GEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL

ASSESSMENT REPORT

ROSE 10, 12, 14, 16, 18, 29-33; 35 and 37 CLAIMS

NTS 95 E/6

61°26'N 127°23'W

NORANDA EXPLORATION COMPANY, LIMITED (N.P.L.)

September 15-29, 1981 R.S. Rogers, M.Sc.

This report has been examined by the Geological Evaluation Unit under Section 53 (4) Yukon Quartz Mining Act and is allowed as representation work in the amount of $ 1,200.

Regional Manager, Exploration and Geological Services for Commissioner of Yukon Territory.

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for Regional Manager, Exploration and Geological Services for Commissioner of Yukon Territory.

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INTRODUCTION

The claims referred to in this report are registered in the name of Noranda Exploration Company, Limited (No Personal Liability). The property is located 105 air miles northeast of Watson Lake, Yukon Territory, in the headwaters of the Coal River (Figure 1). Access in 1981 was by helicopter from Watson Lake; supply trips utilized helicopter from the Hyland River airstrip and Lucky Lake, both accessible to fixed wing aircraft.

Previous work on the property includes geological reconnaissance and preliminary soil geochemistry in 1978, and grid soil geochemistry in 1979. Anomalous concentrations of tungsten, lead, zinc and copper were identified in soils from these surveys.

The 1981 program at the Rose claim group comprised: establishment of a permanent camp, geological mapping, detailed soil geochemistry and magnetometer surveys by R.S. Rogers, M. Cashin and G.J. Tofflemire of Noranda Exploration Co., Ltd. (N.P.L.), and trenching with explosives by S. Verlaine-Wright and T. Smith of McCrory Holdings Ltd. under contract to Noranda.

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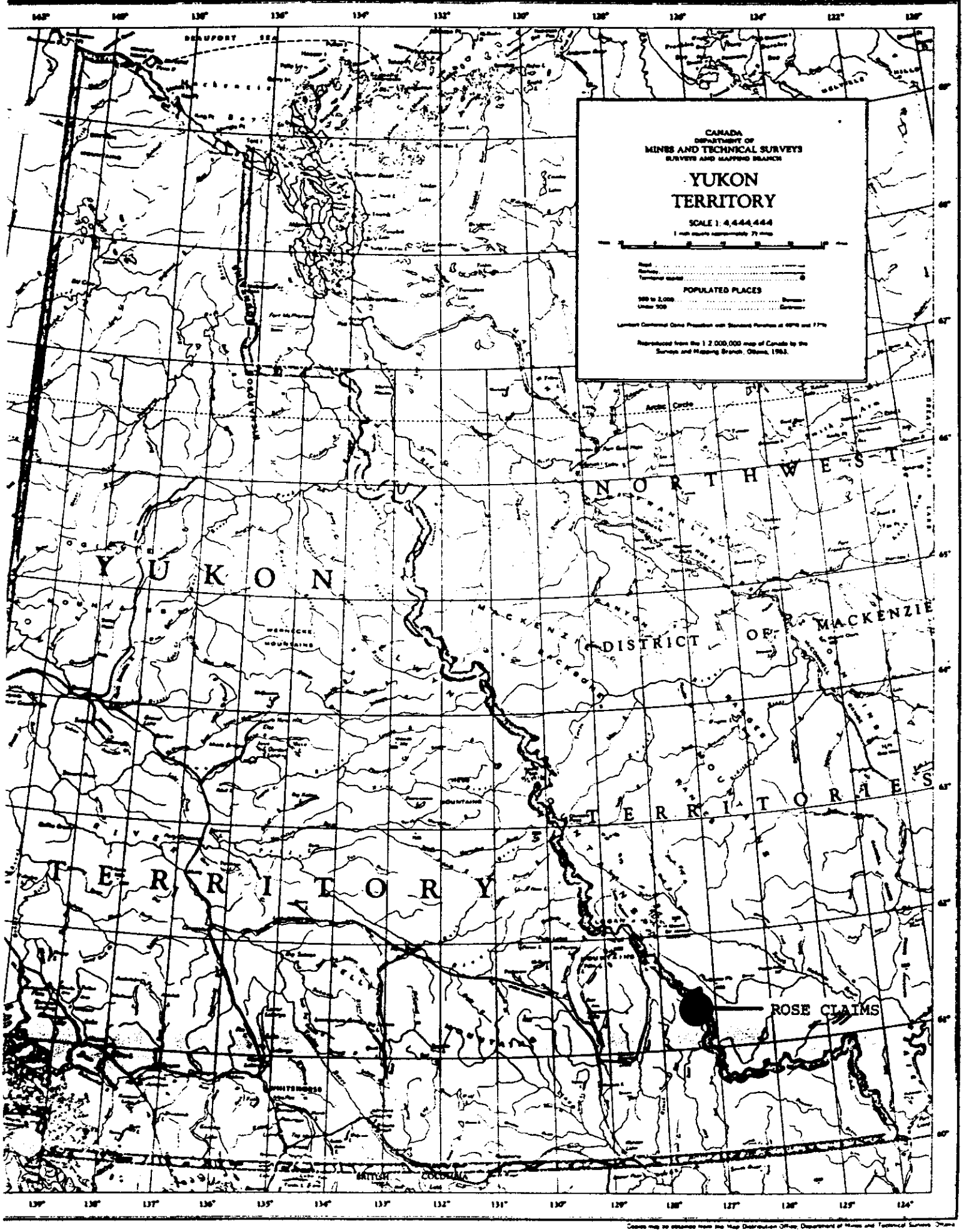
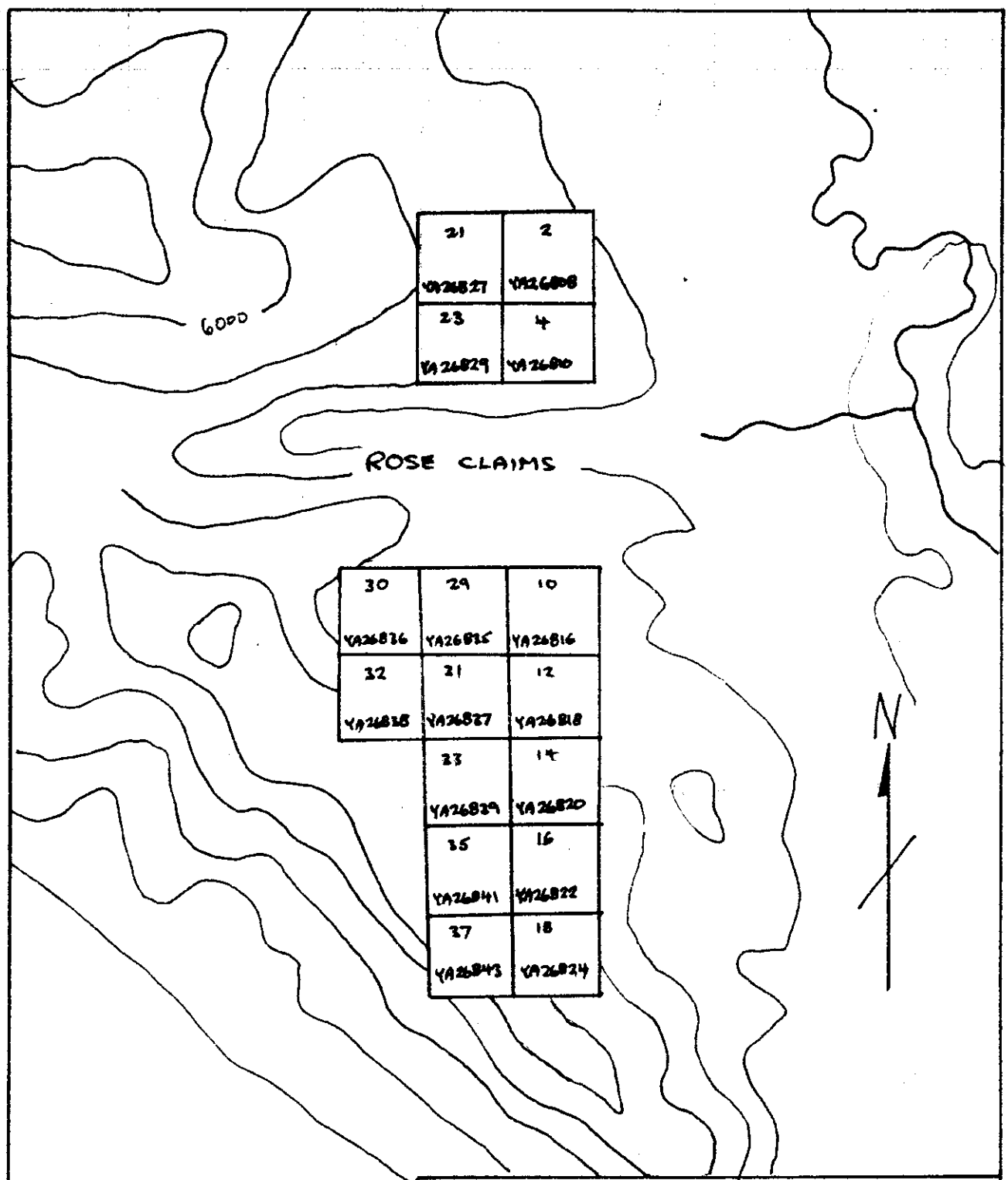
CLAIMS

The property includes the following 12 claims (Figure 2).

ROSE 10	YA26816
ROSE 12	YA26818
ROSE 14	YA26820
ROSE 16	YA26822
ROSE 18	YA26824
ROSE 29-33	YA26835-39
ROSE 35	YA26841
ROSE 37	YA26843

All are held by Noranda Exploration Company, Limited (N.P.L.) and represent retained claims of the original ROSE 1-40 (YA26807 to YA26846) group.





ROSE CLAIMS

CLAIM MAP

RSR 15-12-81

1" = 1/2 mile NTS 95 E/6

NORANDA EXPLORATION COMPANY, LIMITED (NPL)

GEOLOGICAL SURVEY

The property is underlain by Cambro-Ordovician sediments of the RabbitKettle Formation and Ordovician-Devonian sediments of the Road River Formation intruded by Cretaceous quartz monzonite. Table I summarizes local geology.

TABLE I

TABLE OF FORMATIONS

Cretaceous	KG	Quartz monzonite with local porphyritic phases.
Ordovician-Devonian	OSDr	Road River Formation : black shale and cherty siltstone.
Cambro-Ordovician	COr	RabbitKettle Formation : grey limestone, limy siltstone; diopside-tremolite-epidote skarn developed adjacent to Kg.

Granitic Intrusives

Quartz monzonitic intrusive rocks are present in the western part of the claim group, these intrude the older sedimentary strata. This portion of the Coal River Batholith displays local porphyritic phases with large phenocrysts of K-feldspar in a silicic matrix.

Ordovician-Devonian

Road River Formation sedimentary rocks include a thin bedded, recessive black shale to cherty hornfels displaying rusty orange weathering surfaces. The rocks are highly fractured, and strike generally ESE with steep southerly dips.

Cambro-Ordovician

RabbitKettle Formation sedimentary rocks underlie most of the property. Dominant lithologies include a massive grey limestone and a thick bedded limy siltstone (ϵOr_1 and ϵOr_2). Local bodies of diopside-epidote-tremolite skarn are developed adjacent to the Cretaceous intrusive or its lateral apophyses.

Structure

The sedimentary rocks of the RabbitKettle and Road River Formations define a monotonous sequence striking ESE and dipping steeply (60^{o}) south. Some fault complication with indeterminate movement appears related to the borders of the Coal River Batholith. A minor anticlinal flexure, plunging gently SW is seen in the southern part of the grid. This symmetric fold likely reflects stresses related to the intrusion.

Economic Geology

Minor values of tungsten were reported in early work on the property. These were traced in 1981 to isolated bodies of diopside-epidote-tremolite skarn developed in RabbitKettle Formation rocks adjacent to the Cretaceous intrusive. Six samples of skarn material from the northern portion of the grid were assayed for WO_3, Ag, Pb, Zn, Cu and Au. Results are seen in Table II.

Three trenches were developed in 1981 to explore geochemical and magnetometer anomalies. These were dug using Amex II and Forcite explosives by a crew from McCrory Holdings Ltd., under contract to Noranda. Trench 81-1, located at 51+00N, 50+00W explored coincident geochemical anomalies in zinc and a linear magnetometer anomaly. Forty feet of trench was developed, and channel samples taken over 10 foot intervals. Assay data is seen in Table II. Trench 81-2 was excavated to explore a geochemical anomaly, also in skarn, to the west of 81-1 at 51+00N, 51+00W. One grab sample was taken of subcrop material, presented in Table II. Trench 81-3 was located at 54+00N, 48+00W to explore the uphill expression of a geochemical anomaly. One grab sample was assayed, as seen in Table II.

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Where developed, mineralization is of limited extent. Tungsten values are spotty, and in all cases veveloped in restricted zones or pods in limy skarn. Zinc values,restricted to Trench 81-1, are substantial, but here severely limited in areal extent. The pod hosting the zinc values is truncated on the south by a cliff, and to the north it projects above the topographic surface. The remnant of the mineralized pod on the property does not likely exceed 600 cubic feet.

TABLE II

ASSAY DATA, ROSE CLAIMS

SAMPLE NO.	DESCRIPTION	% WO_3	OPT Ag	% Pb	% Zn	% Cu	% Au
J352	Float, diopside skarn, 54+00N, 47+20W	0.02	0.08	0.02	0.02	0.26	0.002
J353	Outcrop, diopside skarn, 57+00N, 48+00W	0.02	0.06	0.02	0.02	0.01	0.002
J354	Outcrop diopside skarn, 66+00N, 54+40W	0.03	0.04	0.02	0.02	0.01	0.002
J355	Float, diopside skarn, 54+00N, 46+00W	0.04	0.04	0.02	0.02	0.02	0.003
J356	Rloat, black shale, 51+00N, 48+00W	0.05	0.04	0.02	0.20	0.02	0.002
J357	Float, diopside skarn, 69+00N, 53+50W	0.03	0.06	0.02	0.02	0.01	0.008
J358	Channel sample, Trench 81-1 0.0 to 10.0 N	0.11	0.16	0.02	0.52	0.01	0.001
J359	Channel sample, Trench 81-1 10.0 to 20.0 N	0.09	0.10	0.02	0.30	0.01	0.003

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TABLE II (Cont.)

ASSAY DATA, ROSE CLAIMS

SAMPLE NO.	DESCRIPTION	% WO_3	OPT Ag	% Pb	% Zn	% Cu	% Au
J360	Channel sample Trench 81-1, 20.0 to 30.0 N	0.02	0.06	0.02	0.08	0.01	0.003
J361	Channel sample Trench 81-1, 30.0 to 40.0 N	0.03	0.06	0.02	0.02	0.02	0.004
J362	Grab sample Trench 81-2	0.02	0.08	0.02	0.04	0.01	0.005
J363	Grab sample Trench 81-3	0.01	0.06	0.02	0.02	0.08	0.006

GEOCHEMICAL SURVEY

Soil samples were obtained by digging holes with a mattock to suitable depth. Where possible, the "B" horizon was sampled; otherwise weathered rock of the C horizon was chosen. Samples were placed in "Hi Wet Strength Kraft 3 1/2" X 6 1/8" Open End" envelopes, and the grid station marked on each envelope with indelible felt pen. Survey control was provided by turning off the existing 100 meter grid with Brunton pocket transit and chaining in 25 meter stations. All soils were analyzed for Cu, Zn, Pb, Ag, Mo, and W in the Vancouver laboratory of Noranda Exploration Co. Ltd. (N.P.L.). Mn and Fe were analyzed for control. Samples are dried (at 80°C) for 24 to 48 hours and sieved. The -80 fraction of the sample is set aside for analytical treatment; the +80 fraction is discarded. The determination for Cu, Zn, Pb, Ag and Mo is as follows :

0.200 grams of the -80 mesh material is digested in 2 ml of $HClO_4$ and 0.5 ml of HNO_3 for approximately 4 hours.

Following digestion, each sample is diluted to 5 ml with demineralized H_2O. A Varian Techtron model AA-5 Atomic Absorption Spectrophotmeter is used to determine Cu, Zn, Pb, Ag and Mo content of each sample. The theory of Atomic Absorption Spectrophotometry is fully described in the literature and will not be elaborated on here.

The determination of W is as follows :

1.0 grams of the sample is sintered with carbonate flux and is leached with water. The leachate is treated with KSCN. This forms a yellow tungsten thio-cyanate which is extracted into tri-n-butyl phosphate. This permits colorimetric comparison with a standard series to ca. 4 ppm. (F.N. Wood, 1963).

Results of the survey are presented on Figures 4a and 4b. These are detailed grids over anomalous areas identified in earlier geochemical surveys. Conclusions follow.

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GEOPHYSICAL SURVEY

A magnetometer survey was conducted on the property in 1981. The instrument used was a Scintrex MF-2 (Serial #102034) fluxgate-type magnetometer.

The fluxgate-type magnetometer is a portable geophysical instrument which measures vertical field only to an accuracy of 5-10 gammas. The theory and method of magnetometer surveys are well covered in the literature and will be only briefly described here.

The operator must be relatively free of magnetic materials on his person. Measurements of total field are normally made at regular intervals on a rectilinear grid and noted for subsequent plotting. Survey control is provided by establishing a set of base stations normalized to fixed field values; grid control is provided by chaining stations off the fixed grid. Corrections are applied for diurnal drift.

The results of the 1981 magnetometer survey are seen in Figure 5. Conclusions follow.

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CONCLUSIONS AND RECOMMENDATIONS

Economic mineralization discovered to date on the property is sporadic. Interesting values of WO_3 and Zn have been identified in outcrop (up to 0.11 % WO_3, 0.52% Zn) but these have been restricted to narrow horizons or small pods of diopside-tremolite-epidote skarn.

The 1981 geochemical survey detailed anomalous areas identified in 1979 work. Anomalies generated in Cu, Zn and Pb are generally parallel, and best developed on Grid "A" (Figure 4a). Values up to 290 ppm Cu, 16000 ppm Zn and 44 ppm Pb are seen in a broad, horseshoe shaped anomaly, open to the north and draped around 51+00N, 49+75W. Cu, Zn and Pb responses were minimal on grids "B" and "C". Values of Ag, Mo and W were poorly developed on all grids. Erratic W values on grids "B" and "C" correspond to spotty skarn zones.

The magnetometer survey detailed two linear anomalies; one reaches from 51+00N, 51+00W to 54+00N, 50+00W; the other is limited to 47+25W from 53+00 to 54+00N. These reflect prior geochemical anomalies, and were heavily propspected in 1981 with little success.

Potential for further mineralization on the Rose claim group is restricted to the area north of the 1981 geophysical grid, where overburden cover made prospecting difficult. Geochemical values in this area are erratic. Future work should include the extension of the magnetometer survey to this area, and limited local prospecting.

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STATEMENT OF QUALIFICATIONS

I, Randall Stewart Rogers, of the City of Whitehorse in the Yukon Territory, do hereby certify:

THAT I have been employed as a Geologist by Noranda Exploration Company, Limited (No Personal Liability) since 01 January, 1980;

THAT I am a graduate of the University of British Columbia with the degree of Bachelor of Science (Honours) in Geology;

THAT I am a graduate of Queen's University at Kingston, Ontario, with the degree of Master of Science in Mineral Exploration;

THAT I am a Notary Public in and for the Yukon Territory;

THAT I am a member of the Canadian Institute of Mining and Metallurgy (Geology Section) and

THAT I am a member of the Geological Association of Canada.

Dated at Whitehorse, Yukon Territory; this 15 day of December, 1981.

(Randall Stewart Rogers) - Geologist
Noranda Exploration Co., Ltd. (NPL)

NORANDA EXPLORATION COMPANY, LIMITED

STATEMENT OF COST

PROJECT Lucky Lake DATE November 30, 1981

TYPE OF REPORT Geology, Geochem & Geophysics

a) Wages:

No. of Days	79	
Rate per Day $	79.6679	
Dates From:	Jan 1/81 - Oct 31/81	
Total Wages	79 x $ 79.6679	6,293.77

b) Food and Accomodation:

No of days	79	
Rate per day $	34.9309	
Dates From:	Jan 1/81 - Oct 31/81	
Total Cost	79 x $ 34.9309	2,759.54

c) Transportation:

No of days	79	
Rate per day $	189.2842	
Dates From:	Jan 1/81 - Oct 31/81	
Total Cost	79 X $ 189.2842	14,953.45

d) Instrument Rental:

Type of Instrument
No of days
Rate per day $
Dates From:
Total Cost X $

Type of Instrument
No of days
Rate per day $
Dates From:
Total Cost X $

f)	Analysis (See attached schedule)	599.40
g)	Cost of preparation of Report	
	Author	159.34
	Drafting	159.34
	Typing	159.34
h)	Other:	
	Camp & Field Supplies	3,670.63

Total Cost $28,754.81

I Certify these Costs

to Be Correct

J.E. Oscroft
Br. Accountant

NORANDA EXPLORATION COMPANY, LIMITED
(WESTERN DIVISION)

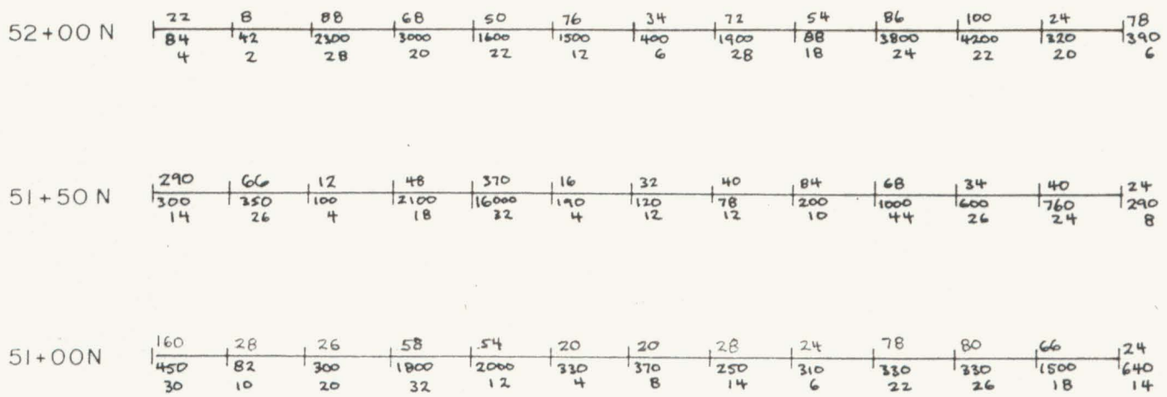
DETAILS OF ANALYSIS COSTS

PROJECT: LUCKY LAKE

ELEMENT	NUMBER OF DETERMINATIONS	COST PER DETERMINATIONS	TOTAL
Cu	74	1.50	111.00
Zn	74	.60	44.40
Pb	74	.60	44.40
Ag	74	.60	44.40
Mo	74	.60	44.40
Mn	74	.60	44.40
Fe	74	.60	44.40
W	74	3.00	222.00

$ 599.40

GRID "A"



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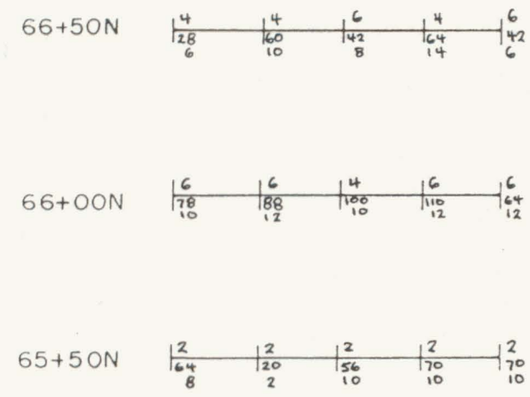
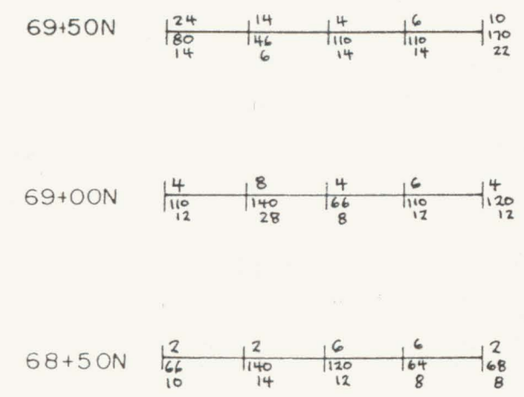


GRID "C"



LEGEND: —— ppm Cu / Zn / Pb
(-80 mesh)

0 25 50 100 meters

MAP# 95-E/6 Doc# 090911 (87)

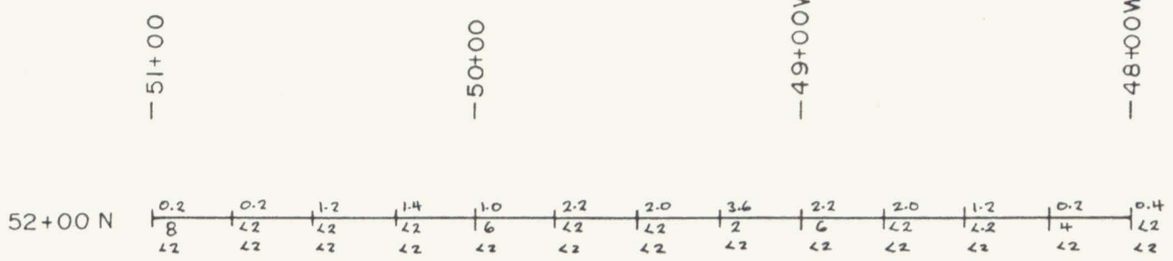
ROSE CLAIMS: Cu, Zn, Pb GEOCHEMISTRY

SCALE: 1" = 50m		DRAWN BY RSR
DATE: 10 DEC 81		REVISED

NORANDA EXPLORATION COMPANY, LTD.

95E/6		DRAWING NUMBER 4a

GRID "A"



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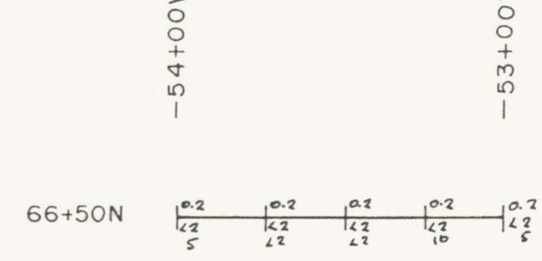

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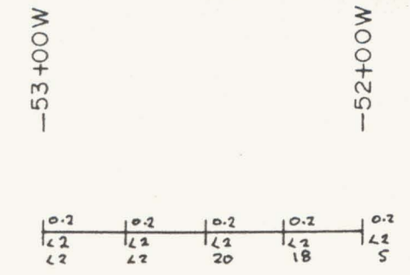


LEGEND: ·—— ppm Ag Mo W
(-80 mesh)

0 25 50 100 meters

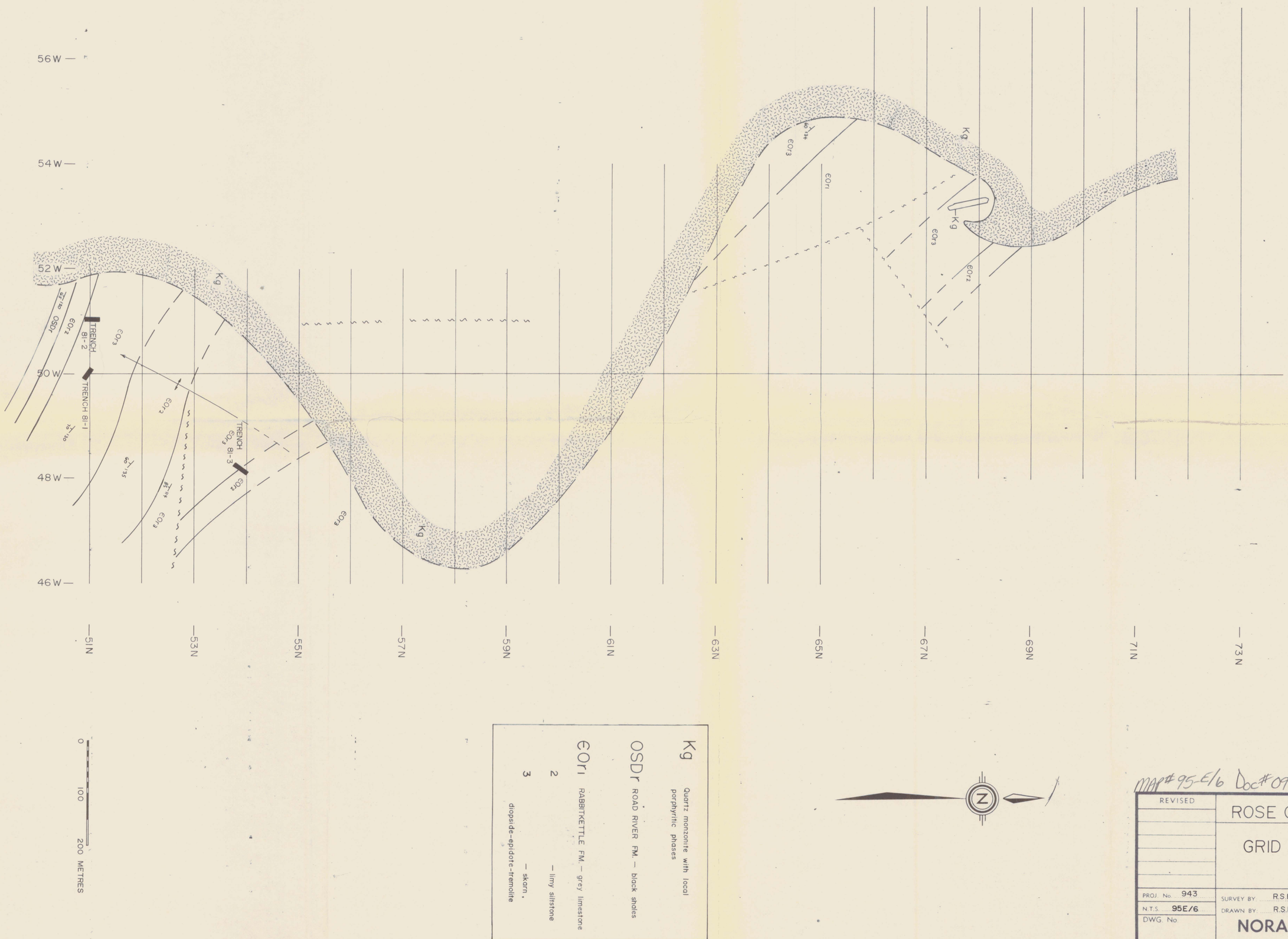
MAP#95-E/6 Doc#090911 (88)

ROSE CLAIMS: Ag, Mo, W GEOCHEMISTRY

SCALE: 1" = 50m		DRAWN BY RSR
DATE: 10 DEC 81		REVISED

NORANDA EXPLORATION COMPANY, LTD.

95E/6		DRAWING NUMBER 4b



MAP# 95-E/6 Doc# 090911 (89) 090911

REVISED	ROSE CLAIMS (LUCKY LAKE)
	GRID GEOLOGY
PROJ. No. 943	SURVEY BY: R.S.R. DATE: NOV. 1981
N.T.S. 95E/6	DRAWN BY: R.S.R. SCALE: 1" = 100m.
DWG. No.	NORANDA EXPLORATION
	OFFICE: WHITEHORSE

56W —

54W —

52W —

50W —

48W —

46W —

51N	53N	55N	57N	59N	61N	63N	65N	67N	69N	71N	73N
1000	1560	1460	1240	1255	1060	1070	1025	1185	1040		
1485	1150	1105	1245	1200							
1250	1445	1270	1250	1240							
1135	840	1425	1310	1180							
1920	1535	1480	1270	1170	1010	1115	1080	1135	1140		
1745	1260	1130	1280	1165							
1120	1255	1535	1290	1210							
1060	1450	1495	1350	1205							
1150	1395	1250	1360	1150	1015	1060	990	1130	1195		
1030	1990	1145	270	1150							
1150	1330	1240	825	1150							
1035	1275	1135	630	1145							
1215	1285	1290	1085	1195	1170	1100	995	1180	1095		
945	1150	750	1095	1190							
1070	950	1360	1000	1140							
980	1245	1170	1205	1435							
1080	1430	1030	1020	1180	1075	1595	950	1425	1150		
1140	1225	1100	930	825							
1140	920	1115	1185	1125							
1230	660	1575	1690	1170							
1165	1150	1430	1350	1115	1325	1085	1105	1020	1205		

0 100 200 METRES

Map #95-E/6 Doc #090911 (90) 090911

REVISED

ROSE CLAIMS (LUCKY LAKE)

MAGNETOMETER SURVEY

SCINTREX MF-2 FLUXGATE INSTRUMENT
DATUM : 58,000g

PROJ. No. 943
N.T.S. 95E/6
DWG. No.

SURVEY BY: R.S.R. DATE: NOV. 1981
DRAWN BY: R.S.R. SCALE: 1" = 100m.

NORANDA EXPLORATION

OFFICE: WHITEHORSE