MAR 19810001: WOOD BUFALO

Received date: Dec 31, 1981

Public release date: Jan 01, 1983

SMD MINING CO. LTD.
WOOD BUFFALO PROJECT
QUARTZ MINERAL EXPLORATION PERMITS
6878110001 AND 6878110002

FINAL REPORT ON EXPLORATION ACTIVITIES

November, 1981

Terry Walker
Senior Project Geologist

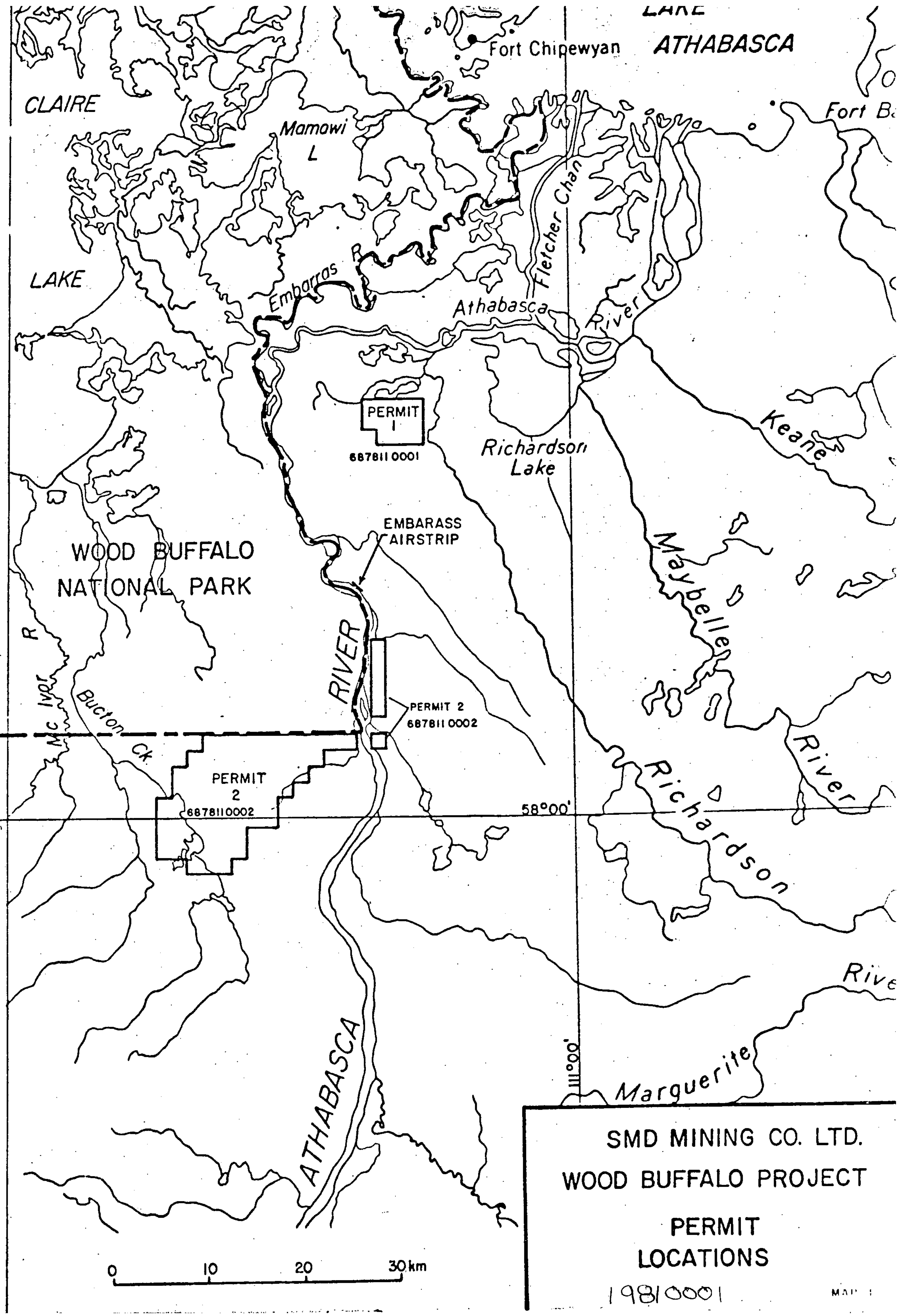

LAKE ATHABASCA
Fort Chipewyan
CLAIRE
LAKE
Mamowi L
Embarras R
Fletcher Chan
Athabasca River
PERMIT 1
6878110001
Richardson Lake
Keane
EMBARASS AIRSTRIP
WOOD BUFFALO NATIONAL PARK
RIVER
Maybelle
Mc Iver R
Bucton Ck
PERMIT 2
6878110002
PERMIT 2
6878110002
58°00'
Richardson River
111°00'
ATHABASCA
Marguerite River
0 10 20 30 km
SMD MINING CO. LTD.
WOOD BUFFALO PROJECT
PERMIT LOCATIONS
19810001
MAP 1

TABLE OF CONTENTS

	Page
SUMMARY	iii
INTRODUCTION	1
EXPLORATION ACTIVITIES	1
(a) Summary of 1980 Exploration Program Results	1
(b) 1981 Exploration Activities	2
(i) Sub-surface Geology Review	3
(ii) Drill Core Geochemistry	5
CONCLUSIONS	9
RECOMMENDATIONS	9
REFERENCES	10

MAPS ENCLOSED

Map 1	Permit Location Map	Frontispiece
Map 2	Final Plan Permit 6878110001	1:50,000 Scale in Pocket
Map 3	Final Plan Permit 6878110002	1:50,000 Scale in Pocket

FIGURES

Figure 1	Drill Hole Section WB2 - WB4	In Pocket
Figure 2	Drill Hole Section and Geochemical Profiles, Hole WB1	In Pocket
Figure 3	Geochemical Profiles, Hole WB2	In Pocket
Figure 4	Geochemical Profiles, Hole WB3	In Pocket
Figure 5	Geochemical Profiles, Hole WB4	In Pocket
Figure 6	Ternary Diagram, Mol.%, Al_2O_3, K_2O and Mgo for clay altered core analysis from Holes WB1 and WB3	Page 11

TABLES

Table 1	Table of Formations Encountered in Holes WB1-WB4

APPENDICES

Appendix I	Personnel List
Appendix II	Geochemical Analyses
Appendix III	Statutory Declaration of Costs

SUMMARY

Airborne INPUT and Magnetometer surveys of the permit areas were conducted during the spring of 1980 as a first pass in evaluating the property. Input results were inconclusive due to very conductive overburden cover. Magnetometer results indicated several basement structures and possible basement metasedimentary belts. The most significant of these areas were drilled in the fall of 1980.

The four drill holes put down in 1980 did not intersect mineralization but indicated favourable host rock and depositional environment for Pine Point type Pb-Zn mineralization in the carbonates on permit 6878110002, Athabasca sandstone and basement alteration intersected on permit 6878110001 suggested a favourable environment for basement uranium mineralization on this permit.

Geochemical analyses of core from the favourable zones mentioned above during 1981 failed to indicate any anomalous concentrations of metals normally associated with carbonate-hosted Pb-Zn deposits or Athabasca-type uranium deposits. No anomalous clay alteration halos were detected in the sandstone or basement either. In fact the results suggest that the trace element and major oxide patterns seen simply reflect geochemical differences between the rock types sampled and/or element redistribution related to paleoweathering processes.

Consequently permits 6878110001 and 6878110002 will be relinquished with submission of this report.

INTRODUCTION

SMD Mining Co. Ltd.'s Wood Buffalo Project comprises two quartz mineral exploration permits 6878110001 and 6878110002 (hereafter referred to as permits 1 and 2 respectively) located on the south shore of Blanche Lake (Tp. 108, R8 and 9) and adjacent to the south boundary of the Wood Buffalo National Park (Tp. 103-104, R9-11) (Map 1).

Both permits cover parts of a moderate to heavy tree-covered low-relief sandy alluvial plain formed by the Athabasca River and its tributaries. Periodically this generally flat surface is interrupted by northwest-trending narrow sand ridges which represent stabilized longitudinal dunes. The longitudinal dunes often feed into transverse and seif dune fields.

Drill hole data indicates permit 1 is underlain by 94 m + of Pleistocene and Recent fluvioglacial and fluvial sediments and 60 m + of Athabasca sandstone which overlie Aphebian gneisses. Permit 2 is underlain by 100 m + of Pleistocene and Recent sediments and 91 m + of Devonian dolomites, evaporites and mudstones which again rest on Aphebian gneisses and metasediments (Table 1).

SMD's interest in the area stems from regional geological and geophysical compilations tied to LANDSAT imagery analysis of the west half of the Athabasca Basin in Alberta and adjacent Saskatchewan. These studies suggested that in the permit area the Athabasca sandstone and or the sub-Athabasca unconformity was preserved beneath a relatively thin Pleistocene and or Devonian cover. The LANDSAT and geophysical data also suggested the presence of Aphebian metasediments in the permit area and a number of major structural breaks, which in Saskatchewan are associated with significant uranium occurrences.

EXPLORATION ACTIVITIES

(a) 1980 Summary

During the Spring of 1980 airborne INPUT EM and Magnetometer surveys were flown in the permit area (Maps 2 and 3) in an attempt to locate basement structures and conductive metasedimentary belts.

The INPUT survey proved to be ineffective because the overburden in the permit area proved to be very conductive and effectively masked basement conductor response. The magnetic survey substantiated the presence on permit 2 of a strong east-northeast trending basement structure and a belt of basement metasediments which had been inferred from the regional studies (ref. 1 - 1980 Summary Report).

Four diamond drill holes were subsequently drilled during the fall of 1980. One hole drilled on permit 1 (Map 2) intersected Athabasca sandstone and Aphebian basement gneiss. The basal 6 m of Athabasca sandstone was weakly kaolinized and chloritized and the top 15 m of basement gneiss was heavily hematized and kaolinized. A weak gamma ray anomaly was detected in the top 2 m of kaolinized Athabasca sandstone. Three holes were drilled across the east-northeast basement structure on permit 2 where it cuts the basement metasedimentary belt (Map 3). Two of the holes intersected Aphebian basement after penetrating over 200 m of Pleistocene and Devonian sediments. Essentially fresh granite and granite gneiss was intersected on the south side of the inferred basement structure. On the north side of the structure strong hematite, chlorite, epidote and kaolinite alteration was intersected in the top 10 - 15 m of a meta-arkose/meta-pelite basement sequence. Three 2 - 3 m zones in this section gave weak to moderate gamma ray anomalies.

The 40 m thick dolomite rich section cut in the holes on permit 2 suggested development during the Devonian of carbonate shoals and organic reefs astride the east-northeast basement structure. Hole WB2, drilled on the north side of the basement structure, cut very porous, strongly presquilized dolomites identical to the host dolomites in the Pine Point Pb-Zn deposits.

(b) <u>1981 Exploration Activities</u>

No uranium mineralization was detected during the 1980 drilling. However, clay alterations in Athabasca sandstone and basement metasediments plus minor gamma ray anomalies were detected close to inferred basement structures. Also dolomitized reefal carbonates were found to have developed over the same structure and although no base metal sulphides were detected, the area can be considered favourable for Pine Point type Pb-Zn mineralization.

During 1981 a program of selective geochemical analysis of cores from holes WB1 - WB4 was undertaken in an attempt to identify trace-element dispersion patterns indicative of the passage of ore-forming fluids or proximity to a uranium or base metal deposit. In conjunction with the base metal study Devonian cores from holes WB2 - WB4 were re-examined by SMDC personnel and an attempt made to correlate them with local Devonian stratigraphy (Table I and Figure 1).

(i) Sub-surface Geology Review

The Devonian dolomites, mudstones and evaporites cut in holes WB2 - WB4 can be subdivided into three lithostratigraphic units which are easily correlatable between holes and apparently represent (at least in part):

Keg River Formation, as described by Skall in the Point Area.

Lower Elk Point Evaporites, as described by Campbell in the Pine Point Area.

Meadow Lake Formation, as described by Carrigy in the McMurray Area.

The Meadow Lake Formation equivalent is represented in all three holes by 22 - 25 m of massive to shaly gray green mudstone and dolomitic mudstone which tends to be uniformly oxidized to red brown mudstone in the basal 10 m. The basal 5 m of the unit contains 10 - 50 cm bands of dolomite cemented fine quartz sandstones which increase in frequency towards the base. The basal 10 - 20 cm consists of a coarse imature arkose containing fragments of the underlying Aphebian gneiss and metasediment.

The Lower Elk Point Evaporite equivalent in WB2, WB3 consists of 10 - 16 m finely banded to massive pale gray green to dark gray, black and brown anhydrite with veins of gypsum and selenite. Several prominent 10 - 50 cm beds of green gypsiferous mudstone containing gypsum porphyroblasts divide the evaporites into two sub-units. In hole WB4 the Lower Elk Point Evaporites are represented by finely banded massive pale gray lime-mudstones and cementstones. The green gypsiferous shales present in WB2 and WB3 occur at the same horizons in WB4. Crosscutting veins of fibrous gypsum are also common.

The Keg River Formation equivalent can be subdivided into a lower and upper member in all three holes. The lower member consists of a basal 4 - 5 m thick massive wavy laminated buff-gray fine sucrosic dolomite to lime-mudstone overlain by 20 - 30 m of dark gray to black and buff laminated to massive argillaceous bioclastic dolomites and limestones. The clastic component occurs as argillaceous wisps and shaly partings. Bryozoans, stromatoporoids, crinoids thin-shelled brachiopods and solitary rugose corals are common in the bioclastic sections. The stromatoporoids and to some extent the bryozoans tend to form reefal zones and framestones. These are particularly well developed in WB2. The lower one third to one half of this member in WB4 and to a lesser extent WB3 appears to be composed of fore reef talus and stump breccias. The top 3 - 4 m of this member in WB2 and to a lesser extent WB3 is a well developed wavy laminated buff argillaceous sucrosic dolomite. The dark argillaceous and bioclastic dolomites which make up the bulk of this unit probably belong to Skall's A and B marine platform lithofacies (ref. 2). The cleaner dolomites in the basal 4 - 5 m of WB2-WB4 and the top 3 - 4 of WB2 probably belong to Skall's J1-3 back reef lithofacies.

The upper member of the Keg River formation equivalent in WB3 and WB4 consists of 40 m of massive to finely laminated buff to gray fine sucrosic dolomites. Thin 20 - 50 cm highly porous bands rich in fossil casts and finely laminated algal dolomites also occur. The fossils in the bioclastic bands are dwarfed species of brachiopods, gastropods, amphipora and some stromatoporoids. A 3 m band of blue gray wavy modular, bird's-eye textured limestone occurs at the middle of the member in WB3. The massive dolomites in this member probably belong to Skall's J1 and J3 subfacies, the rest to J2 subfacies and are interpreted to have been deposited under restricted conditions in supratidal and intertidal environments.

In WB2 the upper member contains a 4 m thick bryozoan dolomite and limestone bed 2 m above the base. This is underlain and overlain by J1 subfacies dolomites which make up the lower 1/2 of the member. The upper half of the upper member consists of a basal 4 m collapse breccia containing angular to sub-angular fragments of laminated algal limestone and lime mudstone of the overlying J2 subfacies in a mud matrix. The top 6 m of the member is very porous vuggy pale gray to white, presquilized dolomite. In general it appears that the upper member of the Keg River equivalent represents a carbonate shoal which in the vicinity of WB2 was partially exposed at least once during which incipient karstification developed in the exposed shoal.

(ii) Drill Core Geochemistry

The whole of the core from the upper member of the Keg River formation in WB2 - WB4 and section of the lower member in WB3 and WB4 was sampled at 1.5 m intervals and geochemically analyzed for Cu, Pb, Zn, Ag, U, Mn, Fe, Co and Ni. Kaolinized Athabasca sandstone from WB1 and altered Aphebian basement rocks from WB1 and WB3 were similarly sampled and geochemically analyzed for U, Ni, Co, As, Cu, Pb, Zn, B and Fe. Whole rock Al_2O_3, K_2O and MgO were also done on this latter group of samples.

A total of 220 samples were collected. The sampling procedure consisted of selecting a representative 7.5 cm piece of core from each .3 m of the 1.5 m sampling interval. These pieces were split, one-half kept for reference and the other analyzed. Sample preparation consisted of crushing and grinding to -200 mesh with a 50 mg cut from this being digested for analyses.

Carbonate samples were digested in hot HNO_2/HCl and analyzed for Cu, Pb, Zn, Ag, Mn, Fe, Ni and Co by AA. Uranium was determined fluorimetrically. A similar preparation, digestion and analysis technique was used to determine the trace elements in the Athabasca sandstone and basement samples. Boron analysis of these latter samples was done by emission spectroscopy. Al_2O_3, K_2O and MgO analyses were also done by AA but following a $HF/HNO_3/HClO_4$ digestion. All analyses were performed by the Saskatchewan Research Council Laboratory in Saskatoon, Saskatchewan (Appendix II).

Results from the Carbonates

The objects of these analyses were to identify anomalous trace element concentrations or depletions within the shoal and reef carbonates of the upper part of the Keg River formation. Anomalous trace metal haloes, particularly for Cu, Zn and Mn are known to occur around a number of carbonate-hosted Pb-Zn deposits. The results are plotted as a series of geochemical profiles (or histograms) for the various elements alongside a geological strip log of the respective hole (Figures 2 - 5).

Generally, all the trace elements are uniformly low, especially in the upper Keg River member and well within the normal ranges for these sediments. Variations in response to lithological change are seen, as in hole WB4 (Figure 5) where the change from upper Keg River shoals to lower Keg River marine platform is nicely picked out by the quite sharp background increases in Cu, Ni, Co and to some extent Zn and Mn. This probably just reflects the increased clay content of the lower member. A similar pattern is seen in WB2 (Figure 3) where the lithological change in the upper Keg River from J1 dolomites to shaly algal mudstone and collapse breccia are picked out by sharp background increases and peaks in Cu, Pb, Zn, Fe and Mn. One 75 cm shale band close to the top of WB2, which was individually sampled, shows a strong kick in all the aforementioned elements but, here again, this is by no means anomalous for this type of sediment. Several individual peaks for Cu and Zn in hole WB3 (Figure 4) in apparently massive J1 subfacies probably also represent local increases in clay content of the dolomites.

Hence, the trace element patterns observed in the sampled sections of the Keg River formation simply reflect lithological changes within the formation and are in no way anomalous.

Results From the Athabasca and Basement Sections

The results of these analyses are presented in a similar manner to the carbonate analyses (Figures 2 and 4). Athabasca type uranium deposits have a variety of associated elements besides U, i.e., Ni, Co, As, Ag. Aside from the U itself, which is the most mobile element, anomalous concentration of As, Ni, Co and Ag in favourable host metasediments and sandstone may indicate proximity to U mineralization. In addition, the deposits have alteration haloes in the overlying sandstone and surrounding basement which are attributable to the uranium ore-forming process. These alteration haloes include illite and boron at the Midwest and Dawn Lake deposits and kaolinite, boron and sulphur surrounded by illite at the Key Lake deposit. The analyses conducted on the clay altered Athabasca sandstone in WB1 and the chloritized basement rocks in WB1 and WB3 were to test for both trace metal and major element anomalies.

The trace element concentrations in the basement of hole WB3 are again uniformly low and within the normal ranges for the rock types sampled. Of particular significance are the low values of U (max. 5 ppm) and Ni and the negligible As and Co values (Figure 4). A sharp increase in Ni is seen just below the altered zone but this reflects a change to a more pelitic metasediment. Increased backgrounds for Zn, B and to some extent Cu and Fe can be seen in the altered metasediments close to the unconformity. This probably reflects the change in rock type rather than any anomalous metal concentrations. The Al_2O_3, K_2O and MgO concentrations determined for the basement samples from WB3 were recalculated to relative molar percentages and plotted on a ternary diagram (Figure 6). Samples from the basement metasediments plot close to the right centre of the diagram indicating a mixed chlorite, illite assemblage whereas the gneiss/granite gneiss samples plot within or close to the illite field. This mixed illite, chlorite assemblage with a tendency towards illite predominance is typical of the clay assemblages formed when these rock types are subjected to weathering under warm savanna type climate. The trace element patterns also reflect this type of weathering regime, although to a lesser extent.

The trace element concentrations in the Athabasca samples from WB1 are uniformly low and significantly contain no uranium (Figure 2). In the underlying altered basement section trace elements are again low but several of them, e.g., Ni, Co and B shows a marked increase towards the base of the altered zone. Zn shows the reverse trend, i.e., concentration at the basement contact and decrease to the base of the altered zone. These patterns are very similar to the trace element patterns found in weathering profiles developed under hot relatively dry continental conditions. The boron anomaly which peaks at 6500 ppm is high but is not unusual for the rock type in which it is found. The clay assemblages found in the Athabasca sandstone (Figure 6) are essentially pure kaolinite (as observed in core) but this in itself without anomalous B or S is not significant since the Athabasca formation often carries significant kaolinite in its matrix. Clay assemblages in the altered basement rocks are essentially illite ± chlorite with chlorite increasing with depth and becoming dominant in the unaltered basement rocks. These clay assemblages and their zonation are again fairly typical of those developed under relatively hot dry continental conditions on these rock types.

CONCLUSIONS

The geochemical analyses conducted on the most prospective zones intersected in the 1980 drilling program did not indicate any anomalous trace element concentrations or any clay alteration haloes.

Trace element patterns in the carbonates can adequately be explained as reflecting trace element background variations between lithologies. Trace element and clay assemblages in the basement rocks also reflect lithological variations but superimposed on this are modifications due to weathering processes. Hence, the "altered" basement sections are in fact paleoweathering profiles or remnants of same.

Clay alteration in the Athabasca sandstone in WB1 does not carry any other anomalous elements and thus is probably not significant.

RECOMMENDATIONS

Based on the essentially negative results of SMD's exploration efforts to date, it is felt that further work in the permit area is not justified.

Hence, SMD Mining Co. Ltd. will formally relinquish permits 6878110001 and 6878110002 with submission of this report.

[redacted]

Terry Walker
Senior Project Geologist

REFERENCES

1. SMD Mining Co. Ltd., Wood Buffalo Project, Summary of 1980 Exploration Activities.

2. Skall, H. (1977) The Geology of the Pine Point Barrier Reef Complex in "The Geology of Selected Carbonate Oil, Gas and Pb-Zn reservoirs in Western Canada, CAN. SOC. PET. GEOLOG. p. 19-38.

3. Carrigy, M. A. (1959) Geology of the McMurray Formation, Research Council of Alberta, Geological Division, MEMOIR 1, Part III, p. 20.

4. Campbell, N. (1957) Stratigraphy and structure of Pine Point Area, NWT in Structural Geology of Canadian Ore Deposits, V. 2, 6th Commonwealth Mining and Metallurgical Cong., Canada, p. 161-176.

TRIANGULAR CO-ORDINATE KEUFFEL & ESSER CO. MADE IN U.S.A. 46 4492

19810001

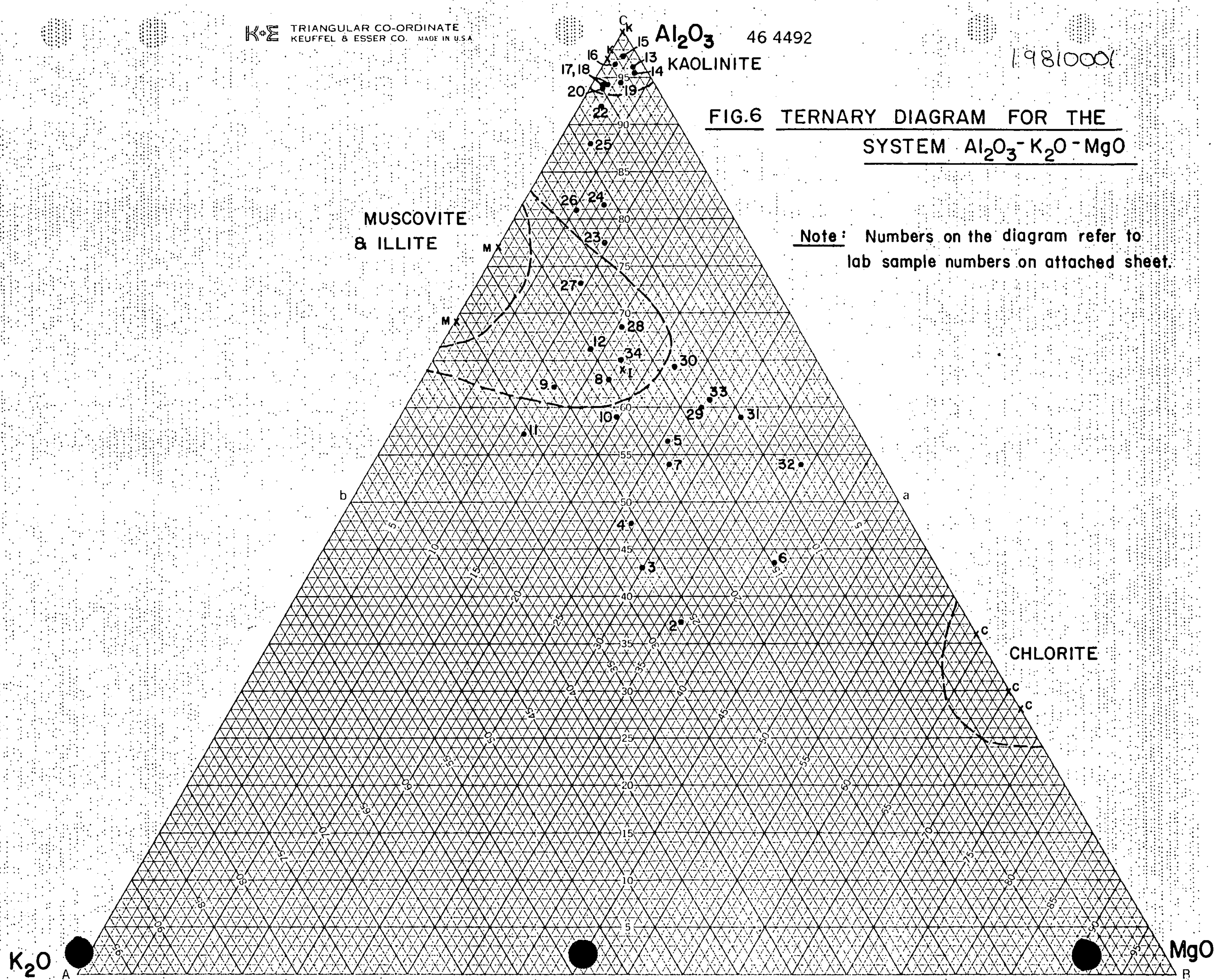


FIG.6 TERNARY DIAGRAM FOR THE SYSTEM Al_2O_3-K_2O-MgO

Note: Numbers on the diagram refer to lab sample numbers on attached sheet.

1
2
3
4
5
6 AL2O3 HF/HNO3/HCLO4 AA
7 K2O HF/HNO3/HCLO4 AA
8 MGO HF/HNO3/HCLO4 AA
9 FE HF/HNO3/HCLO4 AA

SAMPLE NO.		Relative Mol% Al_2O_3	Relative Mol% K_2O	Relative Mol% MgO	%AL2O3	%K2O	%MGO	%FE
1CG504					11.7	5.96	5.64	2.11
2 WBOD#3- 0488	ARK	37.2	26.4	36.4	8.8	5.77	3.42	1.74
3 WBOD#3- 0489	BMS	43.3	26.5	30.2	10.8	6.09	3.00	3.34
4 WBOD#3- 0490	BMS	47.8	25.3	26.9	12.3	6.00	2.77	2.32
5 WBOD#3- 0491	BMS	56.4	17.8	25.8	17.1	5.01	3.13	3.94
6 WBOD#3- 0492	BMS	43.4	14.2	42.4	13.4	4.09	5.18	2.88
7 WBOD#3- 0493	BGS	54.2	18.9	28.9	11.1	3.59	2.18	1.62
8 WBOD#3- 0494	BGS	63.1	20.0	16.9	12.5	3.68	1.34	2.20
9 WBOD#3- 0495	BGS	62.6	25.2	12.2	14.7	5.44	1.14	2.00
10 WBOD#3- 0496	BGS	59.2	21.0	19.8	14.1	4.57	1.87	2.25
11 WBOD#3- 0497	BGS	57.3	30.6	12.1	13.6	6.73	1.12	1.25
12 WBOD#3- 0498	BGS	66.1	20.1	13.8	16.1	4.56	1.32	2.82
13 WBOD#1- 0775	A	96.0	1.3	2.7	7.4	0.11	0.09	1.55
14 WBOD#1- 0776	A	95.6	1.1	3.3	8.9	0.09	0.13	1.33
15 WBOD#1- 0777	A	97.6	1.2	1.2	8.2	0.11	0.05	1.12
16 WBOD#1- 0778	A	96.7	2.2	1.1	9.1	0.14	0.07	1.35
17 WBOD#1- 0779	A	93.8	4.7	1.5	6.1	0.25	0.05	1.01
18 WBOD#1- 0780	A	93.8	4.7	1.5	6.1	0.25	0.07	1.91
19 WBOD#1- 0781	A	94.5	2.7	2.8	10.9	0.27	0.11	0.83
20 WBOD#1- 0782	A	94.4	4.4	1.2	8.7	0.39	0.05	1.13
21 CG504					13.4	6.16	5.74	2.31
22 WBOD#1- 0783	A	91.9	5.9	2.2	12.7	0.78	0.11	1.62
23 WBOD#1- 0784	A	77.5	13.0	9.5	13.4	2.05	0.66	3.34
24 WBOD#1- 0785	BMS	81.3	11.2	7.5	17.7	2.29	0.66	3.85
25 WBOD#1- 0786	BMS	88.2	8.7	3.1	14.5	1.36	0.21	1.46
26 WBOD#1- 0787	BMS	81.0	13.7	5.3	16.9	2.64	0.45	1.30
27 WBOD#1- 0788	BMS	73.5	17.3	9.3	16.9	3.67	0.87	1.69
28 WBOD#1- 0789	BMS	68.7	15.6	15.7	17.0	3.60	1.55	1.39
29 WBOD#1- 0790	BMS	60.2	12.4	27.4	15.4	2.89	2.80	1.15
30 WBOD#1- 0791	BMS	64.6	12.9	22.5	18.5	3.39	2.55	1.38
31 WBOD#1- 0792	BMS	59.2	10.1	30.7	16.7	2.68	3.45	2.50
32 WBOD#1- 0793	BMS	54.3	7.0	38.7	16.7	1.98	4.76	2.70
33 WBOD#1- 0794	BGS	60.6	12.0	27.4	8.8	1.56	1.58	1.80
34 WBOD#1- 0795	BGS	65.5	17.4	17.1	17.2	4.25	1.79	3.66

A = Athabasca sandstone
BMS = Basement metasediments
BGS = Basement gneisses
ARK = Devonian arkose

CHECKED BY: [redacted]

19810001

TABLE 1

TABLE OF FORMATIONS

Age	Formation		Thickness	Lithology
PLEISTOCENE			94 - 105 m	Fluvioglacial and fluvial sands, gravels and interbedded silt and clay.
DEVONIAN	KEG RIVER	UPPER	34 - 40 m	Massive to finely laminated buff to gray fine sucrosic dolomites with bioclastic rich bands + algal laminated mudstone and coarse porous presquilised dolomites.
		LOWER	25 - 38 m	Dark gray to buff laminated argillaceous bioclastic dolomites and limestones with shaly partings, stromatoporoid reef bands and slump breccias. At base is a 4 - 5 m band of massive wavy laminated buff-gray fine sucrosic dolomite to lime mudstone.
	LOWER ELK POINT EVAPORITES		10 - 16 m	Finely banded to massive dark gray to white anhydrite plus minor gypsum and thin green gypsiferous mudstone bands. This sequence grades laterally into massive pale lime and dolomite mudstone.
	MEADOW LAKE		22 - 25 m	Massive gray green mudstone and dolomite mudstone which is oxidized to a red brown colour in its lower ½ and contains beds of fine grained dolomite cemented quartz sandstone which increase in frequency towards the base at which a bed of coarse mature arkose is irregularly developed where this unit overlies Precambrian basement.
HELIKIAN	ATHABASCA SANDSTONE		60 m	Massive to parallel and ripple cross laminated gray to pink and red colored banded orthoquartzite and minor red mudstone bands and quartz pebble bands. The basal 4 m is a red brown mud supported pebble conglomerate
APHEBIAN			40 m +	Gray and pink medium to coarse grained quartz, feldspar, biotite granite and granite gneiss plus meta-arkose, pelite, quartzite and semi-pelite bands 1-5 m/thick.

APPENDIX I

PERSONNEL RECORD (1980-1981)

Name	Title	Time Charged to Property		Permit
Terry Walker	Senior Project Geologist	8-9/Dec./80	2	6878110002
		17/March/81	1	6878110001
		28-29/Sept./81	2	6878110002
		1/Oct./81	1	6878110001
		2/Oct./81	1	6878110002
		20-21/Oct./81	2	6878110002
		22-23/Oct./81	2	6878110001
		26-27/Oct./81	2	6878110001
		29/Oct./81	1	6878110001
		30/Oct./81	1	6878110002
		9/Nov./81	1	6878110002
		10/Nov./81	1	6878110001

APPENDIX II

DRILL CORE GEOCHEMICAL ANALYSIS

183) WALKER SMDC OCTOBER 14, 1981 (58) PAGES 618, 621 [.5 GM REG DIG]

1 CU HNO3/HCL AA
2 U HNO3/HCL FLUOR
3
4 PB HNC3/HCL AA D2ARC
5 [illegible]N HNO3/HCL AA
6
7 AG—HNO3/HCL AA D2 ARC
8 MN HNO3/HCL AA
9 FE HNC3/HCL AA

SAMPLE NO.	CU	U	DPB	ZN	D2AG	MN	%FE
1 LS2	56.	28.	16.	185.	0.5	2674.	6.89
2 WB200350	15.	0.	0.	11.	0.1	27.	0.19
3 WB200355	13.	0.	0.	5.	0.1	29.	0.05
4 WB200357	40.	3.	14.	32.	0.2	110.	2.32
5 WB200360	24.	0.	4.	19.	0.1	31.	0.50
6 WB200365	14.	1.	2.	12.	0.1	26.	0.48
7 WB200370	16.	0.	6.	9.	0.1	60.	0.57
8 WB200375	26.	1.	12.	19.	0.1	73.	1.19
9 WB200380	28.	0.	10.	26.	0.1	71.	0.95
10 WB200385	18.	1.	4.	12.	0.1	46.	0.40
11 WB200390	13.	0.	2.	8.	0.1	50.	0.36
12 WB200392	14.	1.	3.	10.	0.1	46.	0.18
13 WB200397	16.	2.	9.	12.	0.1	51.	0.50
14 WB200402	9.	1.	1.	4.	0.1	59.	0.06
15 WB200406	9.	2.	2.	4.	0.1	53.	0.06
16 WB200410	8.	2.	2.	7.	0.7	53.	0.05
17 WB200415	10.	2.	0.	3.	0.2	49.	0.02
18 WB200420	8.	1.	0.	3.	0.1	50.	0.03
[illegible] WB200425	8.	1.	0.	3.	0.1	49.	0.02
20 WB200430	10.	1.	1.	5.	0.1	49.	0.03
21 LS2	54.	35.	14.	186.	0.7	3036.	6.70
22 WB200435	9.	1.	1.	7.	0.1	59.	0.07
23 WB200440	9.	1.	0.	5.	0.1	54.	0.03
24 WB200445	9.	1.	0.	4.	0.1	53.	0.03
25 WB200450	9.	1.	1.	4.	0.1	51.	0.05
26 WB200455	11.	2.	2.	4.	0.1	55.	0.07
27 WB200460	13.	2.	1.	6.	0.1	47.	0.09
28 WB300325	9.	1.	1.	4.	0.1	64.	0.05
29 WB300330	9.	0.	1.	4.	0.1	70.	0.03
30 WB300335	8.	1.	1.	4.	0.1	68.	0.03
31 WB300340	8.	1.	0.	6.	0.1	61.	0.02
32 WB300345	8.	2.	0.	5.	0.1	44.	0.02
33 WB300350	8.	1.	1.	5.	0.1	45.	0.02
34 WB300355	8.	1.	0.	5.	0.1	44.	0.02
35 WB300360	7.	1.	0.	9.	0.1	46.	0.02
36 WB300365	8.	2.	0.	6.	0.1	47.	0.03
37 WB300370	8.	2.	0.	4.	0.1	53.	0.04
38 WB300378	7.	1.	0.	4.	0.1	57.	0.02
39 WB300382	12.	1.	0.	6.	0.1	51.	0.03
40 WB300387	11.	1.	0.	7.	0.1	56.	0.02
41 LS2	53.	35.	14.	186.	0.3	2983.	6.48
42 WB300393	11.	2.	0.	4.	0.1	58.	0.07
43 WB300395	12.	2.	1.	4.	0.1	56.	0.06
44 WB300400	12.	1.	1.	8.	0.1	64.	0.05
[illegible] WB300405	10.	2.	1.	5.	0.1	60.	0.04

CHECKED BY: ___[redacted]

183) WALKER SMDC OCTOBER 14, 1981 (58) PAGES 618, 621 [.5 GM REG DIG]

1 CU HNO3/HCL AA
2 U HNO3/HCL FLUOR
3
4 PB HNO3/HCL AA D2ARC
5 ZN HNO3/HCL AA
6
7 AG HNO3/HCL AA D2 ARC
8 MN HNO3/HCL AA
9 FE HNO3/HCL AA

SAMPLE NO.		CU	U	DPB	ZN	D2AG	MN	%FE
46	WB300415	25.	2.	2.	34.	0.1	55.	0.04
47	WB300420	10.	1.	1.	4.	0.1	52.	0.04
48	WB400340	9.	1.	0.	5.	0.1	81.	0.03
49	WB400345	11.	2.	2.	8.	0.1	91.	0.05
50	WB400350	9.	1.	4.	6.	0.1	66.	0.04
51	WB400355	9.	1.	0.	5.	0.1	51.	0.02
52	WB400360	10.	2.	2.	5.	0.1	82.	0.05
53	WB400365	16.	2.	2.	8.	0.1	95.	0.06
54	WB400370	14.	1.	1.	10.	0.1	72.	0.04
55	WB400375	13.	1.	2.	5.	0.1	78.	0.06
56	WB400380	13.	2.	2.	7.	0.1	67.	0.05
57	WB400384	13.	3.	3.	6.	0.1	67.	0.06
58	WB400388	15.	1.	2.	7.	0.1	74.	0.06

CHECKED BY: ____[redacted]

183) WALKER SMDC OCTOBER 14, 1981 (58) PAGES 618, 621 [.5 GM REG DIG]

1 CU HNO3/HCL AA
2 U HNO3/HCL FLUOR
3
4 PB HNO3/HCL AA
5 ZN HNO3/HCL AA
6
7 AG HNO3/HCL AA
8 MN HNO3/HCL AA
9 FE HNO3/HCL AA

SAMPLE NO.		CU	U	PB	ZN	AG	MN	%FE
1	LS2	56.	28.	31.	185.	2.1	2674.	6.89
2	WB200350	15.	0.	41.	11.	7.2	27.	0.19
3	WB200355	13.	0.	43.	5.	7.1	29.	0.05
4	WB200357	40.	3.	47.	32.	4.9	110.	2.32
5	WB200360	24.	0.	39.	19.	5.8	31.	0.50
6	WB200365	14.	1.	38.	12.	5.7	26.	0.48
7	WB200370	16.	0.	45.	9.	6.1	60.	0.57
8	WB200375	26.	1.	45.	19.	5.1	73.	1.19
9	WB200380	28.	0.	43.	26.	4.9	71.	0.95
10	WB200385	18.	1.	44.	12.	6.7	46.	0.40
11	WB200390	13.	0.	40.	8.	6.5	50.	0.36
12	WB200392	14.	1.	43.	10.	7.2	46.	0.18
13	WB200397	16.	2.	47.	12.	5.8	51.	0.50
14	WB200402	9.	1.	39.	4.	5.1	59.	0.06
15	WB200406	9.	2.	40.	4.	5.0	53.	0.06
16	WB200410	8.	2.	39.	7.	5.6	53.	0.05
17	WB200415	10.	2.	39.	3.	5.2	49.	0.02
18	WB200420	8.	1.	39.	3.	5.0	50.	0.03
19	WB200425	8.	1.	40.	3.	5.2	49.	0.02
20	WB200430	10.	1.	41.	5.	5.5	49.	0.03
21	LS2	54.	35.	35.	186.	2.1	3036.	6.70
22	WB200435	9.	1.	39.	7.	5.1	59.	0.07
23	WB200440	9.	1.	41.	5.	5.1	54.	0.03
24	WB200445	9.	1.	40.	4.	5.1	53.	0.03
25	WB200450	9.	1.	40.	4.	5.0	51.	0.05
26	WB200455	11.	2.	41.	4.	4.9	55.	0.07
27	WB200460	13.	2.	40.	6.	5.0	47.	0.09
28	WB300325	9.	1.	38.	4.	4.9	64.	0.05
29	WB300330	9.	0.	38.	4.	4.7	70.	0.03
30	WB300335	8.	1.	38.	4.	4.9	68.	0.03
31	WB300340	8.	1.	39.	6.	4.9	61.	0.02
32	WB300345	8.	2.	38.	5.	4.9	44.	0.02
33	WB300350	8.	1.	40.	5.	5.2	45.	0.02
34	WB300355	8.	1.	39.	5.	5.1	44.	0.02
35	WB300360	7.	1.	39.	9.	5.0	46.	0.02
36	WB300365	8.	2.	40.	6.	5.1	47.	0.03
37	WB300370	8.	2.	39.	4.	5.0	53.	0.04
38	WB300378	7.	1.	40.	4.	5.2	57.	0.02
39	WB300382	12.	1.	40.	6.	5.1	51.	0.03
40	WB300387	11.	1.	40.	7.	5.3	56.	0.02
41	LS2	53.	35.	31.	186.	1.7	2983.	6.48
42	WB300393	11.	2.	37.	4.	5.1	58.	0.07
43	WB300395	12.	2.	37.	4.	5.1	56.	0.06
44	WB300400	12.	1.	36.	8.	5.0	64.	0.05
45	WB300405	10.	2.	36.	5.	4.9	60.	0.04

CHECKED BY: ____[redacted]

183) WALKER SMDC OCTOBER 14, 1981 (58) PAGES 618, 621 [.5 GM REG DIG]

1 CU HNO3/HCL AA
2 U HNO3/HCL FLUOR
3
4 PB HNO3/HCL AA
5 [illegible] HNO3/HCL AA
6
7 AG HNO3/HCL AA
8 MN HNO3/HCL AA
9 FE HNO3/HCL AA

SAMPLE NO.		CU	U	PB	ZN	AG	MN	%FE
46	WB300415	25.	2.	38.	34.	5.2	55.	0.04
47	WB300420	10.	1.	37.	4.	4.9	52.	0.04
48	WB400340	9.	1.	37.	5.	4.9	81.	0.03
49	WB400345	11.	2.	37.	8.	4.9	91.	0.05
50	WB400350	9.	1.	38.	6.	5.0	66.	0.04
51	WB400355	9.	1.	35.	5.	5.0	51.	0.02
52	WB400360	10.	2.	37.	5.	5.0	82.	0.05
53	WB400365	16.	2.	36.	8.	4.9	95.	0.06
54	WB400370	14.	1.	35.	10.	4.9	72.	0.04
55	WB400375	13.	1.	37.	5.	4.8	78.	0.06
56	WB400380	13.	2.	36.	7.	4.9	67.	0.05
57	WB400384	13.	3.	37.	6.	5.1	67.	0.06
58	WB400388	15.	1.	37.	7.	5.1	74.	0.06

CHECKED BY: ___[redacted]_

DISC FILID: D51 REPORT

00:15 YY/MM/DD

D5 ROY SMDC SEPT. 22, 1981 (81) PGS 528,568,569 [.5 GM REG DIG]

1 PB HNO3/HCL AA
2 NI HNO3/HCL AA
3 CO HNO3/HCL AA
4 CU HNO3/HCL AA
5 ZN HNO3/HCL AA
6
7
8
9

	PB	NI	CO	CU	ZN
LS2	31.	56.	39.	51.	187.
WB0D1 775	5.	8.	3.	8.	7.
WB0D1 776	5.	6.	3.	9.	6.
WB0D1 777	4.	6.	2.	7.	6.
WB0D1 778	4.	5.	2.	8.	4.
WB0D1 779	4.	6.	2.	8.	4.
WB0D1 780	4.	6.	2.	7.	5.
WB0D1 781	4.	6.	2.	7.	4.
WB0D1 782	4.	6.	2.	7.	5.
WB0D1 783	5.	6.	2.	8.	5.
WB0D1 784	5.	9.	7.	6.	35.
WB0D1 785	5.	10.	7.	5.	31.
WB0D1 786	4.	7.	3.	4.	7.
WB0D1 787	5.	8.	4.	10.	17.
WB0D1 788	8.	14.	7.	12.	27.
WB0D1 789	5.	15.	5.	10.	15.
WB0D1 790	6.	18.	6.	14.	12.
WB0D1 791	6.	13.	6.	8.	7.
WB0D1 792	7.	21.	12.	9.	11.
WB0D1 793	7.	29.	13.	8.	16.
LS2	25.	54.	37.	49.	175.
WB0D1 794	11.	19.	16.	13.	51.
WB0D1 795	12.	14.	13.	13.	57.
WB0D3 478	33.	16.	12.	12.	87.
WB0D3 479	32.	18.	12.	11.	6.
WB0D3 480	32.	16.	12.	10.	6.
WB0D3 481	30.	17.	12.	8.	4.
WB0D3 482	28.	14.	12.	9.	6.
WB0D3 483	29.	15.	12.	9.	5.
WB0D3 484	32.	17.	12.	11.	5.
WB0D3 485	30.	17.	12.	11.	7.
WB0D3 486	31.	21.	11.	19.	8.
WB0D3 487	29.	14.	12.	9.	4.
WB0D3 488	11.	16.	8.	9.	47.
WB0D3 489	11.	12.	11.	10.	66.
WB0D3 490	8.	10.	8.	9.	40.
WB0D3 491	9.	15.	13.	13.	80.
WB0D3 492	12.	16.	11.	17.	45.
WB0D3 493	9.	14.	7.	13.	33.
WB0D3 494	8.	16.	9.	10.	52.

ISC FILID: 1 REPORT

01:59 YY/MM/DD

05 ROY SMDC SEPT. 22, 1981 (81) PGS 528,568,569 [.5 GM REG DIG]
1 PB HNO3/HCL AA
2 NI HNO3/HCL AA
3 CO HNO3/HCL AA
4 CU HNO3/HCL AA
5 ZN HNO3/HCL AA
6
7
8
9

	PB	NI	CO	CU	ZN
:S2	27.	56.	40.	55.	190.
VB0D3 495	8.	10.	6.	7.	34.
VB0D3 496	9.	12.	8.	10.	53.
VB0D3 497	8.	11.	6.	14.	25.
VB0D3 498	11.	29.	11.	17.	44.
VB0D4 499	26.	13.	11.	7.	5.
VB0D4 500	27.	13.	11.	10.	5.
VB0D3 796	26.	12.	11.	7.	3.
VB0D3 797	27.	13.	11.	9.	5.
VB0D3 798	24.	13.	11.	8.	4.
VB0D3 799	26.	13.	11.	8.	4.
VB0D3 800	24.	14.	11.	7.	3.
VB0D4 701	26.	14.	11.	8.	6.
VB0D4 702	28.	14.	11.	12.	9.
VB0D4 703	28.	14.	11.	8.	10.
VB0D4 704	28.	14.	12.	11.	7.
VB0D4 705	26.	13.	11.	9.	7.
VB0D4 706	27.	14.	11.	7.	6.
VB0D4 707	27.	14.	11.	8.	7.
VB0D4 708	30.	14.	11.	11.	9.
:S2	20.	52.	36.	51.	168.
VB0D4 709	30.	17.	10.	10.	8.
VB0D4 710	30.	20.	11.	13.	7.
VB0D4 711	32.	22.	11.	14.	7.
VB0D4 712	33.	22.	11.	16.	7.
VB0D4 713	28.	13.	11.	9.	7.
VB0D4 714	32.	43.	10.	29.	10.
VB0D4 715	30.	24.	10.	21.	11.
VB0D4 716	29.	23.	10.	15.	7.
VB0D4 717	29.	21.	10.	19.	9.
VB0D4 718	32.	30.	10.	28.	11.
VB0D4 719	30.	39.	10.	35.	12.
VB0D4 720	34.	34.	11.	30.	12.
VB0D4 721	33.	35.	11.	33.	15.
VB0D4 722	31.	35.	12.	34.	15.
VB0D4 723	31.	28.	12.	24.	13.
VB0D4 724	30.	21.	12.	20.	12.
VB0D4 725	29.	18.	12.	12.	8.
VB0D4 726	29.	20.	12.	14.	8.
VB0D4 727	28.	18.	12.	11.	8.

SC FILID: 2 REPORT

1:59 YY/MM/DD

05 ROY SMDC SEPT. 22, 1981 (81) PGS 528,568,569 [.5 GM REG DIG]
1 PB HNO3/HCL AA
2 NI HNO3/HCL AA
3 CO HNO3/HCL AA
4 CU HNO3/HCL AA
5 ZN HNO3/HCL AA
6
7
8
9

	PB	NI	CO	CU	ZN
LS2	27.	58.	40.	56.	190.
WB0D4 728	30.	20.	14.	14.	14.

173 / PUY SMDC SEPT.22/81. (82) PGS.528,568,569. [.5 GM REG.DIG.]

1
2 U HNO3/HCL FLUOR.
3
4
5 AG HNO3/HCL AA
6 MN HNO3/HCL AA
7 FE HNO3/HCL AA
8 B EMM.SPEC.
9 AS HNO3/HCL AA HYDRIDE

SAMPLE NO.	U	AG	MN	%FE	B	AS
1 LS2	33.					4.4
2 WBOD#1- 0775	0.				54.	0.4
3 WBOD#1- 0776	0.				70.	0.2
4 WBOD#1- 0777	0.				62.	0.2
5 WBOD#1- 0778	0.				67.	0.2
6 WBOD#1- 0779	0.				48.	0.4
7 WBOD#1- 0780	0.				85.	0.2
8 WBOD#1- 0781	0.				87.	0.2
9 WBOD#1- 0782	0.				130.	0.5
10 WBOD#1- 0783	0.				380.	0.4
11 WBOD#1- 0784	0.				550.	0.1
12 WBOD#1- 0785	0.				1100.	0.1
13 WBOD#1- 0786	0.				750.	0.2
14 WBOD#1- 0787	0.				1100.	0.1
15 WBOD#1- 0788	0.				500.	0.1
16 WBOD#1- 0789	1.				450.	0.1
17 WBOD#1- 0790	2.				300.	0.4
18 WBOD#1- 0791	0.				6500.	0.2
19 WBOD#1- 0792	0.				2500.	0.2
20 WBOD#1- 0793	0.				2000.	0.1
21 LS2	34.					4.4
22 WBOD#1- 0794	1.				78.	0.1
23 WBOD#1- 0795	1.				45.	0.2
24 WBOD#3- 0478	2.	4.8	55.	0.10		
25 WBOD#3- 0479	1.	4.8	55.	0.08		
26 WBOD#3- 0480	1.	4.8	50.	0.07		
27 WBOD#3- 0481	1.	4.8	49.	0.07		
28 WBOD#3- 0482	1.	5.0	44.	0.06		
29 WBOD#3- 0483	0.	5.0	43.	0.05		
30 WBOD#3- 0484	1.	4.8	45.	0.08		
31 WBOD#3- 0485	1.	4.9	47.	0.10		
32 WBOD#3- 0486	0.	4.4	50.	0.22		
33 WBOD#3- 0487	0.	4.9	55.	0.04		
34 WBOD#3- 0488	3.				70.	0.9
35 WBOD#3- 0489	1.				70.	0.5
36 WBOD#3- 0490	2.				71.	0.4
37 WBOD#3- 0491	2.				74.	0.4
38 WBOD#3- 0492	4.				44.	0.4
39 WBOD#3- 0493	3.				38.	0.2
40 WBOD#3- 0494	4.				34.	0.1
41 LS2	35.					4.8
42 WBOD#3- 0495	3.				49.	0.2
43 WBOD#3- 0496	4.				31.	0.2
44 WBOD#3- 0497	5.				29.	0.2
45 WBOD#3- 0498	3.				18.	0.5

CHECKED BY: [redacted]

...) ROT SHDC SEPT.22/81. (82) PGS.528,568,569. [.5 GM REG.DIG.]

1
2 U HNO3/HCL FLUOR.
3
4
5 AG HNO3/HCL AA
6 MN HNO3/HCL AA
7 FE HNO3/HCL AA
8 B EMM.SPEC.
9 AS HNO3/HCL AA HYDRIDE

SAMPLE NO.	U	AG	MN	%FE	B	AS
46 WBOD#4- 0499	0.	5.0	67.	0.05		
47 WBOD#4- 0500	2.	5.0	66.	0.04		
48 WBOD#3- 0796	1.	4.8	55.	0.03		
49 WBOD#3- 0797	2.	5.1	53.	0.06		
50 WBOD#3- 0798	1.	4.8	53.	0.03		
51 WBOD#3- 0799	1.	5.0	48.	0.02		
52 WBOD#3- 0800	2.	5.0	53.	0.04		
53 WBOD#4- 0701	2.	4.9	67.	0.03		
54 WBOD#4- 0702	2.	4.7	59.	0.03		
55 WBOD#4- 0703	2.	5.1	67.	0.05		
56 WBOD#4- 0704	1.	5.6	64.	0.03		
57 WBOD#4- 0705	2.	5.0	67.	0.04		
58 WBOD#4- 0706	1.	4.8	53.	0.02		
59 WBOD#4- 0707	1.	5.1	56.	0.02		
60 WBOD#4- 0708	3.	5.1	54.	0.03		
61 LS2	32.	1.7	3004.	6.63		
62 WBOD#4- 0709	1.	5.1	63.	0.13		
63 WBOD#4- 0710	2.	4.7	49.	0.14		
64 WBOD#4- 0711	2.	5.1	55.	0.13		
65 WBOD#4- 0712	2.	4.8	62.	0.17		
66 WBOD#4- 0713	1.	5.1	64.	0.04		
67 WBOD#4- 0714	5.	4.4	60.	0.72		
68 WBOD#4- 0715	1.	4.5	66.	0.22		
69 WBOD#4- 0716	1.	4.5	69.	0.17		
70 WBOD#4- 0717	1.	4.6	72.	0.17		
71 WBOD#4- 0718	1.	4.9	82.	0.31		
72 WBOD#4- 0719	1.	4.2	76.	0.53		
73 WBOD#4- 0720	1.	4.5	77.	0.60		
74 WBOD#4- 0721	3.	5.0	87.	0.50		
75 WBOD#4- 0722	2.	5.3	71.	0.51		
76 WBOD#4- 0723	1.	5.6	81.	0.34		
77 WBOD#4- 0724	4.	6.1	72.	0.24		
78 WBOD#4- 0725	0.	6.1	62.	0.16		
79 WBOD#4- 0726	2.	5.6	72.	0.26		
80 WBOD#4- 0727	1.	6.2	74.	0.17		
81 LS2	31.	1.7	2985.	6.40		
82 WBOD#4- 0728	1.	5.4	95.	0.22		

CHECKED BY: [redacted]

APPENDIX III

STATUTORY DECLARATION OF COSTS

WOOD BUFFALO PROJECT
SUMMARY OF ASSESSMENT COSTS
1978 November 29 to 1981 November 29

		ALTA. PERMIT 1 687811-0001	ALTA. PERMIT 2 687811-0001	TOTALS
1980 FIELD WORK		53,575.68	193,308.16	246,883.84
1981 FIELD WORK		1,762.56	14,392.02	16,154.58
	TOTAL	55,338.24	207,700.18	263,038.42
ACREAGE		7,040	4,608.0	5,3160
VALUE/ACRE		$7.86	$4.51	$4.95

I do hereby certify the above to be correct.

As Senior Office Geologist I am duly authorized to make this

CERTIFICATION:

DATED AT Saskatoon in the Province of Saskatchewan

this 25th day of November 19 81.

[redacted]

W.N. Plumb

WOOD BUFFALO PROJECT - 1981 FIELD WORK

ASSESSMENT COST REPORT

DIRECT COSTS	ALTA. PERMIT 1 7878110001	ALTA. PERMIT 2 7878110002	TOTALS
Geochemistry (Drill cores)			
SMDC Salaries	673.73	1,637.12	2,310.85
Analyses - SRC - 220 samples	508.00	2,212.30	2,720.30
Diamond Drilling (Residual and site clean-up)			
Contractor - Serv-U Expediting		1,774.44	1,774.44
Bore Hole Logging	22.62	495.38	518.00
SMDC Salaries	27.30	1,206.70	1,234.00
TOTAL DIRECT COST	1,231.65	7,325.94	8,557.59
Support Costs			
Camp Supplies & Operations	135.70	888.16	1,023.86
Field Management	390.73	1,453.67	1,844.40
Report Writing	204.00	204.00	408.00
Drafting	25.48	170.52	196.00
TOTAL SUPPORT COSTS	755.91	2,716.35	3,472.26
Travel and Transport			
Fares and Related	60.56	1,459.35	1,519.91
Fixed Wing Aircraft	136.83	(524.36)	(387.53)
Freight	56.25	668.37	724.62
Reallocation of Copter	(638.87)	1,438.00	799.13
TOTAL TRAVEL AND TRANSPORT COST	(385.23)	3,041.36	2,656.13
TOTAL FIELD COSTS	1,602.33	13,083.65	14,685.98
ADMINISTRATION 10%	160.23	1,308.37	1,468.60
TOTAL ASSESSMENT COSTS	1,762.56	14,392.02	16,154.58

ASSESSMENT COST REPORT

WOOD BUFFALO - 1980 FIELD WORK

DIRECT COSTS	ALTA. PERMIT 1 687811-0001	ALTA. PERMIT 2 687811-0002	TOTALS
Geophysics - Airborne Input Svy. Contractor - Questor Surveys	2,943.85	13,413.40	16,357.25
Diamond Drilling			
Contractor - D.W. Coates	25,221.96	80,014.03	105,235.99
SMDC Salaries	2,073.37	4,733.24	6,806.61
Copter Support	14,851.00	63,347.00	78,198.00
Field Supplies (core boxes etc)	211.87	635.63	847.50
Instrument Usage (borehole logger)	568.66	1,914.59	2,483.25
TOTAL DIRECT COST	45,870.71	164,057.89	209,928.60
Support Costs			
Camp Supplies + Operations (SMDC)	72.09	764.51	836.60
Report Writing, SMDC Salaries	152.00	688.00	840.00
Field Management - SMDC Salaries	583.49	1,964.51	2,548.00
Drafting - SMDC Salaries	26.34	88.66	115.00
TOTAL SUPPORT COST	833.92	3,505.68	4,339.60
Travel + Transportation			
Fares + Related	294.10	541.04	835.14
Air Charter - Fixed Wing	987.16	5,336.35	6,323.51
Helicopter T + T	681.27	2,293.73	2,975.00
Freight	38.00	---	38.00
TOTAL TRAVEL + TRANSPORTATION	2,000.53	8,171.12	10,171.65
TOTAL FIELD COST	48,705.16	175,734.69	224,439.85
ADMINISTRATION 10%	4,870.52	17,573.47	22,443.99
TOTAL ASSESSMENT COST	53,575.68	193,308.16	246,883.84

[illegible] SEPT.23/81. [illegible]

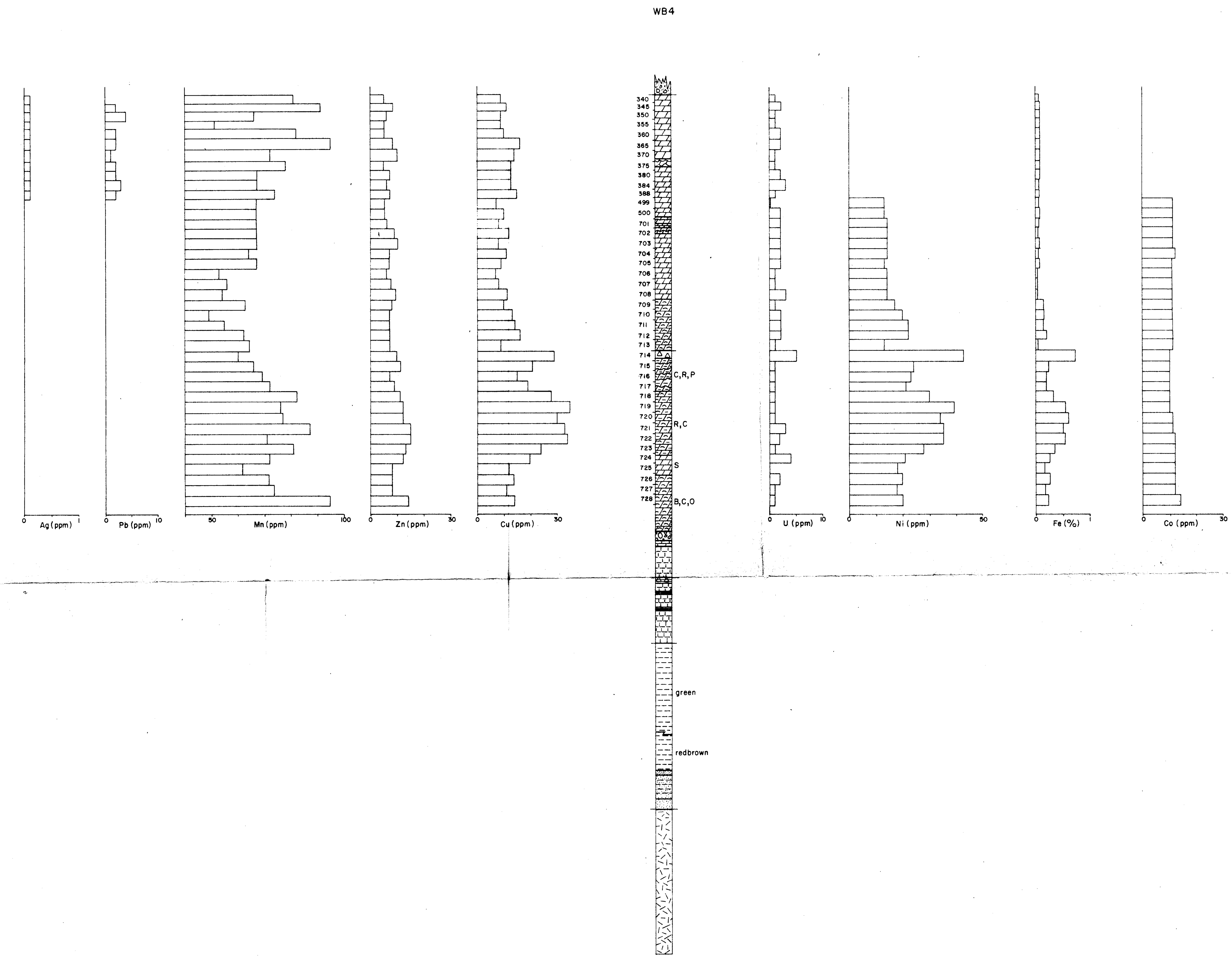
4
5
6 [illegible]L2O3 HF/HNO3/HCLO4 AA
7 K2O HF/HNO3/HCLO4 AA
8 MGO HF/HNO3/HCLO4 AA
9 FE HF/HNO3/HCLO4 AA

SAMPLE NO.	%AL2O3	%K2O	%MGO	%FE
1C6504	11.7	5.96	5.64	2.11
2 WBOD#3- 0488	8.8	5.77	3.42	1.74
3 WBOD#3- 0489	10.8	6.09	3.00	3.34
4 WBOD#3- 0490	12.3	6.00	2.77	2.32
5 WBOD#3- 0491	17.1	5.01	3.13	3.94
6 WBOD#3- 0492	13.4	4.09	5.18	2.88
7 WBOD#3- 0493	11.1	3.59	2.18	1.62
8 WBOD#3- 0494	12.5	3.68	1.34	2.20
9 WBOD#3- 0495	14.7	5.44	1.14	2.00
10 WBOD#3- 0496	14.1	4.57	1.87	2.25
11 WBOD#3- 0497	13.6	6.73	1.12	1.25
12 WBOD#3- 0498	16.1	4.56	1.32	2.82
13 WBOD#1- 0775	7.4	0.11	0.09	1.55
14 WBOD#1- 0776	8.9	0.09	0.13	1.33
15 WBOD#1- 0777	8.2	0.11	0.05	1.12
16 WBOD#1- 0778	9.1	0.14	0.07	1.35
17 WBOD#1- 0779	6.1	0.25	0.05	1.01
18 WBOD#1- 0780	6.1	0.25	0.07	1.91
19 WBOD#1- 0781	10.9	0.27	0.11	0.83
20 WBOD#1- 0782	8.7	0.39	0.05	1.13
[illegible]6504	13.4	6.16	5.74	2.31
22 WBOD#1- 0783	12.7	0.78	0.11	1.62
23 WBOD#1- 0784	13.4	2.05	0.66	3.34
24 WBOD#1- 0785	17.7	2.29	0.66	3.85
25 WBOD#1- 0786	14.5	1.36	0.21	1.46
26 WBOD#1- 0787	16.9	2.64	0.45	1.30
27 WBOD#1- 0788	16.9	3.67	0.87	1.69
28 WBOD#1- 0789	17.0	3.60	1.55	1.39
29 WBOD#1- 0790	15.4	2.89	2.80	1.15
30 WBOD#1- 0791	18.5	3.39	2.55	1.38
31 WBOD#1- 0792	16.7	2.68	3.45	2.50
32 WBOD#1- 0793	16.7	1.98	4.76	2.70
33 WBOD#1- 0794	8.8	1.56	1.58	1.80
34 WBOD#1- 0795	17.2	4.25	1.79	3.66

CHECKED BY: ____[redacted]____

R11
R10
R9
R8
R7W4
WOOD BUFFALO
NATIONAL PARK
RICHARDSON
LAKE
TP 108
TP 107
TP 106
D.D HOLE DRILLED DURING AUGUST 1980
WB 1
6878110001
PERMIT 1
AREA FLOWN BY QUESTOR SURVEYS LTD DURING APRIL, 1980
D.D. CAMP
LEGEND
Basement faults inferred from
(a) Airborne mag survey
(b) Landsat Imagery
Basement metasedimentary belt inferred from
Airborne mag and drilling
SMD MINING CO. LTD.
1981 0001
FINAL PLAN
1980-81 EXPLORATION
U-AF-171(1)
SCALE 1:50,000
DATE OCT./81
MAP 2

R11
R10
R9
R8W4
111°45'
111°30'
111°15'
58°00'
TP 105
TP 104
TP 103
NATIONAL PARK
21 AIR km
PERMIT 2
6878110002
AREA FLOWN BY QUESTOR SURVEYS LTD. DURING APRIL, 1980
DD HOLES DRILLED DURING SEPT. 1980
WB 2
WB 3
WB 4
LEGEND
Basement faults inferred from :
(a) Airborne mag survey
(b) Landsat imagery
Basement metasedimentary belt inferred from Airborne mag and drilling
SMD MINING CO. LTD.
19810001
FINAL PLAN
1980-81 EXPLORATION
U-AF 171 (1)
PROJECT WOOD BUFFALO
NTS 74-L
DISPOSITION 6878110002
WORK BY
SCALE 1:50,000
DRAWN
DATE OCT. /81
MAP 3



LEGEND

SEDIMENTS

- Fluvo-glacial and fluvial sand, gravel, silt and clay
- Massive to weakly laminated buff to gray fine sucrosic dolomite
- Buff to graybrown or dark gray argillaceous dolomites
- Fine sucrosic wavy laminated dolomites often bioclastic
- Gray to buff well bedded to massive bioclastic dolomite
- Bird's eye textured blue gray dolomite
- Pale gray to buff limestone (same variations as with dolomites)
- Shale, gray, green and black
- Mudstone, gray, green and black
  - Calcareous
  - Dolomitic
- Buff to red quartz sandstone and arkosic sandstone
- Evaporites - mainly anhydrite and minor gypsum and gysiferous shale
- Collapse breccia, angular fragments matrix supported
- Slump breccia, rounded frags in mud matrix
- Talus breccia, original frags in mud matrix

IGNEOUS & METAMORPHIC ROCKS

- Gray to pink granite quartz, feldspar granite gneiss ± biotite
- Biotite rich quartz feldspar gneiss
- Metasediments, arkosic, psammite, pelite and semipelite

QUALIFYING SYMBOLS

P - Presquilized
B - Bryozoan
S - Stromatoporoid
C - Crinoid
R - Rugose corals
O - Ostracods

NOTE: All sample numbers 340-388 prefixed by WB400, 499-500 and 701-728 prefixed by WBOD4

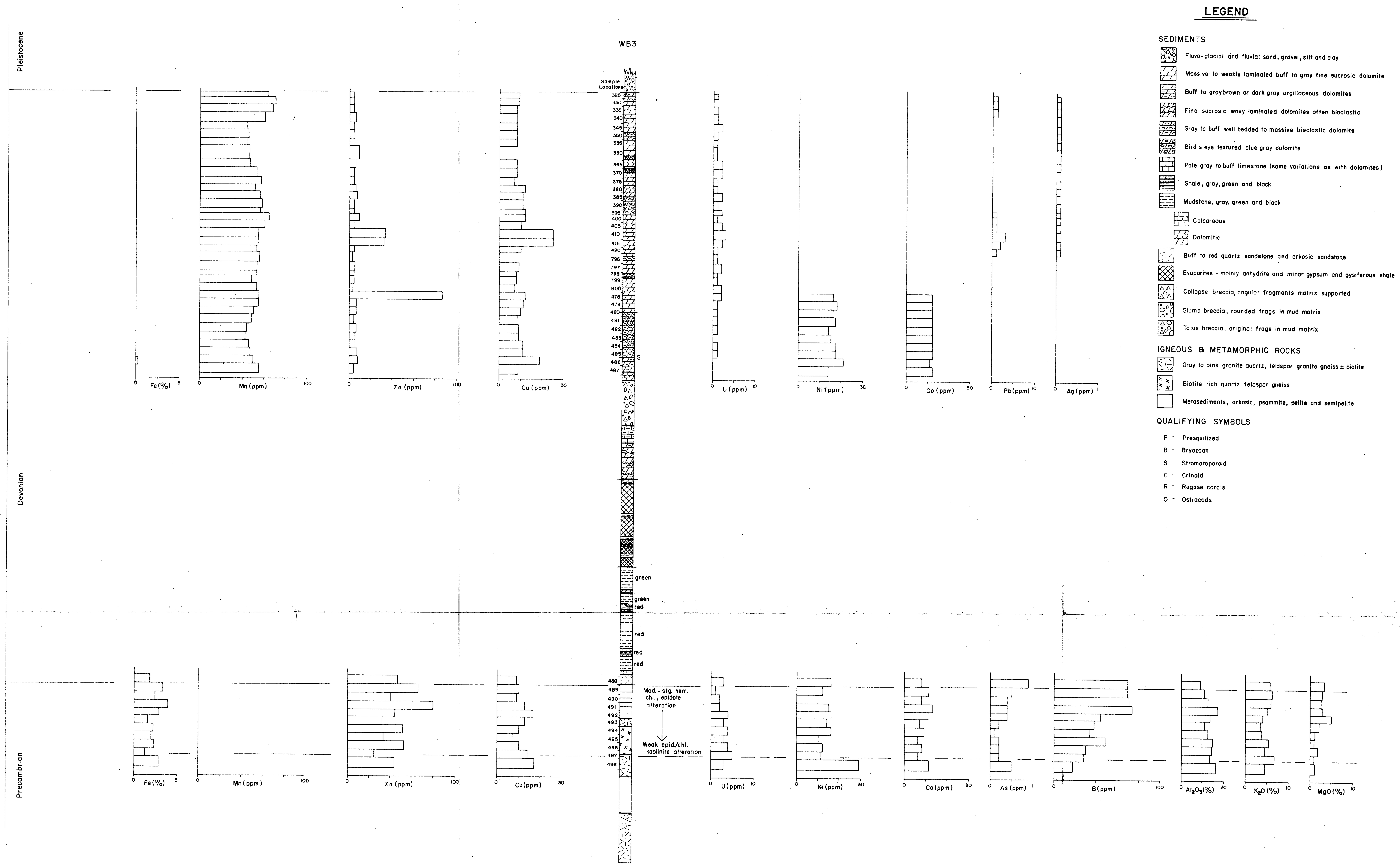
19810001 #5

Saskatchewan Mining Development Corporation

U-AF-171(1)

GEOCHEMICAL PROFILES, HOLE WB4

PROJECT WOOD BUFFALO	
NTS	DISPOSITION PERMIT 68781100002
WORK BY T. WALKER	SCALE VERT 1:400
DRAWN D. OFSTIE	DATE NOV/81 — FIG 5



NOTE: All sample numbers 325-420 prefixed by WB300, 796-800 and 478-498 prefixed by WBOD3

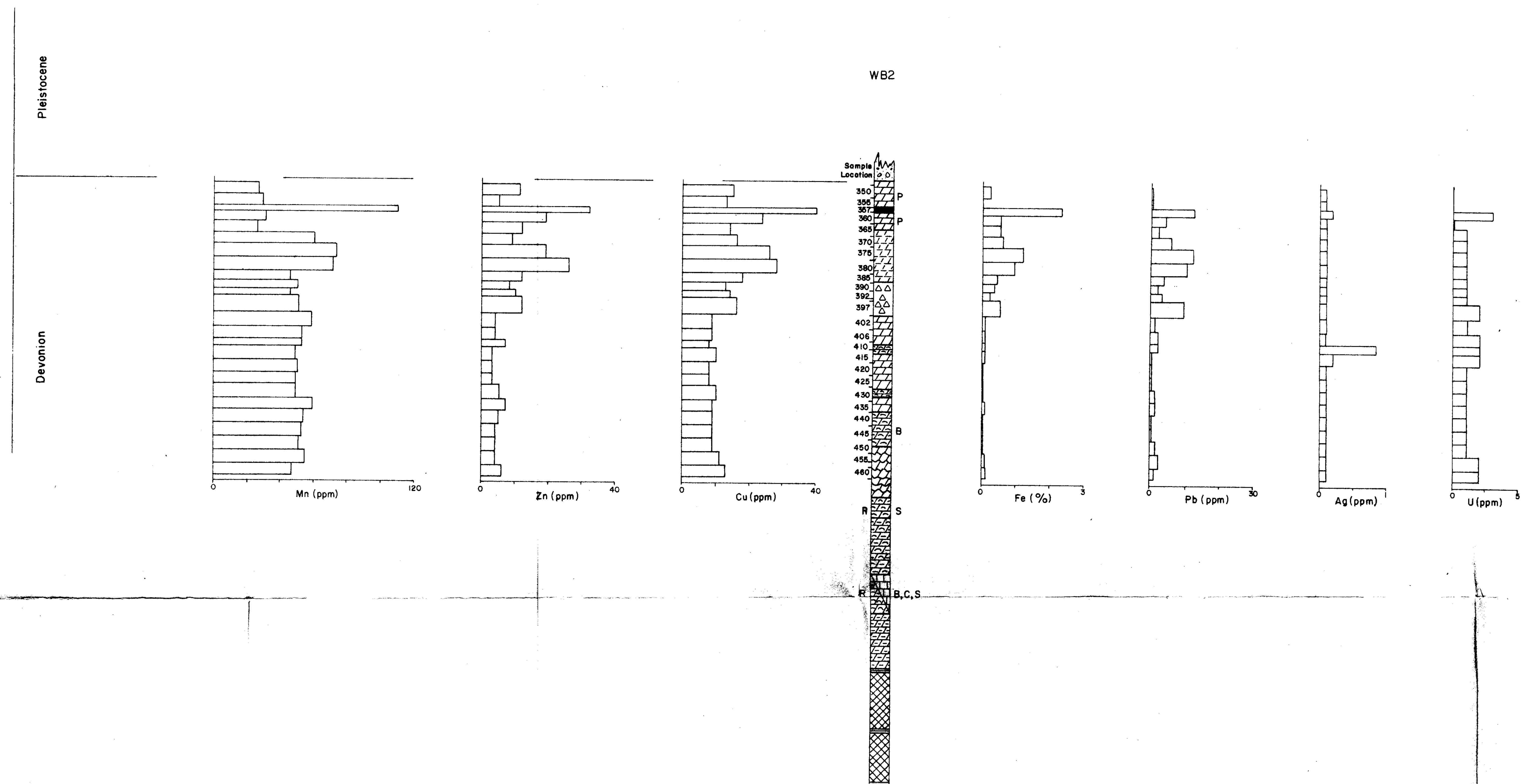
1981000) #4

Saskatchewan Mining Development Corporation

U-AF-171 (I)

GEOCHEMICAL PROFILES, HOLE WB3

PROJECT WOOD BUFFALO	
NTS	DISPOSITION PERMIT 68781100002
WORK BY T. WALKER	SCALE VERT 1:400
DRAWN D. OFSTIE	DATE NOV/81 — FIG 4



LEGEND

SEDIMENTS

- Fluvo-glacial and fluvial sand, gravel, silt and clay
- Massive to weakly laminated buff to gray fine sucrosic dolomite
- Buff to graybrown or dark gray argillaceous dolomites
- Fine sucrosic wavy laminated dolomites often bioclastic
- Gray to buff well bedded to massive bioclastic dolomite
- Bird's eye textured blue gray dolomite
- Pale gray to buff limestone (some variations as with dolomites)
- Shale, gray, green and black
- Mudstone, gray, green and black
  - Calcareous
  - Dolomitic
- Buff to red quartz sandstone and arkosic sandstone
- Evaporites - mainly anhydrite and minor gypsum and gysiferous shale
- Collapse breccia, angular fragments matrix supported
- Slump breccia, rounded frags in mud matrix
- Talus breccia, original frags in mud matrix

IGNEOUS & METAMORPHIC ROCKS

- Gray to pink granite quartz, feldspar granite gneiss ± biotite
- Biotite rich quartz feldspar gneiss
- Metasediments, arkosic, psammite, pelite and semipelite

QUALIFYING SYMBOLS

P - Presquilized
B - Bryozoan
S - Stromatoporoid
C - Crinoid
R - Rugose corals
O - Ostracods

NOTE : All sample numbers prefixed by WB200

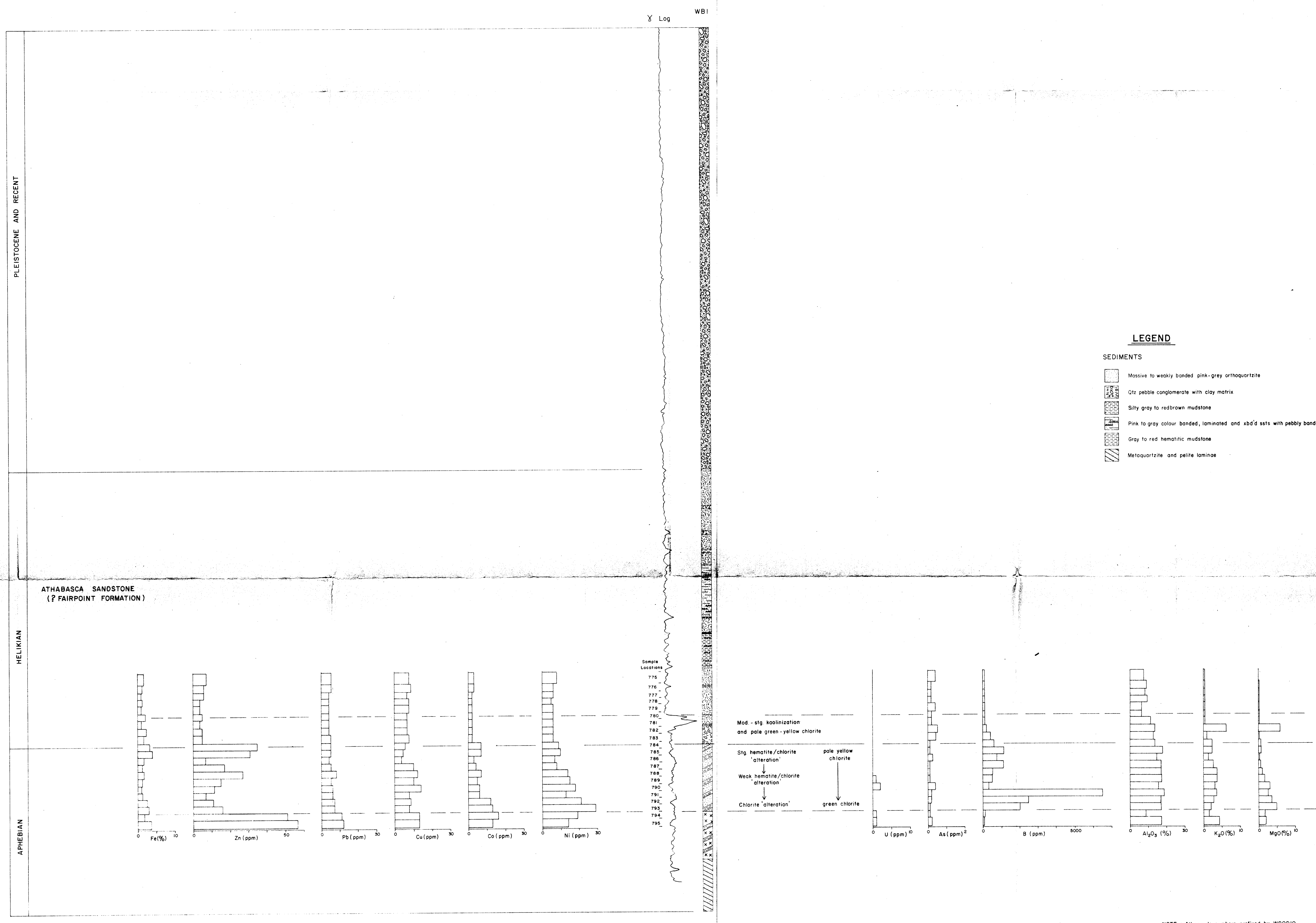
19810001 #3

smdc Saskatchewan Mining Development Corporation

U-AF-171(1)

GEOCHEMICAL PROFILES, HOLE WB2

PROJECT WOOD BUFFALO	
NTS	DISPOSITION PERMIT 6878110000E
WORK BY T. WALKER	SCALE VERT 1:400
DRAWN D. OPSTIE	DATE NOV./81 FIG 3



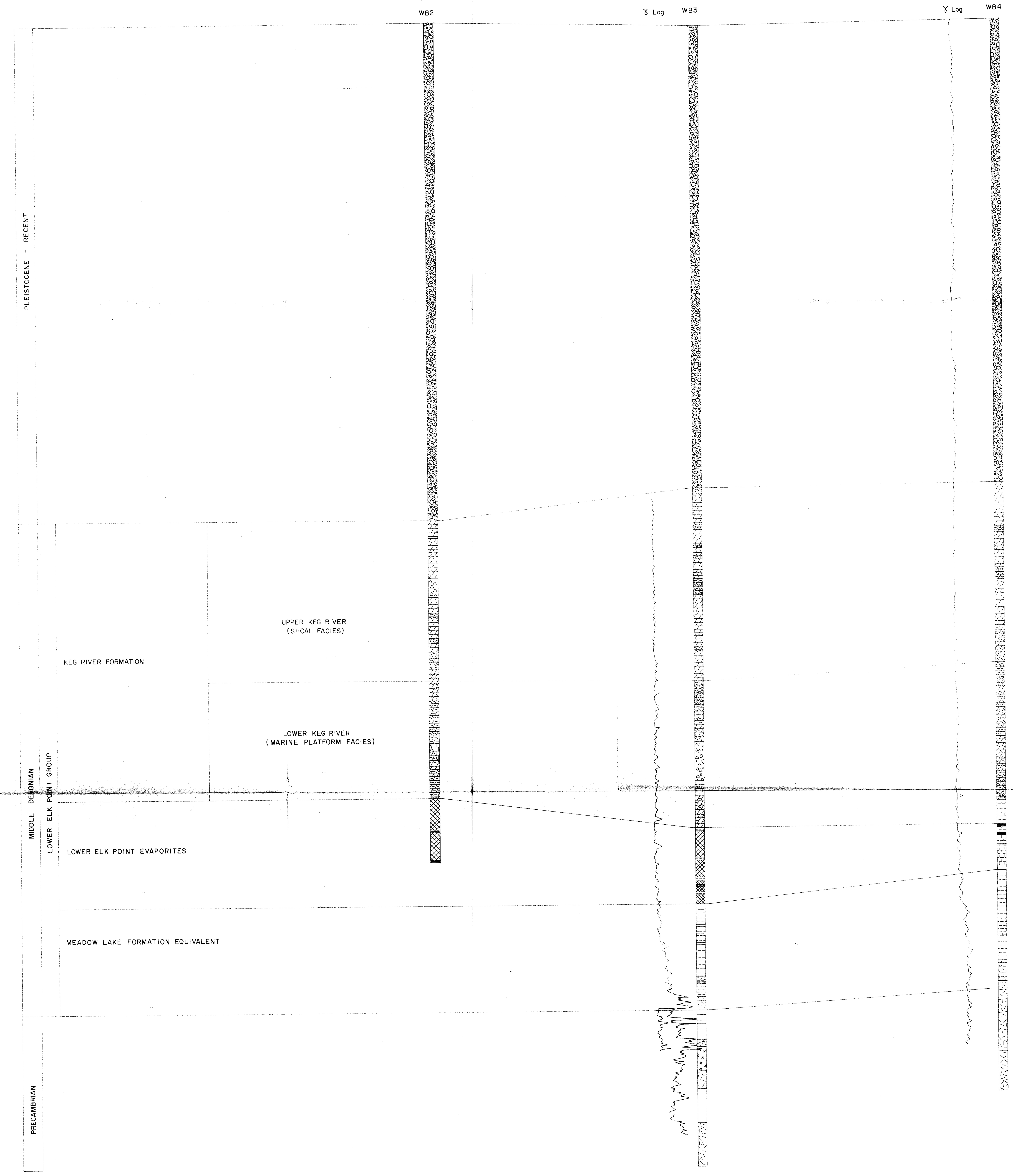
NOTE: All sample numbers prefixed by WBODIO

19810001 #2

smdc Saskatchewan Mining Development Corporation

GEOCHEMICAL & GEOLOGICAL PROFILES HOLE WB1

PROJECT	WOOD BUFFALO		
NTS		DISPOSITION	PERMIT 6878110001
WORK BY	T. WALKER	SCALE	VERT 1:400
DRAWN	D. OFSTIE	DATE	NOV/81 FIG 2



LEGEND

SEDIMENTS

- Fluvo-glacial and fluvial sand, gravel, silt and clay
- Massive to weakly laminated buff to gray fine sucrosic dolomite
- Buff to graybrown or dark gray argillaceous dolomites
- Fine sucrosic wavy laminated dolomites often bioclastic
- Gray to buff well bedded to massive bioclastic dolomite
- Bird's eye textured blue gray dolomite
- Pale gray to buff limestone (same variations as with dolomites)
- Shale, gray, green and black
- Mudstone, gray, green and black
  - Calcareous
  - Dolomitic
- Buff to red quartz sandstone and arkosic sandstone
- Evaporites - mainly anhydrite and minor gypsum and gysiferous shale
- Collapse breccia, angular fragments matrix supported
- Slump breccia, rounded frags in mud matrix
- Talus breccia, original frags in mud matrix

IGNEOUS & METAMORPHIC ROCKS

- Gray to pink granite quartz, feldspar granite gneiss ± biotite
- Biotite rich quartz feldspar gneiss
- **Metasediments**, arkosic, psammite, pelite and semipelite

QUALIFYING SYMBOLS

P - Presquilized
B - Bryozoan
S - Stromatoporoid
C - Crinoid
R - Rugose corals
O - Ostracods

¼ 0 ½ 1 Kilometres

19810001 #1

Saskatchewan Mining Development Corporation

U-AF-171(1)

DRILL HOLE SECTION WB2-WB4

PROJECT WOOD BUFFALO	
NTS	DISPOSITION PERMIT 6878110002
WORK BY T. WALKER	SCALE VERT 1:400, HORIZ 1:10 000
DRAWN D OFSTIE	DATE NOV./81 FIG 1