WELCOME NORTH MINES LTD. (N.P.L.)
1027 - 470 Granville St., Vancouver, B.C. V6C 1V5 Telephone (604) 687-1658

ARCTIC RED PROJECT

DIAMOND DRILLING REPORT

ON THE

AB MINERAL CLAIMS

Latitude 64°59'N Longitude 132°17'W

MACKENZIE MINING DISTRICT
N.T.S. 106C-16
NORTHWEST TERRITORIES
CANADA

Work Performed During the Period July 1, 1977 to August 1, 1977

b y

G.F. McArthur
M.L. McArthur

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INTRODUCTION AND SUMMARY

The AB mineral claims were staked in 1974 to cover several occurrences of sphalerite mineralization in the Lower Cambrian Sekwi Formation. Initially, mapping and sampling were carried out on the Bak and Main mineral zones. In September, 1974 three diamond drill holes were drilled to test the Main zone. Diamond drill hole number two (DDH AB-2) intersected one hundred feet of disseminated sphalerite mineralization including a ten-foot section of 12% zinc. No additional work was carried out in the 1975 field season.

In 1976 a program of detailed mapping, prospecting and geochemistry was completed on the Main zone. A new mineral occurrence, the AB C-Zone, was found, on which detailed mapping, soil geochemistry, prospecting and trenching were completed. Regional property mapping and soil geochemistry were also part of the 1976 field program.

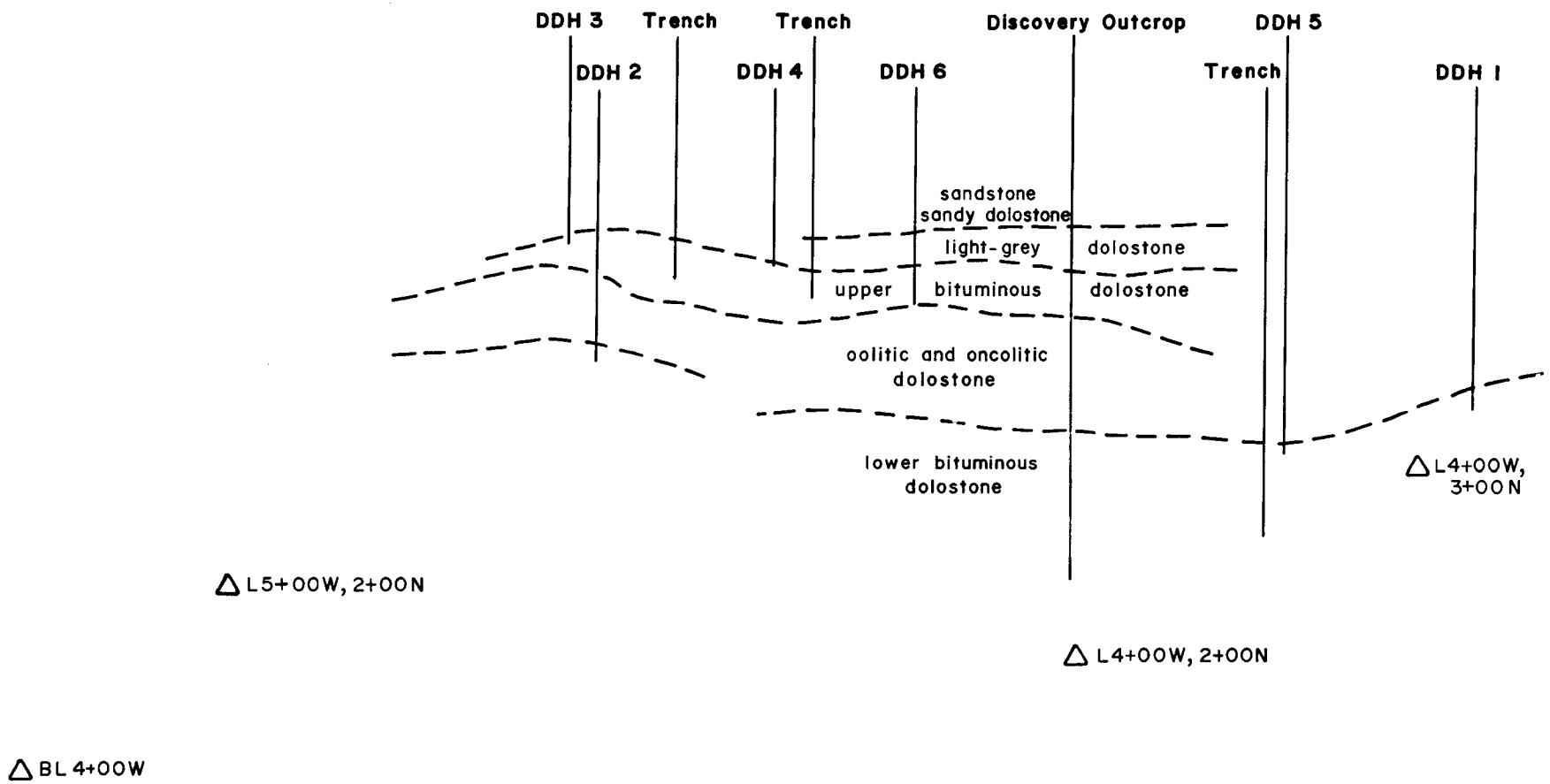
During the 1977 field season 6 diamond drill holes totalling 1562 feet were drilled to evaluate the C-Zone. This work was undertaken by the venture partners in the following proportions: Bethlehem - 1/3, Getty - 1/3, Utah 1/3.

LOCATION AND ACCESS

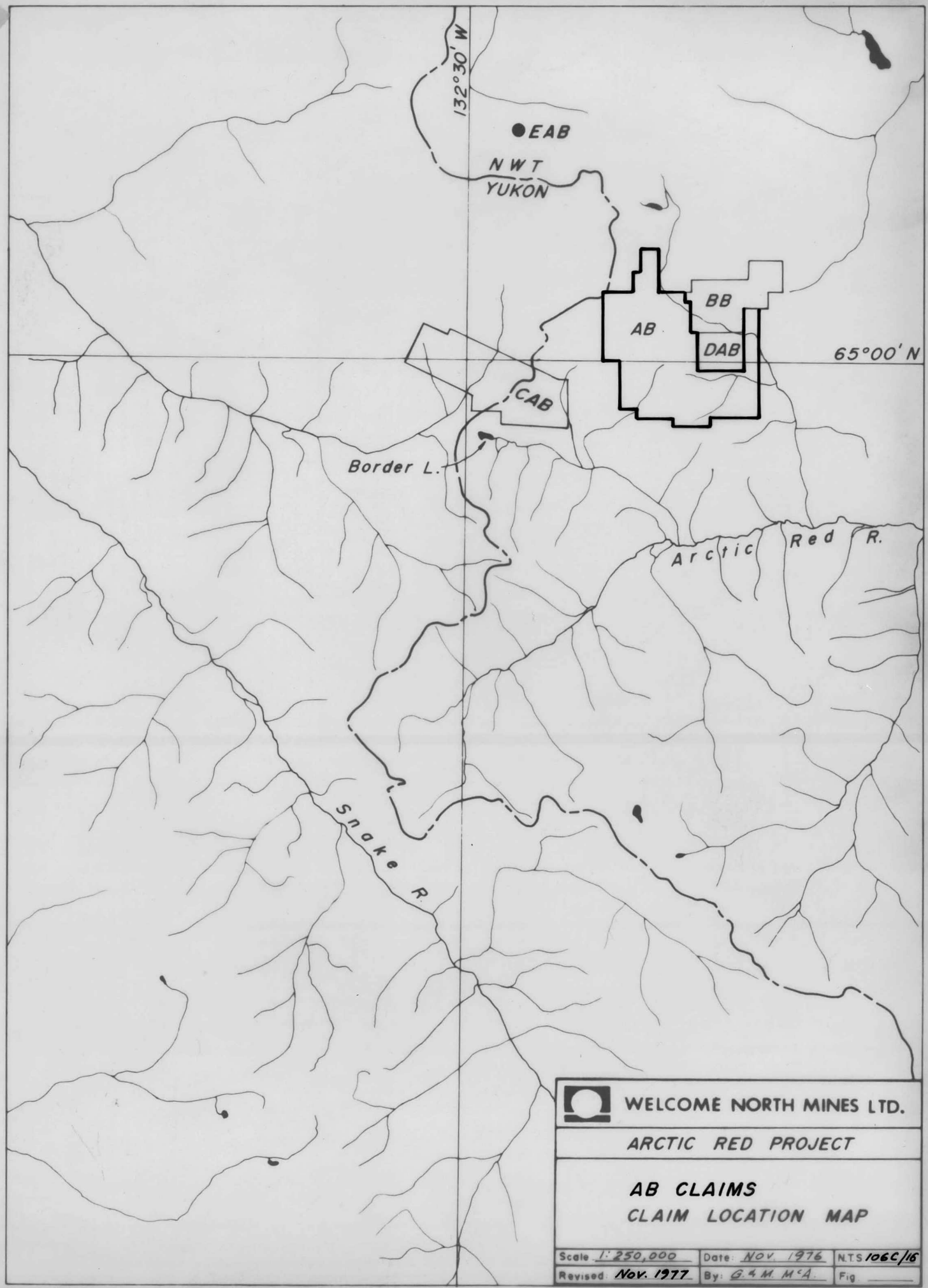
The AB Project Area is located in the Mackenzie Mining District of the Northwest Territories at latitude 64°59'N and longitude 137°17'W, 144 miles northeast of Mayo, Yukon Territory (Fig. 1).

Access to the property can best be gained by helicopter from Mayo. Topography on the property is such that convenient landing sites are present at or near most locations. Alternately, Border Lake, situated 5 miles southwest of the property at an elevation of 4000 feet, is suitable for access by fixed-wing aircraft.

The AB Main zone and C-Zone both occur at an elevation of 5000 feet, well above the regional treeline of 4000 feet. Sidehill slopes range from 18 to 20 degrees while local stream gradients approximate 7 degrees. Talus forms a greater part of the slopes except at the creek margins where small



View of AB C-Zone looking north



WELCOME NORTH MINES LTD.

ARCTIC RED PROJECT

AB CLAIMS
CLAIM LOCATION MAP

Scale 1:250,000	Date: NOV. 1976	N.T.S 106C/16
Revised: NOV. 1977	By: G.A.M. McA.	Fig.

steep gullies form. Gullies in the vicinity which provide best prospecting access remain snowbound until mid-June. Creeks have ample runoff and good silt content. Frost shattering and subsequent weathering produces noticeable rust and hydrozincite staining of mineralized talus blocks. Rock exposures in the area is about 60 percent, of which 30 percent is outcrop; however, outcrop on the main AB zone is limited to less than 5 percent.

CLAIMS

Of the original 290 AB claims, 54 peripheral claims were allowed to lapse in September, 1976 and a further 32 were allowed to lapse in August, 1977 (Plate 1). Table 1 is a list of the remaining 204 AB claims and their current status. Assessment work resulting from the 1977 field season is to be filed, after which key claims will be taken to a lease position.

TABLE 1
AB CLAIMS, STATUS TO DECEMBER, 1977

CLAIM NO.	TAG NO.	RECORDING DATE	DUE DATE
AB 1- 6	A56737-A56742	July 8, 1974	July 8, 1983
AB 17- 46	A86141-A86170	Aug. 19, 1974	Aug. 19, 1983
AB 49- 54	A86173-A86178	Aug. 19, 1974	Aug. 19, 1983
AB 57- 64	A86181-A86188	Aug. 19, 1974	Aug. 19, 1983
AB 67- 70	A86191-A86194	Aug. 19, 1974	Aug. 19, 1983
AB 73- 76	A86197-A86200	Aug. 19, 1974	Aug. 19, 1983
AB 79- 96	A86203-A86220	Aug. 19, 1974	Aug. 19, 1983
AB 97- 98	A86263-A86264	Aug. 19, 1974	Aug. 19, 1983
AB 99-100	A65499-A65500	Sept. 4, 1974	Sept. 4, 1983
AB 101-142	A90601-A90642	Sept. 4, 1974	Sept. 4, 1983
AB 146-154	A90646-A90654	Sept. 4, 1974	Sept. 4, 1983
AB 160-166	A90660-A90666	Sept. 4, 1974	Sept. 4, 1983
AB 172-178	A90672-A90678	Sept. 4, 1974	Sept. 4, 1983
AB 184-190	A90684-A90690	Sept. 4, 1974	Sept. 4, 1983
AB 196-202	A90696-A90702	Sept. 4, 1974	Sept. 4, 1983
AB 226-228	A90726-A90728	Sept. 6, 1974	Sept. 6, 1983
AB 229-235	A90729-A90735	Sept. 6, 1974	Sept. 6, 1982
AB 236-241	A90736-A90741	Sept. 6, 1974	Sept. 6, 1983
AB 242-248	A90742-A90748	Sept. 6, 1974	Sept. 6, 1982
AB 249-252	A90749-A90752	Sept. 6, 1974	Sept. 6, 1983
AB 253-270	A86403-A86420	Dec. 23, 1974	Dec. 23, 1983

DRILLING

Six diamond drill holes totalling 1,562 feet were drilled on the AB C-Zone in July, 1977 (Plate 2). The particulars of these holes are summarized in Table II. The drill core was boxed, labelled, and stored at the Welcome North warehouse in Ross River, Yukon.

The contractor, Wink International Exploration Drilling of Richmond, B.C., supplied a Badger model Hydra-wink wireline diamond drill and ran two twelve-hour drilling shifts daily. The average cost per foot of BQ core drilled was $21/foot total contractor costs and $57/foot including support expenditures.

TABLE II
DIAMOND DRILL HOLES
AB C-ZONE, 1977

Hole No.	Elevation	Depth	Angle	Azimuth	Purpose
AB 77-1	5010'	200'	-90°	-	Test lower mineralized horizon
AB 77-2	5071'	249'	-90°	-	Test lower mineralized horizon
AB 77-3	5259'	132'	-90°	-	Test upper mineralized horizon
AB 77-3A	5259'	348'	-90°	-	Test upper mineralized horizon
AH 77-4	5287'	201'	-90°	-	Test upper mineralized horizon
AB 77-5	5040'	185'	-90°	-	Test lower mineralized horizon
AB 77-6	5200'	248'	-70°	280°	Test BA-SL-PY vein mineralization

Given a newly overhauled drill and experienced drillers it is felt that the Hydra-wink drill would be an efficient machine for drilling BQ holes to depth of up to 400 feet since core recovery is generally close to 100 percent and the drill can be rapidly moved with a Bell 47G3B2 heliocpter.

GEOLOGY

Diamond drilling was carried out on the AB C-Zone, a zinc-lead occurrence hosted by Lower Cambrian dolomites of the Sekwi Formation. The rocks cored can be divided into three main facies; dark-grey, micritic dolostone; oolitic and oncolitic dolostone and vuggy dolostone.

Vuggy Dolostone (Unit A)

The vuggy dolostone is the stratigraphically lowest facies cored. In general it is a grey, medium crystalline, vuggy dolostone. Oncolites are present at various horizons but are more common in the upper 75 feet. Of particular interest are 3 inch to 18 inch zones of coarse-crystalline sparry dolomite and calcite which may represent the infilling of voids caused by the dissolution of primary evaporite beds. Since the Sekwi Formation was deposited in a subtidal to supratidal coastal environment it is not unlikely that anhydrite and gypsum were at one time present. Near the top of the vuggy dolostone is a three-foot sandy, micritic dolostone bed which is an excellent marker horizon. In cross-section A-A' this bed is found on either side of the creek at the same elevation, therefore discounting the presence of vertical fault movement along the creek (Plate 3).

Oolitic and Oncolitic Dolostone (Unit C)

The oolitic and oncolitic dolostone is approximately 100 feet thick and divides the bioturbated micritic dolostone in upper and lower

horizons. The rock is a sand of 2 mm oolites in a sparry matrix of dolomite or calcite. Oncolites are occasionally noted, particularly in drill hole AB 77-6 where they are common in the lower 30 feet of the unit. Thin micritic dolostone horizons are intercolated throughout. The facies thickens from under one hundred feet in drill holes AB 77-3 and AB 77-4 to about 150 feet in drill hole AB 77-6. This suggests that the oolitic dolostone was deposited as sand bars on a shallow marine platform.

Dark-Grey Bituminous Dolostone (Units B and D)

Dark-grey bituminous dolostone occurs as a lower 150-foot unit (Unit B) and an upper unit greater than 100 feet thick (Unit D). The dolostone varies from well laminated and fissile to bioturbated and brecciated. Minor bioclastic debris is present including Salterella, possible trilobite carapaces and chitinous brachipods. Synsedimentary slumping and diagenetic compaction and dewatering have resulted in the formation of breccias with rounded, deformed fragments in a bituminous matrix.

Vertical clastic dykes are also common. These have formed when bituminous silty beds have been injected into overlying dolostones during compaction (e.g. DDH AB 77-3A, 78 feet).

This facies was probably deposited as lagoonal muds. Although animal life did not thrive in this environment there were occasional colonies of browsing organisms which burrowed through the laminated carbonate mud. Algal mats are the likely source of the bitumin although no stromatolites were seen.

MINERALIZATION

All facies of Sekwi dolostone cored are mineralized to some extent. Both the upper and the lower dark-grey bituminous dolostone contain sphalerite and/or galena along laminations, the oosparite has sphalerite in the matrix and the vuggy dolostone has sphalerite and galena in microfractures and vugs (Fig. 2, 3). The common control in all these styles of

mineralization appears to be the permeability of the host rock.

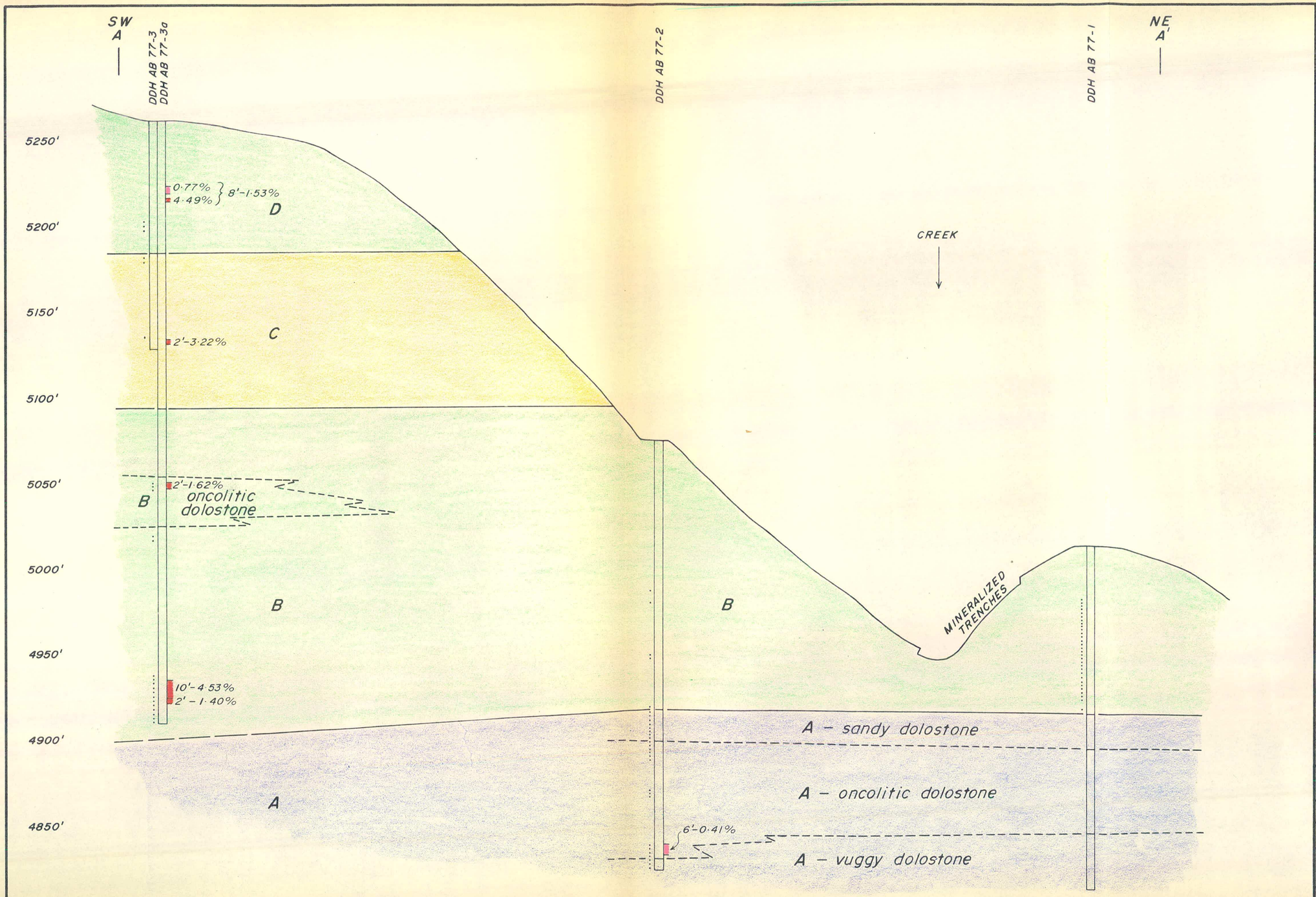
The most significant sulphide intersections were in the dark-grey bituminous dolostone of diamond drill holes AB 77-3a and AB 77-4. In AB 77-4 galena is the major sulphide in the interval 89-110'. Medium to coarse crystalline galena occurs along the bedding in a well laminated bituminous dolostone. Honey-coloured sphalerite and pyrite are associated with the galena and the paragenetic sequence is sphalerite-galena-pyrite. Where the dolostone is brecciated and burrowed, sulphides commonly occur in the bituminous matrix and rimming fragments. In both cases the organic content of the rock has apparently had a control on sulphide deposition. Mineralizing solutions were conceivably introduced while H_2S from decay of algal matter was still present in the bituminous matrix. Also the matrix, while less porous than the burrows and fragments, would have been a more permeable path for the metal-bearing brines.

Sphalerite also occurs in dolomite veins within the bituminous dolostone. This style of mineralization is a later, perhaps remobilized phase.

Sphalerite and galena deposition in the oosparite and vuggy dolostone is dominantly controlled by the porosity of the host rock. Minor sphalerite occurs as disseminations throughout the oosparite facies and is particularly abundant in diamond drill hole AB 77-4, where coarse sphalerite makes up 20% of the rock. The three-foot section from 150' to 153' assayed 10.3% zinc.

Mineralization in the vuggy dolostone horizon was intersected in the bottom 30 feet of diamond drill hole AB 77-2. Minor sphalerite and galena occur as disseminations and in veins. This style of mineralization is similar to that of the BAK Zone.

Iron sulphide is by far the most abundant sulphide intersected in the C-Zone drilling. It occurs in massive pods up to several feet thick and often displays beautiful cockscomb texture indicating that pyrite pseudomorphs marcasite, the low temperature polymorph.



LEGEND

- D — UPPER DARK-GREY BITUMINOUS DOLOSTONE
- C — OOLITIC AND ONCOLITIC DOLOSTONE
- B — LOWER DARK-GREY BITUMINOUS DOLOSTONE
- A — VUGGY DOLOSTONE

FACIES CONTACT:
DEFINED ———
APPROX. — — — —

SUBFACIES CONTACT - - - - - -

>10% PYRITE .....

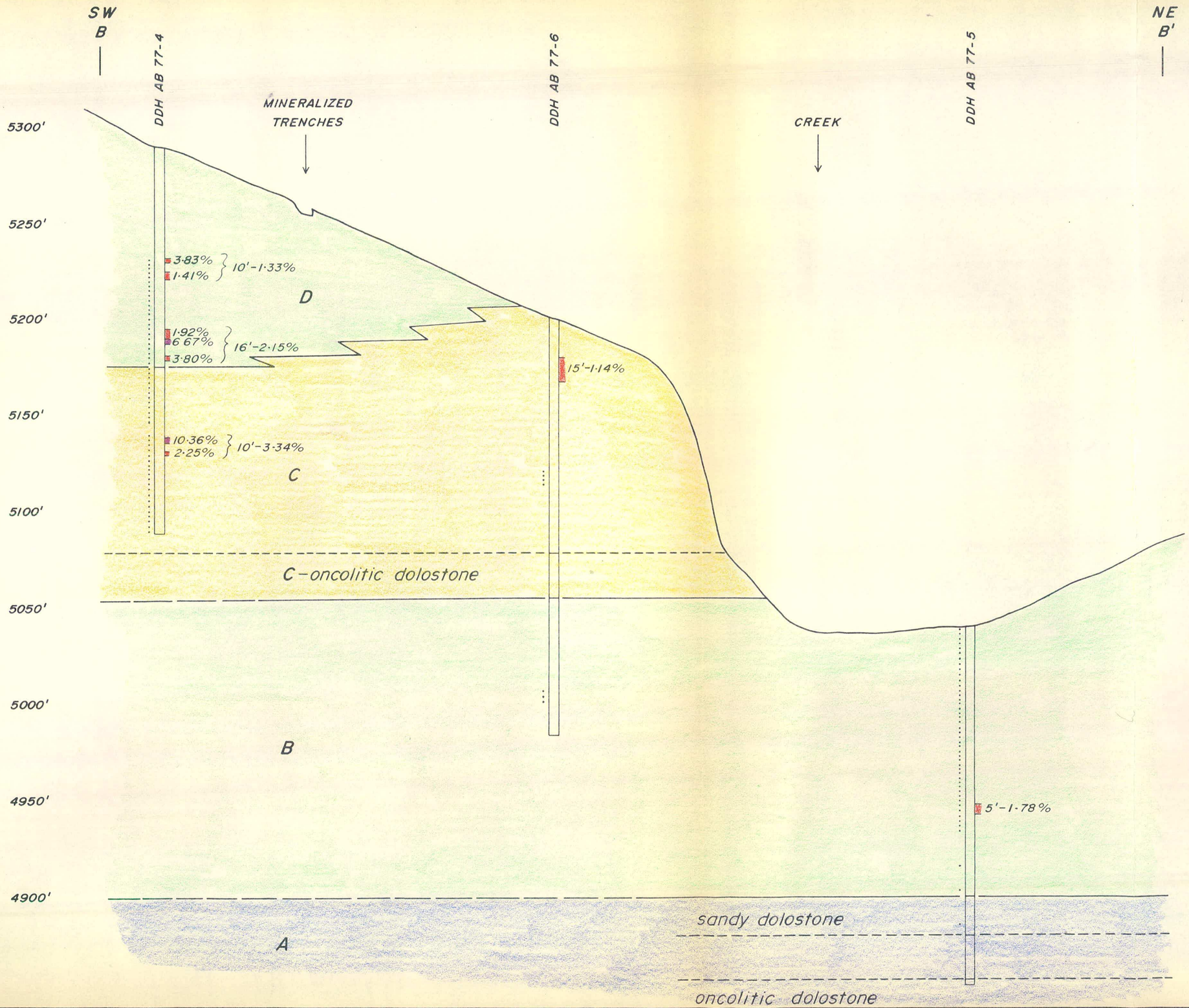
ASSAYS SHOWN ARE LEAD-ZINC COMBINED

WELCOME NORTH MINES LTD.

ARCTIC RED PROJECT

AB C-ZONE
CROSS-SECTION A-A'

Scale 1" : 50'	Date: NOV 1977	N.T.S. 106C/16
Revised:	By: M. McA.	Fig. 2



LEGEND

- D — UPPER DARK-GREY BITUMINOUS DOLOSTONE
- C — OOLITIC AND ONCOLITIC DOLOSTONE
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FACIES CONTACT:
DEFINED ———————
APPROX. — — — — —

SUBFACIES CONTACT - - - - - - - - -

>10% PYRITE .....

ASSAYS SHOWN ARE LEAD-ZINC COMBINED

WELCOME NORTH MINES LTD.

ARCTIC RED PROJECT

AB C-ZONE
CROSS-SECTION B-B'

Scale 1" : 50'	Date: NOV. 1977	N.T.S 106C/16
Revised:	By: M.McA.	Fig. 3

SUMMARY AND CONCLUSIONS

The distribution of sphalerite and galena is irregular and apparently is controlled by the permeability as well as by the chemistry of the host rocks. In general, the quantity and grade of mineralization increases toward the southwest (Fig. 2, 3). Conversely the amount of pyrite increases toward the northeast suggesting that the gossan outcropping in the creek is part of a pyrite halo. The style of mineralization is very similar to that at the AB Main Showing indicating that there could be several sulphide zones in this permeable facies of the Sekwi Formation on the AB Mineral Claims.

RECOMMENDATIONS

Further drilling on the AB Property is meritted to:

a) define the southwestern limit of the C-Zone since the grade and quantity of mineralization are increasing in that direction;

b) delineate the configuration of the Main Zone sulphide horizon, inconclusively tested by 1974 drilling;

c) test favourable stratigraphy between the two showings.

APPENDIX A

DIAMOND DRILL LOGS

WITH ACCOMPANYING LIST OF ABBREVIATIONS

ABBREVIATIONS USED IN DIAMOND DRILL LOGS

a) MINERALIZATION

SL	sphalerite	
GN	galena	Brackets mean "minor"
PY	pyrite	
DL	dolomite	i.e.
CA	calcite	
MK	marcasite	(SL) is minor sphalerite
SU	sulphide	

b) MODE OF OCCURRENCE

D	disseminated
V	vein
μV	small vein

c) ROCK TYPES

DLST	dolostone
BRXX	breccia
BRXC	vein breccia or crackle breccia

d) OTHER ABBREVIATIONS

f xaln	fine crystalline
dkgy	dark grey
crser	coarser
v.f.	very fine
bit.	bituminous
mdum	medium
xal	crystal
ltgy	light grey
vert.	vertical
frax	fracture

e) SL column - line denotes merely the presence of sphalerite or galena in core.

PY column - thickness of line proportional to relative abundance of pyrite in core.

MIN. column -

pink	<1%	Zn+Pb
red	1-5%	Zn+Pb
purple	>5%	Zn+Pb

WELCOME NORTH MINES LTD. — DIAMOND DRILL LOG

Collar:
NORTH 4+30N
EAST L4 + 30W
ELEVATION 5010'
LOGGED BY M. McArthur
DATE LOGGED July 5, 1977
MAP REFERENCE 106C/16

Hole Survey		
Footage	Azimuth	Dip
200		-90
Method:		

PROJECT Arctic Red Joint Venture
PROPERTY NAME AB C-Zone
DRILLING CONTRACTOR Wink International
ASSAYER BONDAR-CLEGG, WHITEHORSE
PURPOSE OF HOLE TEST TRENCHES IN CREEK

HOLE NO. AB 77-1
CLAIM NAME AB 76 (A86200)
COMMENCED July 3, 1977 (A.M.)
FINISHED July 4, 1977 (P.M.)

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn %	Assays Pb %	PY	Visual Log	Min
0	2		Overburden										
2	4												
4	6												
6	8												
8	10												
10	12												
12	14												
14	16	50	Dkgy to gy, fine to mdum xaln DLST; in										
16	18	50	part bioturbated; bituminous laminations										
18	20	50	common, along which fractures										
20	22	50											
22	24	50											
24	26	50											
26	28	90											
28	30	90											
30	32	90		PY pref in bit matrix									
32	34	100											
34	36	100											
36	38	100											
38	40	100		vert frax but PY in									
40	42	100	Grey & dkgy bioturbated f. xaln DLST	matrix									
42	44	100	w/ local penecontemp. BRXX (41', 44',		42	44	2'	55	0.01	0.01			
44	46	100	48')		44	46	2'	56	0.02	0.02			

WELCOME NORTH MINES LTD. — DIAMOND DRILL LOG

PROPERTY AB C-Zone HOLE NO. AB 77-1 LOGGED BY M. McArthur DATE July 5, 1977

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	PY	Visual Log
46	48	100		PY matrix to BRXX (DL)	46	48	2'	57	0.01	0.02		
48	50	100			48	50	2'	58	TR	0.02		
50	52	100			50	52	2'	59	0.01	0.02		
52	54	100			52	54	2'	60	0.01	0.04		
54	56	100			54	56	2'	61	TR	0.03		
56	58	80			56	58	2'	62	TR	0.04		
58	60	100		PY (SL) in bit. matrix	58	60	2'	63	TR	0.03		
60	62	100		yields almost BRXX	60	62	2'	64	TR	0.05		
62	64	100			62	64	2'	65	TR	0.02		
64	66	100										
66	68	100										
68	70	100										
70	72	100										
72	74	100										
74	76	100										
76	78	100										
78	80	100										
80	82	100	- BRXC-PY-DL		80	82	2'	66	TR	0.04		
82	84	100	83-88' parallelling core BRXX; angular to	PY in frags, replacing	82	84	2'	67	TR	0.04		
84	86	100	subrounded frags <1 mm to 3 cm; matrix	frags & some in matrix	84	86	2'	68	TR	0.02		
86	88	100	DL-PY, (BA)-crackle breccia	PY cockscomb tex.								
88	90	100	Same bituminous bioturbated dkgy DLST as									
90	92	100	previous section									
92	94	100										
94	96	100										
96	98	100	- leached crackle BRXX - CA-DL Veins	no PY in BRXC; PY								
98	100	100	- 1' bioclastic? DLST	D in bioclastic unit								

WELCOME NORTH MINES LTD. DIAMOND DRILL LOG

PROPERTY AB C-ZONE HOLE NO. AB 77-1 LOGGED BY M. McArthur DATE July 5, 1977

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	PY	Visual Log
100	102	100	Mottled grey-dkgy mdum xaln DLST; white spar DL	(PY) in spar matrix								
102	104	100	Wispy lam gry DLST, mdum xaln - oolitic?;	103 - PY V, horiz;								
104	106	100	stylolites common - (104) 1" lithoclast BRXX, B?	near vert frax common								
106	108	100	20° to core - (107.5) oncolites	107-108 PY V 45° to core								
108	110	100		110-112 PY-DL V								
110	112	100										
112	114	100		113 - PY D								
114	116	100	Fine grained sandy micrite, some darker lam^{n}	(PY) V & D								
116	118	100	- frax 20° to core with 1 cm rt lateral movt.	117 - PY V, horiz.								
118	120	100	Mottled grey DLST, stylolitic, 118' rt lateral frax	118 - PY V horiz.								
120	122	100										
1122	124	100	- vuggy grey to dkgy DLST, CA lined, DL									
124	126	100	filled vugs; fenestral tex?									
126	128	100										
128	130	100										
130	132	70										
132	134	70										
134	136	100	Grey DLST, fine to mdum, w/spar filled mottles, some									
136	138	100	oncolites?									
138	140	100										
140	142	100	- 141 - circular DL spar-filled voids - burrows?									
142	144	100	- 142 - oncolites abundant	PY V & D								
144	146	100										
146	148	100	- 147 - vuggy porosity									
148	150	100										
150	152	100	- 151 - BRXX, 8", DL-CA matrix	(PY) D								
152	154	100	- oncolitic grey DLST w/stylolites									

WELCOME NORTH MINES LTD. — DIAMOND DRILL LOG

PROPERTY AB C-ZONE HOLE NO. AB 77-1 LOGGED BY M. McArthur DATE July 5, 1977

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	PY	Visual Log	Min.
154	156	100											
156	158	100											
158	160	100		PY D									
160	162	100	- 106-166 oncolitic										
162	164	100											
164	166	100	- 166 vuggy porosity	(PY) D									
166	168	100	- 168 DL-PY (CA) layers in DLST BRXX	PY BRXX matrix									
168	170	100	Generally vuggy, grey mdum xaln DLST										
170	172	100											
172	174	100											
174	176	100											
176	178	100	- 177 - 1' BRXX as at 168	no PY									
178	180	100											
180	182	100											
182	184	100	Grey fine xaln DLST, tex like recrystallized										
184	186	100	oolites										
186	188	100	- 182 - 3" BRXX, vuggy	PY ((SL)) D									
188	190	90	- 187 - 1' BRXX										
190	192	80	- 189 - 1' BRXX	PY rims frags									
192	194	80											
194	196	80											
196	198	80											
198	200	75											
			END OF HOLE										

WELCOME NORTH MINES LTD. — DIAMOND DRILL LOG

Collar:		Hole Survey		
		Footage	Azimuth	Dip
NORTH	3+82N	249		-90
EAST	L7 + 10W			
ELEVATION	5071'			
LOGGED BY	M. McArthur			
DATE LOGGED	July 7, 1977			
MAP REFERENCE	106C/16	Method:		

PROJECT Arctic Red Joint Venture
PROPERTY NAME AB C-ZONE
DRILLING CONTRACTOR Wink International
ASSAYER BONDAR-CLEGG, WHITEHORSE
PURPOSE OF HOLE TEST LOW MIN. HORIZON WEST OF CREEK

HOLE NO. AB 77-2
CLAIM NAME AB 76 (A86200)
COMMENCED July 5, 1977 (A.M.)
FINISHED July 7, 1977 (A.M.)

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	PY	Visual Log	Min.
0	2		Overburden										
2	4												
4	6												
6	8												
8	10	90	Bioturbated, bituminous dark grey dolomite,										
10	12	90	burrows commonly with crser bioclastic										
12	14	90	debris										
14	16	90											
16	18	90											
18	20	90											
20	22	90											
22	24	90											
24	26	90											
26	28	90											
28	30	90											
30	32	90											
32	34	100	- vert frax, DL-CA, with displacement	v.fine PY in bit.									
34	36	100	of 1 cm, minor assoc. BRXX	matrix									
36	38	100	- bioclastic debris abundant, brachiopod?										
38	40	100											
40	42	100											
42	44	100	- O-shaped fossils and possible salterella	PY V vert w/DL									
44	46	100	- 'trilobite'?										

WELCOME NORTH MINES LTD. — DIAMOND DRILL LOG

PROPERTY AB C-ZONE HOLE NO. AB 77-2 LOGGED BY M. McArthur DATE July 7, 1977

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	PY	Visual Log
46	48	100	- 43-52: vert V DL-CA: @ 48 leached	PY crse patch								
48	50	100										
50	52	100	Laminated bituminous dkgy DLST;									
52	54	100	local burrowing and bioclastic beds									
54	56	100										
56	58	100										
58	60	100										
62	62	100	- CA-DL V; bioclastic bed 1" thick	(PY) D								
62	64	100	- 62-66' core broken & frax; lam bituminous									
64	66	90	DLST, fissile									
66	68	100										
68	70	100										
70	72	100										
72	74	100	- core splits along bituminous laminations									
74	76	100										
76	78	90										
78	80	100	- 2" BRXC DL-CA; 81": SL-(BA) BRXC 1/2" wide	PY D								
80	82	100	Highly bioturbated; as 8-50' but									
82	84	100	less bioclastic									
84	86	100		PY in bit. matrix								
86	88	100	- 86-93' lam. w/PY often in bituminous	PY								
88	90	100	laminations	PY								
90	92	100		PY								
92	94	100	- pyritized Salterella	PY in matrix & foss'l								
94	96	100										
96	98	100										
98	100	100	Grey & dkgy bioturbated DLST crser than previously									

WELCOME NORTH MINES LTD. DIAMOND DRILL LOG

PROPERTY AB C-ZONE HOLE NO. AB 77-2 LOGGED BY M. McArthur DATE July 7, 1977

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	PY	Visual Log
100	102	100	- vert DL V later than PY in core	patches PY ~5 mm								
102	104	100		looks porphyroblastic;								
104	106	100		more common in bit.								
106	108	100	- frax about 20° to axis with vert displacement	matrix, also in burrows								
108	110	100		Some look like fossil								
110	112	100	- 1 cm DL V 80° to axis	replacements								
112	114	100										
114	116	100	- 115' vert BRXC, DL, only 1/2 cm wide									
116	118	100	- O rounded triangular fossil									
118	120	100										
120	122	100	- 10° to axis is frax with 1 cm left lat displ.									
122	124	100										
124	126	100	- BRXC but no PY in DL V; 20° to axis	PY D matrix								
126	128	100										
128	130	100	- vert BRXC									
130	132	100										
132	134	100	- as elsewhere gypsum in frax									
134	136	100										
136	138	100	- DL-CA BRXC									
138	140	100	- bioclastic									
140	142	100		(PY) patches								
142	144	100		PY matrix								
144	146	100										
146	148	100	- BRXC									
148	150	100	- BRXC									
150	152	100		(SL) DL in vug								
152	154	80	Penecontemp. BRXX & burrowing	PY V & D matrix								

WELCOME NORTH MINES LTD. — DIAMOND DRILL LOG

PROPERTY AB C-ZONE HOLE NO. AB 77-2 LOGGED BY M. McArthur DATE July 7, 1977.

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	PY	Visual Log
154	156	90	Fractured DLST, leached CA BRXC									
156	158	80	Layered DLST grey & dkgy	PY along bedding								
158	160	80		& V								
160	162	100										
162	164	100	Mdum xaln grey DLST, styblitic; at									
164	166	100	163-164 "zebra dolomite"	PY V								
166	168	100										
168	170	100	- DL looks like early stage of frax,	PY along bit. bedding								
170	172	100	possibly primary BRXX	& early V?								
172	174	100	Sandy micritic DLST	PY D								
174	176	100	Grey DLST w/fenestral tex	PY V								
176	178	100		PY V horiz & stylolitic								
178	180	100										
180	182	100	- layered DL BRXX	PY V horiz w/BRXX	183	186	3'	54	0.12	0.05		
182	184	90										
184	186	100	Flood of DL spar leaving minor grey DLST frag	PY-DL about 90%								
186	188	100	Mottled grey mdum xaln DLST, often vuggy	(SL) pale orange D								
188	190	80	core quite broken									
190	192	100										
192	194	100										
194	196	100										
196	198	100										
198	200	100	- leached BRXC, CA, DL	PY V, D								
200	202	100	- oncolites									
202	204	100										
204	206	100										
206	208	100		PY DL influx (SL)								

WELCOME NORTH MINES LTD. — DIAMOND DRILL LOG

PROPERTY AB C-ZONE HOLE NO. AB 77-2 LOGGED BY M. McArthur DATE July 7, 1977

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	PY	Visual Log	Min.
210	212	100	Mdum xaln grey DLST, commonly oncolitic	2 cm PY along bedding									
212	214	100		PY-DL-CA BRXC									
214	216	100	- BRXC										
216	218	100	- oncolites	(SL) Pale orange to end									
218	220	100	- oncolites	w/hydrozincite frax	218	220	2'	53	0.02	TR			
220	222	100		(SL) μV X-cut PY or	220	222	2'	52	0.11	0.02			
222	224	100		with PY	222	224	2'	51	0.04	TR			
224	226	100	- BRXC whole core; DL spar		224	226	2'	50	0.17	TR			
226	228	100	- vert stylolite w/PY		226	228	2'	49	0.01	TR			
228	230	100			228	230	2'	48	0.01	TR			
230	232	100		PY V & styblite (vert)	230	232	2'	47	0.01	0.01			
232	234	100	- oncolites	(SL) hydrozincite	232	234	2'	39	0.12	0.04			
234	236	100		PY V & along horiz.	234	236	2'	40	0.27	0.08			
236	238	100	- oncolites	stylolites. SL D, V	236	238	2'	41	0.25	0.04			
238	240	100			238	240	2'	42	0.33	0.25			
240	242	100		(SL) GN with PY	240	242	2'	43	0.14	0.07			
242	244	90			242	244	2'	44	0.09	0.08			
244	246	80			244	247	3'	45	0.03	0.02			
246	248	90	- DL influx BRXX "zebra"		247	249	2'	46	0.07	0.02			
248	249	80											
			END OF HOLE										

WELCOME NORTH MINES LTD. — DIAMOND DRILL LOG

Collar:		Hole Survey		
		Footage	Azimuth	Dip
NORTH	5+90N	132'		-90
EAST	L9+45W			
ELEVATION	5259'			
LOGGED BY	M. McArthur			
DATE LOGGED	July 10, 1977			
MAP REFERENCE	106C/16	Method:		

PROJECT Arctic Red Joint Venture
PROPERTY NAME AB C-ZONE
DRILLING CONTRACTOR Wink International
ASSAYER BONDAR-CLEGG, WHITEHORSE
PURPOSE OF HOLE TEST UPPER MINERALIZED HORIZON

HOLE NO. AB 77-3
CLAIM NAME AB 76 (A86200)
COMMENCED July 7, 1977 (P.M.)
FINISHED July 8, 1977 (A.M.)

NOTE:. Rods jam in hole at 132', recover 100'.

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	SL	PY	Visual Log
0	2		Overburden										
2	4												
4	6												
6	8												
8	10		- talus of dkgy DLST	(PY) D									
10	12	80	Laminated, dkgy-blck bituminous DLST;										
12	14	80	splits readily along silty layers										
14	16	80	- several small burrows										
16	18	80											
18	20	80	- 20-28' fractured & broken DL										
20	22	80											
22	24	80											
24	26	80											
26	28	100	Grey bioturbated DLST; bioclastic debris										
28	30	100	abundant, possibly trilobite carapices	PY D									
20	32	100	or shells; wispy bituminous μV;	PY patchy									
32	34	100	interbeds less burrowed 48', 54-64'	PY D									
34	36	100	- fine DL V ~ 20° to core axis	PY D	34	36	2'	69	TR	TR			
36	38	100	common but nonmineralized	PY D	36	38	2'	70	TR	TR			
38	40	100		PY crse SL in bit matrix	38	40	2'	71	0.53	TR			
40	42	100		"	40	42	2'	72	2.68	0.01			
42	44	100		"	42	44	2'	73	0.12	TR			
44	46	100		"	44	46	2'	74	0.91	0.01			

WELCOME NORTH MINES LTD. — DIAMOND DRILL LOG

PROPERTY AB C-ZONE HOLE NO. AB 77-3 LOGGED BY M. McArthur DATE July 10, 1977

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	SL	PY	Visual Log	Min.
46	48	100			46	48	2'	75	0.01	TR				
48	50	100			48	50	2'	76	0.04	TR				
50	52	100		crse 1" PY infilling	50	52	2'	77	0.04	0.01				
52	54	100		along bedding	52	54	2'	78	TR	TR				
54	56	100	- core bituminous & fissile		54	56	2'	79	TR	TR				
56	58	100												
58	60	100												
60	62	100												
62	64	100												
64	66	100	- possible slump brecaia											
66	68	100												
68	70	100												
70	72	100												
72	74	100												
74	76	100		75' SL, PY D										
76	78	100	Dkgy oosparite, coarse grained in	PY D & crse patches	76	78	2'	80	0.67	0.01				
78	80	100	sparry matrix; at 76' BRXC DL;	crse PY-DL influx	78	80	2'	81	0.01	0.03				
80	82	100	pyritic, stylolites common as are	crse PY radially around	80	82	2'	82	0.06	0.05				
82	84	100	DL V; DL V not related to Py but later	frags, bladed BA in	82	84	2'	83	TR	0.03				
84	86	100		frags										
86	88	100		87 & 90 PY in vertbit										
88	90	100		post DL V stylolite										
90	92	100		PY 5-10mm radiating										
92	94	100		spheres										
94	96	100												
96	98	100	- oncolite											
98	100	100												

WELCOME NORTH MINES LTD. — DIAMOND DRILL LOG

PROPERTY AB - C ZONE HOLE NO. AB 77-3 LOGGED BY M. McArthur DATE July 10, 1977

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	SL	PY	Visual Log
100	102	100											
102	104	100	- BRXC DL										
104	106	100											
106	108	100											
108	110	100	- oncolite										
110	112	100											
112	114	100	- locally burrowed										
114	116	100											
116	118	100											
118	120	100											
120	122	100	- BRXC DL										
122	124	100											
124	126	100											
126	128	100											
128	130	100	- PY-DL V as base to PY-SL along laminations	SL,PY in bit lam^{n}	128	130	2'	84	1.52	TR			
130	132	100		forms BRXX; PY V, D	130	132	2'	87	.02	.01			
			END OF HOLE, RODS JAMMED										

WELCOME NORTH MINES LTD. DIAMOND DRILL LOG

Collar:		Hole Survey		
		Footage	Azimuth	Dip
NORTH	5+90N	348		-90°
EAST	L9+45W			
ELEVATION	5259'			
LOGGED BY	M. McArthur			
DATE LOGGED	July 18, 1977			
MAP REFERENCE	106C/16	Method:		

PROJECT Arctic Red Joint Venture
PROPERTY NAME AB
DRILLING CONTRACTOR Wink International
ASSAYER ~~BONDAR-CLEGG, WHITEHORSE~~
PURPOSE OF HOLE TEST MINERALIZATIO N IN UPPER TRENCHES

HOLE NO. AB 77-3A
CLAIM NAME AB 76 (A86200)
COMMENCED July 10, 1977 (A.M.)
FINISHED July 13, 1977 (P.M.)

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%					SL	PY	Visual Log	Min.
0	2		Overburden															
2	4																	
4	6																	
6	8																	
8	10																	
10	12																	
12	14																	
14	16																	
16	18	70	Laminated bituminous dkgy DLST,															
18	20	70	often friable															
20	22	70																
22	24	50																
24	26																	
26	28	100	Bioturbated dkgy DLST with grey	v.f. dissem PY matrix														
28	30	100	crser beds; in part bioclastic	PY-SL zoned SL D	28	30	2'	95	.19	.02					1			
30	32	100	(brachiopods); soft sediment slump tex		30	32	2'	96	.01	.01								
32	34	80	also		32	34	2'	97	TR	.01								
34	36	80			34	36	2'	98	TR	.01								
36	38	80			36	38	2'	88	TR	TR								
38	40	100			38	40	2'	89	.75	.01					1			
40	42	100			40	42	2'	90	.77	.01								
42	44	100	- pale SL rimmed by orange, also D orange;	Zoned SL post PY	42	44	2'	91	.09	.01					1			
44	46	100	concentrated in bit. matrix		44	46	2'	92	4.48	.01								

WELCOME NORTH MINES LTD. DIAMOND DRILL LOG

PROPERTY AB HOLE NO. AB 77-3A LOGGED BY M. McArthur DATE July 18, 1977

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	SL	PY	Visual Log	Min.
46	48	100	- SL up to overlying more lam. bed then stops	vf PY, mdum SL D	46	48	2'	93	.10	TR				
48	50	100			48	50	2'	94	.71	.02				
50	52	100	- scoured bed with lithoclast; DL V with 5 mm											
52	54	100	left lateral movement											
54	56	100	Laminated friable bituminous dkgy DLST											
56	58	90	.	vf D PY in matrix &										
58	60	100		crse cockscomb in										
60	62	100	- vert bit. in mud-crack or vert. burrow	bit. vert. & horiz.										
62	64	100	Bioturbated bituminous grey DLST	vf PY D. throughout										
64	66	100	- vert. bit. wisps from soft sed. deformation	unit, rare 1 cm										
66	68	100		patch										
68	70	100												
70	72	100												
72	74	100	- 1 cm burrows look flattened											
74	76	100												
76	78	100	Medium to crse. grained oosparite; dkgy; bituminous	D SL, 6"; PY D	76	78	2'	99	.27	.02				
78	80	100	partings and stylolites common. At 78' PY re-	DL-CA V	78	80	2'	100	TR	.01				
80	82	100	placing 6" bituminous subvert. layer; could be		80	82	2'	101	.01	.03				
82	84	100	dyke formed during diagenesis. At 81' however	(SL) with PY crse	82	84	2'	102	.10	.01				
84	86	100	bitumin and PY post DL V, therefore looks like											
86	88	100	like stylolitic effect											
88	90	100												
90	92	100												
92	94	100												
94	96	100	Oncolitic oosparite; oncolites up to 2 cm but											
96	98	100	commonly less in mdum grained oolitic matrix											
98	100	100												

WELCOME NORTH MINES LTD. DIAMOND DRILL LOG

PROPERTY AB HOLE NO. AB 77-3A LOGGED BY M. McArthur DATE July 18, 1977.

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	SL	PY	Visual Log	Min.
100	102	100												
102	104	100	- DL V cuts stylolites also stylolites											
104	106	100	displacing DL V											
106	108	100												
108	110	100												
110	112	100												
112	114	100	- 2' bioturbated DLST 113-115'											
114	116	100	Oolitic DLST, fine to coarse grained											
116	118	100												
118	120	100												
120	122	100												
122	124	100												
124	126	100	- local bituminous oolitic DLST	MK-PY-SL in bit.							1	■		
126	128	100	- vert stylolite w/coincident DL V displacing		126	128	2'	103	3.2	.02				
128	130	100	DL V											
130	132	100	- bioturbated											
132	134	100												
134	136	100												
136	138	100												
138	140	100	- 1) horiz. stylolites 2) vert DL V											
140	142	100	3) horiz. DL V											
142	144	100												
144	146	100												
146	148	100												
148	150	100		(SL) w/DL V							1			
150	152	100												
152	154	100	- 3" bioturb. bed											

WELCOME NORTH MINES LTD. — DIAMOND DRILL LOG

PROPERTY AB HOLE NO. AB 77-3A LOGGED BY M. McArthur DATE July 18, 1977.

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	SL	PY	Visual Log	Min.
154	156	100												
156	158	100	- horiz. stylolite displ vert DL V											
168	160	100		SL in bitum. stylolites							1			
162	162	100		post DL V										
162	164	100												
164	166	100												
166	168	100	Slightly burrowed dkgy DLST, slump BRXX;	PY-SL in bit matrix	166	169	3'	104	.63	.01				
168	170	100	thin sparry beds common; in general less	of slump & bioturb.										
170	172	100	DL V & crackle than oolite											
172	174	100												
174	176	100												
176	178	100												
178	180	100												
180	182	100												
182	184	100												
184	186	100	- 40° to axis bit. frax displaces DL V	(PY) bit. matrix										
186	188	100	- O rounded triangular fossil											
188	190	100												
190	192	100												
192	194	100		vf D Py as well as										
194	196	100	Zone of crackled and possibly slumped	crse cockscomb & cubic										
196	198	100	irregular breccia; subangular to rounded	PY										
198	200	100	DLST frags in grey DL matrix; cut by											
200	202	100	DL spar V; bituminous partings											
202	204	100												
204	206	100												
206	208	100	Well bedded dkgy f xaln DLST with	(PY) along bit lam^{n}										

WELCOME NORTH MINES LTD. **DIAMOND DRILL LOG**

PROPERTY AB HOLE NO. AB 77-3A LOGGED BY M. McArthur DATE July 18, 1977.

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	SL	PY	Visual Log
208	210	100	sparry oncolitic & bioclastic beds 3-10 cm		209	211	2'	118	1.6	.02			
210	212	100	separated by bituminous 1 cm beds;	SL (PY) D + in DL	211	214	3'	119	.01	.01			
212	214	100	more micritic at base where may	V									
214	216	100	show loading										
216	218	100											
218	220	100											
220	222	100											
222	224	100											
224	226	100											
226	228	100											
228	230	100	- DL V <10° to axis; 2 cm left lateral										
230	232	100	displacement										
232	234	100											
234	236	100	Bituminous blck lam. DLST; fissile	PY in occasional									
236	238	100		beds, 1 cm. thick									
238	240	100											
240	242	100											
242	244	100											
244	246	100	Bioturbated dkgy DLST; burrows 1-2 cm										
246	248	100		crse PY patches 1-2 cm									
248	250	100	- 15 cm laminated interval	crse PY after fossils,									
250	252	100	- subrounded triangular fossils	patches & w/DL in V									
252	254	100		PY in vert bit styblite									
254	256	100	Grey burrows? in blck bit matrix; 2-4										
256	258	100	cm burrow										
258	260	100	Well bedded dkgy-blck bituminous DLST										
260	262	100	commonly laminated with local burrowed										

WELCOME NORTH MINES LTD. **DIAMOND DRILL LOG** Page 6 of 7

PROPERTY AB HOLE NO. AB 77-3A LOGGED BY M. McArthur DATE July 18, 1977

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	SL	PY	Visual Log	Min.
262	264	100	intervals and bioclastic intervals; weakly	PY after fossils										
264	266	100	burrowed 270-260; well lam sections											
266	268	100	are fissile											
268	270	100												
270	272	100												
272	274	100												
274	276	100		PY-DL V? 50° to core										
276	278	100												
278	280	100												
280	282	100												
282	284	100												
284	286	100		Py along lam^{n}										
286	288	100												
288	290	100												
290	292	100												
292	294	100		Py μV										
294	296	100												
296	298	100												
298	300	100	Weakly bioturbated dkgy bituminous DLST;	6" D PY-SL (zoned)	298	300	2'	105	.65	.01	1			
300	302	100	bituminous partings common	pref in mdum xaln										
302	304	100		DL sparry areas										
304	306	100												
306	308	100												
308	310	100												
310	312	100												
312	314	100												
314	316	100												

WELCOME NORTH MINES LTD. — DIAMOND DRILL LOG

PROPERTY AB HOLE NO. AB 77-3A LOGGED BY M. McArthur DATE July 18, 1977

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	SL	PY	Visual Log	Min.
316	318	100												
318	320	100												
320	322	100	[white with alyzarine test]	DL-CA V										
322	324	100	- 1 mm white xals salt DLST BA?											
324	326	100	Bioturbated grey to dkgy bituminous DLST	PY crse & commonly	324	326	2'	106	8.4	.02				
326	328	100		cockscomb, SL flesh	326	328	2'	107	2.64	.03				
328	330	100		colour D in bit	328	330	2'	108	1.96	.03				
330	332	100	- BRXC w/SL-PY	matrix; minor in	330	332	2'	109	4.8	.03				
332	334	100		DL V (remob?)	332	334	2'	110	4.84	.05				
334	336	100	- 10 cm slump BRXX, grey frags deformed	At 326' xal GN within	334	336	2'	111	1.36	.04				
336	338	100	while soft	PY	336	338	2'	112	.13	.03				
338	340	100			338	340	2'	113	TR	.02				
340	342	100			340	342	2'	114	TR	.01				
342	344	100			342	344	2'	115	.03	.06				
344	346	100			344	346	2'	116	TR	.02				
346	348	100	END OF HOLE		346	348	2'	117	TR	.02				

10' of 4.53%

WELCOME NORTH MINES LTD. — DIAMOND DRILL LOG

Collar:
NORTH 7+50N
EAST L8+90W
ELEVATION 5287'
LOGGED BY M. McArthur
DATE LOGGED July 18, 1977
MAP REFERENCE 106C/16

Hole Survey		
Footage	Azimuth	Dip
201		-90
Method:		

PROJECT Arctic Red Joint Venture
PROPERTY NAME AB C-ZONE
DRILLING CONTRACTOR Wink International
ASSAYER BONDAR-CLEGG, WHITEHORSE
PURPOSE OF HOLE TEST UPPER MINERALIZED ZONE

HOLE NO. AB 77-4
CLAIM NAME AB 86 (A86200)
COMMENCED July 14, 1977 (P.M.)
FINISHED July 16, 1977 (P.M.)

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	SL	PY	Visual Log	Min.
0	2		Overburden											
2	4													
4	6													
6	8													
8	10	100	Light-grey medium crystalline DLST,	PY V weathered to										
10	12	100	contact with underlying unit gradual	limonite, common.										
12	14	100	becoming more bituminous over lower 7'.											
14	16	100	From 10-15' weathered buff. Irregular											
16	18	100	dkgy wisps and mottles.											
18	20	100												
20	22	100												
22	24	100												
24	26	100												
26	28	100												
28	30	100												
30	32	100		1 cm PY V along										
32	34	100	Dkgy to black DLST; somewhat burrowed	bedding										
34	36	100	& slumped; generally very bituminous											
35	38	100	causing rock to be friable and laminated											
38	40	100												
40	42	100	- euhedral PY in matrix of channel											
42	44	100	Breccia or lithoclast breccia											
44	46	100												

WELCOME NORTH MINES LTD. — DIAMOND DRILL LOG

PROPERTY AB C-ZONE HOLE NO. AB 77-4 LOGGED BY M. McArthur DATE July 18, 1977

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	SL	PY	Visual Log
46	48	100	- sparry interbeds, some oncolites	PY D & rims grains									
48	50	40	- minor DL BRXC										
50	52	70											
52	54	70											
54	56	70											
56	58	80		zoned SL D X cutting laminations									
58	60	80		PY assoc.	58	60	2'	120	3.82	0.01			
60	62	100											
62	64	100			64	68	4'	121	1.39	0.02			
64	66	100		(SL) 2 cm then									
66	68	100		15 cm along lam^{n}									
68	70	100		90% PY replacement									
70	72	100		cockscomb common									
72	74	100	Burrowed DLST; dkgy bituminous	rimming frags	74	78	4'	122	0.06	0.11			
74	76	100	matrix with grey to dkgy burrows										
76	78	100											
78	80	100		vf PY D bit matrix									
80	82	100		Crse cockscomb repl.									
82	84	100											
84	86	100	- minor slump BRXX										
86	88	100	- DL V with 1 cm displacement	crse PY repl. burrows									
88	90	100		(SL) D; DL V	89	94	5'	123	0.05	0.50			
90	92	100		GN in bit matrix									
92	94	100		PY, euhedral GN (SL)									
94	96	100		along lam^{n}, GN	94	99	5'	124	TR	1.92			
96	98	100		within PY entirely									
98	100	100		SL within GN	99	101	2'	125	0.03	6.64			

WELCOME NORTH MINES LTD. — DIAMOND DRILL LOG

PROPERTY AB C-ZONE HOLE NO. AB 77-4 LOGGED BY M. McArthur DATE July 18, 1977

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	SL	PY	Visual Log
100	102	100	- bedding 45° suggesting slumped	PY-SL (GN) past 100'									
102	104	100			101	104	3'	126	0.60	0.68			
104	106	100											
106	108	100	Burrowed & slumped dkgy DLST, upper 15	PY abund fg matrix									
108	110	100	cm looks bioclastic (grey, 5 mm frags abundant)	D PY-SL-GN bit	108	110	2'	127	1.12	2.68			
110	112	100	- BRXC, DL V										
112	114	100											
114	116	100											
116	118	100											
118	120	100	Medium grained, grey, oosparite; crse	PY crse "V"									
120	122	100	PY abundant throughout; some bituminous	cockscomb, also vf									
122	124	100	interbeds; DL V common: seen cutting	xaln D in bit.									
124	126	100	PY and cut by PY										
126	128	100	- 123': laminated, more bituminous DLST										
128	130	100		PY D in matrix abund									
130	132	100											
132	134	100											
134	136	100											
136	138	100											
138	140	100		PY crse, with DL &									
140	142	100		bitumen X Cuts DL									
142	144	100	- 143' oncolites	V - vert stylolite?									
144	146	100	- PY replaces matrix, oolites preserved										
146	148	100											
148	150	100											
150	152	100	- crse SL in DL V as well as D	SL in matrix, oolite	150	153	3'	128	10.3	0.06			
152	154	100		preserved ~20% SU									

WELCOME NORTH MINES LTD. — DIAMOND DRILL LOG

PROPERTY AB C-ZONE HOLE NO. AB 77-4 LOGGED BY M. McArthur DATE July 18, 1977.

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	SL	PY	Visual Log	Min.
154	156	100												
156	158	100	- 4 cm laminated grey DLST											
158	160	100	- minor assoc pyrobitumen	SL D post DL V	159	160	1'	129	2.22	0.03				
160	162	100												
162	164	100												
164	166	100												
166	168	100												
168	170	100	- silty DLST slump BRXX to 178'	PY matrix rimming										
170	172	100		frags										
172	174	100		(SL) within PY	172	176	4'	130	0.09	0.11				
174	176	100												
176	178	100			176	180	4'	131	0.47	0.04				
178	180	100		Crse SL D										
180	182	100	- 181-183 slump BRXX, frags rounded	PY vf D in frags										
182	184	100	5 - 5 cm of oomicrite in oolitic bit.	& matrix, also crse PY										
184	186	100	matrix											
186	188	100												
188	190	100												
190	192	100	- note that bit-PY-SL after DL V &	SL central to PY										
192	194	100	further cut by another DL V	in vert bit styl.										
194	196	100												
196	198	100	- 197 to 200 slump BRXX; frags grey &	PY in matrix of										
198	200	100	black micrite and oolitic DLST	oosparite	199	201	2'	132	0.33	0.02				
201		100	END OF HOLE	5 cm SL D followed										
				by barren oolitic DLST										

WELCOME NORTH MINES LTD. — DIAMOND DRILL LOG

Collar:
NORTH 6+50N
EAST L7+20W
ELEVATION 5040'
LOGGED BY M. McArthur
DATE LOGGED July 23, 1977
MAP REFERENCE 106C/16

Hole Survey		
Footage	Azimuth	Dip
185'		-90
Method:		

PROJECT Arctic Red Joint Venture
PROPERTY NAME AB C-ZONE
DRILLING CONTRACTOR Wink International
ASSAYER BONDAR-CLEGG, WHITEHORSE
PURPOSE OF HOLE TEST N. EXTENT LOWER ZONE

HOLE NO. AB 77-5
CLAIM NAME AB 76 (A86200)
COMMENCED July 16, 1977 (P.M.)
FINISHED July 22, 1977 (A.M.)

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	SL	PY	Visual Log	Min.
0	2		Casing to 17'											
2	4													
4	6													
6	8													
8	10													
10	12													
12	14													
14	16													
16	18	100	Bioturbated, bituminous dkgy DLST;	Some PY through-										
18	20	100	more well laminated as base	out; generally in										
20	22	100		bituminous matrix										
22	24	100												
24	26	100												
26	28	100												
28	30	100												
30	32	100												
32	34	100												
34	36	100												
25	38	100	- 39' 3 cm DL-CA V 30° to axis											
38	40	100	Grey bioturbated DLST, matrix	PY common in										
40	42	100	may be sparry	matrix rims grains?										
42	44	100		or fragments										
44	46	100												

WELCOME NORTH MINES LTD. DIAMOND DRILL LOG

PROPERTY AB C-ZONE HOLE NO. AB 77-5 LOGGED BY M. McArthur DATE July 23, 1977

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	SL	PY	Visual Log	Min.
46	48	100	Dkgy slumped DLST											
48	50	100	Laminated bituminous DLST, fissile											
50	52	100	Dkgy bioturbated DLST											
52	54	100												
54	56	100												
56	58	100												
58	60	100												
60	62	100												
62	64	100												
64	66	100												
66	68	100												
68	70	100	Light grey micritic DLST in a black bituminous											
70	72	100	matrix, slumped and brecciated											
72	74	100	- 73-76' rounded QZ grains 2 mm make up to											
74	76	100	30% of rock											
76	78	100												
78	80	100												
80	82	100												
82	84	100												
84	86	100												
86	88	100	- 88-98' more highly bituminous with black											
88	90	100	DLST about 70% of rock											
90	92	100												
92	94	100		SL matrix D; not in-	93	98	5'	133	1.66	0.12	1			
94	96	100	- crse SL assoc. with massive PY (GN)	tergrown with PY										
96	98	100	seems later and cross-cutting	SL matrix D & DL V							1			
98	100	100	Dkgy slightly bioturbated and slumped DLST	DL-BA-SL-PY V	98	100	2'	134	0.14	0.06				

WELCOME NORTH MINES LTD. DIAMOND DRILL LOG

PROPERTY AB C-ZONE HOLE NO. AB 77-5 LOGGED BY M. McArthur DATE July 23, 1977

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	SL	PY	Visual Log
100	102	100		10 cm side, 20° to	100	102	2'	135	0.23	0.03			
102	104	100		core, pyrobitumen									
104	106	100											
106	108	100											
108	110	90											
110	112	100											
112	114	100											
114	116	100											
116	118	100											
118	120	100											
120	122	100	DLST, dkgy, more strongly deformed than previous	(SL) DL BRXC	121	126	5'	136	0.13	TR			
122	124	100	unit	SL D with PY and (SL)									
124	126	100		in DL V									
126	128	100											
128	130	100											
130	132	100		(SL) DL V									
132	134	100											
134	136	100			135	139	5'	137	0.12	TR			
136	138	100	- 137-139' BRXC; 138' blck frags about 1 mm	(SL) DL V; PY D									
138	140	100											
140	142	100	Mdum xaln Hgy DLST, many bituminous irregular										
142	144	100	laminations; some "zebra" DLST										
144	146	100	Ltgy mdum xaln DLST (looks like rexalized oolitic										
146	148	100	DLST); occasional darker stylolitic laminations										
148	150	100											
150	152	100											
152	154	100		PY (SL) D and along									

WELCOME NORTH MINES LTD. — DIAMOND DRILL LOG

PROPERTY AB C-ZONE HOLE NO. AB 77-5 LOGGED BY M. McArthur DATE July 23, 1977

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	SL	PY	Visual Log
154	156	100	Light grey sandy, micritic DLST, ± 1 mm QZ sand	laminations									
156	158	100	15-30%	PY along laminations									
158	160	100	Light grey mdum xaln DLST with DL-spar filled	in vert bit stylolite									
160	162	100	mottles, below 168' vuggy										
162	164	100											
164	166	100		PY in vug									
166	168	100											
168	170	100											
170	172	100											
172	174	100	- 1' interbed darker grey mottled, vuggy DLST										
174	176	100											
176	178	100		PY vug									
178	180	100											
180	182	60		(PY, SL) vugs & V									
182	184	60	Oncolitic DLST										
184	185	60	END OF HOLE										

WELCOME NORTH MINES LTD. — DIAMOND DRILL LOG

Collar:		Hole Survey		
		Footage	Azimuth	Dip
NORTH	6+00N	248	280°	-70
EAST	L5+10W			
ELEVATION	5200'			
LOGGED BY	M. McArthur			
DATE LOGGED	July 24, 1977			
MAP REFERENCE	106C/16	Method:		

PROJECT Arctic Red Joint Venture
PROPERTY NAME AB C-ZONE
DRILLING CONTRACTOR Wink International
ASSAYER BONDAR-CLEGG, WHITEHORSE
PURPOSE OF HOLE TEST BA-SL-PY vein mineralization

HOLE NO. AB 77-6
CLAIM NAME AB 76 (A86200)
COMMENCED July 22, 1977 (A.M.)
FINISHED July 23, 1977 (P.M.)

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	SL	PY	Visual Log
0	2		Casing										
2	4				Note: 1st 6 samples								
4	6				footage questionable								
6	8												
8	10												
10	12	100	Medium grained oolitic dolostone	SL,PY in irreg. vert	9	14	5'	138	0.11	TR	1		
12	14	100	grey to dkgy oolites av. 1 mm diam. in	bituminous stylolite									
14	16	100	generally sparry, sometimes micritic matrix;		14	19	5'	139	0.01	TR			
16	18	100	occasional oncolite 1 cm long with geopetal	Honey SL in DL V									
18	20	100	tex; 11-12' silty, bituminous, burrowed	and vert. bituminous	19	24	5'	140	0.16	TR			
20	22	100	interbed	stylolite 3-4 mm									
22	24	100		wide which are									
24	26	100		post DL V	24	29	5'	141	1.09	TR			
26	28	100											
28	30	100		CA-SL-BA vein	29	34	5'	142	0.72	TR			
30	32	100		Honey rimmed by									
32	34	100		orange									
34	36	100			34	39	5'	143	1.61	TR			
36	38	100											
38	40	100		PY in DL V and	39	41	2'	144	0.45	TR			
40	42	100		bit									
42	44	100	- 2' micritic bioturbated DLST										
44	46												

WELCOME NORTH MINES LTD. — DIAMOND DRILL LOG

PROPERTY AB C-Zone HOLE NO. AB 77-6 LOGGED BY M. McArthur DATE July 24, 1977

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	SL	PY	Visual Log
44	48	100											
48	50	100		PY V with bit.									
50	52	100		cross-cuts DL V									
52	54	100											
54	56	100	- width of core BRXC DL-PY-(SL); cross	PY in DL V and bitum							1		
56	58	100	cut by pyritiferous bituminous stylolites	stylolites									
58	60	100											
60	62	100	- from here on DL V present but only										
62	64	100	1 mm size vs. 2-3 mm previously										
64	66	100	- 4 cm micritic section										
66	68	100		PY horiz. bit, replaces								1	
68	70	100		matrix									
70	72	100											
72	74	100											
74	76	100											
76	78	100	- from 78 to 93 oolites crser and	PY in DL V								1	
78	80	100	sparry matrix more dominant, some oncolites										
80	82	100	- DL BRXC] and possible shell debris	PY in spar matrix									
82	84	100		PY-SL in bit styl							1		
84	86	100		SL D in matrix									
86	88	100											
88	90	100											
90	92	100	- 93' subrounded triangle brach										
92	94	100	Oncolitic oolitic DLST - open	SL-PY in DL V and	93	98	5'	145	0.40	0.02			
94	96	100	textured with 1 mm oolites and 1 cm	bit. styl.									
96	98	100	oncolites in DL spar matrix; shell	6 cm. PY then SL									
98	100	100	frags (trilobites or brachs) form shelter tex	then DL V horiz.	98	101	3'	146	0.10	0.04			

WELCOME NORTH MINES LTD. — DIAMOND DRILL LOG

PROPERTY AB C-Zone HOLE NO. AB 77-6 LOGGED BY M. McArthur DATE July 24, 1977

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	SL	PY	Visual Log	Min.
100	102	100	infilled with DL spar; minor lithoclasts	98-99 PY-SL-DL										
102	104	100	Oolites and oncolites in more micritic	replaces matrix							1			
104	106	100	matrix, interbeds of bituminous DLST	103 PY-(SL)-DL V										
106	108	100	which are occasionally slumped and BRXX											
108	110	100												
110	112	100												
112	114	100		(SL) with PY in bit.							1			
114	116	100		stylolite							1			
116	118	100												
118	120	100												
120	122	100												
122	124	100												
124	126	100												
126	128	100	- BRXC DL thus core broken	(SL) DL in V and D							1			
128	130	100		matrix; PY also but ot										
130	132	100		intimate.										
132	134	100												
134	136	100	- BRXC DL-PY 10° to axis											
136	138	100	- DL-CA V give leached BRXC											
138	140	100												
140	142	100	Coarse grained oncolitic DLST; spar matrix	(SL) DL V							1			
142	144	100	of calcite and dolomite thus gives a distinct	(PY) D & V throughou										
144	146	100	texture to surface of core. Thin micritic DLST											
146	148	100	interbeds; abundance of spar results in grey and											
148	150	100	white colour											
150	152	100		1 cm PY in stylolite								1		
152	154	100												

WELCOME NORTH MINES LTD. — DIAMOND DRILL LOG

PROPERTY AB C-Zone HOLE NO. AB 77-6 LOGGED BY M. McArthur DATE July 24, 1977

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	SL	PY	Visual Log	Min
154	156	100												
156	158	100												
158	160	100												
160	162	100	- DL-BA V											
162	164	100		(SL) in DL matrix							1			
164	166	100												
166	168	100	Micritic, commonly bituminous grey DLST: in	Minor Py D in										
168	170	100	part oolitic; where micritic beds may	matrix throughout										
170	172	100	show slumping and burrowing											
172	174	100												
174	176	100												
176	178	100	- 3 cm DL-CA V 40° to axis											
178	180	100												
180	182	100												
182	184	100												
184	186	100												
186	188	100												
188	190	100		PY in horiz bit styl								1		
190	192	100												
192	194	100	- 4 cm PY-DL V									1		
194	196	100												
196	198	100												
198	200	100												
200	202	100	- 1' near vert horsetailing PY-BIT stylolite											
202	204	100												
204	206	100												
206	208	100												

WELCOME NORTH MINES LTD. — DIAMOND DRILL LOG

PROPERTY AB C-Zone HOLE NO. AB 77-6 LOGGED BY M. McArthur DATE July 24, 1977

From	To	Rcvy %	Description	Mineralization	Sample From	Sample To	Sample Width	Sample No.	Assays Zn%	Assays Pb%	SL	PY	Visual Log	Mag
208	210	100												
210	212	100												
212	214	100												
214	216	100	Slightly slumped dkgy, bituminous DLST;											
216	218	100	214-217 quite well laminationed and slightly											
218	220	100	fissile ; µV DL common											
220	222	100												
222	224	100	- 2 cm PY-DL horiz stylolite											
224	226	100												
226	228	100												
228	230	100	Light grey f xaln DLST with dkgy bit	PY-DL V's and										
230	232	100	wisps outlining slumps & possible burrows	patches; minor										
232	234	100	Upper 6' lithoclast BRXX, slump?	displacement along V										
234	236	100	- DL BRXC											
236	238	100												
238	240	100												
240	242	100												
242	244	100	- DL spar 1 cm spheres, thin wavy lines											
244	246	100	and patches - replacement?	SL in bit styl 15°							1			
246	248	100		to core axis										
			END OF HOLE	PY stylolite										

APPENDIX B

SUMMARY OF EXPENDITURES, 1977

AB CLAIMS

APPENDIX

SUMMARY OF EXPENDITURES

AB Claims

	1977 Budget	Disbursements to Nov. 1,1977.
Assays	$ 3,000.00	$ 792.00
Camp Maintenance	6,000.00	3,419.19
District Expense	700.00	859.93
Drilling	37,500.00	32,794.40
Field Supplies		1,407.29
Fixed Wing	8,000.00	16,459.53
Fuel		2,653.43
Property Acquisition		11.52
Property Maintenance		420.00
Rotary Wing	16,000.00	13,198.35
Salaries & Wages	9,000.00	9,657.66
Transport & Miscellaneous		969.71
Overhead	6,075.00	6,272.88
	$87,075.00	$88,915.89

Over budget: $1,840.89

Venture Participation:	% Interest	Contributing Interest	To Nov.1/77	Estimated to Dec.31/77	Total Estimated 1977
Bethlehem	30%	1/3	$29638.63	$2149.47	$31788.10
Utah	30%	1/3	29638.63	2149.47	31788.10
Getty	30%	1/3	29638.63	2149.46	31788.09
	Total:		$88915.89	$6448.40	$95364.29

SW
A

DDH AB 77-3
DDH AB 77-3a

DDH AB 77-2

DDH AB 77-1

NE
A'

5250'

5200'

5150'

5100'

5050'

5000'

4950'

4900'

4850'

0·77%
4·49%
} 8'-1·53%

D

2'-3·22%

C

2'-1·62%
oncolitic
dolostone

B

10'-4·53%
2'-1·40%

B

A

CREEK

MINERALIZED
TRENCHES

A – sandy dolostone

A – oncolitic dolostone

6'-0·41%

A – vuggy dolostone

LEGEND

- D — UPPER DARK-GREY BITUMINOUS DOLOSTONE
- C — OOLITIC AND ONCOLITIC DOLOSTONE
- B — LOWER DARK-GREY BITUMINOUS DOLOSTONE
- A — VUGGY DOLOSTONE

FACIES CONTACT:
DEFINED _____
APPROX. — — — —

SUBFACIES CONTACT _ _ _ _ _ _ _ _

>10% PYRITE .....

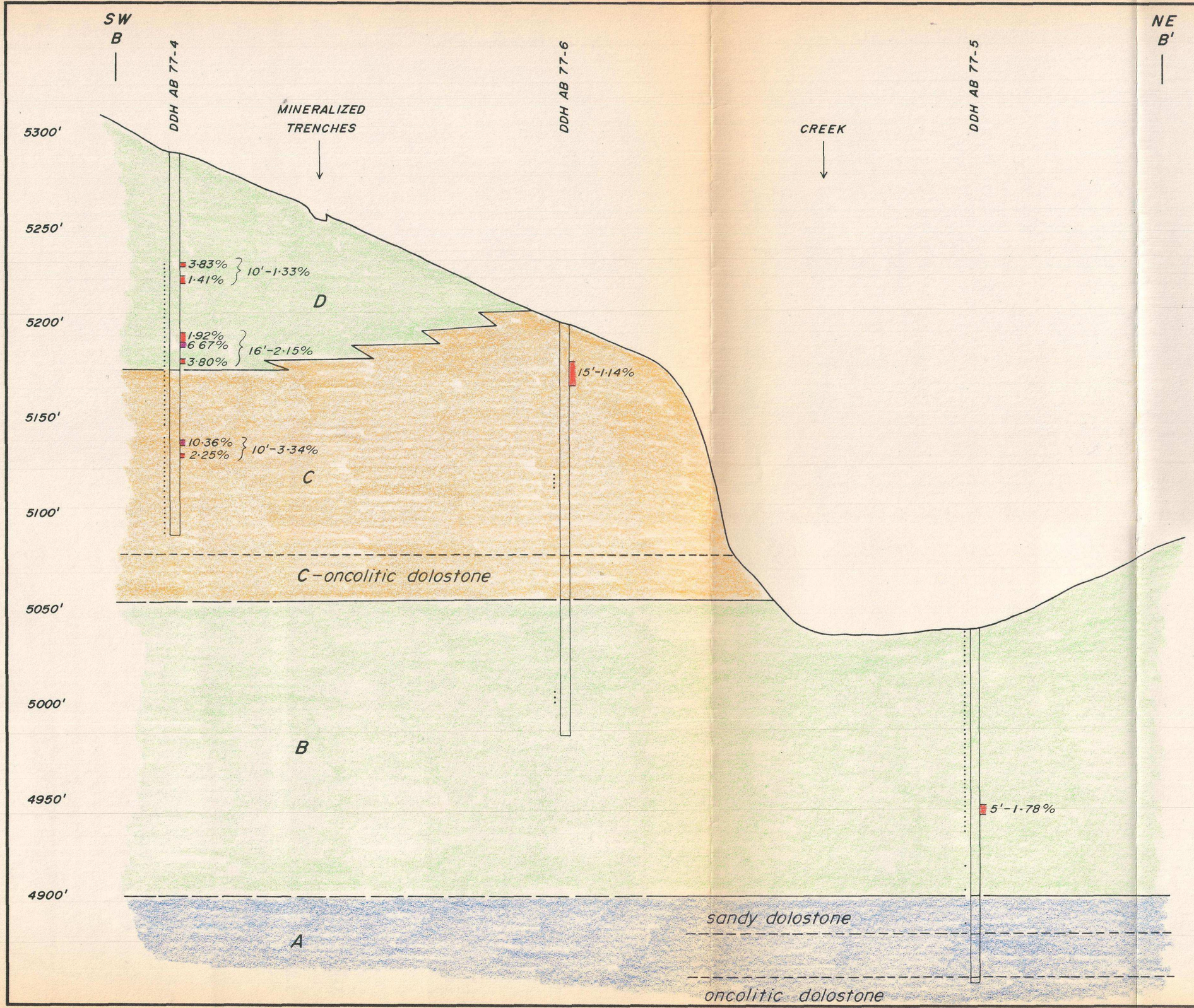
ASSAYS SHOWN ARE LEAD-ZINC COMBINED

WELCOME NORTH MINES LTD.

ARCTIC RED PROJECT

AB C-ZONE
CROSS-SECTION A-A'

Scale 1" : 50'	Date: NOV. 1977	N.T.S. 106C/16
Revised:	By: M. McA.	Fig. 2



LEGEND

- D — UPPER DARK-GREY BITUMINOUS DOLOSTONE
- C — OOLITIC AND ONCOLITIC DOLOSTONE
- B — LOWER DARK-GREY BITUMINOUS DOLOSTONE
- A — VUGGY DOLOSTONE

FACIES CONTACT:
DEFINED _____
APPROX. _ _ _ _ _

SUBFACIES CONTACT - - - - - - - - - -

>10% PYRITE .....

ASSAYS SHOWN ARE LEAD-ZINC COMBINED

WELCOME NORTH MINES LTD.

ARCTIC RED PROJECT

AB C-ZONE
CROSS-SECTION B-B'

Scale 1": 50'	Date: NOV. 1977	N.T.S. 106C/16
Revised:	By: M. McA.	Fig. 3