

MAR 19790006: NORTHEASTERN ALBERTA

Received date: Dec 31, 1979

Public release date: Jan 01, 1981

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PERMIT 216

U-AF-144(1)

ELDORADO NUCLEAR LIMITED

Exploration Division

PROJECT 508

SUMMARY REPORT - PERMIT 216

February 2, 1967 to February 2, 1979

Peter A. Fortuna
Exploration Geologist

INTRODUCTION

Eldorado Nuclear Limited has been actively involved in uranium exploration in the Richardson River area, N.E. Alberta, since May 1975. Quartz Mineral Exploration Permits Numbers 214, 215, 216, 217 and 218 were issued on February 2, 1976. The permits expire on February 2, 1979 and must be taken to lease.

The work on Eldorado's Project 508 has been reported on previously. The following reports, dealing with the exploration programmes on the above permits, have been forwarded to the Earth Sciences Branch, Alberta Energy and Natural Resources.

- 1) Eldorado Nuclear Limited, Project 508: Progress Report on results of work done during summer 1976 and winter 1976-77; Hugo Laanela, Project Geologist.
- 2) Eldorado Nuclear Limited, Project 508; Progress Report on results of work done during spring and summer 1977; Hugo Laanela, Project Geologist.
- 3) Eldorado Nuclear Limited, Project 508; Progress Report on results of work done during winter, 1978; Hugo Laanela, Project Geologist.
- 4) Summer Field Programme, 1978; Gerry Mitchell, Geophysicist and Peter A. Fortuna, Exploration Geologist.

This report summarizes the work performed on Permit 216 to date. It should be stated that due to the nature of exploration, the entire project area is treated as a unit. Dealing with each permit individually is possible, but with the degree of overlap that is necessary from one permit to the next, particularly in interpretations and recommendations, the project area must still be evaluated as one.

Maps, drill logs, details, etc., of the previous work are not included in this report. All of this information has been previously provided with the reports indicated above. This report will summarize the work done to date, review the conclusions of this work, and discuss the reasons for continuing exploration in the area.

ELDORADO NUCLEAR LIMITED
Project 508
SUMMARY REPORT - PERMIT 216
February 2, 1976 to February 2, 1979

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ELDORADO NUCLEAR LIMITED

Project 508

Summary Report - Permit 216

February 2, 1976 to February 2, 1979

LOCATION AND ACCESS

Permit 216 is part of Eldorado's Project 508, located in N.E. Alberta, within the S.W. edge of the Precambrian Shield. The property lies along the edge of the geologically favourable Athabasca formation (Fig.1).

Access to the project area is restricted to fixed wing or rotary aircraft. A winter road passes the Richardson airstrip, about 20 km W.S.W. of the base camp. Uranium City (225 km north) and Fort McMurray (145 km south) serve as supply depots.



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RESULTS OF WORK DONE

Diamond Drilling

From drilling, it has been determined that most of Permit 216 lies south of the edge of the Athabasca formation. The trace of the unconformity crosses the north-east corner of the permit. Basement rock types encountered include Precambrian granitic gneisses, and quartz diorite (north-west portion only).

Drilling to test airborne conductors that had been followed up by ground geophysics, verified a graphitic zone. Weak uranium mineralization (less than .001%) was encountered in these drill holes.

Horizontal Loop Survey

Ground follow-up of an airborne INPUT-EM conductor (Questor Zone 3) by horizontal loop was successful in further defining this zone. Drilling intersected a graphitic horizon.

Resistivity Survey

No resistivity lows that might reflect basement structures were indicated by this survey.

Turam Survey

A small amount of Turam was run over Questor Zone 3, but the conductor indicated by the airborne INPUT-EM was not detected. (Later verification by horizontal loop showed that the Turam lines had been run parallel to this conductor, which is why the survey was unsuccessful).

EM-16 Survey

Most crossovers detected by this survey are coincident with swamp edges or lake, and interpreted to be due to surficial rather than bedrock phenomena. Questor Zone 3 was successfully detected by this method.

Magnetometer Survey

Spacing on this survey is considered too wide to permit contouring of data. Where fill-in lines were run (Questor Zone 3), some small magnetic "highs" were indicated.

A/B INPUT-EM and Magnetometer Survey

One conductive zone (Questor Zone 3) was indicated by the airborne INPUT-EM Survey. This was verified by ground follow-up geophysics and diamond drilling.

The magnetics did not suggest any significant structures.

Soil Sampling

The results of this programme are discouraging, laboratory results being low. When considering the glaciofluvial conditions in the area (excessive thickness of far-travelled material), the reliability of this method is in doubt.

Muskeg Sampling

The results of this survey reflect background values only.

Lake/Stream Waters and Sediments

Generally, samples analysed reflect background values only.

In addition to the above surveys, reconnaissance geological traverses covered the permit area. Outcrops were mapped; all are granitic in nature. No radioactive boulders were detected by the prospecting.

CONCLUSIONS

1. The Athabasca formation covers the northeast corner of Permit 215.
2. The airborne INPUT-EM system is useful in detecting buried graphitic zones. Ground follow-up (horizontal loop) better define these conductors for diamond drilling.
3. Standard geochemical methods in this area are questionable. Due to the nature of the far-travelled glacial material, the reliability of geochemical anomalies as a guide to ore deposits in this area is very low.
4. The EM-16 does not appear to penetrate excessive overburden thicknesses and reflects only surficial features.

RECOMMENDATIONS

1. Soil geochemistry should not be applied in this area unless areas of locally derived till can be defined.

2. Because the overburden is thick, any geophysical methods applied should have deep penetrating power in order to reflect bedrock conditions.

3. Since a portion of the permit is overlain by Athabasca sandstone, this land is in a favourable environment for uranium mineralization. More work should be done to further test the contact between the Athabasca formation and the Precambrian basement.

4. The graphitic zone intersected in Questor's Zone 3 is not considered to be significant as this area is well south of the edge of the Athabasca sandstone.

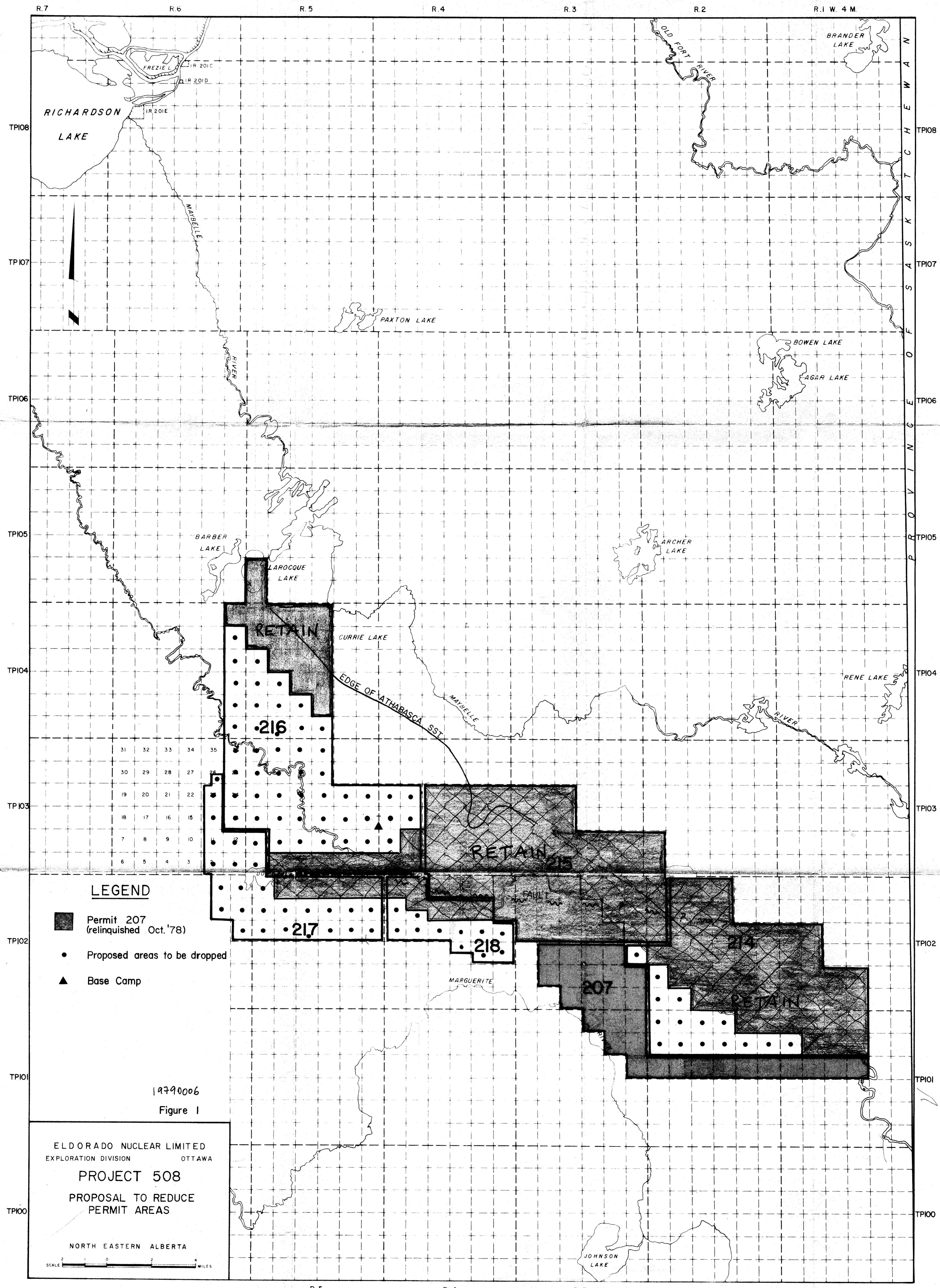
SUMMARY

The northeast portion of Permit 216, overlain by Athabasca sandstone, should be taken to lease to allow Eldorado to continue exploration for uranium in this area.



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LEGEND

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

14790006
Figure 1

ELDORADO NUCLEAR LIMITED
EXPLORATION DIVISION OTTAWA

PROJECT 508
PROPOSAL TO REDUCE PERMIT AREAS

NORTH EASTERN ALBERTA

SCALE 0 2 4 MILES

ELDORADO NUCLEAR LIMITED

Exploration Division

Distribution of Work

Project 508

Permit 214

ACTIVITY	1976	1977	1978	TOTAL
Diamond Drilling - meters	--	145.69	627.90	773.59
Horizontal Loop Survey - line km.	--	--	53.65	53.65
Resistivity Survey - line km.	--	--	12.20	12.20
Turam Survey - line km.	--	--	267.20	267.20
EM-16 Survey - line km.	--	--	67.80	67.80
Magnetometer Survey - line km.	--	--	185.0	185.0
A/B INPUT EM & Mag - line km.	--	1082.00	--	1082.00
Soil Sampling - # samples	--	--	--	--
Muskeg Sampling - # samples	--	47	--	47
Lake/Stream Sediments - # samples	101	--	--	101
Linecutting- line km.	--	--	310.10	310.10

TABLE I

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ELDORADO NUCLEAR LIMITED

Exploration Division

Project 508

Distribution of Work

Permit 215

ACTIVITY	1976	1977	1978	TOTAL
Diamond Drilling - meters	333.45	—	—	333.45
Horizontal Loop Survey - line km.	—	—	—	—
Resistivity Survey - line km.	17.90	—	15.90	33.80
Turam Survey - line km.	—	—	—	—
EM-16 Survey - line km.	—	44.00	35.80	79.80
Magnetometer Survey - line km.	—	—	—	—
A/B Input EM & Mag - line km.	—	235.00	—	235.00
Soil Sampling - # samples	1855	911	—	2766
Muskeg Sampling - # samples	86	74	—	160
Lake/Stream Sediments - # samples	134	—	—	134
Linecutting - line km.	99.00	46.60	36.40	182.00

Table 1

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ELDORADO NUCLEAR LIMITED

Exploration Division

Distribution of Work

Project 508

Permit 216

ACTIVITY	1976	1977	1978	TOTAL
Diamond Drilling - meters	126.17	68.28	432.80	627.25
Horizontal Loop Survey - line km.	—	—	43.90	43.90
Resistivity Survey - line km.	5.95	—	5.80	11.75
Turam Survey - line km.	—	—	8.80	8.80
EM-16 Survey - line km.	—	140.00	21.90	161.90
Magnetometer Survey - line km.	—	150.00	11.30	161.30
A-B Input EM & Mag - line km.	—	1270.00	—	1270.00
Soil Sampling - # samples	448	3238	—	3686
Muskeg Sampling - # samples	53	37	—	90
Lake/Stream Sediments - # samples	267	—	—	267
Line cutting - line km.	24.00	188.80	10.00	222.80

Table 1

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ELDORADO NUCLEAR LIMITED

Exploration Division

Distribution of Work

Project 508

Permit 217

ACTIVITY	1976	1977	1978	TOTAL
Diamond Drilling - meters	180.14	72.54	617.22	869.90
Horizontal Loop Survey - line km.	—	—	2.70	2.70
Resistivity Survey - line km.	5.10	—	15.40	20.50
Turam Survey - line km.	—	—	—	—
EM-16 Survey - line km.	—	—	17.90	17.90
Magnetometer Survey - line km.	—	—	23.90	23.90
A/B Input EM & Mag - line km.	—	517.00	—	517.00
Soil Sampling - # samples	494	—	—	494
Muskeg Sampling - # samples	—	—	—	—
Lake/Stream Sediments - # samples	71	—	—	71
Line cutting - line km.	25.00	—	18.40	43.40

Table 1

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1

ELDORADO NUCLEAR LIMITED

Exploration Division

Distribution of Work

Project 508

Permit 218

ACTIVITY	1976	1977	1978	TOTAL
Diamond Drilling - meters	—	—	—	—
Horizontal Loop Survey - line km.	—	—	—	—
Resistivity Survey - line km.	—	—	—	—
Turam Survey - line km.	—	—	—	—
EM-16 Survey - line km.	—	—	—	—
Magnetometer Survey - line km.	—	—	—	—
A/B Input EM & Mag - line km.	—	1082.00	—	1082.00
Soil Sampling - # samples	223	37	—	260
Muskey Sampling - # samples	—	—	—	—
Lake/Stream Sediments - # samples	18	—	—	18
Line cutting - line km.	13.00	—	—	13.00

Table 1

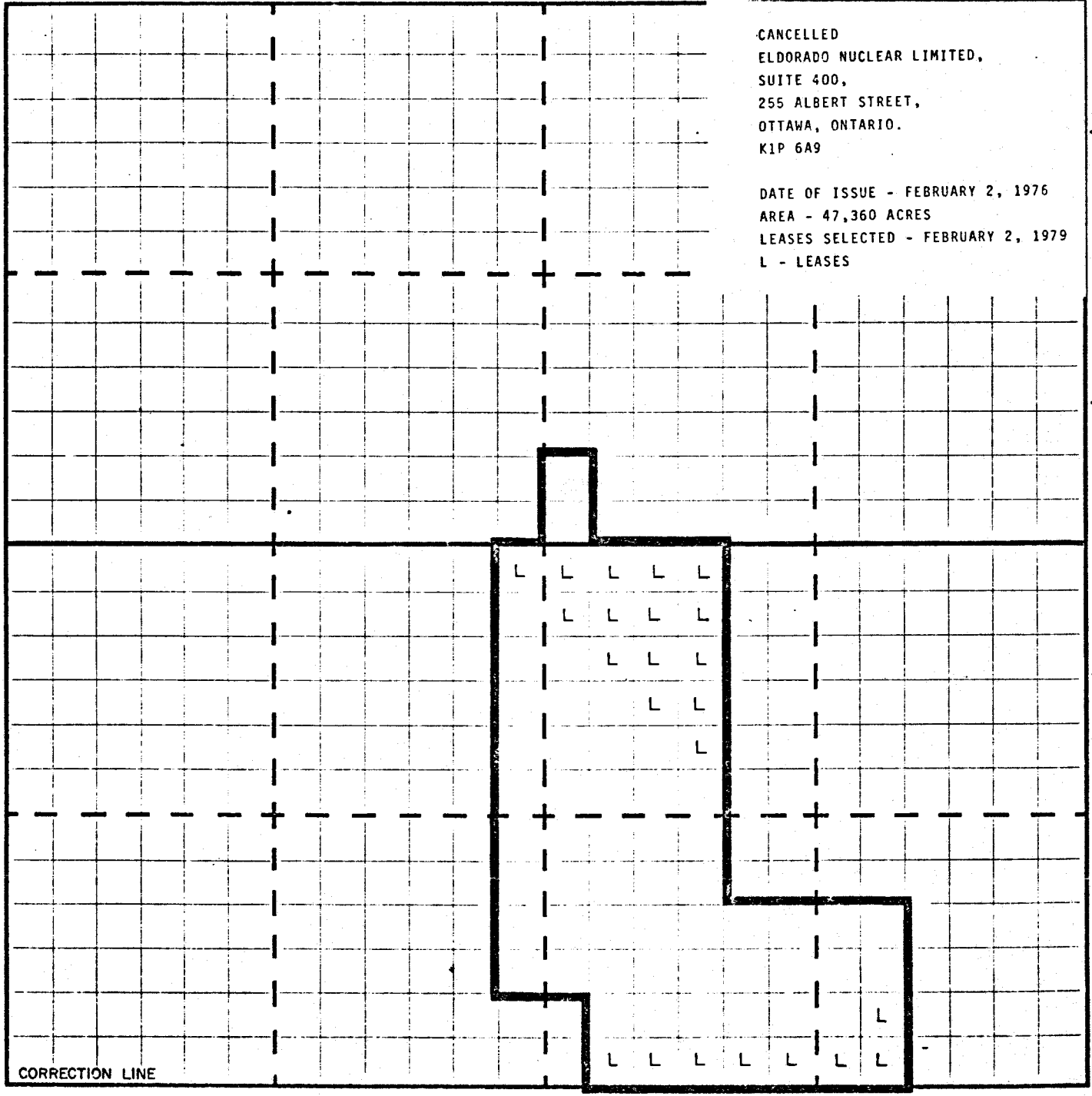
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- 9 -

QUARTZ MINERAL EXPLORATION PERMIT No. 216

CANCELLED
ELDORADO NUCLEAR LIMITED,
SUITE 400,
255 ALBERT STREET,
OTTAWA, ONTARIO.
K1P 6A9

DATE OF ISSUE - FEBRUARY 2, 1976
AREA - 47,360 ACRES
LEASES SELECTED - FEBRUARY 2, 1979
L - LEASES



CORRECTION LINE

R.

R.6

R.5

R. 4 W. 4 M.

TP.

TP.105

TP.104

TP.103

QUARTZ MINERAL EXPLORATION PERMIT No.218

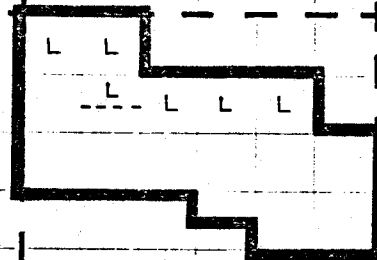
CANCELLED
ELDORADO NUCLEAR LIMITED,
SUITE 400,
255 ALBERT STREET,
OTTAWA, ONTARIO.
K1P 6A9

DATE OF ISSUE - FEBRUARY 2, 1976
AREA - 9,920 ACRES
LEASES SELECTED - FEBRUARY 2, 1979
L - LEASES

TP.

TP.

CORRECTION LINE



TP.102

TP.101

R.

R.

R.4

R. 3 W. 4 M.