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COAL CREEK TIN PROSPECT - FIELD REPORT  
January 10, 1985

Introduction and Conclusion

The Coal Creek tin property, a joint-venture project between H.O.M. and Billitan, was investigated on the 23 and 24 of July, 1984. The prospect is located in the northwestern-most portion of the Talkeetna Mountains D-6 Quadrangle (fig. 1). Approximately 5 million tons of geologically inferred reserves grading 0.2 pct sn with important silver credits has been delineated by drilling. Mineralization consists of sheeted greisen veins that are related to, and radiate from, a stocksheider developed above, a buried cupola of aplite granite that has intruded a coarser porphyritic granite. This investigation verified the locally excellent grades of tin and identified coarse cassiterite in several localities.

Investigation

Results of reconnaissance geologic mapping and sample locations are shown on figure 2. Scattered outcrops indicated the porphyritic granite is dike-like in shape, elongate to the northeast, and relatively small. It must have steep contacts with its wall rocks, at least to the southeast, as it does not outcrop on the steep slope directly to the east. Mineralized veins show a predominate N70W to east-west trend, subperpendicular to the trend of the granite dike.

Greisen veins are typically 0.1- to 0.2-in wide with selvages up to 4.0-in wide, and are composed of variable amounts of quartz, sericite, blue tourmaline, cassiterite, arsenopyrite, pyrrhotite, sphalerite, and topaz. The veins generally are confined to either the aplite (in

drill core) or porphyritic granite, but locally extend a short distance into the hornfelsed argillite country rock. In the hornfels, the veins have very narrow selvages and consist of open-space quartz, cassiterite, topaz, and tourmaline, with rare arsenopyrite.

Results of analyses are given in tables 1 and 2. Most samples of greisen veins contain high concentrations of Sn, Ag, Li, and B; some also have high or elevated concentrations of Cu, Zn, or W. High concentrations of Li and B likely reflect the presence of Li-rich muscovite and tourmaline, respectively. Sampling was not systematic, so the extent of greisen mineralization cannot be determined on the basis of 1984 work.

Pyrrhotite-sphalerite-clinopyroxene-fluorite skarn forms a 5-ft wide, 200-ft long lens in the argillite northwest of the granite dike. Grab samples of this material show the presence of high concentrations of Sn, Ag, Zn, As, and Cd with elevated values of Cu and Sb (tables 1 and 2). There is a direct correlation between Cd and Zn concentrations in these rocks.

### Discussion

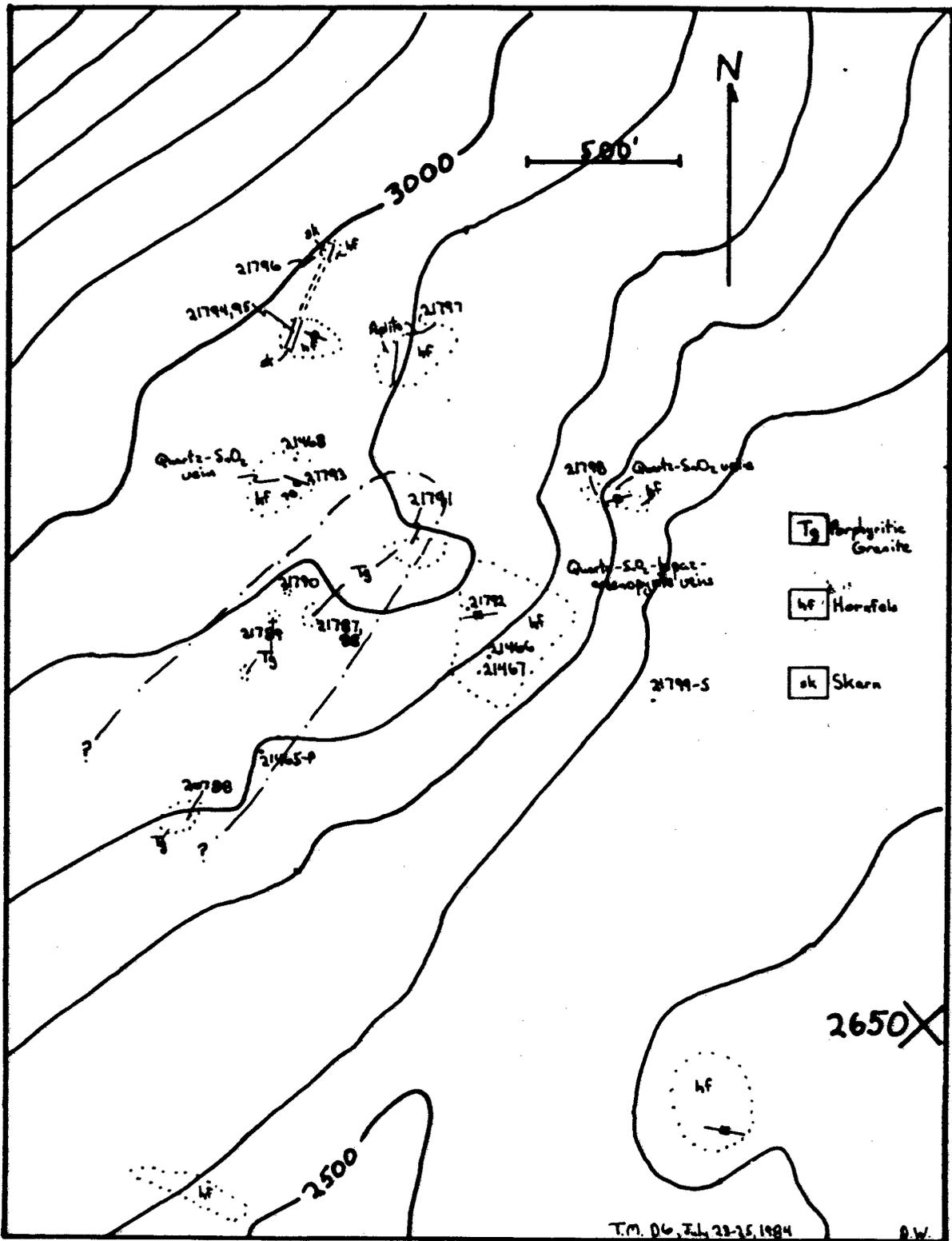
No additional work is needed on this prospect. Sampling and mapping by industry suggests approximately 5 million tons of reserves averaging 0.2 pct Sn. Higher-grade, though low tonnage reserves, may be present in the skarn.

Coal Creek appears to be a small, classic tin-greisen system. Sheeted cassiterite-bearing quartz-sericite(gilbertite)-tourmaline-topaz veins occur above a stocksheider-capped cupola of aplite granite that has intruded a more porphyritic granite; lithophile elements,

especially B and Li, are enriched. The estimated grade of the deposit, 0.2 pct Sn, furthermore, appears typical of such "porphyry-type" occurrences. Numerous such occurrences could be present in this region of Alaska.

Table 1. - Analyses and descriptions of samples collected from the Coal Creek prospect.

Sample	Sn	W	Nb	Ta	Au	Ag	Descriptions
AS20788	10000	<5	<35	<80	<0.007	<0.3	Chip sample of limonite veined and vuggy weathered quartz-sericite altered granite.
AS21466	1240	6	<35	<80	0.050	3.489	Quartz-tourmaline-cassiterite-chalcopyrite-pyrrhotite veinlets in hornfels.
AS21467	170	<5	<35	<80	0.030	0.590	Aplite dikes with fine cross-cutting tourmaline veinlets.
AS21468	25.9	8	<35	<80	0.018	1.188	Open-space quartz on fractures in hornfels.
AS21788	170	12	<35	<80	0.018	1.328	Random grab and chip of quartz-tourmaline-arsenopyrite-sericite veined granite.
AS21789	330	<5	<35	<80	<0.007	1.467	Chip of greisen-veined granite.
AS21790	22.1	6	<35	<80	<0.007	0.670	Do.
AS21792	3390	70	<35	<80	0.067	1.244	Chip of < 1 cm veinlets of quartz-goethite-cassiterite-tourmaline-topaz in hornfels.
AS21793	1200	8	<35	<80	0.030	0.560	Chip of thin quartz veins with open-space cassiterite in argillite.
AS21795	1850	70	<35	<80	0.403	9.858	Random grab of clinopyroxene-quartz-fluorite-pyrrhotite-sphalerite-pyrite skarn.
AS21796	1500	200	<35	<80	0.107	26.79	Grab of gossan on strike of 21795.
AS21797	2400	<5	<35	<80	<0.007	19.59	Grab-chip of fractured aplite with 2 to 4 pct disseminated pyrrhotite, arsenopyrite(?), and cassiterite.
AS21798	2700	60	<35	<80	<0.007	1.148	Grab-chip of quartz-cassiterite veins in argillite.



T.M. 06, July 22-25, 1924

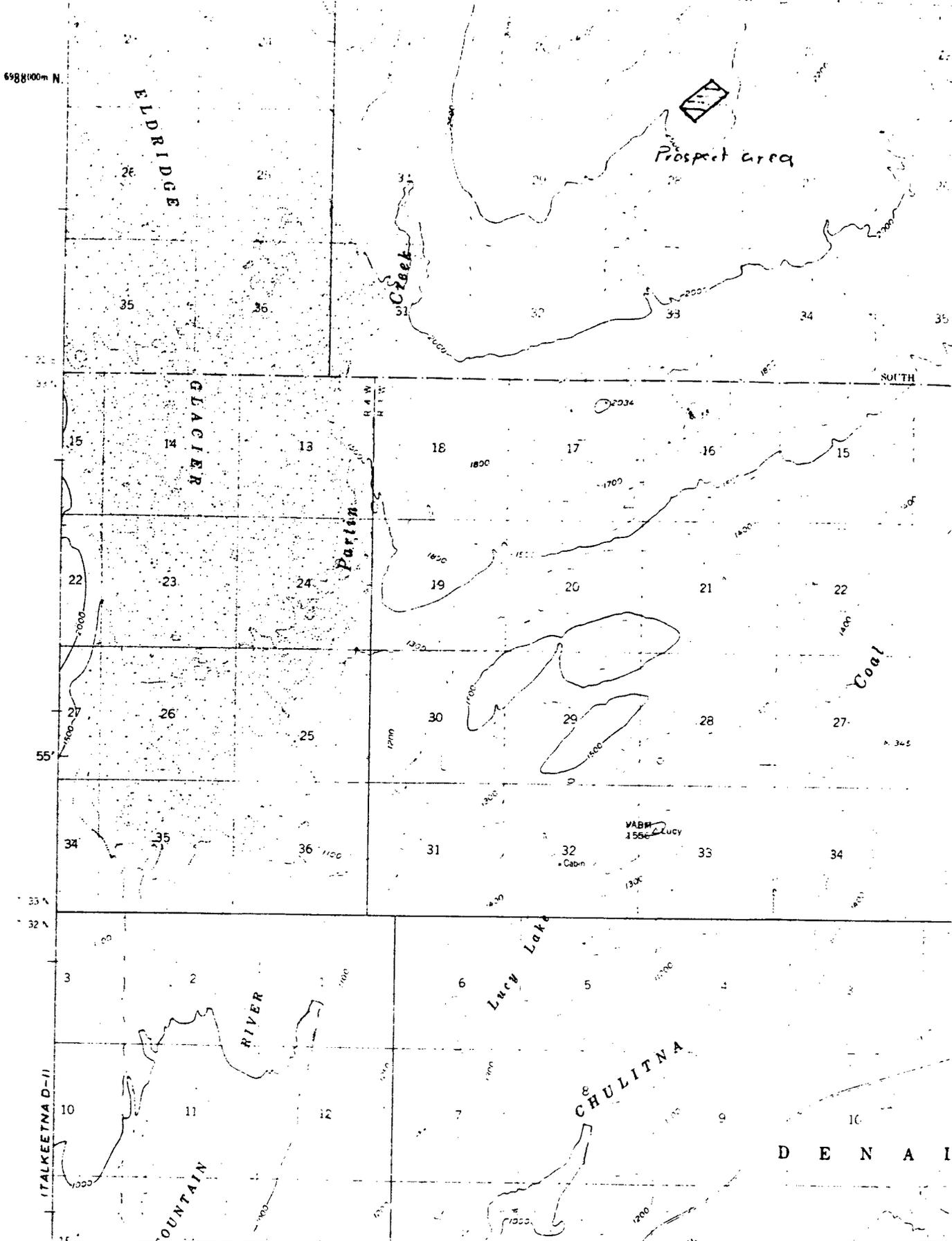
B.W.

Geologic sketch map of the Coal Creek tin property, Alaska.

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63°00'

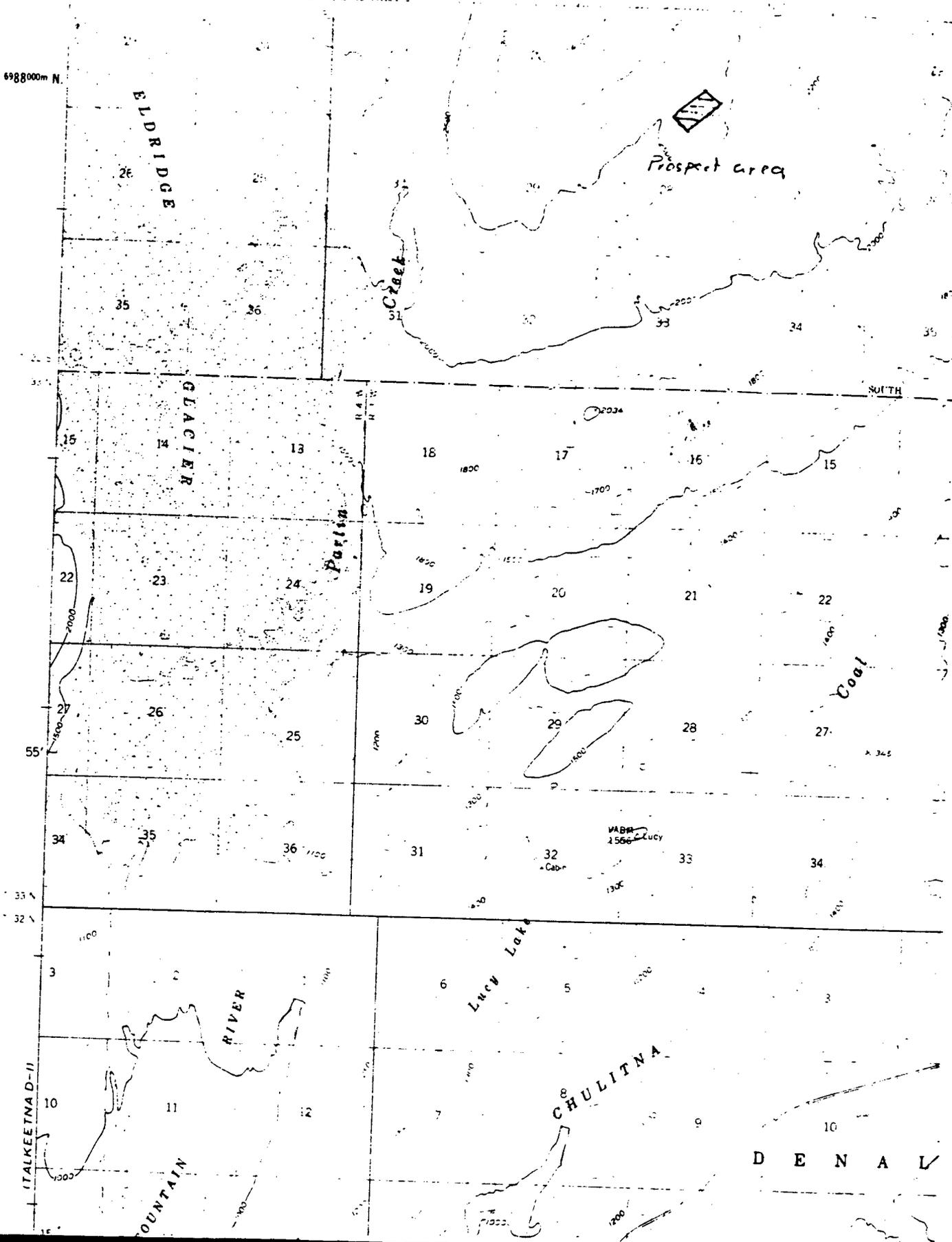
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