

MINERAL POTENTIAL OF THE WOKKPASH RECREATION AREA

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INTRODUCTION

In 1985 a five-day stream sediment sampling program was undertaken in the Wokkpash Creek watershed. The area, currently classified as a Recreation Area by the Parks Branch, is located 32 kilometres due south of Mile 400 on the

Alaska Highway. The results of the stream sediment sampling are reported here with minimal comment. Previous work dealt with geological observations (Legun, 1984) and details of sampling (Legun, 1985).

TABLE 5-8-1

I.D.	(ppm)									
	Sample Au (ppb.)	Ag	Cu	Pb	Zn	Co	Ni	F	Ba	
1	61	0.3	8	8	42	2	8	730	1120	
2	90	0.3	11	10	58	3	13	1810	510	
3	66	0.3	8	11	70	2	15	700	3300	
4	49	0.3	8	21	51	2	7	690	3330	
5	49	0.3	8	17	59	2	10	690	2490	
6	45	0.3	8	18	80	3	10	980	1260	
7	74	0.3	10	64	380	3	9	2070	5180	
8	90	0.3	8	71	285	4	9	2050	5560	
9	20	0.3	6	8	34	2	4	445	340	
10	20	0.3	15	7	10	5	8	740	550	
11	45	0.3	13	6	9	4	7	770	610	
12	78	0.3	14	6	18	2	8	700	740	
13	20	0.3	11	17	98	2	12	770	970	
14	40	0.3	9	17	83	2	10	670	2680	
15	20	0.3	12	21	45	2	11	950	810	
16	37	0.3	5	3	12	2	4	890	240	
17	40	0.3	11	15	28	2	8	590	380	
18	57	0.3	53	21	42	10	18	1070	720	
19	33	0.3	13	4	20	4	7	520	850	
20	33	0.3	43	8	19	4	8	570	670	
21	20	0.3	15	4	23	7	8	450	790	
22	50	0.3	11	12	19	3	9	540	870	
23	20	0.3	15	5	19	5	8	500	780	
24	20	0.3	17	3	10	6	11	520	910	
25	32	0.3	23	9	45	10	13	500	1580	
26	20	0.3	19	6	20	8	8	510	640	
27	20	0.3	11	11	15	3	6	510	1450	
28	20	0.3	18	11	19	4	10	550	650	
29	53	0.3	9	4	15	2	5	420	500	
30	28	0.3	13	4	9	4	7	580	660	
31	20	0.3	45	16	49	13	18	1240	750	
32	20	0.3	21	7	11	5	8	880	560	
33	20	0.3	14	8	19	6	7	515	540	
34	40	0.3	26	13	43	11	13	930	730	
35	28	0.3	9	9	22	2	4	430	1460	
36	123	0.3	33	14	31	12	19	910	930	
37	37	0.3	7	8	17	2	3	360	690	
38	74	0.3	35	19	315	25	110	620	740	
39	24	0.8	43	34	67	10	27	930	800	
40	61	0.3	28	12	223	13	97	840	440	
41	24	0.3	55	12	285	12	105	730	1420	
42	70	0.3	73	17	425	24	220	770	5350	
43	20	0.3	30	15	39	4	10	950	682	
44	20	0.3	12	10	24	3	8	620	340	

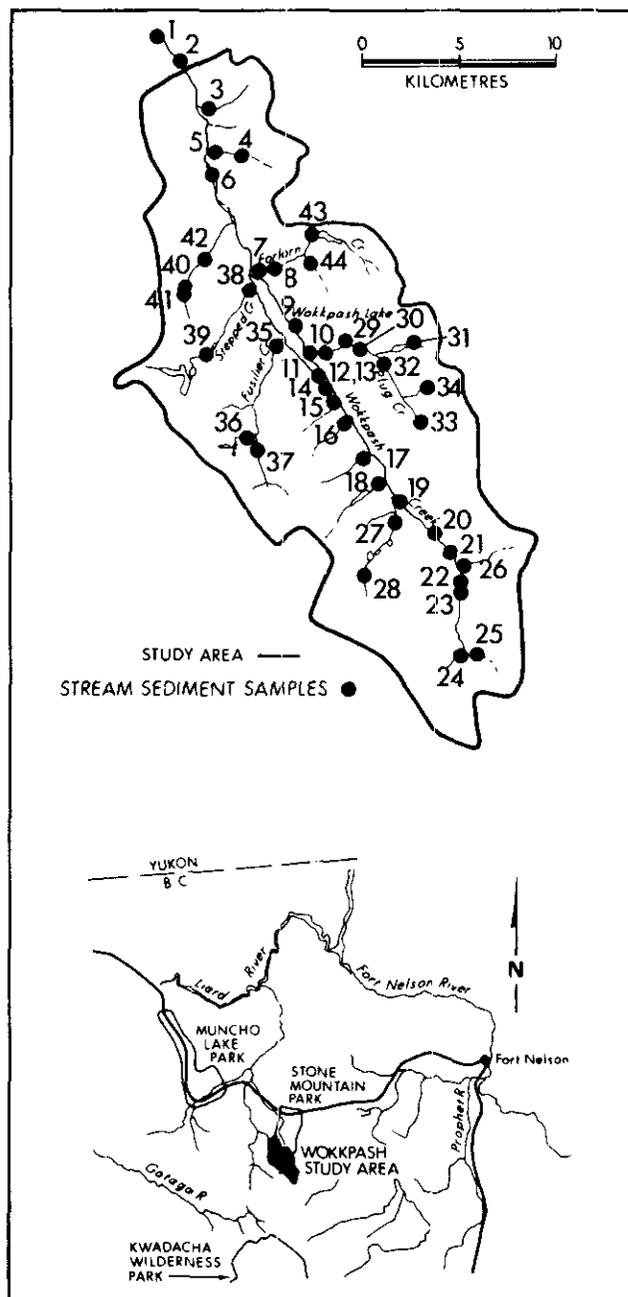


Figure 5-8-1. Location map and stream sediment sampling sites, Wokkpash Park Proposal area.

RESULTS

A total of 44 samples were collected and analysed for gold, silver, copper, lead, zinc, cobalt, nickel, barium and fluorine. Barium was analysed by atomic absorption after fusion of the sample, gold was by fire assay with an atomic absorption finish. The rest of the samples were done by atomic absorption after acid digestion of the sample. Sampling sites are located and numbered in Figure 5-8-1. Analytical results for each sampling site are listed in Table 5-8-1. Concentrations are in parts per million except for gold which is given in parts per billion.

As the number of samples is small for statistical purposes, the results have been compared to regional geochemical values to determine their significance. This comparison shows the high end of values for copper, lead, cobalt and nickel are within the regional background range. This would tend to eliminate the following types of regional mineralization from consideration:

- (1) Disseminated copper in Proterozoic quartzites.
- (2) Copper veins associated with gabbro dykes that cut Proterozoic rocks (Churchill mine, Carr, 1971).
- (3) Copper in Ordovician limestones and sandstones of the Ketchika Group (Cup claims, Assessment Report 12594).

Of the remaining elements, one sample is anomalous for silver, three for zinc, one for gold and three for barium. A value is considered anomalous if it corresponds to the top 2 per cent of values of the regional sample. Elements with anomalous values are discussed below.

GOLD

Sample 36 (123 ppb gold) was obtained in Proterozoic terrane west of a major fault. There is no coincident anomalous value in silver and nearby values are low.

SILVER

A rock sample from a breccia-conglomerate (regolith?) at the Proterozoic-Paleozoic contact on Fusilier Creek returned an analysis of 10 ppm silver (Legun, 1984). A stream sediment sample downstream from this site gave background results (0.3 ppm). The only stream sediment sample anomalous in silver (39) is on Stepped Creek, just downstream from the faulted Proterozoic-Paleozoic contact. It is not associated with any other elements.

ZINC AND LEAD

The anomalous zinc values are clustered at the north end of Wokkash Lake in well-exposed Paleozoic terrain. The highest value (425 ppm) coincides with an area of black shale rather than limestone. Associated lead values in limestone terrain are rather weak and erratic (for example, samples 7, 38, 41). The only area where there is an association of lead, zinc, barium and fluorine values typical of lead-zinc deposits in limestones is in Forlorn gorge. The rock walls here have superb exposure and only traces of fluorite were visible on examination. According to Taylor and Stott (1973) the dolomitic breccia facies typical of the Robb Lake deposits is not present within the proposed park boundary. The writer's fieldwork supports this. The potential for lead-zinc miner-

alization in Devonian limestones (particularly along the contact of the Stone and Dunedin formations) is considered to be low.

BARIUM

Regionally, barite deposits occur in crosscutting buttress-like structures as at Sulphur Creek or 110 Creek (MacQueen and Thompson, 1978). No such structures were visible from the air in well-exposed terrain. Potential remains, however, for stratiform bedded barite deposits. They are similar to their host rocks and not easily recognized. Some of the anomalous barite values (for example, 5350 ppm in sample 42) may have significance in this regard.

MAGNESIUM

Magnesite nodules occur in the Chischa Formation just outside the recreation area boundary (Grant, 1987). At the time of the study the writer was unaware of this showing. The Chischa Formation does extend into the park; however, as for barite, any sizeable deposit of magnesite would be difficult to miss from the air.

CONCLUSIONS

Anomalous values in stream sediment samples seem to be erratic and without any strong elemental associations. Highest values for several elements come from a sample taken in the vicinity of a black shale — a lithology typified by high background values for many elements.

Based on analytical results, geologic field observations and the eastern platformal and sedimentary setting of the study area, it is concluded that the prospects for discovery of a major mineral deposit are low.

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