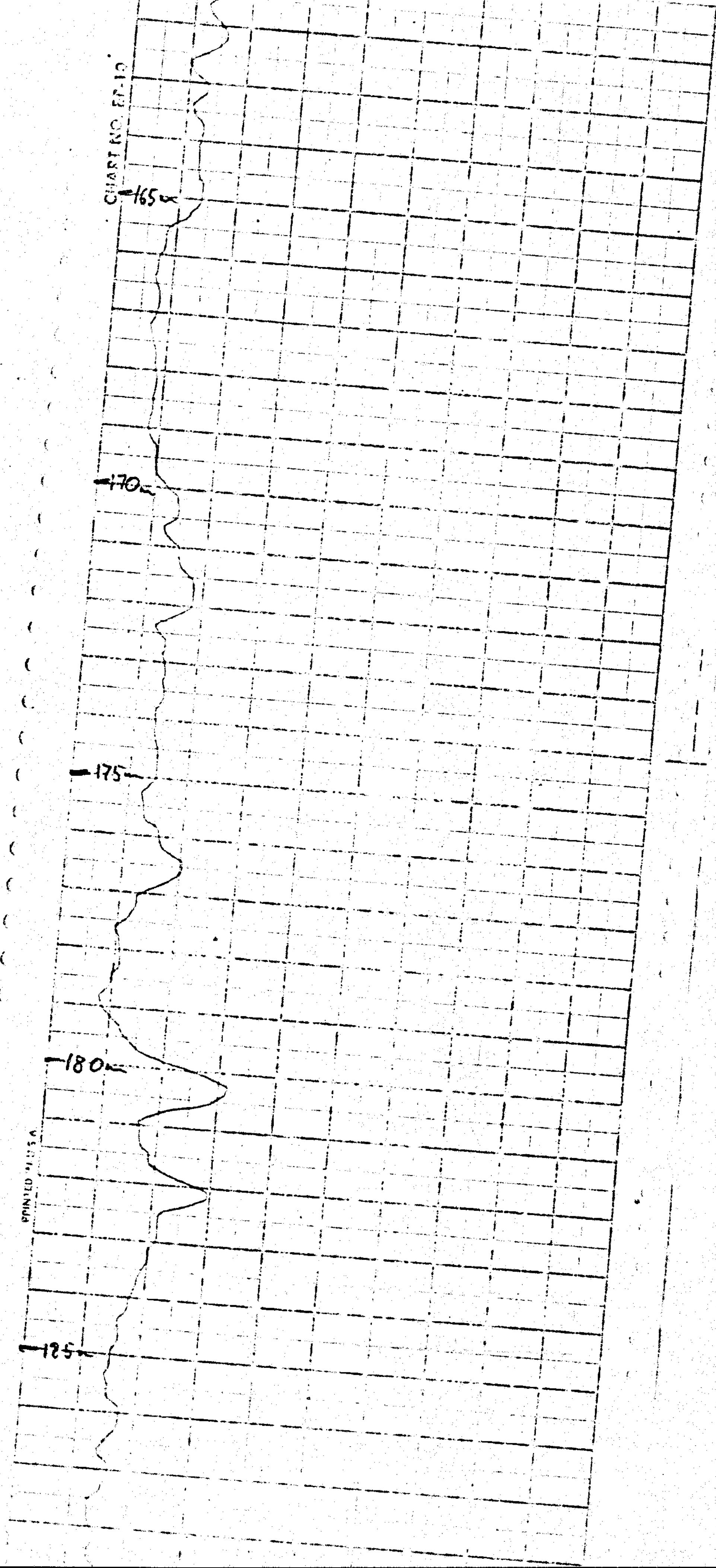


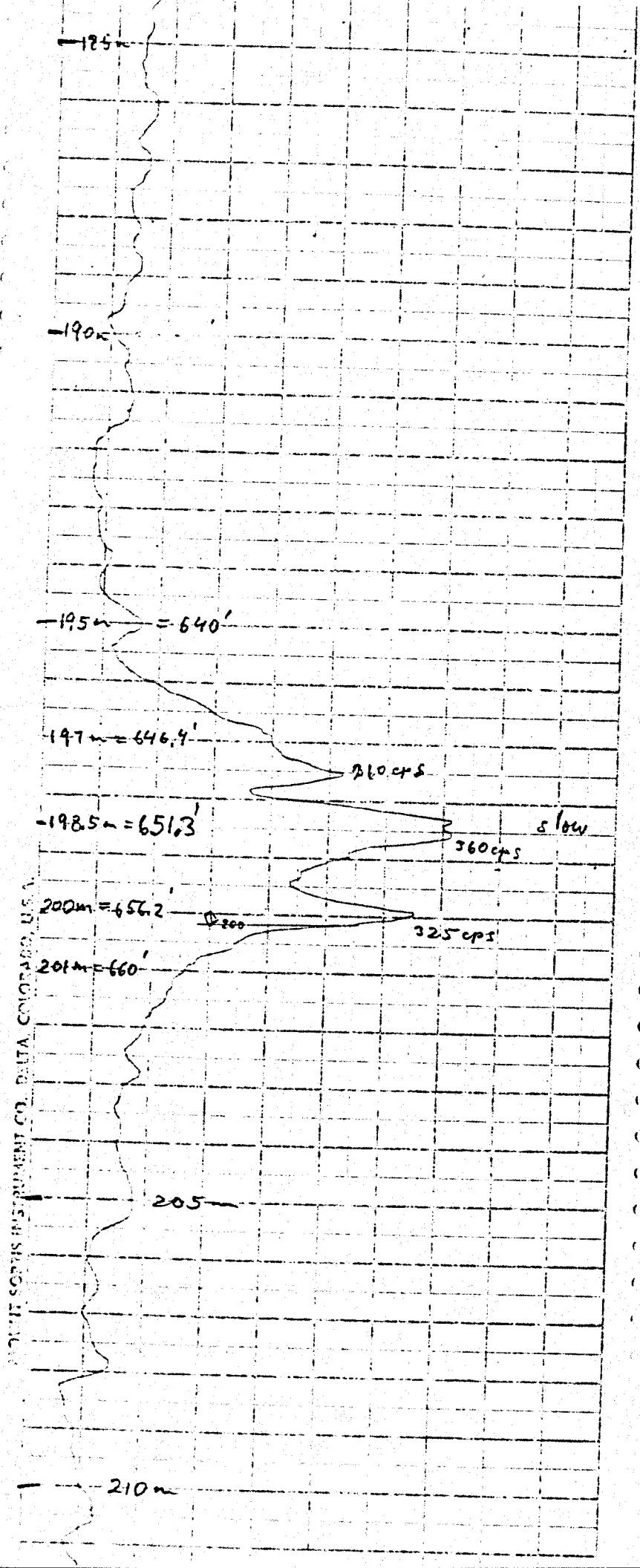
08-27

SOP- 27

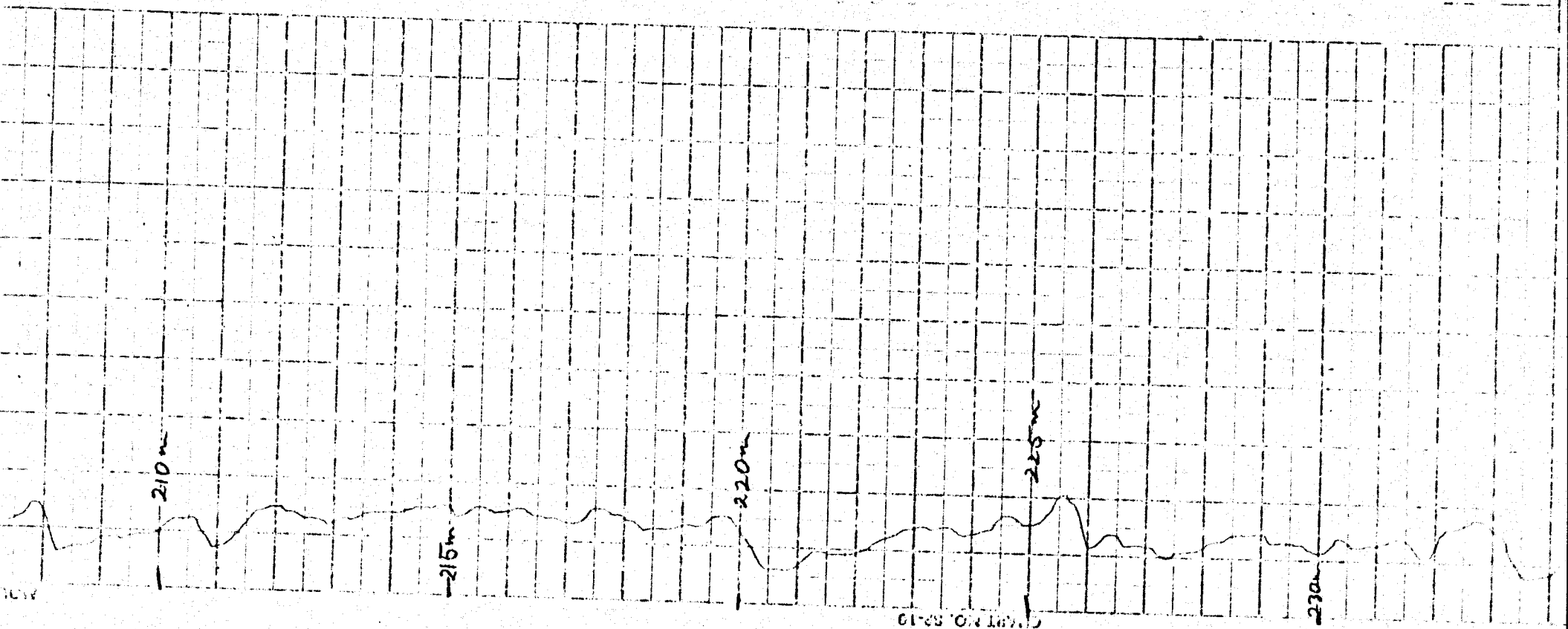

MOUNT SOPRIS INSTRUMENT CO., DELTA, COLORADO U.S.A.
140m = 459.3'
141m = 462.6'
235 cpm
200 cps
145m
150m
150m
160m

508-27

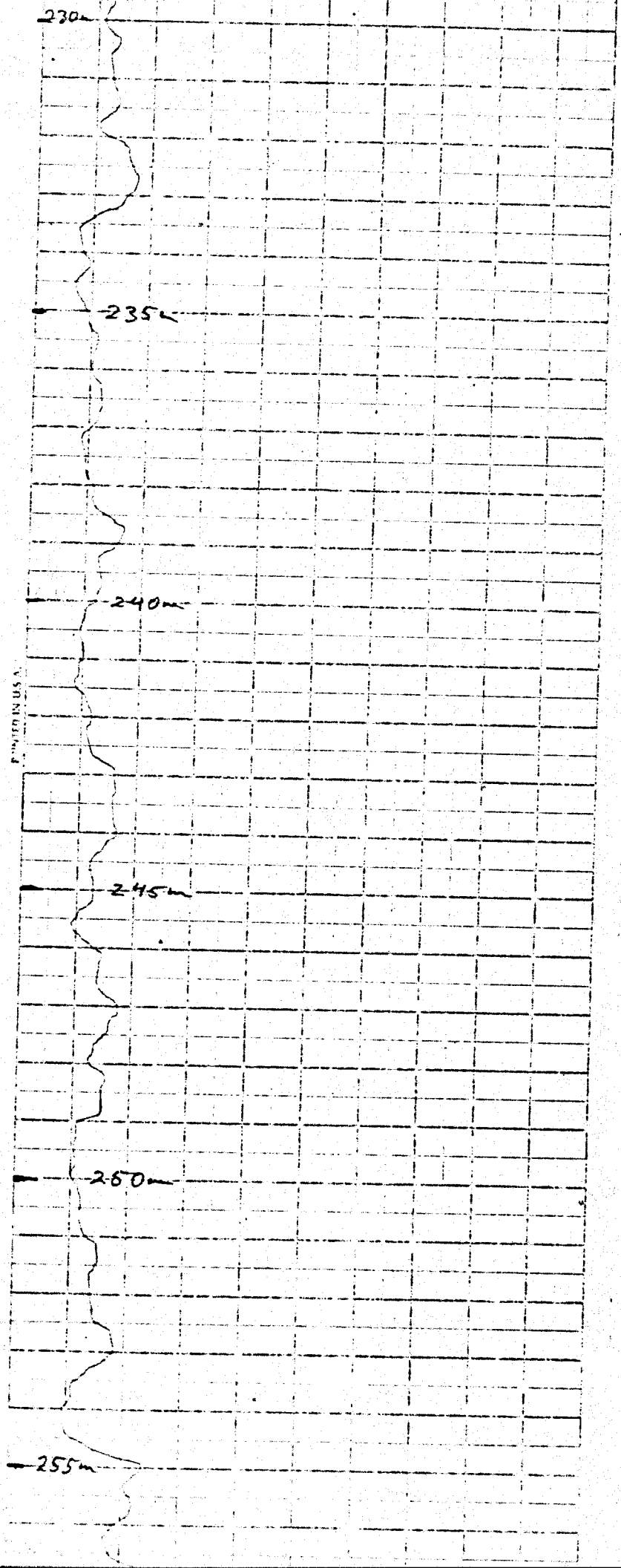



185m
190m
195m = 640'
197m = 646.4'
360 cps
slow
198.5m = 651.3'
360 cps
200m = 656.2'
325 cps
201m = 660'
205
210m
SOLTE SCHLUMBERGER INSTRUMENT CO. DELTA, COLORADO, U.S.A.

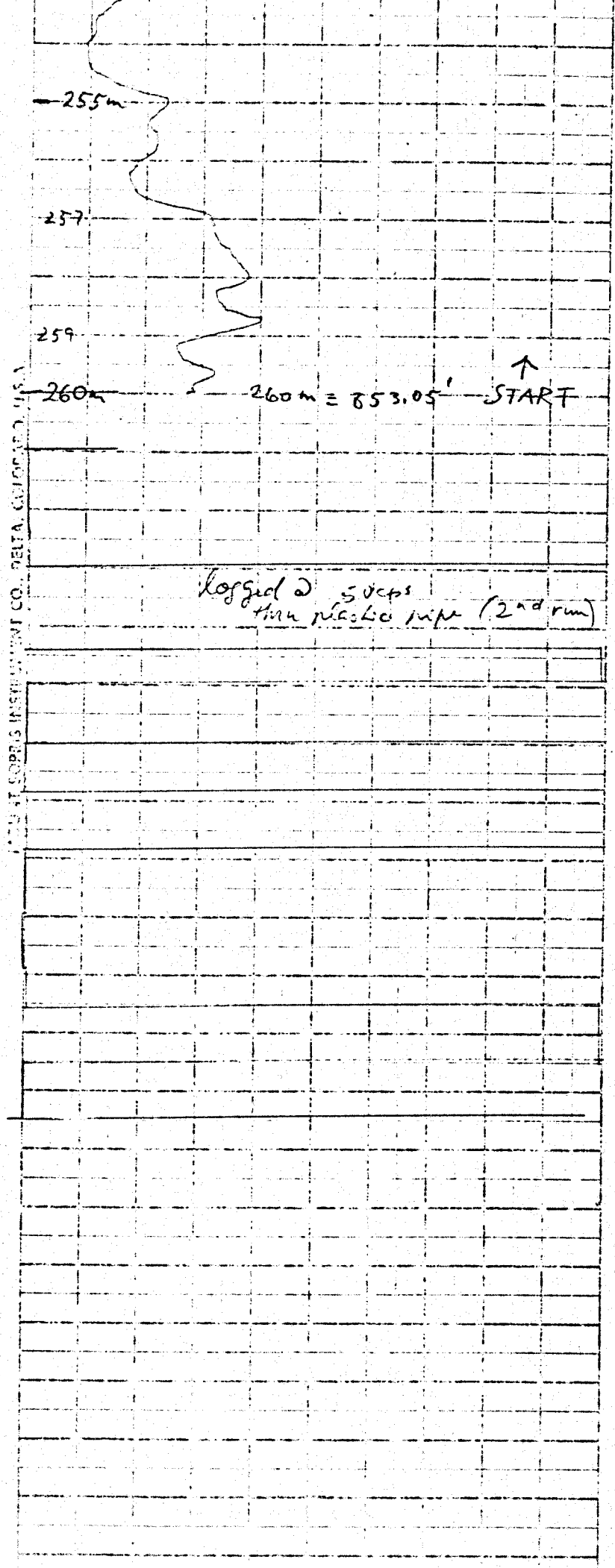
S0-8-27



LZ-805



508-27


255m
257
259
260m
260 m = 853.05' START
logged 2 sucks
thin plastic pipe (2nd run)

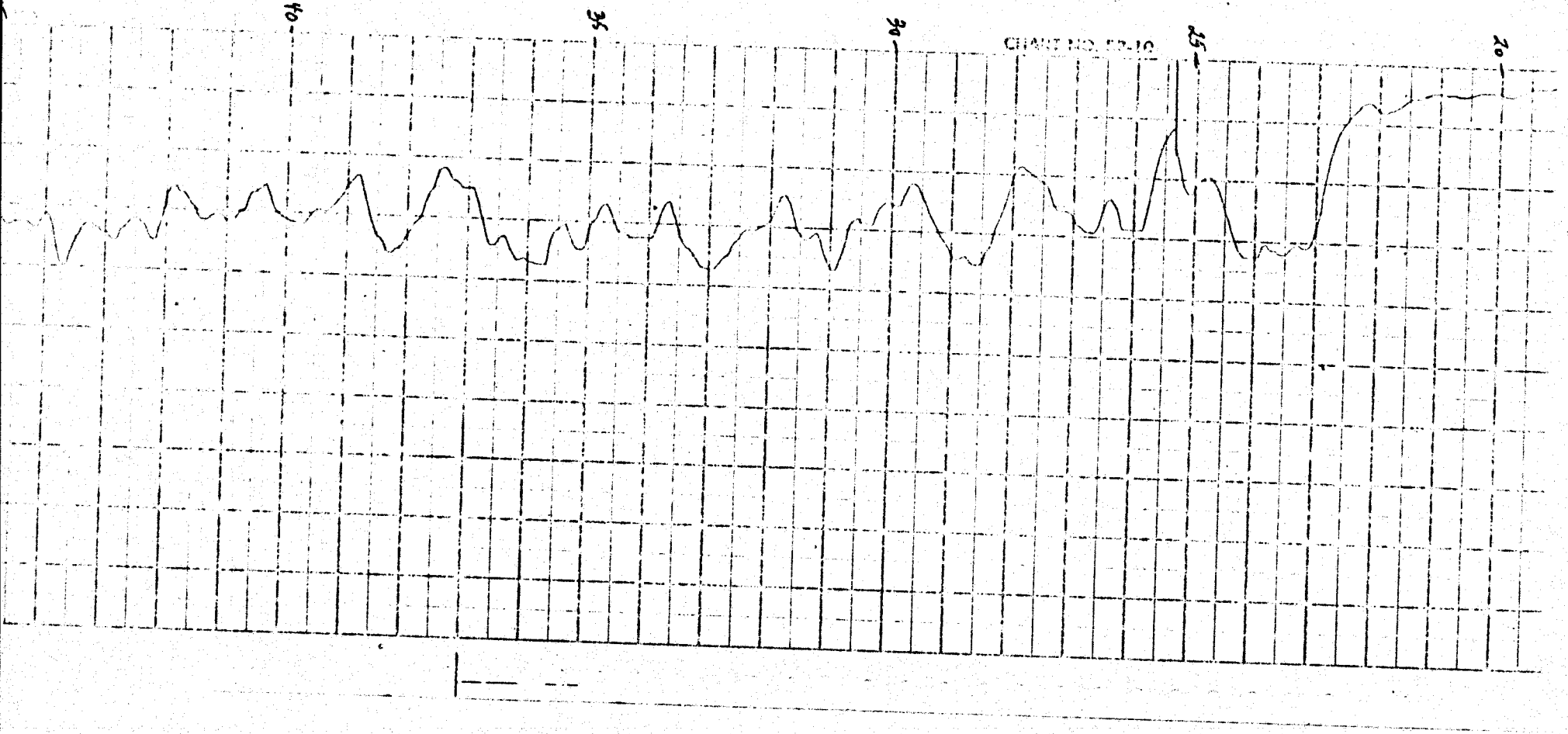
SOB-27

UDH 508-28
probed April 26, 1978
H. Laanela, P. Fortuna
γ-log Scale 20 cps/div
Mt. Sopris 1000

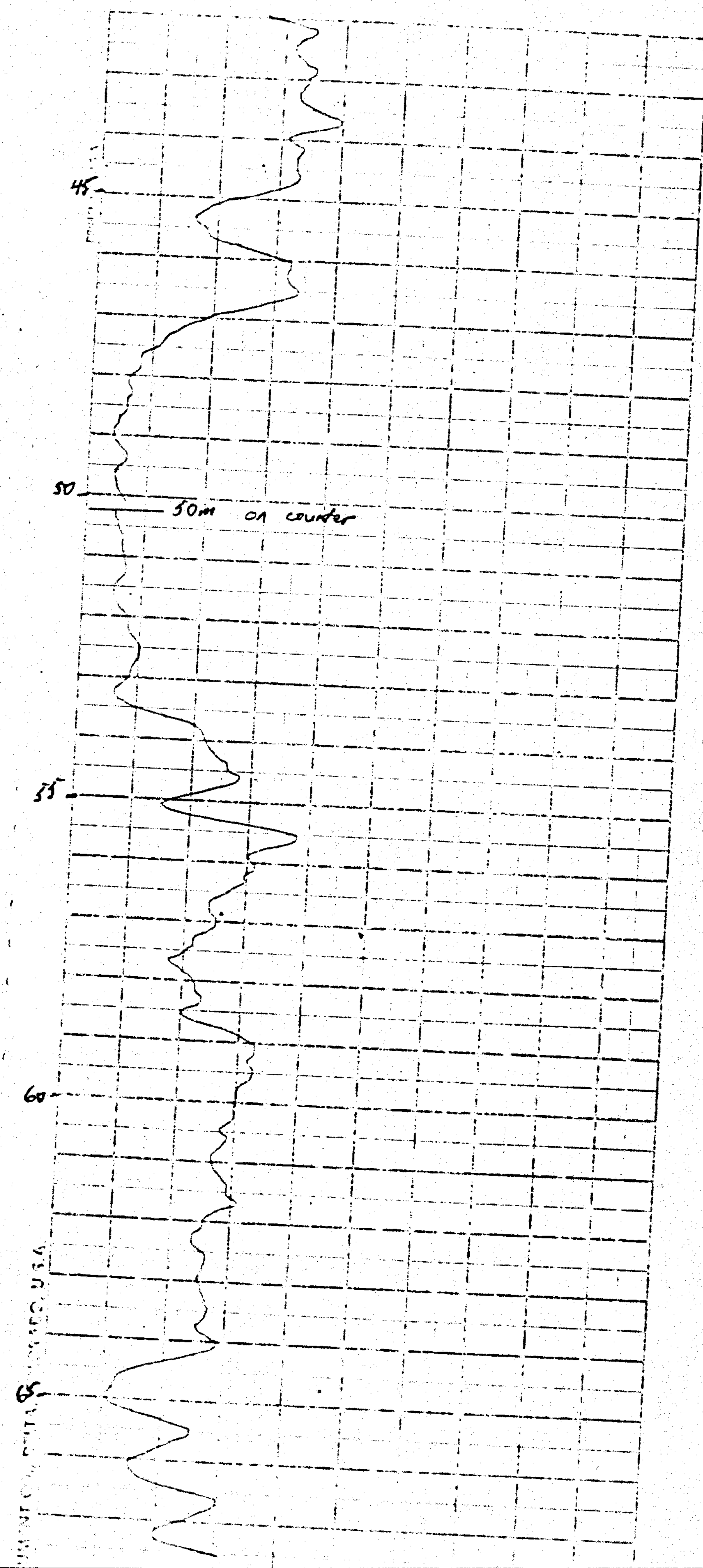
0
0.5 probed thru casing and plastic pipe
5
10
15
20

508-28

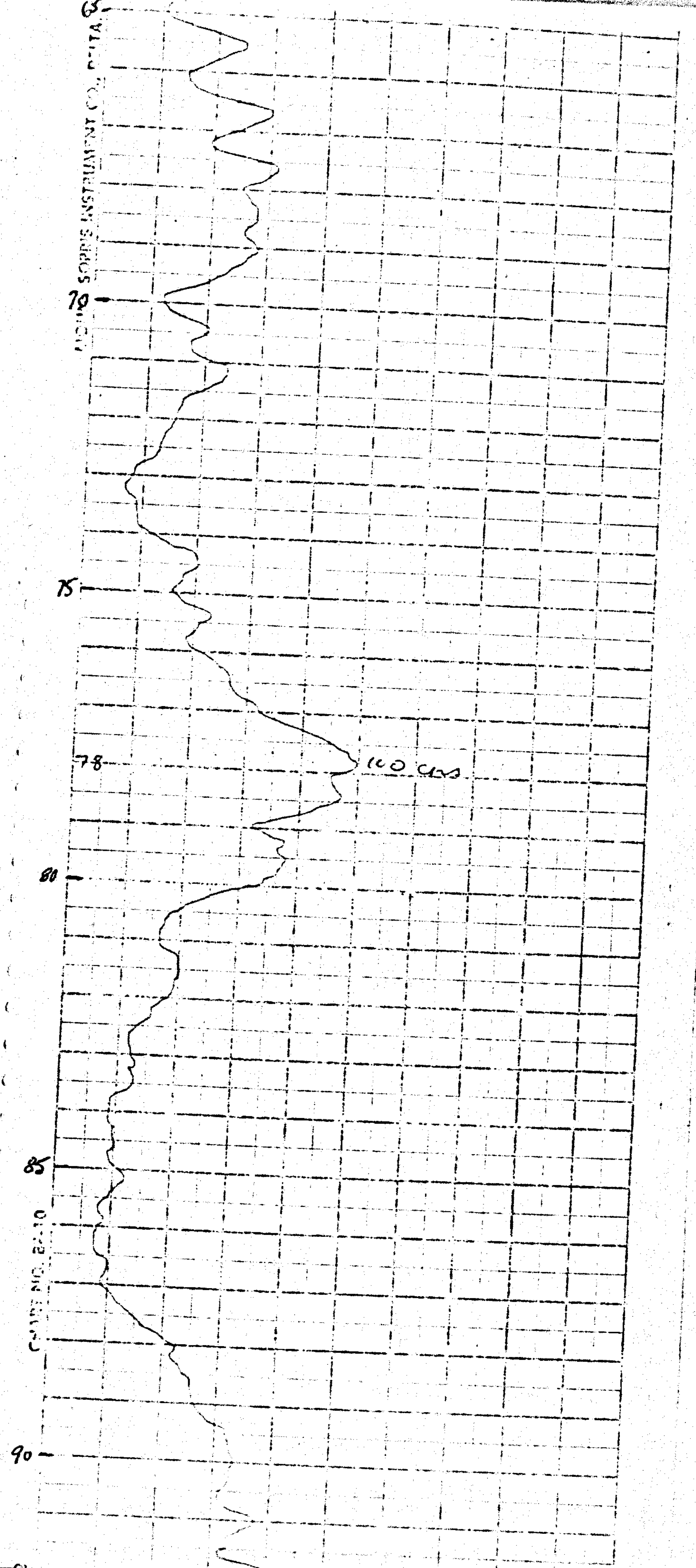
508-28

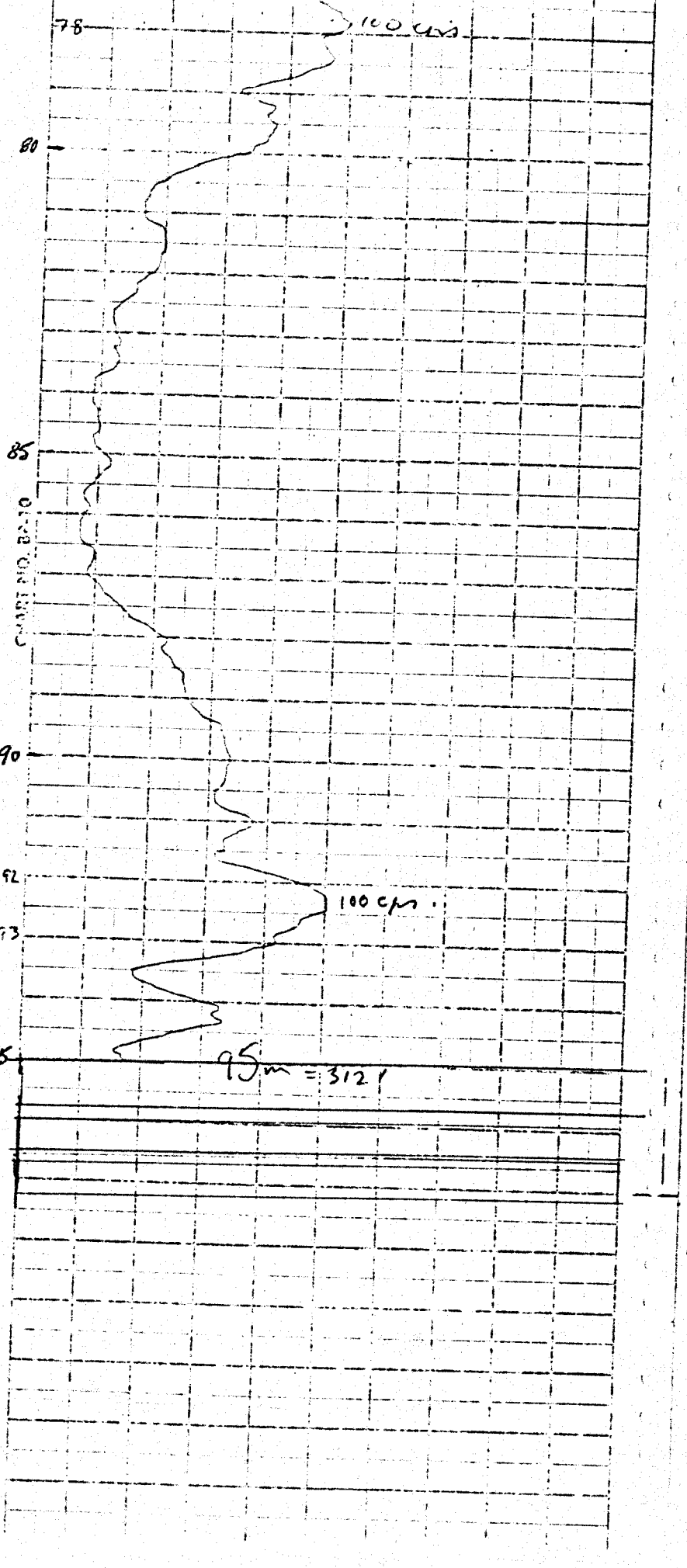


SOB-2B

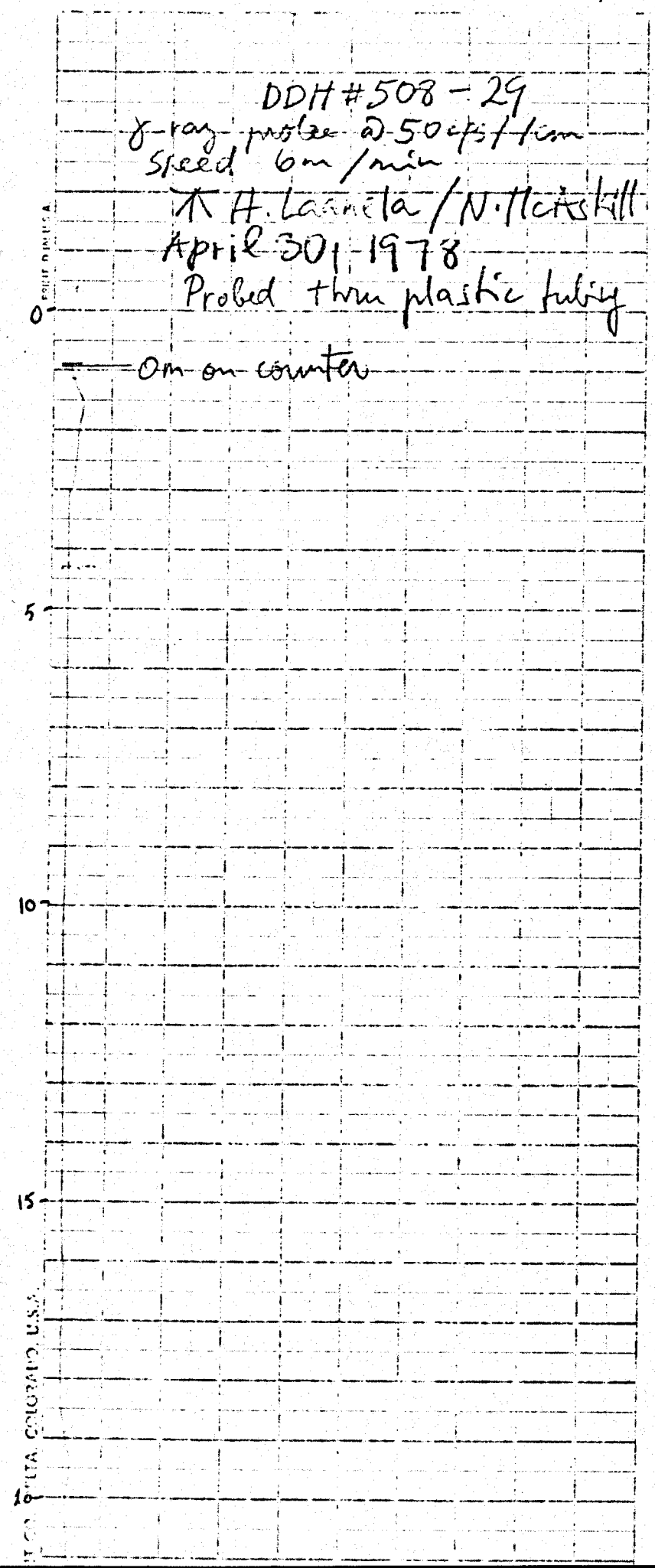


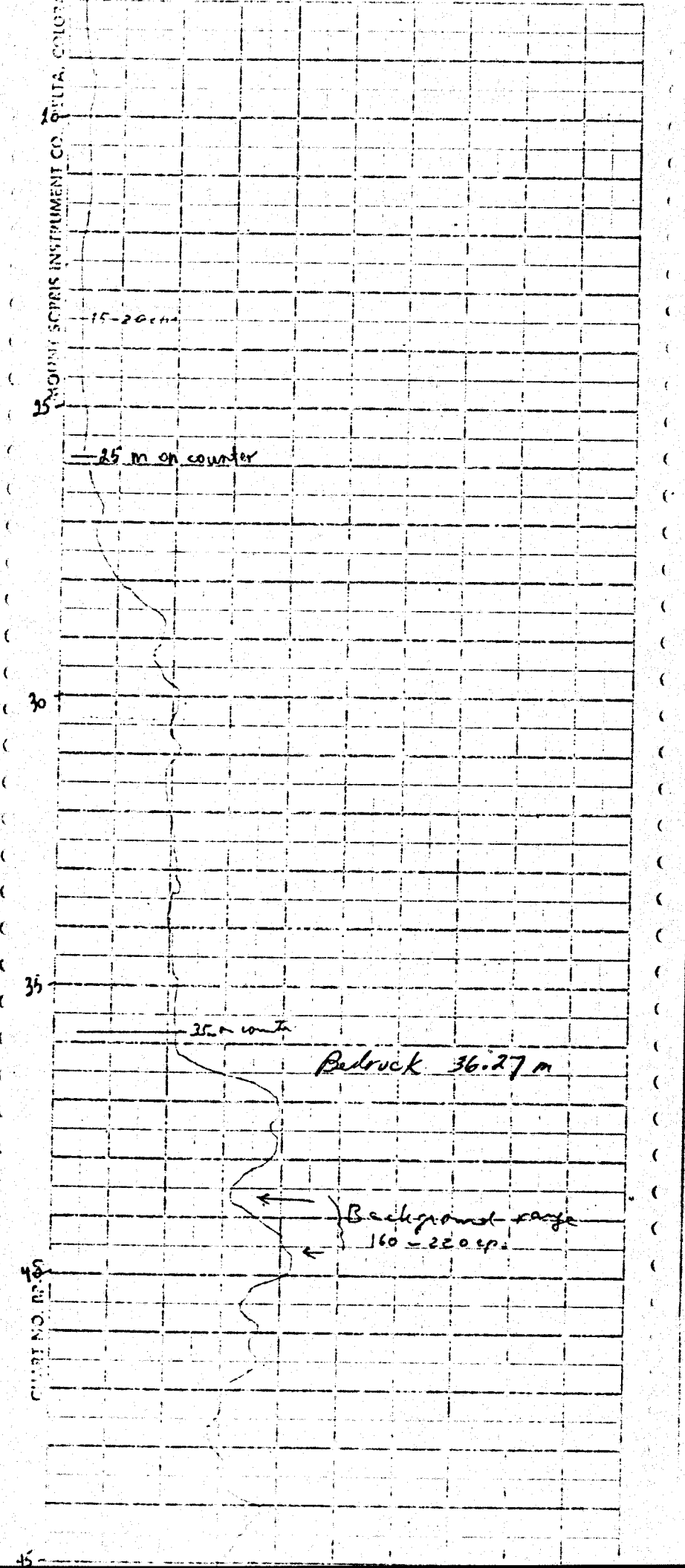
508-28



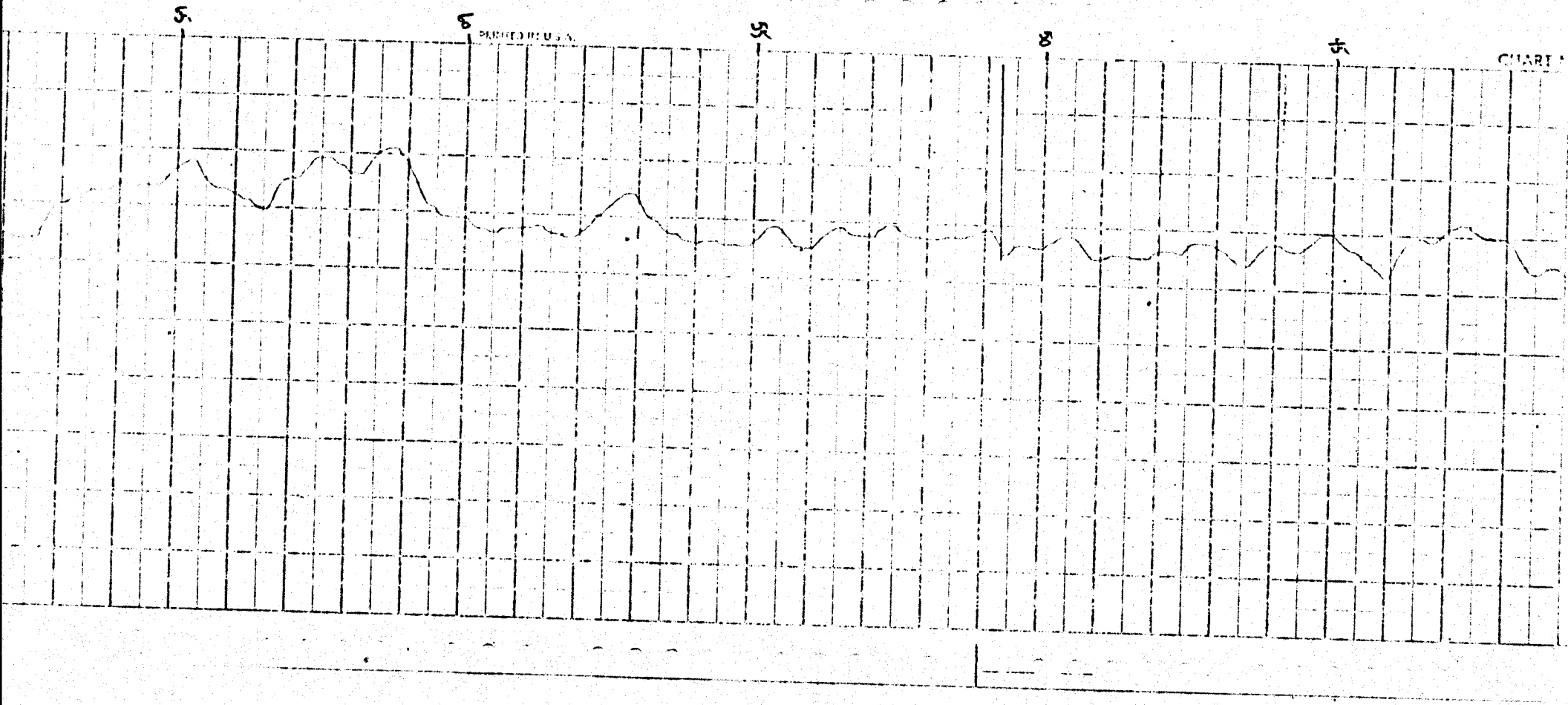


508-28

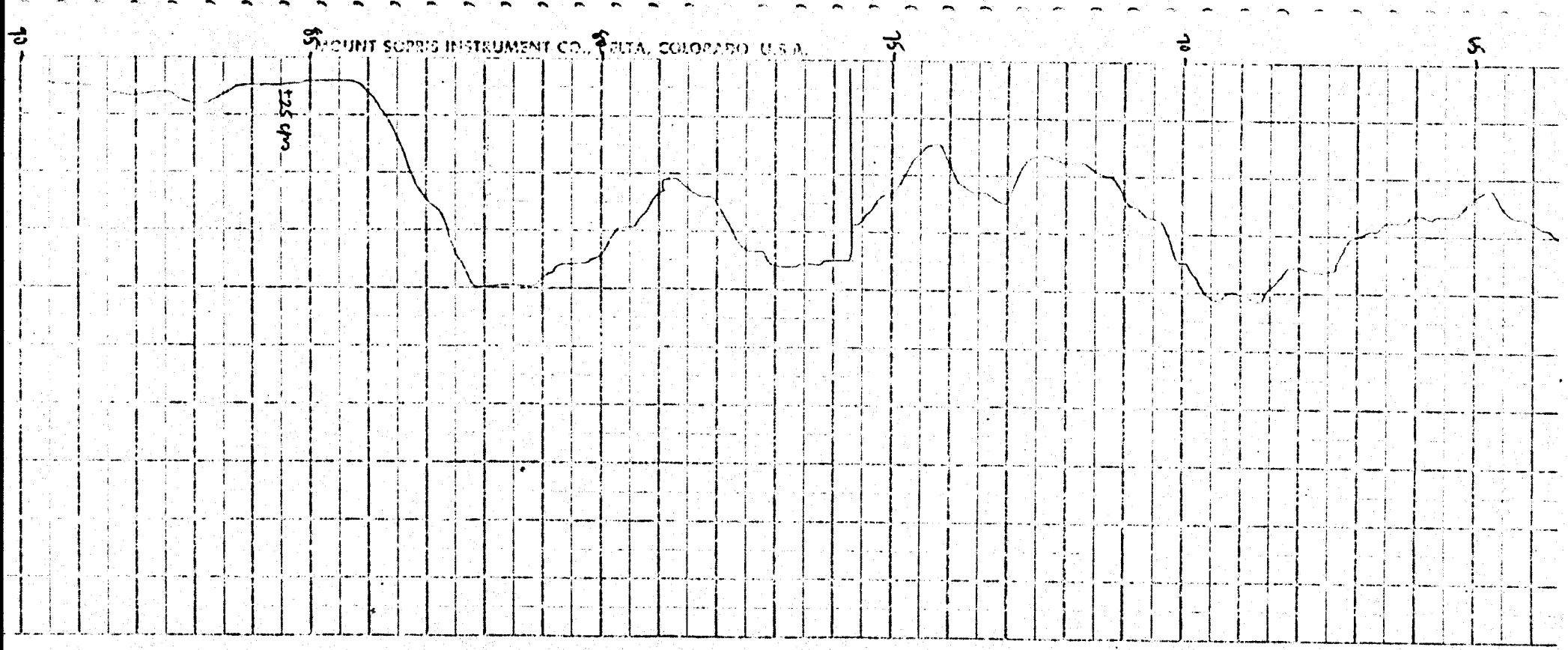

DDH #508 - 29
γ-ray probe @ 50 cps/1cm
Speed 6m/min
↑ H. Lamela / N. Marshall
April 30, 1978
Probed thru plastic tubing
0m on counter
0
5
10
15
508-29

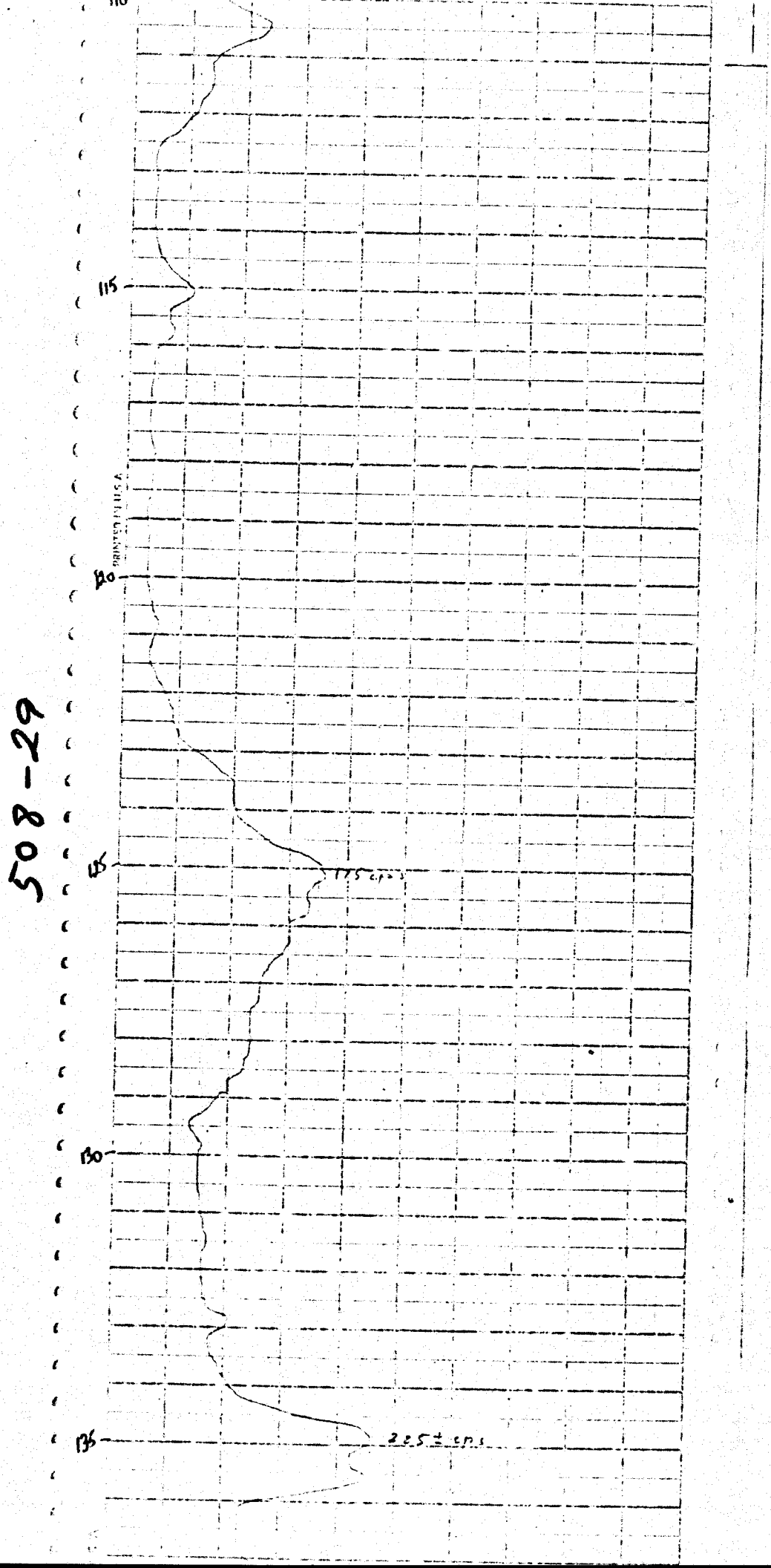

508-29
25
30
35
45
25 m on counter
35 m on counter
Bedrock 36.27 m
Background range
160 – 220 cps

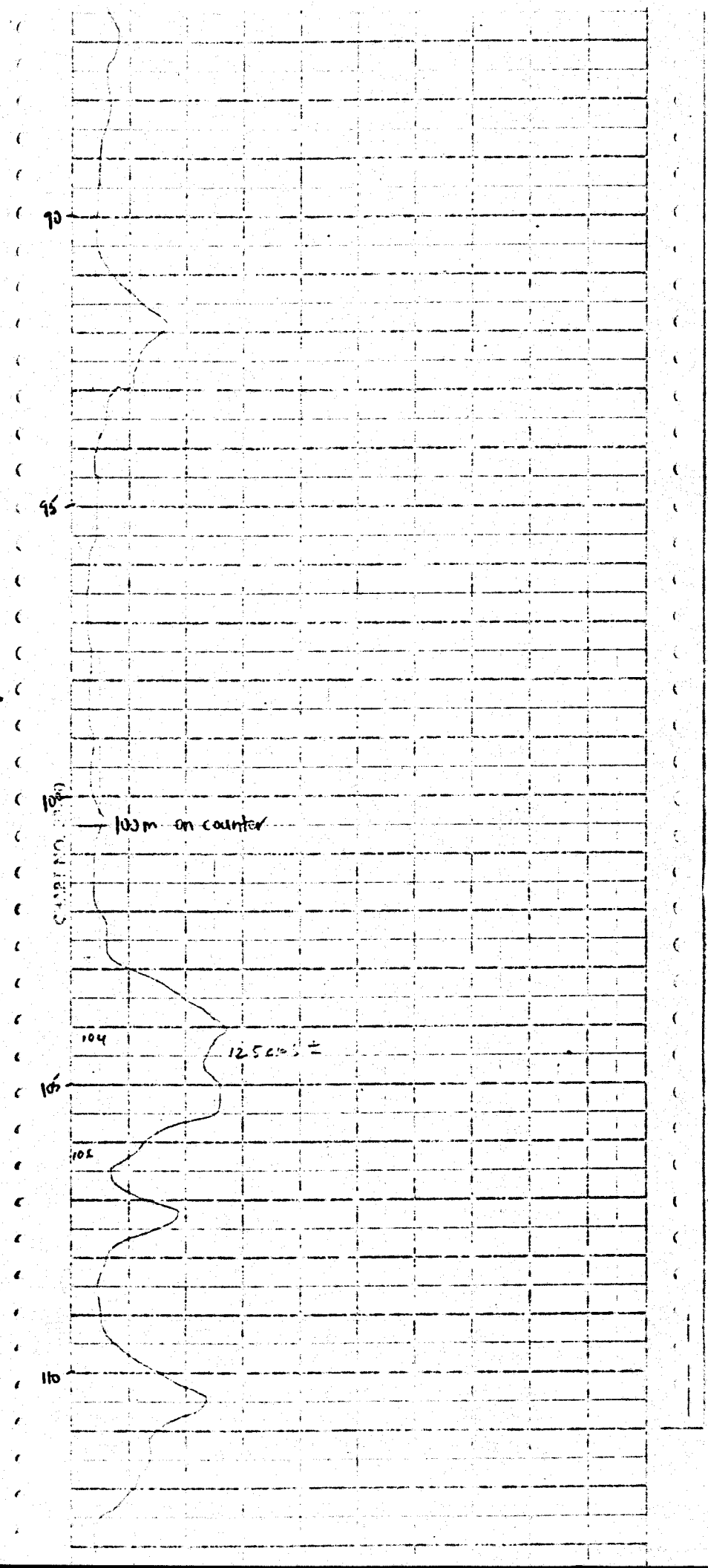
508-29



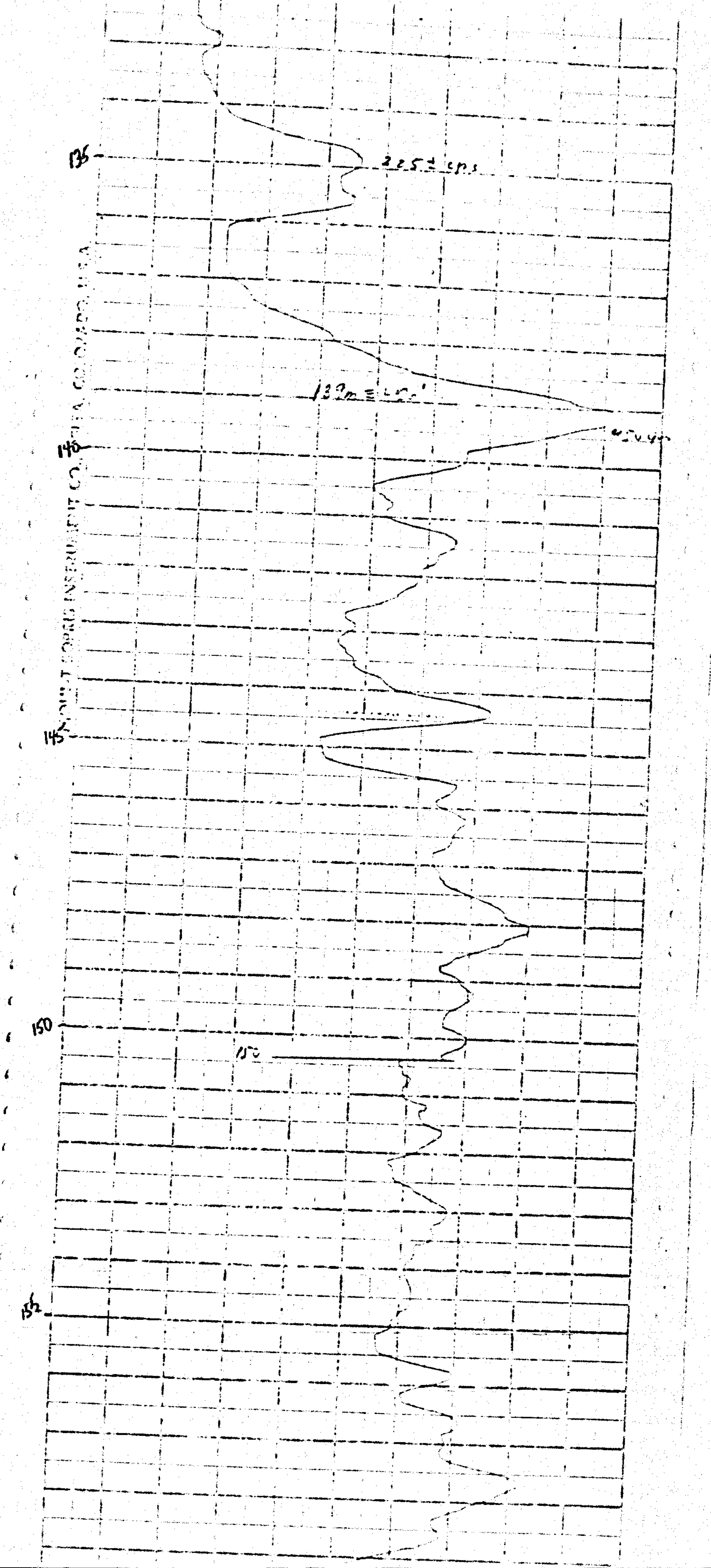
508-29



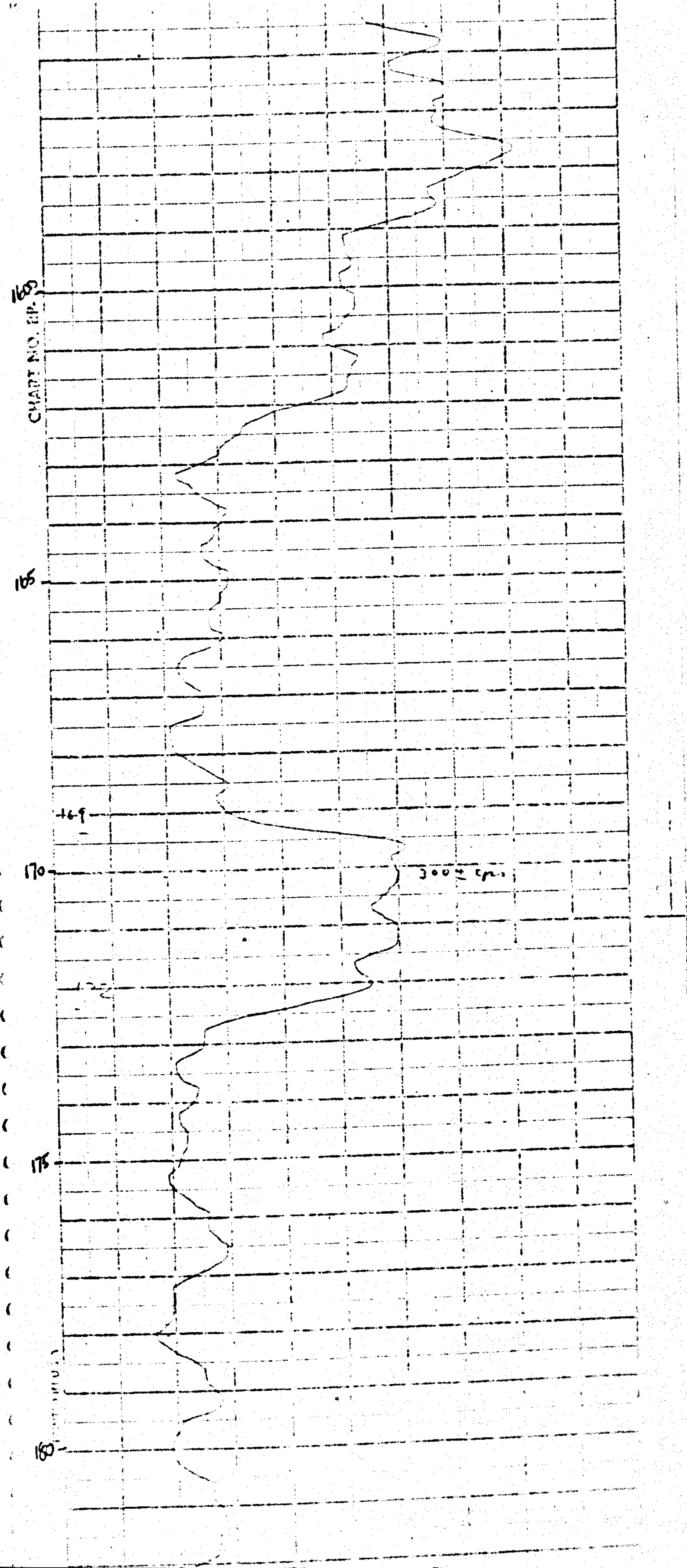

110
115
120
125
130
135
175 cps
225 ± cps
508-29


508-29
90
95
100
100m on counter
104
12.5 cm's ±
105
110

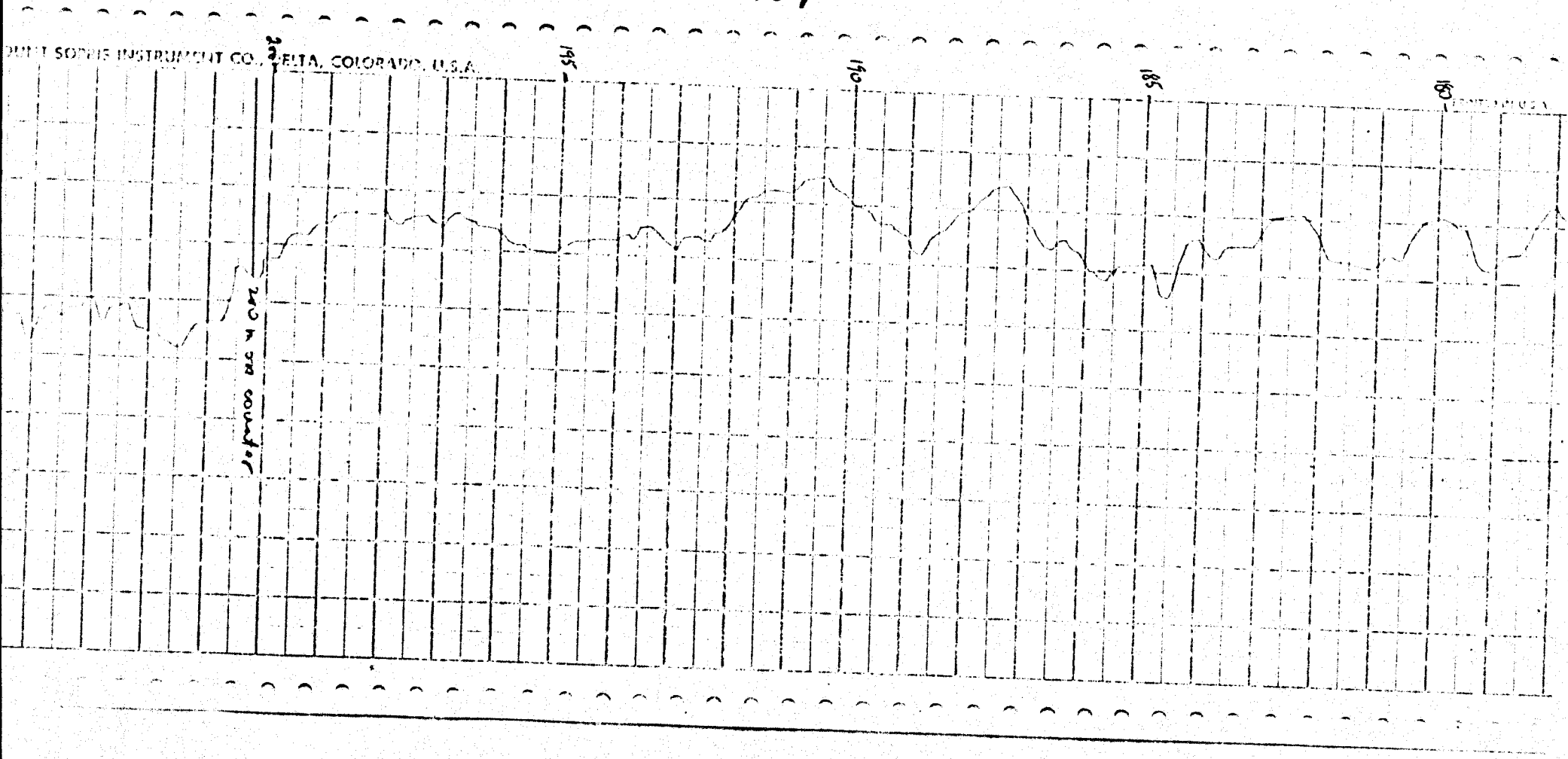
508-29



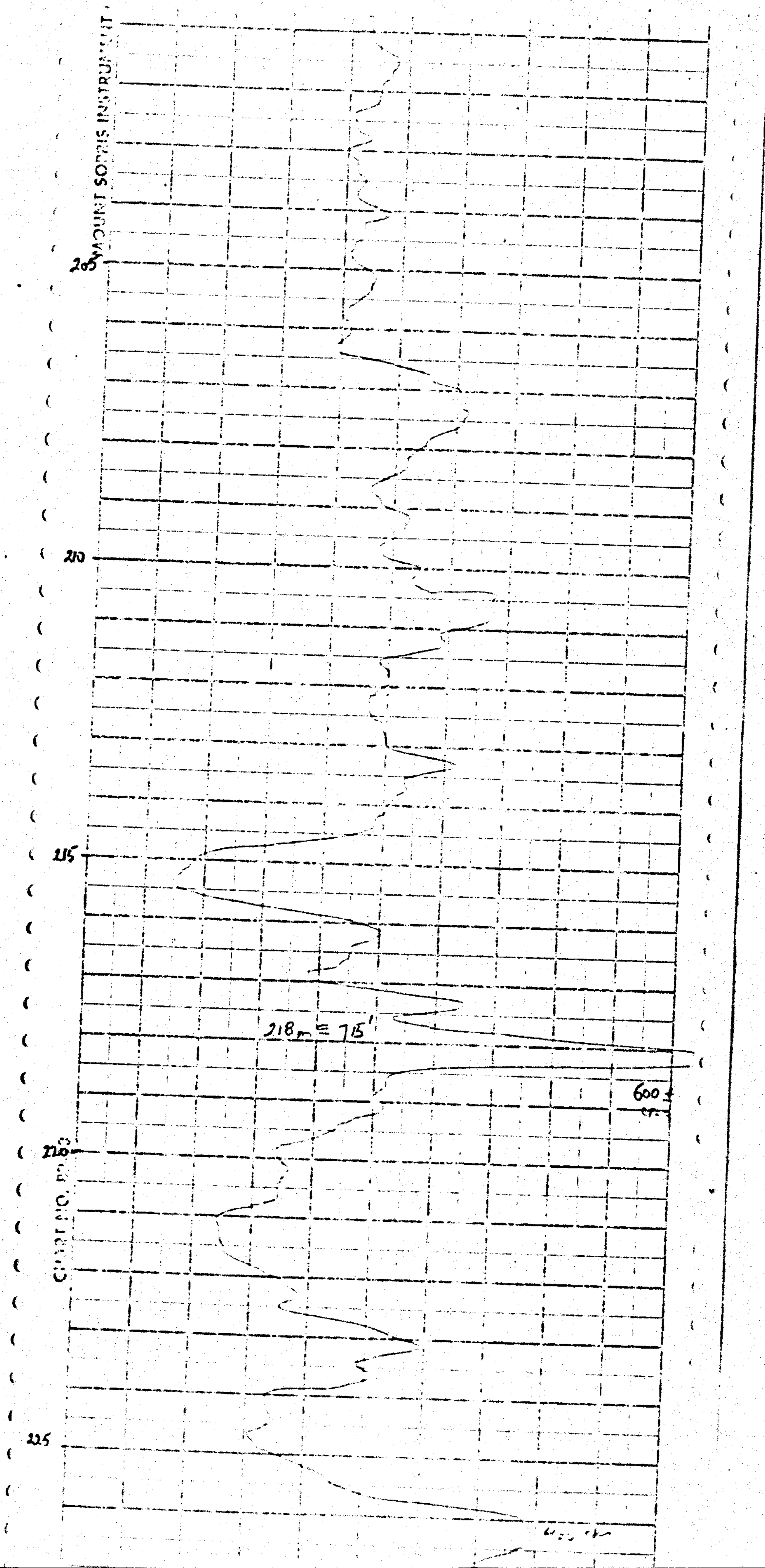
508.29

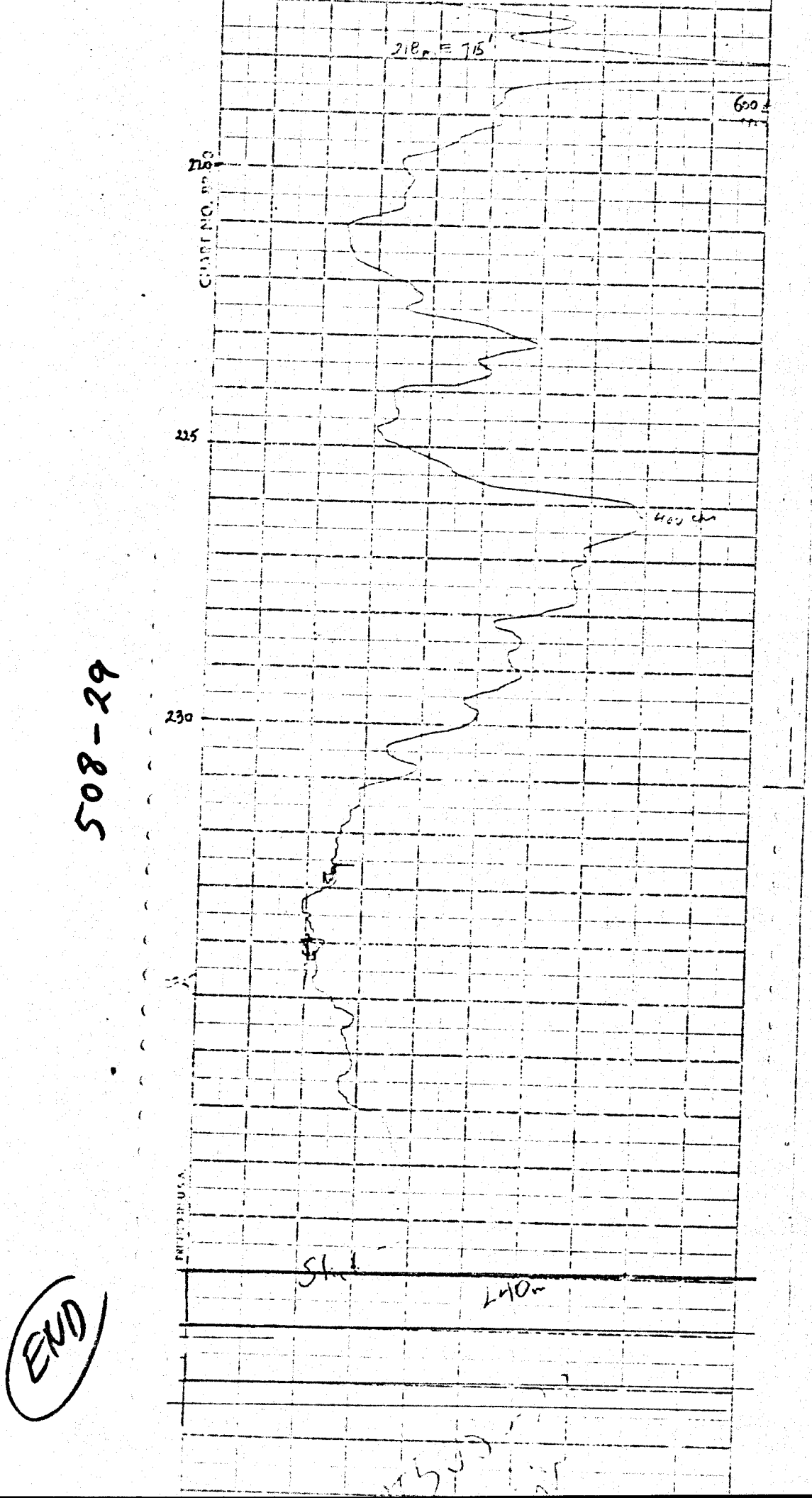


508-29


SONUS INSTRUMENT CO., DELTA, COLORADO, U.S.A.
195
190
185
180
240 msec sounder

508-29



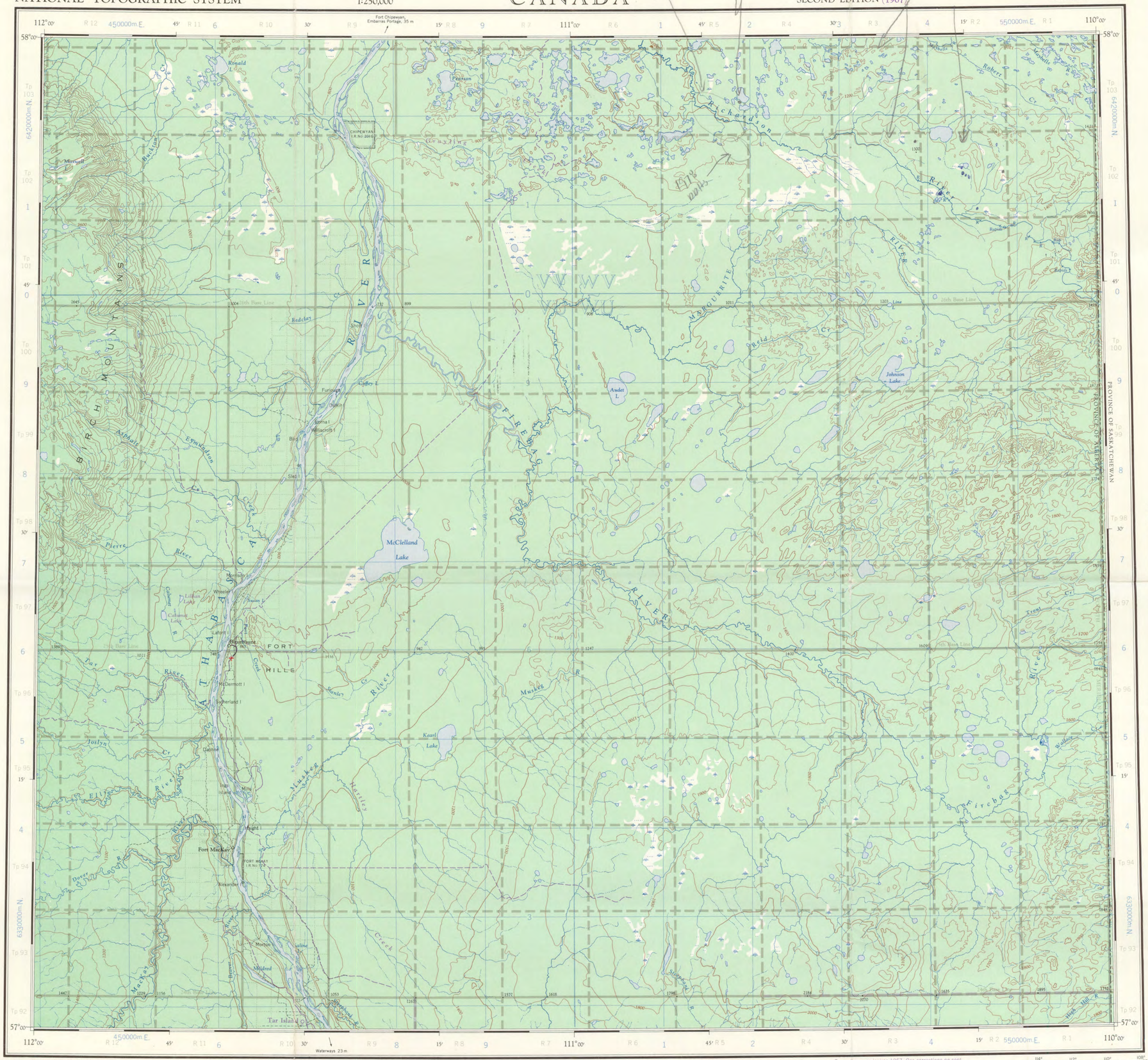


508-29

NATIONAL TOPOGRAPHIC SYSTEM 1:250,000 CANADA SECOND EDITION (1967) SHEET 74 E

1979 PDMS ELDORADO AGSE CAMP 1979 PDMS 1978 PDMS 1978

Refer to this map as: 74E EDITION 2 ASE SERIES A 502



THE DECLINATION OF THE COMPASS NEEDLE 1958

The declination of the compass needle at any place along a red line is the declination given on that red line. At other places the declination is between those given on the neighbouring red lines. At the place marked A the declination is between 25°30'E. and 25°30'E. The declination of the compass needle is decreasing 6.5 minutes annually.

Produced and Printed by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF MINES AND TECHNICAL SURVEYS, 1954. Revised 1958.
Interim corrections 1967 — may not be as accurate as original detail.

Universal Transverse Mercator Projection.

Contour interval 100 Feet
Elevations in Feet above Mean Sea Level
North American Datum 1927.

Corrections provisoires 1967. Ces corrections ne sont peut-être pas aussi précises que les données originelles.

REFERENCE

Road, Hard Surface, All Weather	More than 2 Lanes / 2 Lanes	Route No.	Less than 2 Lanes
Road, Loose Surface	All Weather / All Weather		Dry Weather
Wagon Road, Cart Track, etc.	2 Lanes or more / Less than 2 Lanes		Footpath or Trail
Railway, Standard Gauge	Multiple Track / Single Track		Abandoned
Boundary, International	Station	Pipe	
Boundary, Provincial	Contours: elevation		3000
Boundary, Indian Res., Park, etc.	depression		2500
Boundary, Township, Surveyed	approximate		2000
Boundary, Township, Unsurveyed	Spot elevation (in feet)		1885
Section Line	Astronomical position		

BITUMOUNT

ALBERTA

WEST OF FOURTH MERIDIAN

Scale 1:250,000

1 Inch to 4 Miles Approximately

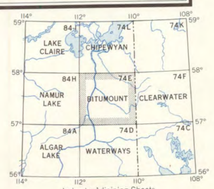
Miles 5 0 5 10 15 20 Miles

Kilometres 5 0 5 10 15 20 25 30 Kilometres

Copies may be obtained from the Map Distribution Office, Department of Energy, Mines and Resources, Ottawa.

REFERENCE

City or Large Town	Post Office
Town	School
Village or Settlement	Church
Stream, Intermittent or Dry	Marsh or Swamp
Stream, Indefinite or Unsurveyed	Land Subject to Inundation
Irrigation Canal or Ditch	Sand, Gravel or Mud
Rapids and Falls	Ferry
Lake, Intermittent	Forest Areas
Airport or Airfield	Seaplane Base
Landing Ground	Seaplane Anchorage



Index to Adjoining Sheets

100,000 M. SQUARE IDENTIFICATION

GRID ZONE DESIGNATION 12V

VV WV
VU WU 64
5

TO GIVE A REFERENCE TO NEAREST 1000 METRES
EXAMPLE: LANDING GROUND

SQUARE: Read letters of 100,000 m. square VU

EASTING: Read number on grid line immediately to left of point. Estimate tenths of a square from this line eastward to point. 6 2

NORTHING: Read number on grid line immediately below point. Estimate tenths of a square from this line northward to point. 4 5 59

MILITARY GRID REFERENCE (to nearest 1,000 metres) VU6259

If reporting beyond 18° in any direction, prefix Grid Zone Designation as: 12V VU6259

TEN THOUSAND METRE UNIVERSAL TRANSVERSE MERCATOR GRID ZONE 12

BITUMOUNT 74 E EDITION 2 (1967)

ELDORADO NUCLEAR LIMITED
Exploration Division

PROJECT 508

PROPOSAL TO REDUCE PERMIT AREAS

Oct. 19, 1978

Peter A. Fortuna,
Exploration Geologist

ELDORADO NUCLEAR LIMITED
EXPLORATION DIVISION

PROJECT 508
PROPOSAL TO REDUCE
PERMIT AREAS

The Project 508 Quartz Mineral Exploration Permits (Nos. 214, 215, 216, 217 and 218) expire on February 2, 1979. At this time, leases must be applied for. The rates are as follows:

- $0.25/acre/year for the first 5 years
- $1.00/acre/year for the remainder of the 21 year term.

By mutual consent of the joint venture partners, the option on Permit 207 was not exercised, and the property was returned to Ram-Vipond in October, 1978.

Exploration programmes on Project 508 and the increasing knowledge and understanding of uranium deposits associated with the Athabasca Basin provide a basis on which the economic potential of Project 508 can be evaluated. These geologic facts and interpretations are:

1. The basement - Athabasca sandstone unconformity crosses the permit area.
2. The basement rocks are metasediments containing graphitic zones. This association is noted in all the major uranium deposits in the Athabasca Basin.
3. A major tectonic structure offsets the basement rocks in the permit area and appears to have both pre- and post-Athabasca movement.
4. This structure has a large zone of brecciated and altered basement rocks associated with it.
5. A veinlet of quartz containing sooty pitchblende was encountered in DDH #2, which was drilled through this alteration zone.

.....2

6. The projected intersection of this major fault and the edge of the Athabasca sandstone occurs near an area where graphitic zones exist.

7. The basement rocks in the eastern permits are apparently the same as those encountered in Cluff Lake (regional magnetic interpretation).

Based on these facts, it is suggested that the most favourable land in Project 508 is

-that portion which is underlain by sandstone, and

-a strip along the projected strike of the major fault.

Figure 1 illustrates the proposed change in the Project 508 property holdings.

The location of the sandstone edge is not exact, having been extrapolated from drill hole data. All the land underlain by sandstone and any that lies within 2 km (min) of the edge should be retained. The area in Permit 214 where the projected trace of the fault intersects the edge of the sandstone is near graphitic zones found by drilling. The merger of these features makes this an interesting area.

In considering the sandstone edge in the north part of Permit 216, there is little besides the presence of sandstone to keep our interest in this area. Overburden is quite thick (at least 70m locally) and there are no geochemical or geophysical anomalies.

The presence of sooty pitchblende (DDH #2) in the alteration zone related to the major fault structure (see Figure) is significant, as it shows the fault acted as a channelway for uranium-bearing fluids. A sizeable portion of land along the

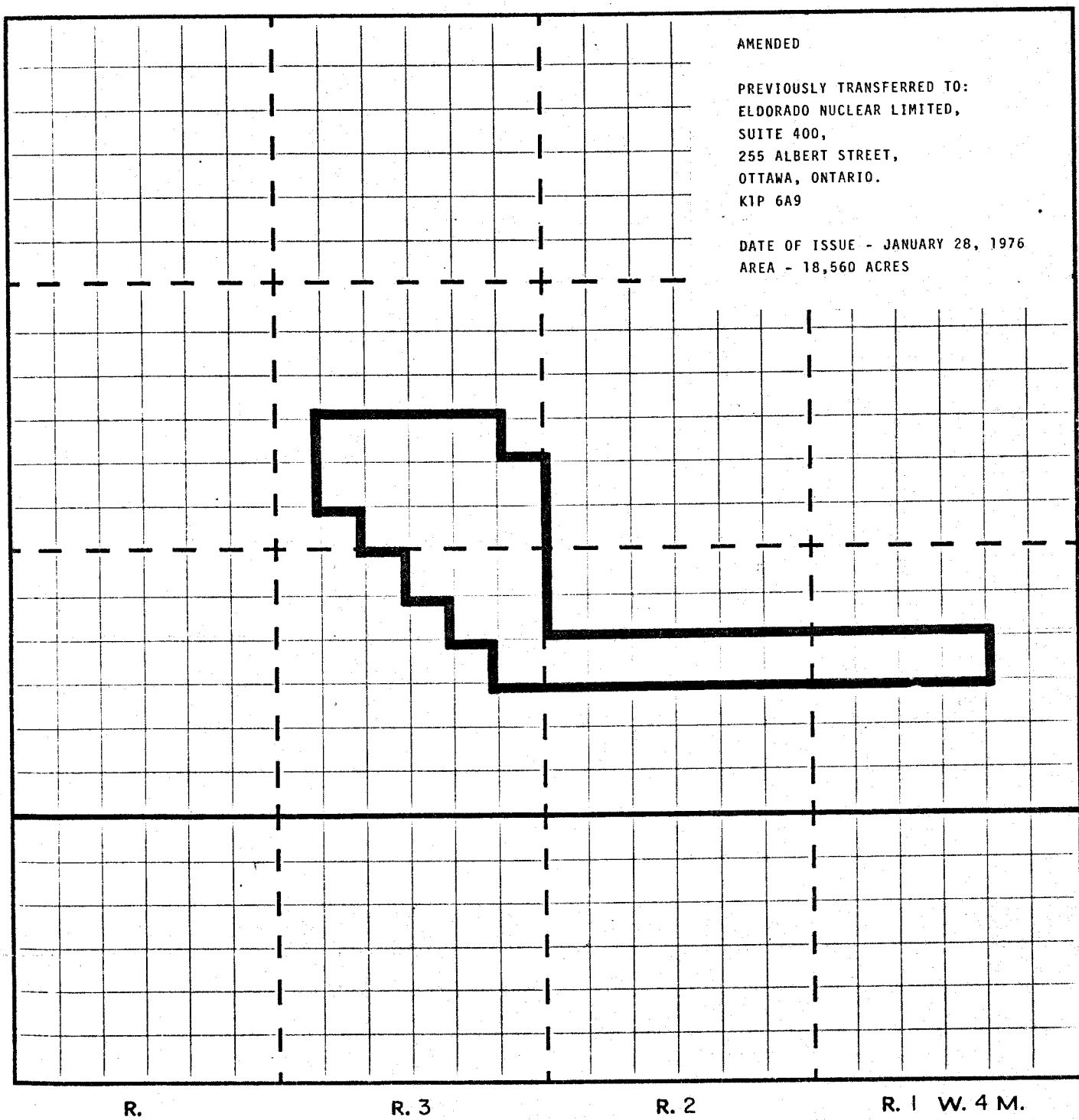
.....3

strike of this fault should be retained.

The following table summarizes the proposed land retention and tabulated costs.

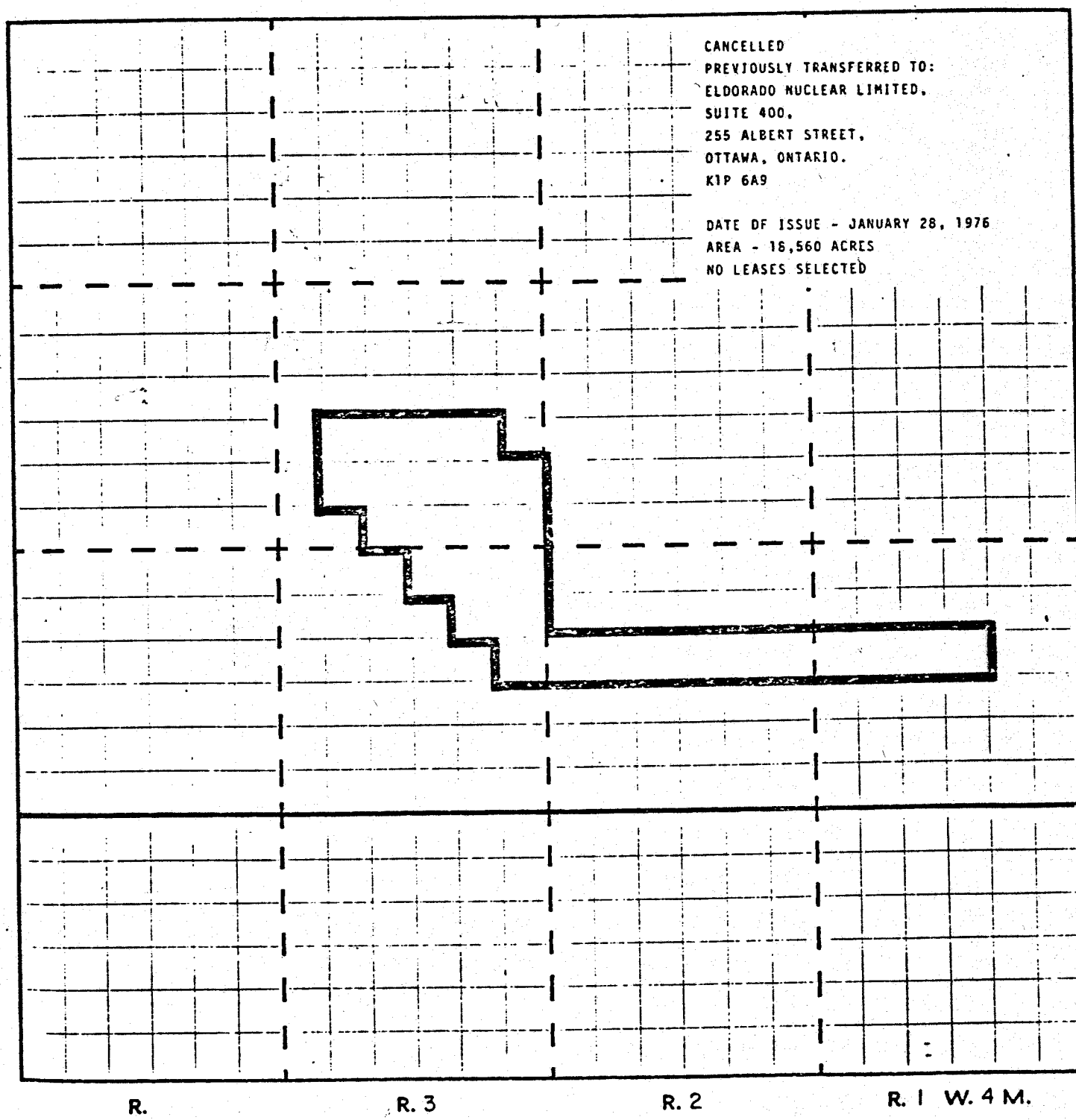
Permit	Present Acreage	Proposed Reduced Acreage	Cost @ 25¢/acre
214	39,680	30,080	$7520
215	39,680	No reduction 39,680	$9920
216	47,360	16,000	$4000
217	20,000	3,200	$ 800
218	9,920	3,520	$ 880
TOTAL	156,640	92,480	$23,120

QUARTZ MINERAL EXPLORATION PERMIT NO. 207



cancelled

QUARTZ MINERAL EXPLORATION PERMIT NO. 207



R3 R2 R1

110°00'

58°09'

TP 105

TP 104

58°00'

TP 103

TP 102

TP 101

57°45'

111°00'

110°30'

R6 R5 R4 R3 R2 R1

Proposed Geophysical Surveys, Summer 1978.

DDH #2

Resistivity + Magnetic Surveys

B.L.-Loop Line Resistivity Survey (detail grids as required)

Hor. Loop E.M. Survey

B.L.

216

215

214

217

218

207
(RAM-VIPOND)

Dunes
Kinyaing Lake
Harper Lake
Burnt Hill Lake
Archer Lake
Archer Creek
Barber Lake
Lorocque Lake
Nash Lake
Grass Creek
Currie Lake
Maybelle River
Harwood Lake
Four Islands Lake
Skunk Lake
Sam Lake
Eddie Lake
Sandbar Lake
Grassy Lake
Sandy Lake
Labor Day Lake
Trapper Lake
Mint Creek
Richardson
Long Lake
Maybelle Lakes
Maybelle River
Snail Lake
Clam Lake
Cranberry Lake
Eldorado Lake
E.N.L. Camp
Bear Lake
Back Lake
Poleface Lake
River
Cobb's Corner
Dog Lake
RICHARDSON TOWER
Cranberry Creek
Muddy Creek
Rocky Bend
North Muddy Creek
Muddy Lake
South Muddy Creek
Kevin Lake
Esker Lakes
Richardson River
Eagle Lake
Marguerite River
Cache Lake
Lake Eight
Lake Nine
Lake Four
Axis Creek

ELDORADO NUCLEAR LIMITED— OTTAWA

PROJECT-508

QUARTZ MINERAL EXPLORATION PERMITS
Nos. 207, 214, 215, 216, 217 and 218

NORTH EASTERN ALBERTA

Scale 1:50,000 (1 cm : 500m or 1.27" : 1 mile)

1000 0 1000 2000 3000 4000 metres

0 1 2 3 miles

Base map drawn by S.R., Feb. 1976 / Updated Sept. 1977/Updated Feb. 1978

After: Alberta 1" : 1 mile forestry maps

94

R.7 R.6 R.5 R.4 R.3 R.2 R.1 W. 4 M.

TP108 TP107 TP106 TP105 TP104 TP103 TP102 TP101 TP100

SASKATCHEWAN PROVINCE OF

FREZIE L.
IR 201C
IR 201D
IR 201E
RICHARDSON LAKE
MAYBELLE RIVER
OLD FORT RIVER
BRANDER LAKE
PAXTON LAKE
BOWEN LAKE
AGAR LAKE
BARBER LAKE
LAROCQUE LAKE
ARCHER LAKE
CURRIE LAKE
EDGE OF ATHABASCA SST.
RENE LAKE
RETAIN
216
217
218
RETAIN 215
214
RETAIN
207
FAULT
MARGUERITE RIVER
JOHNSON LAKE

31 32 33 34 35
30 29 28 27 26
19 20 21 22
18 17 16 15
7 8 9 10
6 5 4 3

LEGEND

- Permit 207 (relinquished Oct. '78)
- • Proposed areas to be dropped
- ▲ Base Camp

Figure 1

ELDORADO NUCLEAR LIMITED
EXPLORATION DIVISION OTTAWA

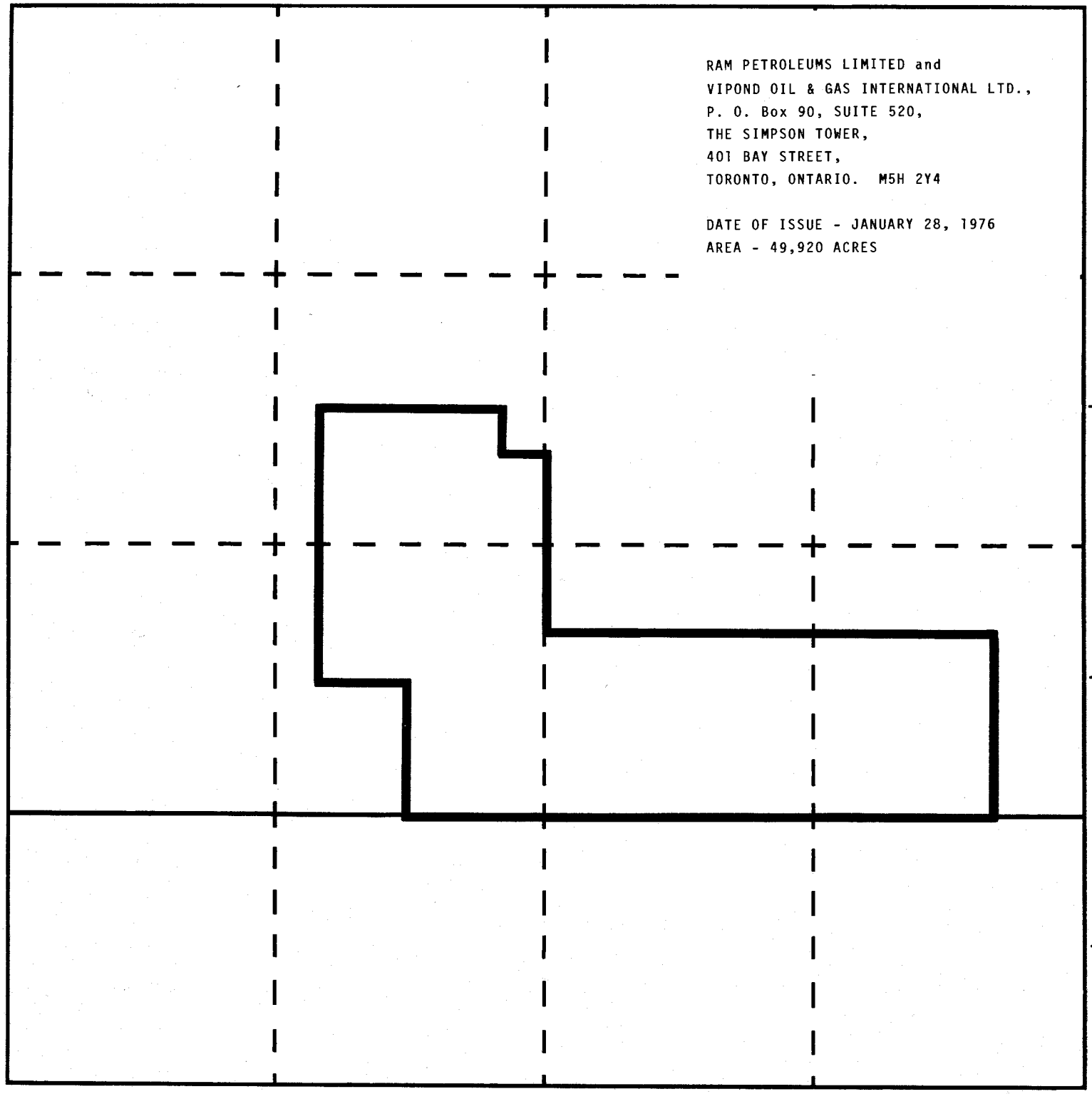
PROJECT 508

PROPOSAL TO REDUCE PERMIT AREAS

NORTH EASTERN ALBERTA

SCALE 2 1 0 2 4 MILES

QUARTZ MINERAL EXPLORATION PERMIT No. 207



111°00'
110°30'
58°09'
58°00'
57°45'
R6
R5
R4
R3
R2
R1
TP 105
TP 104
TP 103
TP 102
TP 101

Dunes
Knipping Lake
Barber Lake
Lorocque Lake
Nash Lake
Cross Creek
Currie Lake
Island Lake
Burnt Hill Lake
Archer Creek
Archer Lake
Horwood Lake
Maybelle River
Four Islands Lake
Skunk Lake
Sam Lake
Eddie Lake
Sandbar Lake
Grassy Lake
Sandy Lake
Labor Day Lake
Trapper Lake
Long Lake
Mint Creek
Richardson
Snail Lake
Eldorado Lake
E.N.L. Camp
Bear Lake
Beck Lake
Poleface Lake
Cobb's Corner
River
Dog Lake
RICHARDSON TOWER
Clam Lake
Cranberry Lake
Maybelle Lakes
Maybelle River
Robert Creek
Muddy Creek
North Muddy Creek
Muddy Lake
Kevin Lake
Crossberry Creek
Bend
Rocky
South Muddy Creek
Esker Lakes
Eagle Lake
Richardson River
Wormwise River
Cache Lake
Lake Eight
Lake Nine
Lake Four
Axis Creek

216
215
217
218
214
207
(RAM-VIPOND)

DDH #2
Resistivity & Magnetic Surveys

B.L.-Long Line Resistivity Survey
(detail grids as required)

Hor. Loop E.M. Survey
B.L.

Proposed Geophysical Surveys, Summer 1978.

ELDORADO NUCLEAR LIMITED— OTTAWA

PROJECT-508

QUARTZ MINERAL EXPLORATION PERMITS
Nos. 207, 214, 215, 216, 217 and 218

NORTH EASTERN ALBERTA

Scale 1:50,000 (1 cm : 500m or 1.27" : 1 mile)

1000 0 1000 2000 3000 4000 metres

1 0 1 2 3 miles

Base map drawn by S.R., Feb. 1976 / Updated Sept. 1977/Updated Feb. 1978

After; Alberta 1" : 1 mile forestry maps

GH

74 L 1:250,000 **CANADA** EDITION 3 → 4 74 L

Refer to this map as:	74 L EDITION 3 ASE SERIES A 502
Military users, refer to this map as: / Référence de cette carte pour usage militaire:	SERIES A502 SÉRIE MAP 74 L CARTE EDITION 4 MCE ÉDITION

FORT CHIPEWYAN

ALBERTA

WEST OF FOURTH MERIDIAN - OUEST DU QUATRIÈME MÉRIDIEN

Scale 1:250,000 Échelle

Miles 5 0 5 10 15 Miles

Kilometres 5 0 5 10 15 20 Kilometres

Transverse Mercator Projection
North American Datum 1927
Contour Interval 100 feet
Elevations in feet above Mean Sea Level

Projection Transverse de Mercator
Niveau de référence nord-américain, 1927
Équidistance des courbes: 100 pieds
Élévations en pieds au-dessus du niveau moyen de la mer

Copies may be obtained from the Map Distribution Office, Department of Mines and Technical Surveys, Ottawa.

Ces cartes sont en vente au Bureau de distribution des cartes, ministère des Mines et des Relevés techniques, Ottawa.

Compiled, 1963, by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF MINES AND TECHNICAL SURVEYS. Field surveys 1961. Printed 1966.

Magnetic declination 1965 varies from 26°11' easterly at centre of west edge to 25°05' easterly at centre of east edge. Mean annual change 4.5' westerly.

The Wood Buffalo National Park boundary follows the centre of the main channel of the Athabasca, Embarras, des Rochers rivers.

Interim Corrections 1974

Réalisée en 1963, par la DIRECTION DES LEVÉS ET DE LA CARTOGRAPHIE, MINISTÈRE DES MINES ET DES RELEVÉS TECHNIQUES. Levés sur le terrain en 1961. Imprimée en 1966.

La déclinaison magnétique pour 1965 varie de 26°11 Est au centre de la limite Ouest à 25°05 Est au centre de la limite Est. Variation moyenne annuelle 4.5' Ouest.

La limite du Parc national de Wood Buffalo suit le centre du chenal principal des rivières Athabasca, Embarras et des Rochers.

Corrections provisoires 1974

RELIABILITY DIAGRAM - CROQUIS D'EXACTITUDE

A - Planimetry base compiled from aerial photographs taken in 1955-58, contours stereo-compiled from 1961 field surveys.

A - Détails planimétriques du fond de carte rédigés d'après des photographies aériennes prises en 1955-58, courbes de niveau stéréocompilées d'après des levés sur le terrain en 1961.

Roads:
loose or stabilized surface, all weather ..... 2 lanes or more / less than 2 lanes
loose surface, dry weather .....

ROADS - ROUTES:
hard surface - pavée .....
loose surface - de gravier .....
cart track - de terre .....
trail - sentier .....
Deletions - Suppressions ..... x x x x x

Routes:
gravier aggloméré, toute saison ..... 2 voies ou plus / moins de 2 voies
de gravier, période sèche .....

GRID ZONE DESIGNATION	100,000 M. SQUARE IDENTIFICATION
12V	VA WA / VV WV, 65, 5

TO GIVE A REFERENCE TO NEAREST 1000 METRES

EXAMPLE: CABIN

SQUARE: Read letters of 100,000 m. square	VV
EASTING: Read number on grid line immediately to left of point. Estimate tenths of a square from this line eastward to point.	6 / 7 / 67
NORTHING: Read number on grid line immediately below point. Estimate tenths of a square from this line northward to point.	7 / 3 / 73
MILITARY GRID REFERENCE (to nearest 1,000 metres)	VV6773
If reporting beyond 18° in any direction, prefix Grid Zone Designation as:	12VVV6773

TEN THOUSAND METRE
UNIVERSAL TRANSVERSE MERCATOR GRID
ZONE 12

Index to adjoining sheets of National Topographic System

Tableau d'assemblage du Système National de Référence Cartographique

FORT CHIPEWYAN
74 L
EDITION 3
EDITION 4