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PROJECT 522

Report on 1978 Field Programme

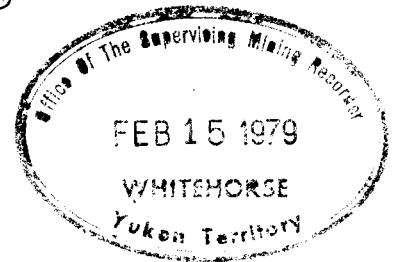
NEF 1-34 Claims

Lat 62°55'N

Long 138°34'W

W.J. Olsson

Geologist



090429



This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representing the cost of

\$3,300.00

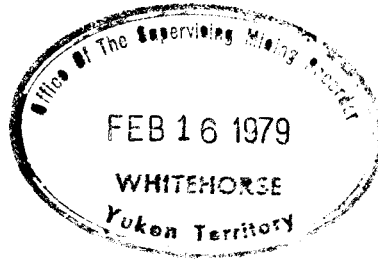
*D.B. Craig* 26/2/79  
~~Supervising Mining Engineer~~

Considered as representative work under Section 50 (4) Yukon Quartz Mining Act.

*[Signature]*

L. A. CARTER  
Supervising Mining Recorder

Commissioner of Yukon Territory



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## I - GENERAL

### 1.1 Introduction

The NEF property consists of 33 mineral claims located in the Dawson Range approximately 12 kilometers north of the junction of Isaac Creek with the Yukon River. The claims are situated on claim sheet 115J/15 at 62°55' north latitude and 138°34' west longitude.

Attention was drawn to this area following the investigation of the 3-2 MANY claims situated immediately east of the NEF group.

A grid was established over 9 of the claims where geochemical soil sampling and radiometric surveying were carried out. In addition, rock chips were collected at each sample site to fill in geology between outcrops.

### 1.2 Previous Work

The geology of the area has been mapped by D.J. Tempelman-Kluit and reported in G.S.C. Paper 73-41 entitled "Reconnaissance Geology of Aishihik Lake, Snag and Part of Stewart River Map Areas, West Central Yukon".

Work carried out in early 1978 on a claim group adjacent to the NEF claims located a westward extension to a stock of Coffee Creek Granite (Tg). The NEF claims were staked to cover this extension.

### 1.3 Claims

Thirty-four NEF claims were staked in 1978. The Mining Recorder at Dawson City rejected the application to record NEF 14 and indicated that only portions of six other claims would be accepted due to overstaking of MK claims held by competitors.

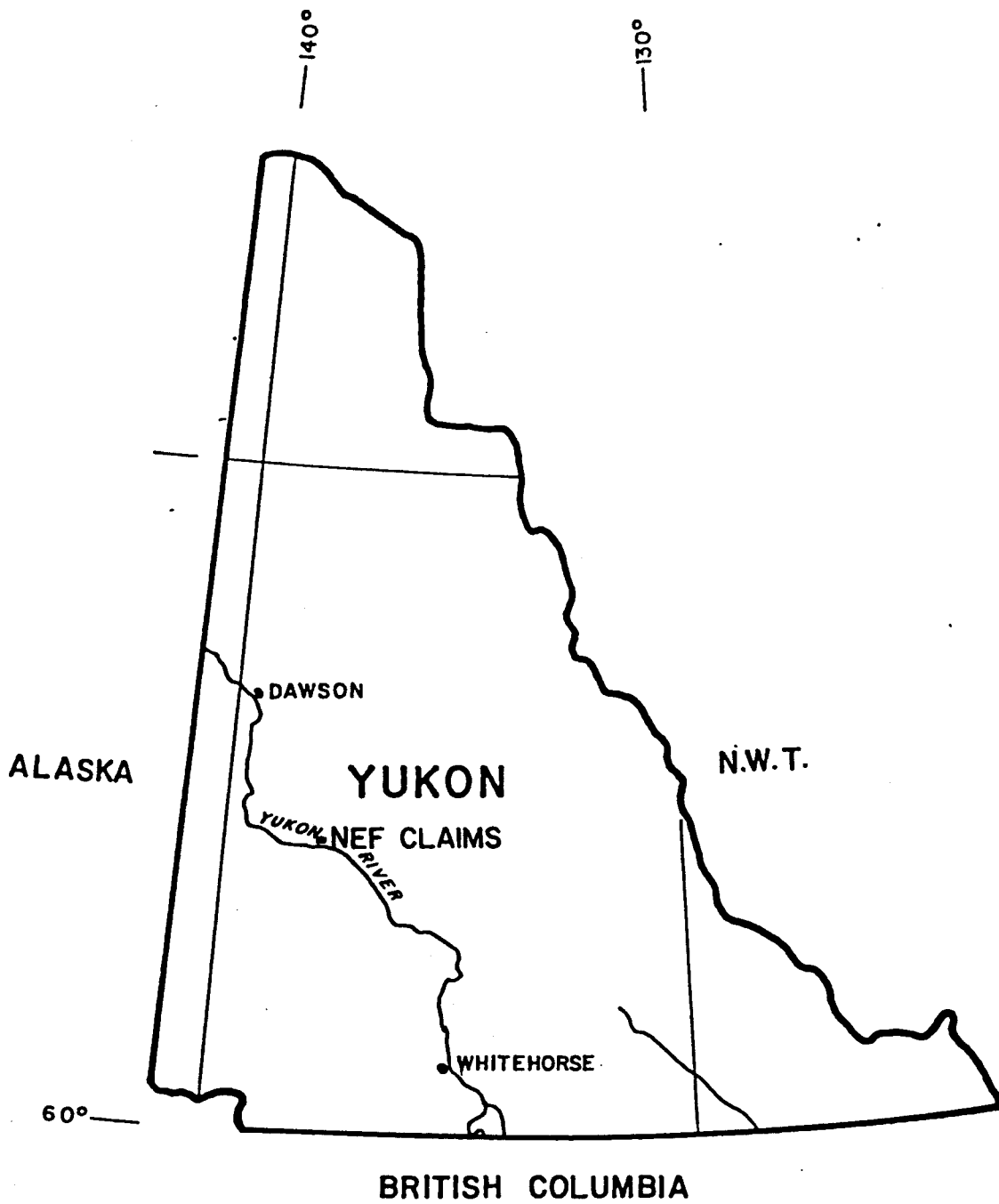


Fig. 1

**ELDORADO NUCLEAR LIMITED**

**PROJECT 522**

**LOCATION MAP**

**NEF CLAIMS**

**SCALE: 1" = 120 mi**



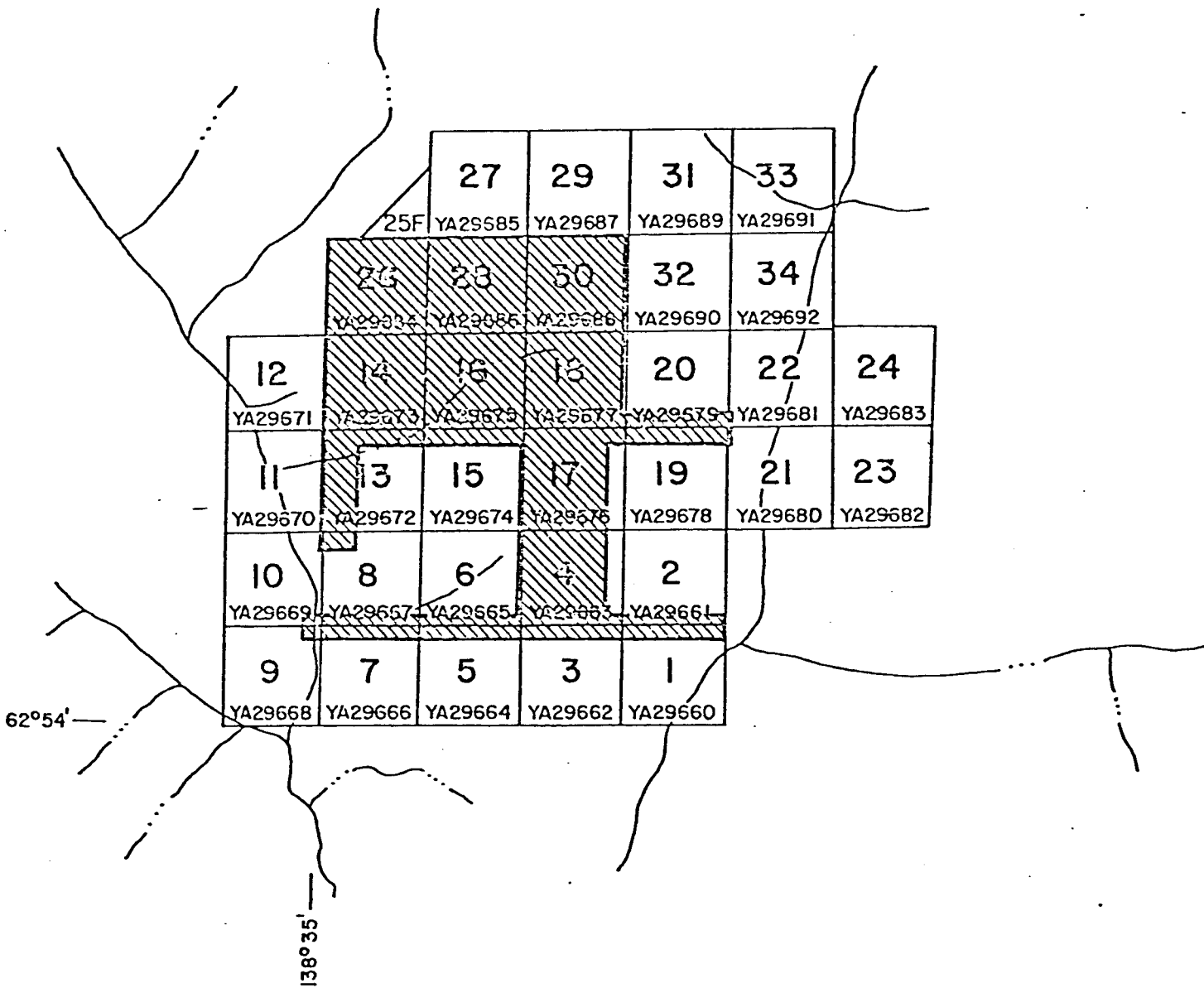


FIG. 2

**ELDORADO NUCLEAR LIMITED**

**PROJECT 522**

**NEF CLAIMS**

**AREA OF GRID**

**SCALE 1" = 1/2 MILE**



TABLE I

CLAIMS	GRANT NO.	RECORDING DATE
NEF 1-13	YA29660-72	24/05/78
NEF 15-34	YA29674-92	24/05/78
NEF 25F	YA29799	24/05/78

II - FIELD PROGRAMME

2.1 Introduction

Work on these claims involved a radiometric survey and a geochemical soil sampling programme covering eight of the NEF claims.

As control for the surveys, a compass-oriented, slope-corrected, chained baseline was established with stations at 100 metre intervals. Compass-controlled, slope-corrected topofil lines were extended either side of the baselines with stations established at 100 metre intervals. Soil samples were collected at each station and rock chip samples were obtained from the C-horizon. A study was made of these rock chips to complete a geological map. Radiometric readings were taken at 25 metre intervals along the lines.

2.2 Logistics

Work on the NEF claims was carried out by a 10-man party operating from a base camp at Isaac Creek. Personnel involved with work on the claims were:

NAME	WORK DATES
W.J. Olsson Geologist Eldorado Nuclear	May 31, June 4
E. Zaleski Geologist Eldorado Nuclear	June 4
J. Pozzobon Senior Assistant	June 2, June 4
B. Wilson Junior Assistant	June 2, June 4
B. Duncan Junior Assistant	June 4

Mobilization to the camp was carried out on May 15, 1978. Transportation for the crew and gear was by Twin Otter from Whitehorse and Carmacks to the Casino airstrip. A Hughes 500 helicopter slung the gear and transported personnel to the campsite.

One quarter of the mobilization and demobilization costs have been charged to these claims since work was carried out on three other areas from the same camp. This base camp was operated under Land Use Permit YB8J248 issued by the Renewable Resources Division of the Department of Indian and Northern Affairs.

Daily access to the claim group was by Hughes 500 helicopter. Work on the NEF claims was carried out on May 31 and June 2 and June 4.

### 2.3 Geology

Several traverses were made over the claims to determine if there was any alteration of the granite. In most places, overburden cover was heavy so where possible float was examined.

Rock chips were collected at each soil sampling station. These have been examined in the field and were used to compile a geological map of the claim group. The chips will be used subsequently to determine if there is a mineralogical or chemical change associated with anomalies. Eleven samples were submitted for chemical analysis for uranium.

#### 2.4 Radiometric Survey

The radiometric survey was carried out by taking ground level readings at 25 metre intervals along lines spaced 100 metres apart. Total count recordings were made in C.P.S. utilizing Scintrex BGS-1SL scintillometers. A contoured map of this survey is enclosed.

#### 2.5 Geochemical Survey

Personnel were trained and carried out sampling of B-horizon soils. In some places over frozen ground, a certain amount of organic material had to be included to obtain a sample. These soils were shipped to Chemex Labs Limited, North Vancouver, British Columbia and were analyzed for uranium by standard fluorometric methods on a 0.25 gram sample of ashed doubly acidified -80 mesh fraction material.

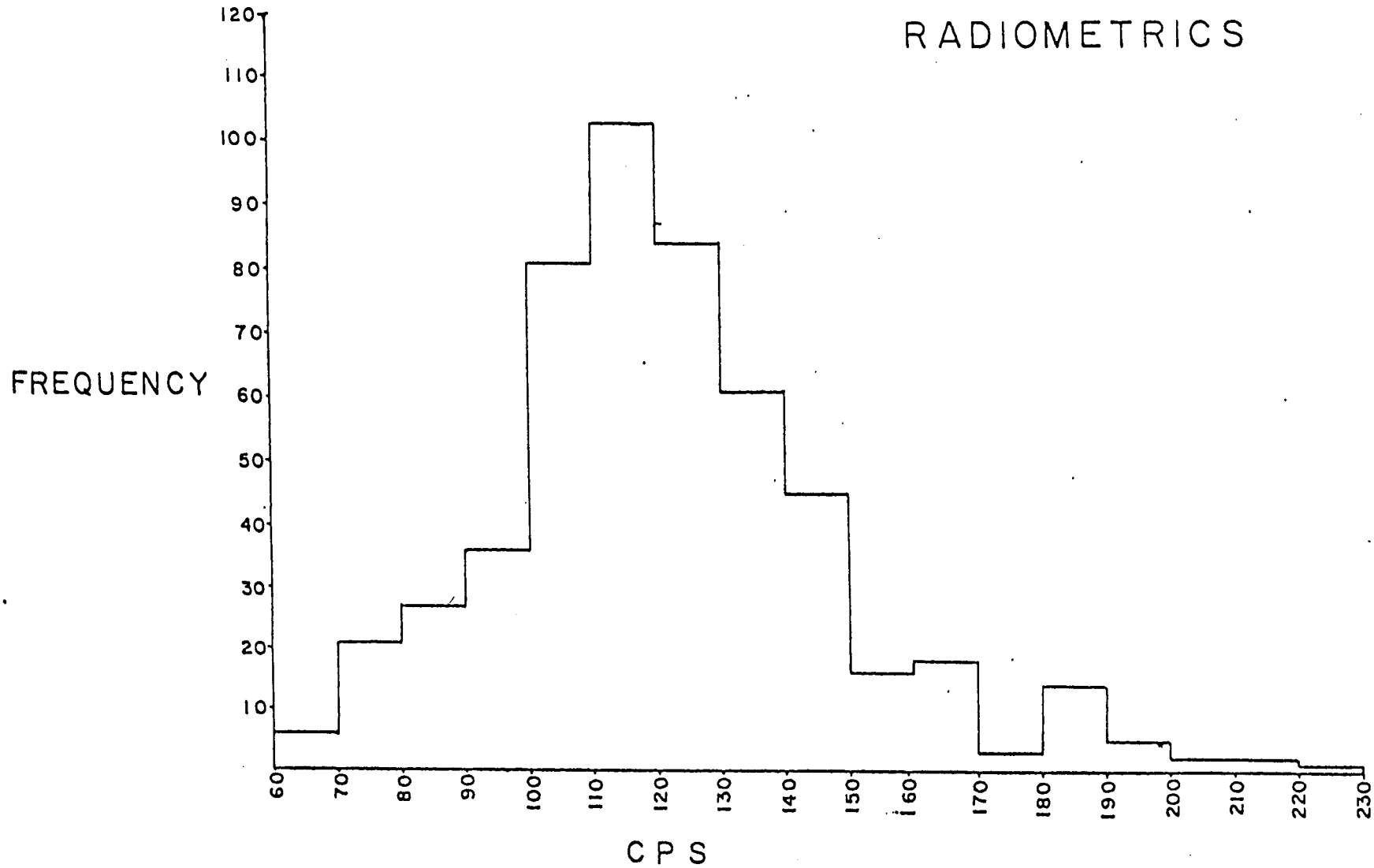
### III - RESULTS

#### 3.1 Geology

Examination of the stock showed it to vary between a petrological granite (quartz, microcline, K-feldspar, less than 5% biotite) and a quartz monzonite (quartz, plagioclase, K-feldspar and less than 5% biotite). Small amphibole crystals are very rare. The granite and quartz monzonite are equigranular and anhedral to subhedral with some feldspars well de-

Fig. 3

NEF CLAIMS  
FREQUENCY DISTRIBUTION  
RADIOMETRICS



veloped while others are interstitial. Apart from mineralogical differences, the major distinction between the granite and the quartz monzonite is that the quartz in the monzonite tends to be somewhat smokey while in the granite it is clear to pale bluish. The scarcity of outcrop has made it impossible to distinguish any zonation between these two rock types.

Outcrops and samples obtained from close to the margin of the granite do not exhibit any marked changes in mineralogy or grain size. Some xenoliths of gneiss have been located in the granite but are relatively unaltered and do not have reaction rims.

### 3.2 Radiometrics

Radiometric data is presented on contoured maps which also indicated geology and topography. Histograms showing the frequency distribution of radiometric values have been constructed for this data (Figure ).

The histogram for the radiometric data from the NEF grid indicates a normal distribution with a mean value between 110 and 120 cps. The lower values are in a range usually associated with Pelly Gneiss and thus may represent unmapped occurrences of gneiss.

Contours selected for the map are:

100 cps  
150 cps  
200 cps.

Any value greater than 200 cps is considered anomalous. Three small anomalous areas are present on the grid, however, the values associated with them are very low (max. 200 cps).

### 3.3 Geochemistry

The results of the soil geochemical survey are presented on a contoured map. The following contour intervals were selected to enhance the pattern shown by the geochemical response:

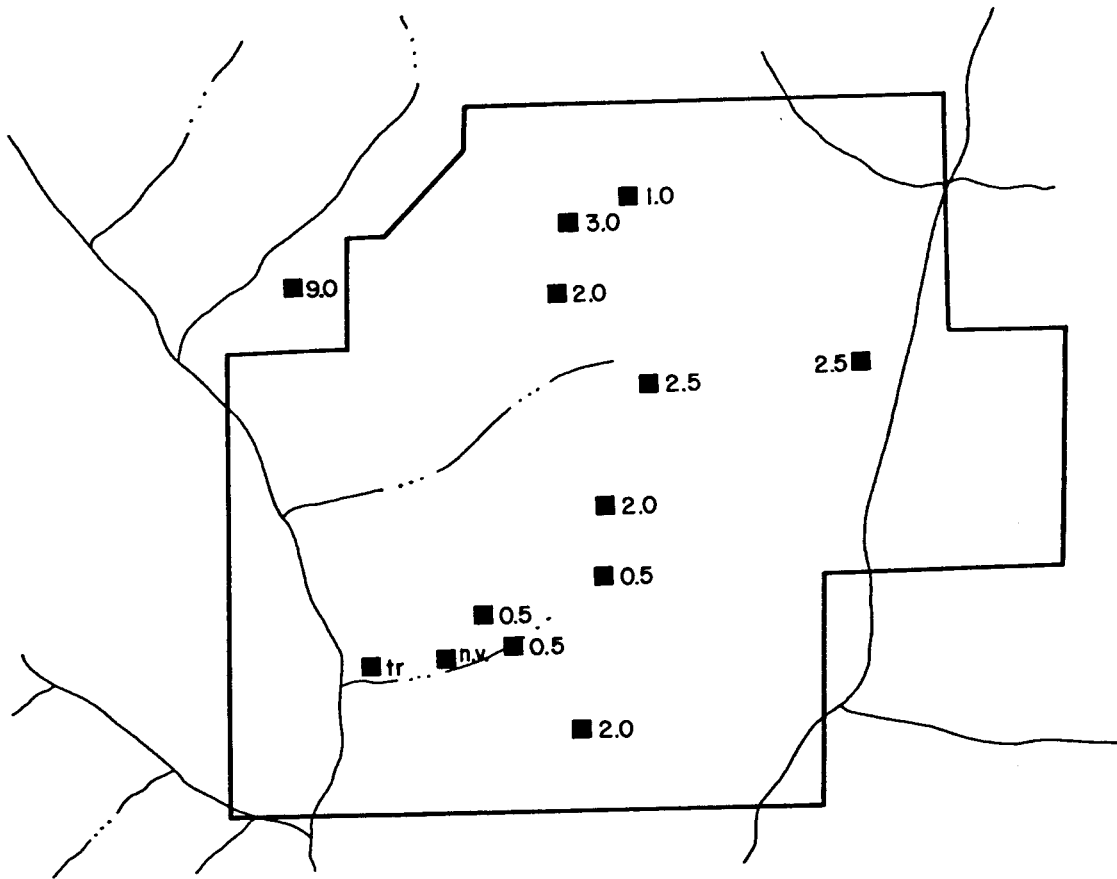
5 ppm U  
10 ppm U  
100 ppm U  
100 ppm U increments.

Results of the analysis of water and silt samples from seeps and drainage channels are not included in the contouring as they represent a different sampling media.







Three medium class anomalies (values over 25 ppm U) and three lower class anomalies (values below 25 ppm U and greater than 5 ppm U) are present on the grid.

38°35'

62°54'



### LEGEND

-  CLAIM GROUP OUTLINE
-  STREAM
-  DRY STREAM
-  2.5 SAMPLE LOCATION WITH ppmU
-  tr TRACE
-  n.v. NO VALUE



**ELDORADO NUCLEAR LIMITED**

**PROJECT 522**

**NEF CLAIMS**

**URANIUM IN ROCKS**

**SCALE 1" = 1/2 MILE**

IV - DISCUSSION

Five sharp uranium-in-soil anomalies are on the NEF grid. All are located on either dry or running drainages and it is probable that the samples may be silts rather than soils.

LOCATION	VALUES
31N, 37W	26.0 and 7.0 ppm U in soil on a dry drainage
35N, 36W	7.0 ppm U in a drainage
29N, 37W	6.9 ppm U at the head of a dry drainage
28N, 43W	44.0 ppm U in a dry drainage
22N, 45W	36.0 and 4.5 ppm U in a drainage

One of the anomalies is a two-station anomaly, the remaining four are all one station anomalies. As they do not appear to have any extent along the drainages, which probably reflect underlying structures, the anomalies may be due to local organic concentration.

Analysis of 11 rock samples from the NEF grid indicates the granite has an average uranium content of 2.3 ppm. This may indicate the granite originally formed with a low uranium content or the stock has undergone extensive leaching from meteoric waters since its evolution. The uniformity of the fabric and mineralogy of the intrusion underlying the NEF claims would appear to imply the absence of a deuteritic phase in the granite at that location. The lack of muscovite in the rocks enhances this idea.

V - CONCLUSIONS

1. Surficial investigation of the geology of the NEF claims did not identify distinct zones of quartz monzonite or granite.
2. The uniformity of the fabric and grain size of the intrusive plus the absence of secondary muscovite in the unit suggests a deuteric phase to the granite does not exist on the NEF claims.
3. The limited extent of the geochemical anomalies and the relationship of the anomalies with dry drainage systems implies the presence of uranium is due to organic concentration.
4. The lack of alteration of the country rock and xenoliths within the granite imply the temperature of the intrusive was lower than the metamorphic temperatures involved with the formation of the country rock.

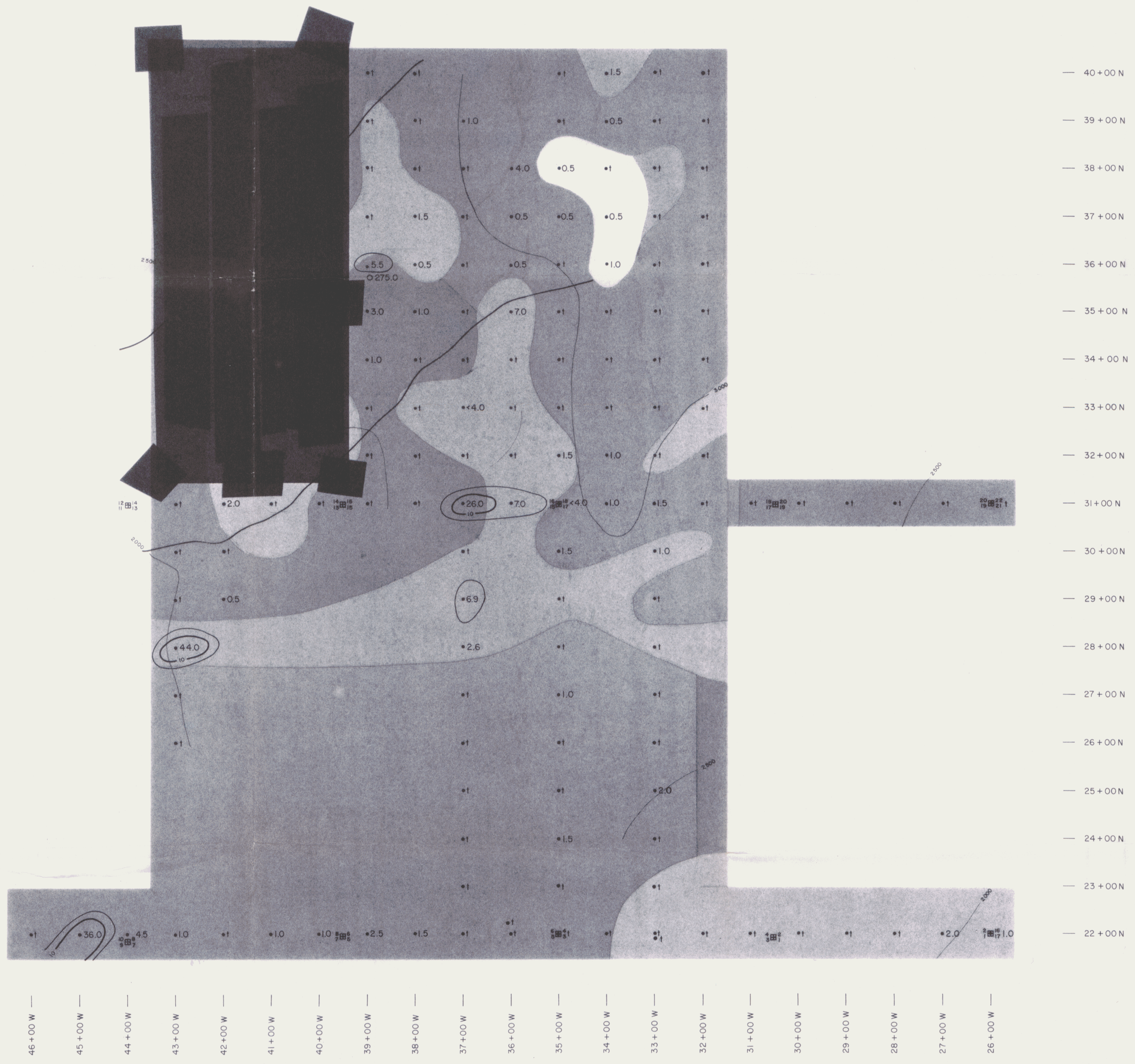
VI - RECOMMENDATIONS

1. The grid be extended to cover all of the NEF claims.
2. The geochemical and radiometric anomalies be examined further to see if the present conclusions are valid.
3. A detailed examination of rock chips taken from the anomalous areas be carried out to determine if mineralogical changes or alteration of the granite occurs with varying uranium content.

*William Olsson*

W.J. Olsson,  
Geologist

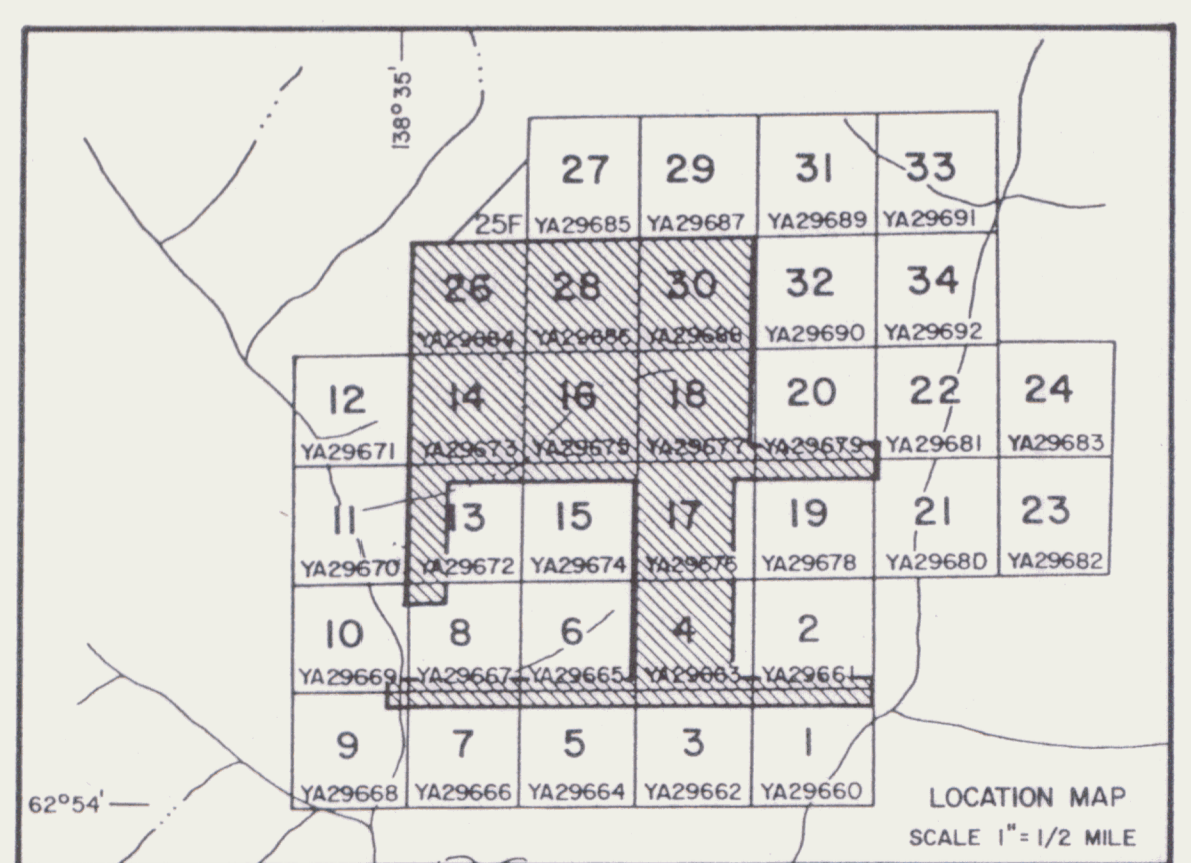




46+00 W — 45+00 W — 44+00 W — 43+00 W — 42+00 W — 41+00 W — 40+00 W — 39+00 W — 38+00 W — 37+00 W — 36+00 W — 35+00 W — 34+00 W — 33+00 W — 32+00 W — 31+00 W — 30+00 W — 29+00 W — 28+00 W — 27+00 W — 26+00 W

**LEGEND**

- CONTOUR INTERVAL**
- 5 ppm U
  - 10 ppm U
  - 50 ppm U
  - 100 ppm U
  - 200 ppm U
  - 300 ppm U
  - 400 ppm U
  - 500 ppm U
- \*1.6 SOIL SAMPLE STATION & NUMBER (Uranium in ppm)
  - o0.2 WATER SAMPLE STATION & NUMBER (Uranium in ppb)
  - x2.7 SILT SAMPLE STATION & NUMBER (Uranium in ppm)
- ALASKITE, APLITE, QUARTZ PORPHYRY
  - GRANITE
  - QUARTZ MONZONITE
  - TOPOGRAPHICAL CONTOURS (500 ft. interval)
  - ⊠ CLAIM POST

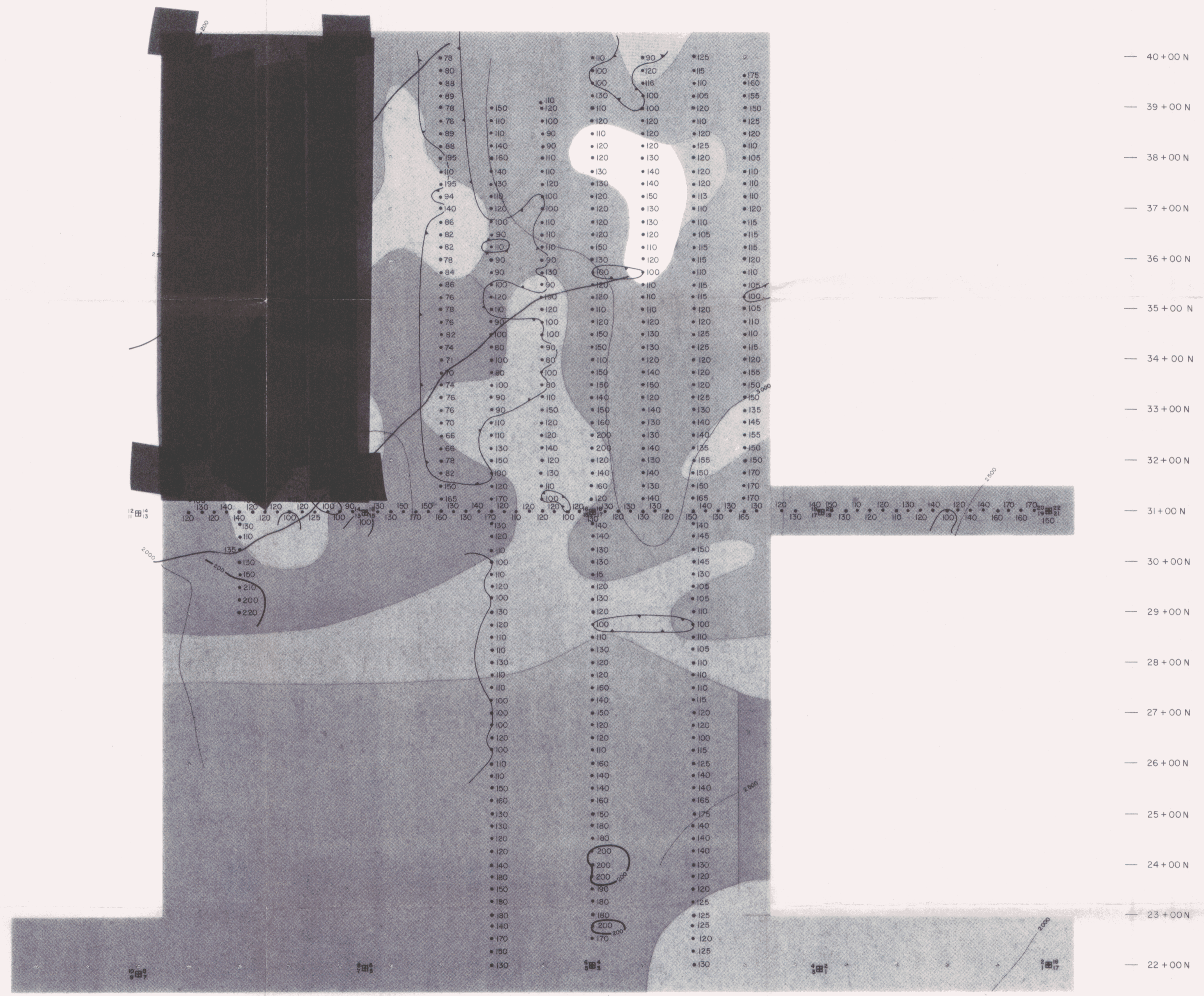


**ELDORADO NUCLEAR LIMITED**

PROJECT 522  
DAWSON MINING DISTRICT  
NEF GRID

**URANIUM IN SOILS**

SCALE 1" = 1/2 MILE

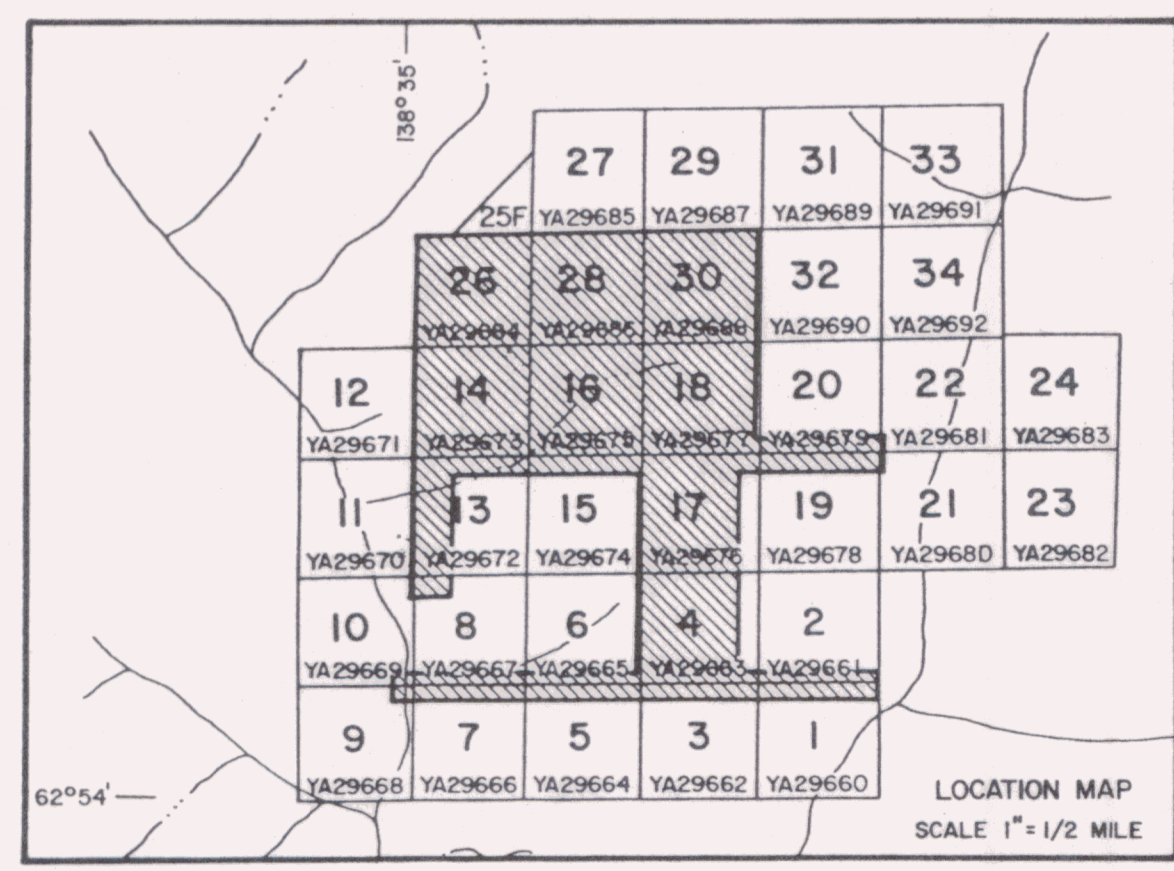


46+00 W — 45+00 W — 44+00 W — 43+00 W — 42+00 W — 41+00 W — 40+00 W — 39+00 W — 38+00 W — 37+00 W — 36+00 W — 35+00 W — 34+00 W — 33+00 W — 32+00 W — 31+00 W — 30+00 W — 29+00 W — 28+00 W — 27+00 W — 26+00 W —

— 40+00 N — 39+00 N — 38+00 N — 37+00 N — 36+00 N — 35+00 N — 34+00 N — 33+00 N — 32+00 N — 31+00 N — 30+00 N — 29+00 N — 28+00 N — 27+00 N — 26+00 N — 25+00 N — 24+00 N — 23+00 N — 22+00 N

**LEGEND**

- CONTOUR INTERVAL**
- 100 ft
  - 200 ft
  - 250 ft
  - 300 ft
  - 350 ft
  - 400 ft
- ALASKITE, APLITE, QUARTZ PORPHYRY
  - GRANITE
  - QUARTZ MONZONITE
  - TOPOGRAPHICAL CONTOURS (500 ft. interval)
  - 150 STATION (Radiometric value in counts per second)
  - CLAIM POST



**ELDORADO NUCLEAR LIMITED**

**PROJECT 522**  
 DAWSON MINING DISTRICT  
 NEF GRID

**RADIOMETRIC SURVEY**

SCALE 1"=5,000