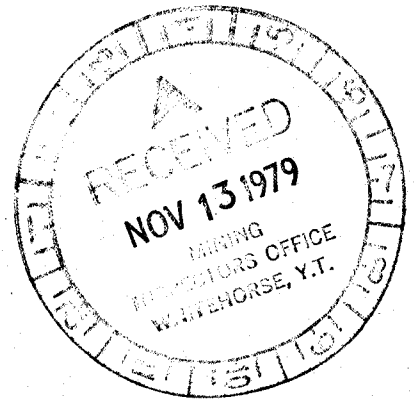




REPORT ON AIRBORNE RADIOMETRIC  
SURVEY AND PROSPECTING  
TOW 1 - 16 CLAIMS

090517

MAYO MINING DISTRICT, Y.T.  
CLAIM SHEET 106C-13



LAT 68°51'

LONG 133°48'

C.J. RILEY

GEOLOGIST

090517

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of

\$ 3,200.00

J. A. Morin

Resident Geologist or  
Resident Mining Engineer

Considered as representation work under  
Section 53 (4) Yukon Quartz Mining Act.

B. F. BAXTER  
Supervising Mining Recorder

[Signature]  
Commissioner of Yukon Territory

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REPORT ON AIRBORNE RADIOMETRIC  
SURVEY AND PROSPECTING  
TOW 1 - 16 CLAIMS

I INTRODUCTION

1.1 Introduction

An examination was made of the Tow 1-16 mineral claims in August, 1978. The work consisted of an airborne radiometric survey and ground geological mapping and prospecting. This work was carried out by Eldorado Nuclear Limited who have optioned the claims from Acher Cathro and Associates.

1.2 Location and Access

The Tow claims are situated on N.T.S. sheet 106 C-13 and lie on the south side of an east flowing unnamed tributary entering the Bonnet Plume River on the west side of the junction with Delores Creek. The claims are centered at  $65^{\circ} 51$  minutes north and  $133^{\circ} 48$  minutes west.

Access is by float plane or helicopter from the village of Mayo, approximately 120 miles southwest. Float planes may land at Fairchild Lake, 60 miles due north of the claims.

A winter road extends from Mayo along the Bonnet Plume River and Delores Creek, passing within one mile of the claims.

1.3 Claims

The group consists of 16 continuous mineral claims  
Tow 1-16

YA30553-YA30568 inclusive

These claims were staked by Acher Cathro and Associates on June 7, 1978 on behalf of the Wernecke Joint Venture (Chevron Canada Limited and Aquitaine Company of Canada Limited). Under terms of an agreement area, the claims were optioned by Eldorado Nuclear Limited.



FIGURE 1

**ELDORADO NUCLEAR LIMITED**

**TOW CLAIMS 1 - 16**  
**Yukon Territory**

**106 C 13**

**LOCATION MAP**

**1:250,000**

## 1.4 Logistics

The claims were examined by Dr. H.D. Knipping, Senior Geoscience Advisor, and C.J. Riley, District Geologist, both of Eldorado Nuclear Limited on August 20, 1978. Mobilization and demobilization between Whitehorse and Mayo took place on August 19th and 21st respectively. A Bell 206-B helicopter from Transnorth Turbo Air was used for access from Mayo and for the airborne survey. Fuel for the helicopter was placed at Fairchild Lake by Fixed Wing Aircraft.

The field work was carried out in one day. The crew flew from Mayo to the claim group and Knipping started mapping and prospecting while Riley carried out the airborne radiometric survey. Riley later joined Knipping in prospecting. A total of 14 hours was spent on the property.

## II RADIOMETRIC SURVEY

### 2.1 Introduction

A helicopter borne radiometric survey was carried out over the claims. The survey was flown along contours at 250 foot elevation differences. The speed of the helicopter was maintained at approximately 30 miles per hour with a mean train clearance of 75 feet. Fiducials were marked on the records to correlate airborne data to the ground. Records of the survey are included with this report.

### 2.2 Instrumentation

Equipment used in the survey was rented from Archer Cathro and Associates. It is a portable outfit and can be placed in a helicopter rapidly and without modifications. Power is obtained from the helicopters electrical system.

A Scintrex 113 cubic inch temperature corrected sodium iodide crystal was used in conjunction with a Scintrex GAD 4 spectrometer. Total radio active account was recorded.

The results were recorded on a Hewlett Packard single

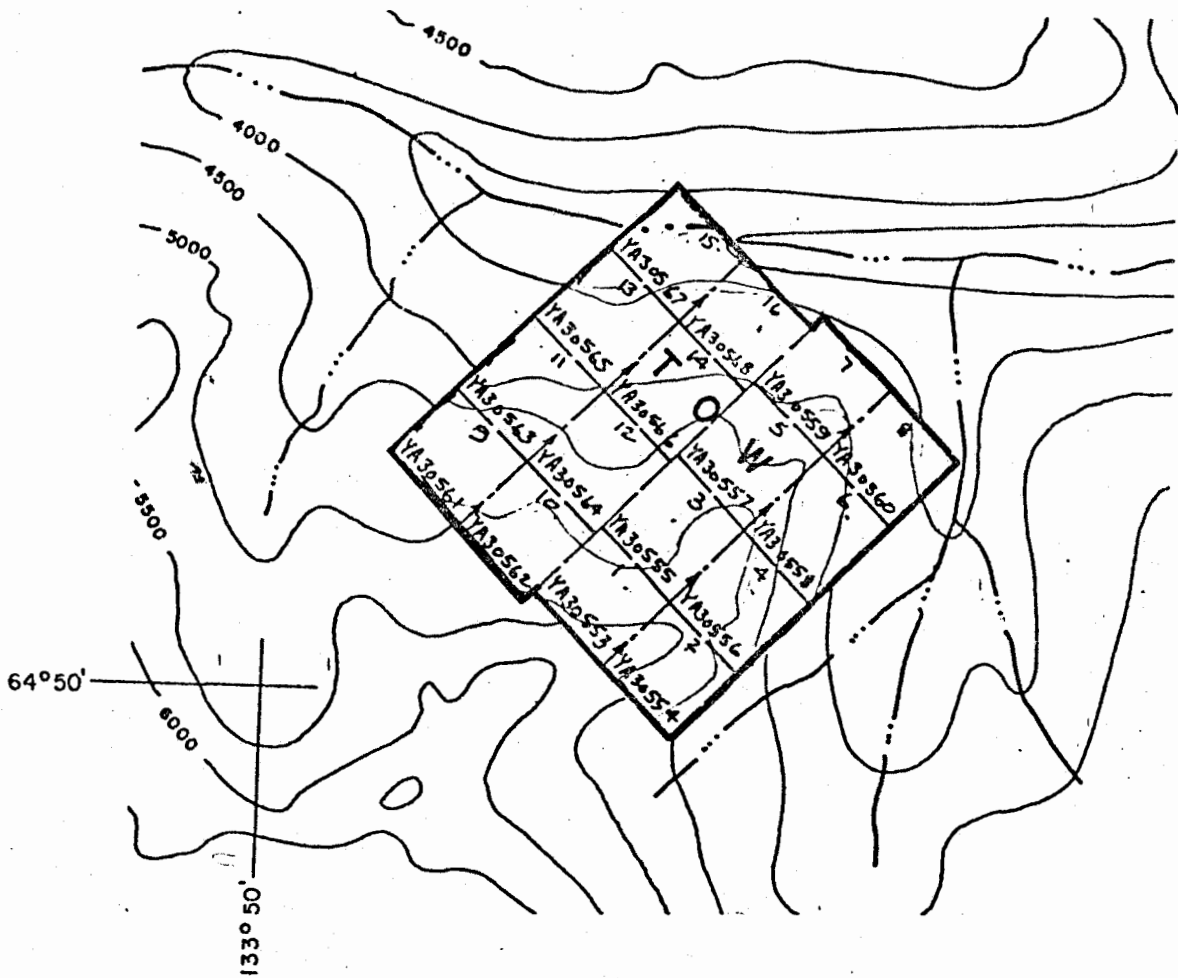


FIGURE 2

**ELDORADO NUCLEAR LIMITED**

**TOW CLAIMS 1 - 16**

**Yukon Territory**

**106 C 13**

**CLAIM MAP**



Scale: 1" = 1/2 mile

channel recorder. Calibration of the instrument indicated a value of 55 c.p.s. per scale unit on the recorder. The pen was zeroed at 1,000 c.p.s. for background.

### 2.3 Result

Examination of the records indicate 5 anomalous zones which are shown on the anomaly map.

1. This anomaly trends almost due west and is evident over 6 flight lines. The highest count recorded was 715 c.p.s. above background. The anomaly is fairly narrow on all traces indicating a narrow well defined source on the ground.

2. This anomaly was picked up on one flight line only. It is 507 c.p.s. above background and although it has a narrow peak it has a rather broad half anomaly height.

3. This anomaly is evident on 6 flight lines. In most places the curves representing the anomaly are broad and rounded. On flight line 4,000 foot el, it forms a sharp symmetrical peak 707 c.p.s. above background. By flight line 3750 feet el, it is very weak and has disappeared on flight line 3500 foot el.

4. The anomaly extends across 6 flight lines and parallel to anomaly 3. It has a peak value of 935 c.p.s. above background. The anomaly widens to approximately 1,000 feet down slope.

5. This anomaly is evident on 5 flight lines and has a peak value of 550 c.p.s. Although the overall value is much higher, the anomaly appears to be part of a broader lithologic feature. The curve is mostly sharp and symmetrical indicating a narrow source.

### 2.4 Discussion

Anomalies 1, 3 and 4 appear to originate from the same source. Their upslope extensions meet at approximately the same place and do not extend through flight lines 5,000 el and 5,250 el. It is possible that a dyke-like zone dipping to the north could be a source of the anomaly.

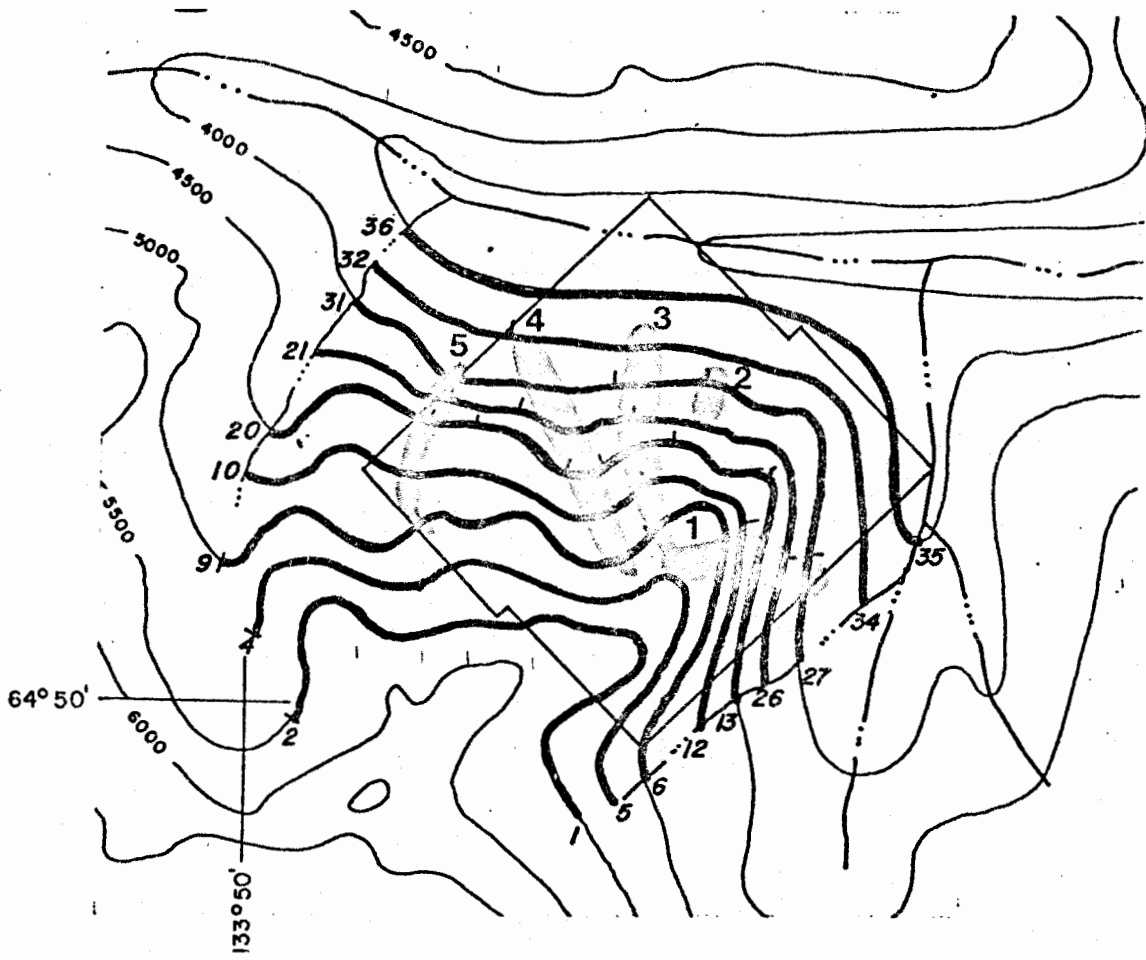


FIGURE 3



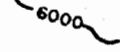
**ELDORADO NUCLEAR LIMITED**

**TOW CLAIMS 1-16**  
**Yukon Territory**  
**106 C 13**

**AIRBORNE**  
**RADIOMETRIC SURVEY**

Scale: 1" = 1/2 mile

LEGEND

- 5  FLIGHT LINE & FIDUCIAL POINT
- 2  ANOMALIES
-  CONTOUR LINE



A location of possible Brannerite mineralization in outcrops of dark to light coloured argillitic breccia at Station 9 might support this theory. However the hematite stained boulder breccia containing Brannerite and possible pitchblende at Station 25 is in a carbonate terraine and outside the limits of the Gas vent Breccia. It would appear that the boulder has rolled down the slope. The elongate form of the 3 anomalies are quite possibly due to down slope movement from a local source. The geometry of the anomalies and their relationship to slope depressions support this. Also, several traverses have crossed the anomalies and did not locate a planar structure.

### III GEOLOGY AND MINERALIZATION

#### 3.1 General Geology

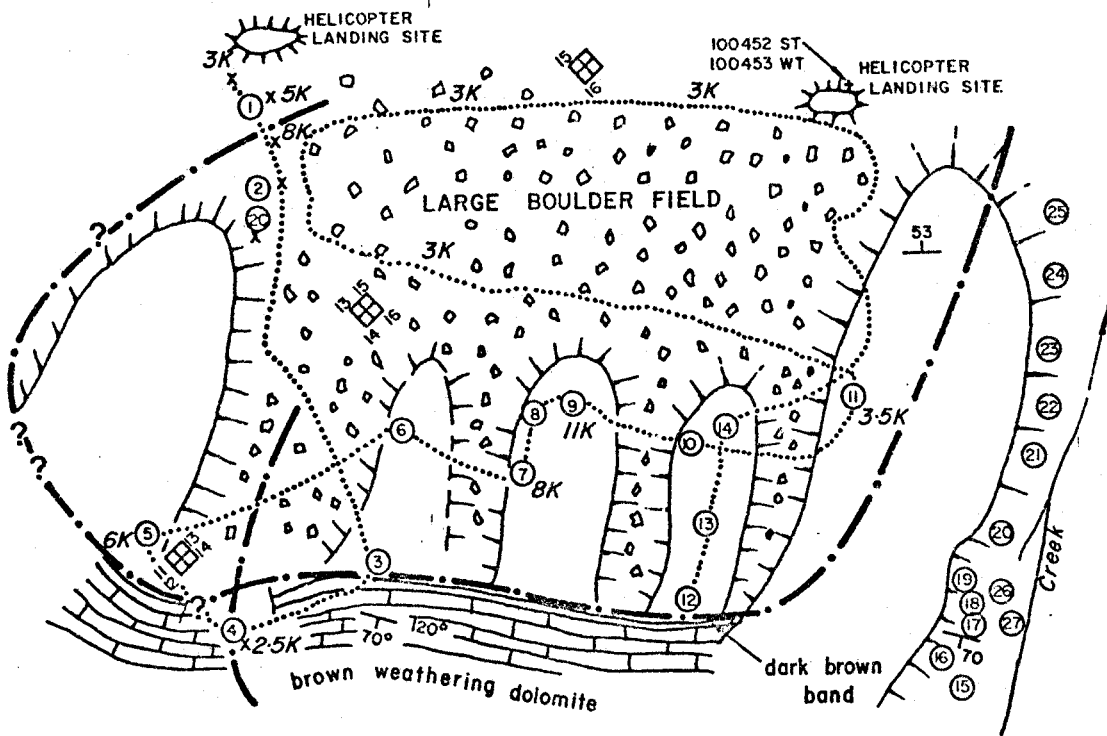
The area of the Tow claims is underlain by rock of the Gillespie Lake group, the upper most group of the Wernecke Super Group of probably Helikian (Proterozoic) Age. A gas diatreme intrudes all strata and older rocks except G7 and G8, of the upper most two subdivisions of the Gillespie Lake group (G.D. Delaney, Indian and Northern Affairs, Open File EGS1978-10, "A Progress Report on Stratigraphic Investigations of the Lower Most Succession of Proterozoic Rocks, Northern Wernecke Mountains, Yukon Territory"). The correlation is tentative at present but fits quite closely lithologic description of Delaney.

#### 3.2 Geology and Mineralization

As is shown on the geological sketch (Figure 4) high radio activity is only present within the gas vent Breccia. The non-brecciated units G7 and G8 exhibit very low radio activity. The border of the gas vent with the non brecciated rock in the Tow claims can be determined by radioactive surveys very precisely. The non-brecciated rocks of the gas vent group show a radioactive background of 2500 to 300 c.p.m. on a McPhar TV1-A spectrometer, whereas the gas vent Breccian in the Tow Claims shows the background of radioactivity of 6 to 8,000 c.p.m. There are several spots in boulders and outcrops of the gas vent

Creek

TO BONNET PLUME RIVER



LEGEND

- Traverse line and stations
- Readings 8K= 8000 cpm (McPHAR TVI)
- Hill with down slope
- Approximate location of claim posts
- Outside border of gas vent breccia



FIGURE 4

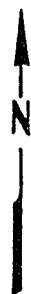
ELDORADO NUCLEAR LIMITED

TOW CLAIMS 1-18

Yukon Territory

106 C 13

GEOLOGICAL SKETCH MAP



Breccia which are very high in radioactive material. Station 6, 8, 9 and 14 within the breccia have this characteristic. Station 9 is a zone 1.5 times 0.5 metres of very high radioactivity on a vertical outcrop face. It is composed of a dark to light coloured breccia with the fragments consisting of finely banded argillite. On one sample spot a small regular dark crystal at present which could be Brannerite. Spectrometry indicates the thorium count is very high, (3200 c.p.m.) which represents a thorium/uranium ratio of almost 10 to 1. There is no particular structural feature outlining the highly radioactive spot; no fractures, faults or colour changes have been discovered on the out crop.

#### IV CONCLUSION AND RECOMMENDATIONS

4.1 A few very small highly radioactive spots have been located in out crop and boulders within the outer border of the breccia. Prospecting on boulder fields and outcrops did not disclose the presence of large amounts of mineralization.

4.2 Uranium and thorium mineralization on the Tow claim group is related to the gas vent breccia which intrudes Gillespie Lake group strata, of the upper most unit of the Wernecke Super Group of probable the Helikian Age. Mineralization is related to the formation of the gas vent and breccia.

4.3 Further work on this property is not recommended.

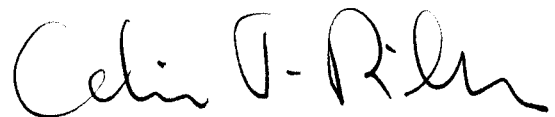
A handwritten signature in cursive script, likely reading 'C.R. Linn', is located in the lower right quadrant of the page.

I certify that I am a geologist, having graduated from the University of Manitoba and hold degrees of Bachelor of Science (Honours Geology) and Master of Science.

I have practiced my profession for 24 years, 14 of which have been in supervisory positions.

I am currently employed as District Geologist by Eldorado Nuclear Limited, Ottawa, Ontario.

I certify that I have no direct or indirect financial interest in this property.

A handwritten signature in cursive script that reads "Colin J. Riley". The signature is written in dark ink and is positioned above the printed name.

Colin J. Riley

APPENDIX A

## A P P E N D I X A

Traverse Report (see stations, e.g. (2), on geological Sketch).  
Radioactivity by McPhar TVIA (spectrometer) stations 1 to 14 by  
HDK, 15-27 by CJR.

(1) and (2) Breccia talus, dark weathering, grey and greyish orange colours, silty (or siliceous dolomite). Rusty spots, small gossans with sulphides (Sample 2C from gas vent breccia outcrop). A series of breccia outcrops on east flank of this nose are all gas vent breccia. Breccia pieces are angular and average 1 to 4 inches in diameter, but some to 1 foot. Background 7500-8000 cpm. Some open porosity partly filled with secondary euhedral dolomite which partly is coated by late hematite. Some smaller vugs filled with specular hematite.

(3) Orange weathering dolomite, not brecciated by gas vent. Radioactivity 2800 to 300 cpm. Beds strike 120°, dip 70° S, stromatolitic in places.

(4) At north border of light orange weathering carbonate occurs a thin (maximum 5 m thick) rusty shale, which is not brecciated.

(5) Gas vent breccia as in (1) and (2)

(6) Gas vent breccia, general background in radioactivity is 6000 to 7000 cpm; dark grey to black breccia pieces (almost argillite). Some highly radioactive spots

TVI-A spectrometer Broadband (T1) = 45000 cpm on outcrop

Uranium & Thorium (T2) = 1800-2000 cpm

Thorium (T3) = 150 cpm

(7) Brownish weathering breccia, breccia pieces finely banded background radioactivity 8000 cpm.

(8) same as (7), background 8000 cpm spectrometer readings on outcrop face T1 - Broadband 16000 cpm

T2 - Uranium & Thorium 650 cpm

T3 - Thorium 120 cpm

(9) Gas vent breccia, brownish weathering, mainly finely banded argillite. In centre of large vertical outcrop face is a spot of very high radioactivity.

TVIA-Spectrometer reading: T1 Broadband 100,000 cpm (offscale)

T2, Uranium & Thorium 95,000 cpm

T3, Thorium 32,000 cpm

The very high radioactivity is limited to an area of 1.5 m by 0.5 m. There is no particular feature outlining this highly radioactive patch. Rock is very hard and it is almost impossible to obtain a sample.

(10) dark coloured gas vent breccia, background radioactivity 8000 to 12000 cpm.

(11) Brown to orange weathering carbonate, background 3000-3500 cpm. Traverse and prospecting over the large boulder field west of station (11) did not disclose any pitchblende - or highly mineralized boulder. Background Radioactivity on the large boulder field is 2500 to 3000 cpm where traversed.

Transport from landing site to (12) by helicopter.

(12) dolomite, brown and orange weathering, dip south, no brecciation. Background 2500 to 3000 cpm, stromatolitic in places.

(13) gas vent breccia, dark grey weathering, background 1100 cpm

(14) gas vent breccia, spectrometry (TVIA)

T1 Broadband	15000 cpm
T2 Uranium & Thorium	700 cpm
T3 Thorium	120 cpm

(15) grey carbonate (dolomite), orange weathering, massive, crystalline, stringers calcite, background 125 cps

(16) same as (15) 40 cps (Scrintrex BGSIL)

(17) carbonate, well bedded, grey orange weathering, 80 cps beds strike 135° dip 70° SW

(18) grey carbonate, 100-150 cps

(19) gossan, siliceous box work, boxwork fragments grey carbonate set in mineralized cement, limonite zone about 150 feet wide and about 200 feet long.

sample 100446 deep red brown matrix material

100447 siliceous boxwork

100448 red rubble and white precipitate

(20) carbonate blocks, 100449 soil sample of deep red-brown soil, Sample 100450-Boxwork.

(21) phyllite, pale green, thinly laminated, highly contorted. 120 cps

(22) Dyke, black burned appearance, trap rock 80 cps

(23) Banded siltstone and carbonate, 70 cps

(24) Carbonate, pale grey, very thinly banded or bedded. Contoured, 80 cps

(25) Breccia boulder, hematite stained, possibly pitchblende? sample 100457 Rock, 500 cps

(26) Pansample from creek draining station (19)

(27) Argillite, slate, rusty, pyritic, well - thinly bedded (or foliated)

Small drainage seep below main boulder field near helicopter site

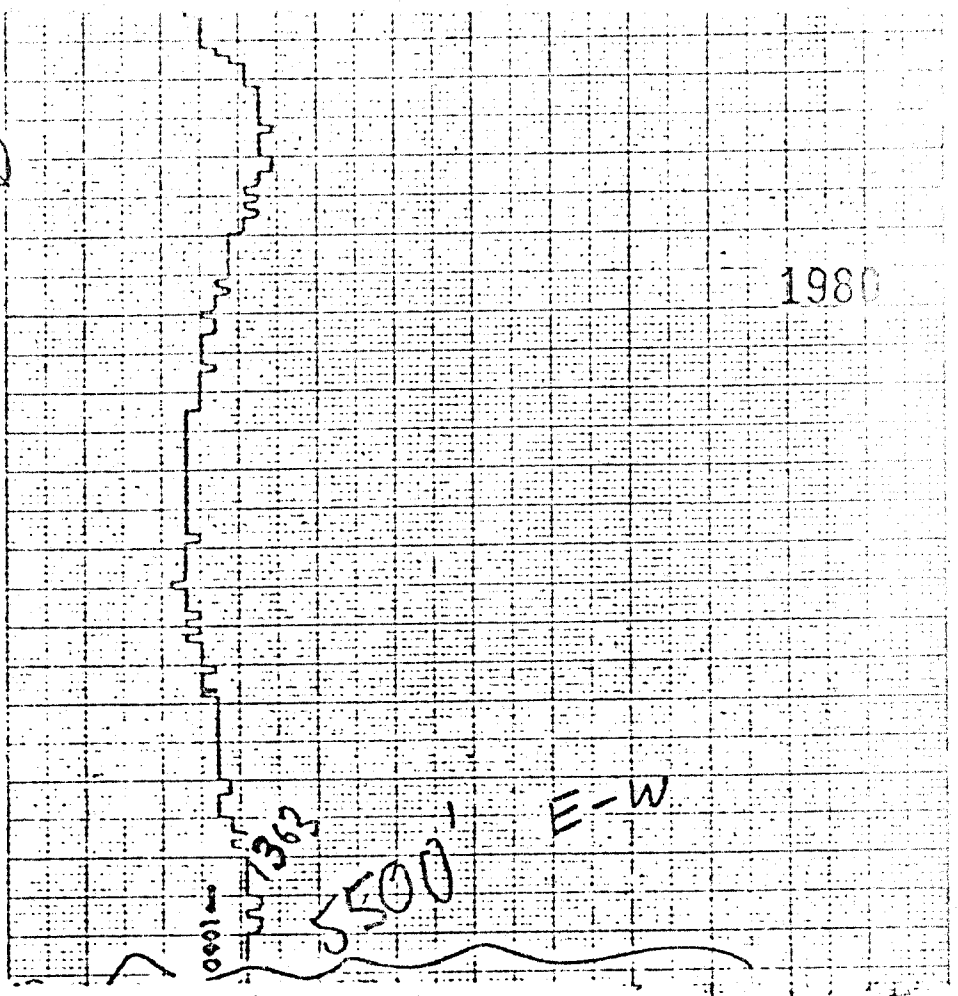
Sample 100452 silt

100453 water

**APPENDIX B**

①  
②

1980



0001

362

500

E-W

1960

1970

1980

②  
④

①  
③

-W

EP 2520, M-3E

1000

~~1020~~

1950

~~1040~~

1970

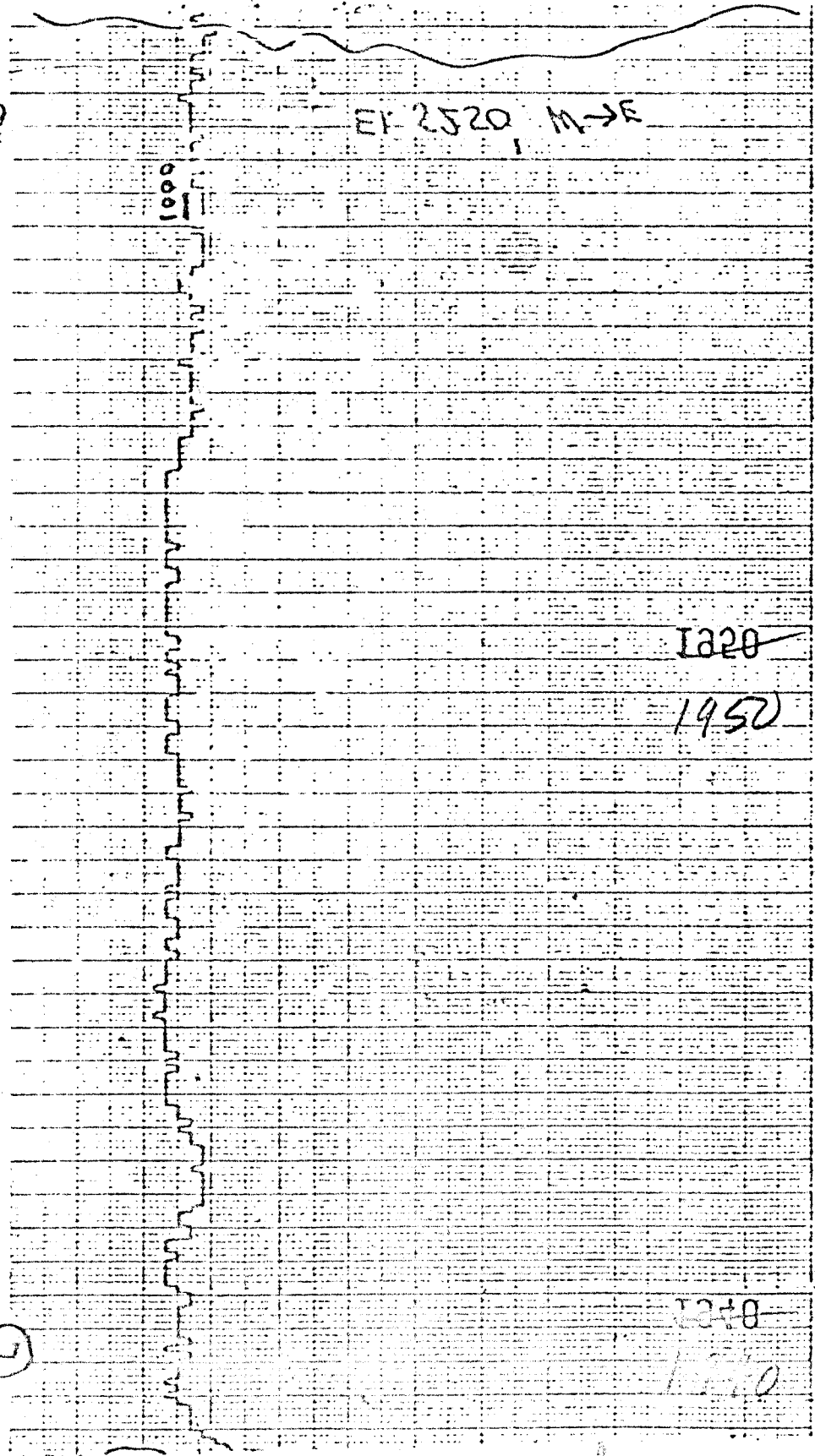
HEMI-FIL-PAK-KVHT

AS 11 0 11

11

71

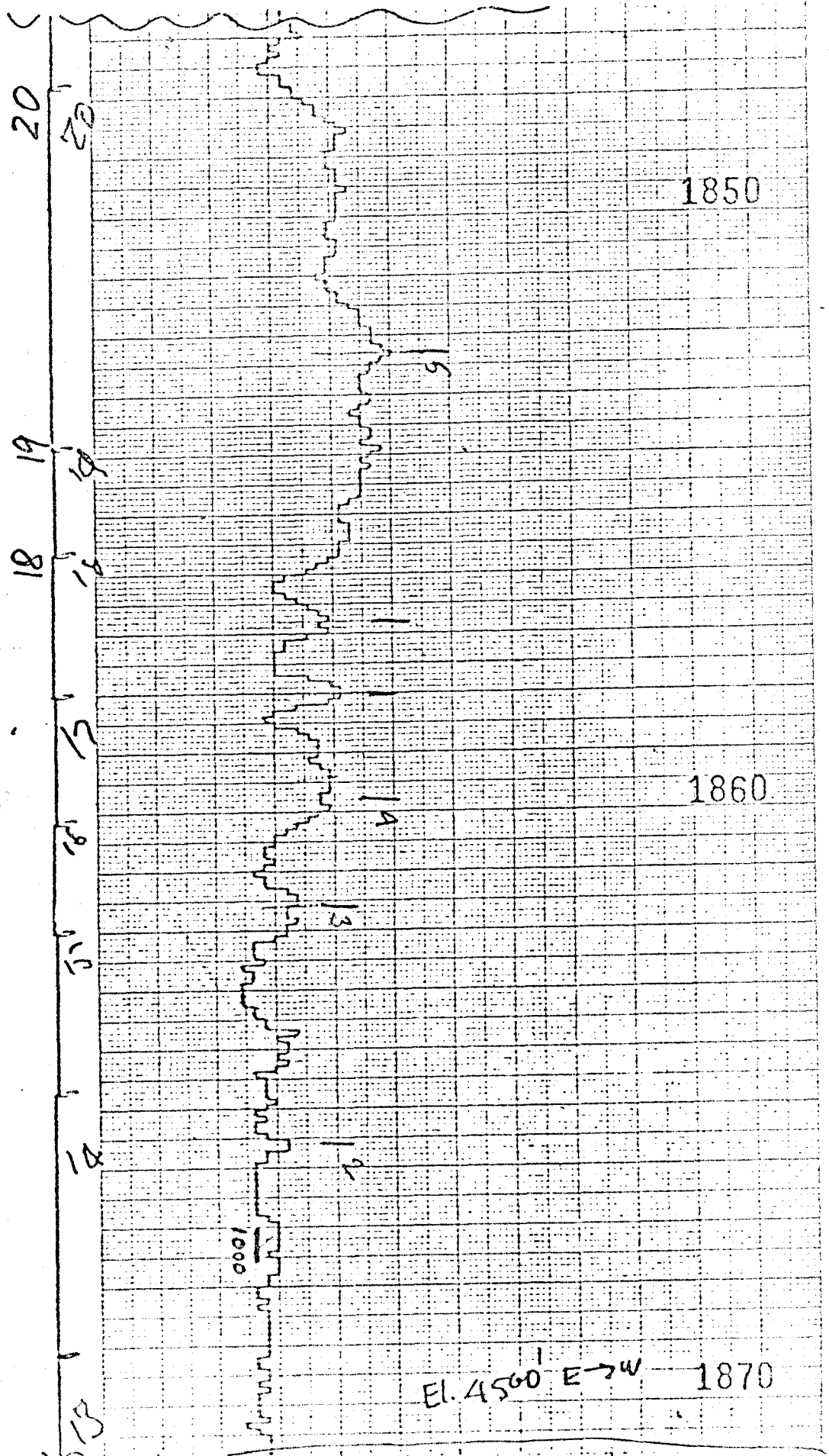
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NEWELL-TI-PACK AND 8280-027A

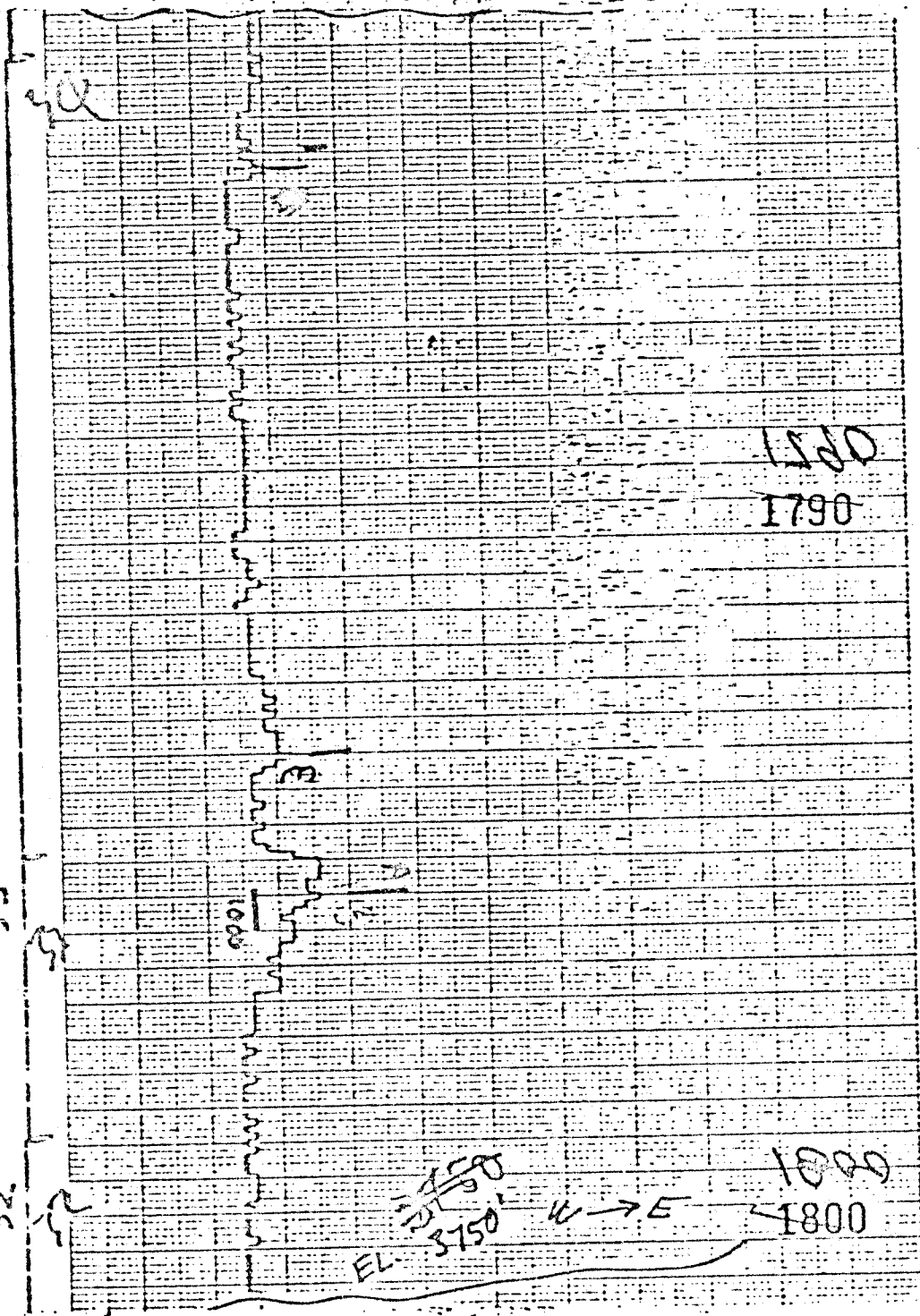




34

33

32









APPENDIX C





CAF

# CHEMEX LABS LTD.

12 BROOKSBANK AVE.  
NORTH VANCOUVER, B.C.  
CANADA V7J 2C1  
TELEPHONE: 985-0648  
AREA CODE: 604  
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

## CERTIFICATE OF ANALYSIS

TO: Eldorado Nuclear Ltd.,  
225 Albert Street,  
Ottawa, Ontario  
K1P 6A9

WATERS

CERTIFICATE NO. 45576  
INVOICE NO. 28041  
RECEIVED August 30, 1978  
ANALYSED Sept. 11, 1978

SAMPLE NO. :	PPB Uranium	PPB Fluoride
100453	0.40	25

51-  
2R

print(?)  
#

802



MEMBER  
CANADIAN TESTING  
ASSOCIATION

CERTIFIED BY:

*Hart Biddle*





9A

# CHEMEX LABS LTD.

212 BROOKSBANK AVE.  
NORTH VANCOUVER, B.C.  
CANADA V7J 2C1  
TELEPHONE: 985-0648  
AREA CODE: 604  
TELEX: 043-52597

→ ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

## CERTIFICATE OF ANALYSIS

TO: Eldorado Nuclear Ltd.,  
#400 - 225 Albert St.,  
Ottawa, Ontario K1P 6A9

ATTN: Mr. C. Riley

*soils*

CERTIFICATE NO. 45571  
INVOICE NO. 28004  
RECEIVED Aug. 30/78  
ANALYSED Sept. 12/78

SAMPLE NO. :	PPM Irranium
100449,	<4.0
Std.	20

*visit*

**PROJECT 528**



MEMBER  
CANADIAN TESTING  
ASSOCIATION

CERTIFIED BY: *[Signature]*

