SAMPLING FOR PLATINUM IN THE YENTNA DISTRICT, ALASKA

By Jeffrey Y. Foley

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U. S. DEPARTMENT OF THE INTERIOR

James G. Watt, Secetary

BUREAU OF MINES

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SAMPLING FOR PLATINUM IN THE YENTNA DISTRICT, ALASKA

By Jeffrey Y. Foley[1]

INTRODUCTION AND SUMMARY

The Bureau of Mines Alaska Field Operations Center (AFOC) is currently investigating reports of platinum in the state. Numerous reports of platinum metals in placer gold concentrates from the Yentna Mining District are contained in the literature (1-7).[2] Among these are references to occurrences in the Peters Creek-Cache Creek area and occurrences in the Kahiltna River area (fig. 1).

Pan concentrate samples were collected in the Peters Creek - Cache Creek area and from Shulin Bar on the Kahiltna River by the writer. Sluice box concentrates were donated by miners working in these areas. All samples were analyzed for gold, platinum and palladium by the Bureau's Reno Research Center. Gold concentrations ranged from <0.0002 oz/ton to 0.605 oz/ton, however, no platinum or palladium were detected.

The Peters Creek, Cache Creek and upper Kahiltna River areas are accessible by the Petersville Road (fig. 1 and 2) during dryer summer months. There are landing strips on the east and west sides of Peters Creek near the mouth of the canyon. The lower Kahiltna River is accessible by a landing strip at Shulin Lake (fig. 1 and 2). The Kahiltna

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[1] Geologist, U.S. Bureau of Mines, AFOC, Fairbanks, Alaska

[2] Underlined numbers in parentheses refer to items listed in the references at the end of this report.

River is navigable downstream from the mouth of Peters Creek during the summer months.

PETERS CREEK - CACHE CREEK AREA

Three days were spent by the writer in the Peters Creek and Cache Creek area during July, 1981. Pan concentrate samples were collected from Gold Creek, Bird Creek and Poorman Creek (fig. 2 and table 1). Sluice box concentrates were donated by operators on Cache Creek and Bird Creek (fig. 1 and table 1). No platinum or palladium were detected in any of the samples collected but any platinum metals present in the sluice box concentrates were probably removed with the gold during cleaning. The pan concentrates were derived from volumes ranging from 3 to 6 pans (screened).

Peters Creek, Cache Creek and most of their tributaries have been mined recently by conventional bulldozer, loader and sluice box methods, and mining continues on most of them.

TABLE 1. - Pan and sluice concentrate samples from Cache Creek and Peters Creek[1]

Sample No.	Split	Au	Pd	Pt	Original sample volume ft^3	Concentrate wt (g)	Description
AK17681	A	0.064	<0.001	<0.001	ND	ND	Concentrate from sluice box on Bird Creek from which gold was recovered. No visible gold in this portion.
AK17681	B	0.011	<0.001	<0.001	ND	ND	Do
AK17682	A	0.004	<0.001	<0.001	0.5	ND	Panned concentrate from cut at Bird Creek. No visible gold.
AK17682	B	0.002	<0.001	<0.001	0.5		Do
AK17683		0.116	<0.001	<0.001	0.1*	ND	Panned concentrate from tailings adjacent to airstrip on Peters Creek. One flake and 1 coarse color of gold.
AK17684		0.015	<0.001	<0.001	1.0	ND	Panned concentrate from Poorman Creek. No visible gold.
AK17685	A	0.021	<0.001	<0.001	ND	ND	Sluiced concentrate from Cache Creek after removing gold with "gold wheel". No visible gold.
AK17685	B	0.033	<0.001	<0.001		ND	Do
AK17686		0.026	<0.001	<0.001	0.5*	ND	Panned concentrate collected at mouth of Gold Creek. No visible gold.

[1] Fire assay preconcentration by Bureau's Analytical Section, Juneau Alaska. Beads analyzed by inductive coupled plasma at Bureau's Reno Research Center, Reno, Nevada. Results are in troy ounces per ton.

NOTE. - ND indicates not determined.
* indicates volume refers to screened (-3/8 in).
All analyses reported in oz/ton

AK 17703

AK 17668

Sluice box concentrate from Long Ck.
1oz of auriferous c'trate
" " " " Wilson Ck
1oz of auriferous concentrate
mercury present

KAHILTNA RIVER AREA

Platinum and gold are reported to occur along the sand and gravel bars on the Kahiltna River (fig. 2). Two of these bars were sampled by Mertie and others in 1917 (6, pp. 262-3). A placer operation at the site of the upper camp described by Mertie (6) and run by Jon Adams of Anchorage, Alaska is currently in the exploration and development stages. Mr. Adams donated 12 sluice box concentrate samples from his property. Gold analyses and descriptions of these 12 samples and the corresponding tailings are presented in table 2.

A pan sample (AK17687) collected from a cut bank pointed out by Mr. Adams contained greater than 50 fine colors of gold. The sample was preconcentrated by fire assay and forwarded to Reno Research Center for precious metal analysis, during which the bead was accidentally destroyed. No platinum or palladium were detected in any of the samples analyzed, but Mr. Adams reports seeing a single platinum grain in a pan sample collected at the same location as AK17696 (fig. 1, table 2).

Unconfirmed reports of platinum detected by geochemical analyses of concentrates from a location approximately 20 mi downstream from Mr. Adams property were received via telephone from Mr. Jack Lewis, a realtor in Anchorage, Alaska. This location has not been investigated by the Bureau.

TABLE 2. - Pan and sluice box concentrate samples from Shulin Bar, Kahiltna River[1]

Sample No.		Au	Pd	Pt	Orig. sample volume	Concentrate wt(g)	sp.gr.	Description
[2]AK17687	Pan	---	<0.001	<0.001	---	---	---	Sample bead lost during analysis. Greater than 50 colors observed. Original volume = 6 pans of screened (-3/8 in) material.
[2]AK17688	Box	0.025	<0.001	<0.001	1 ft^3	614	2.70	Stock piled material screen to -8 mesh. Only a few colors in pan. Sample from same location.
	Tailings	<0.0002	<0.001	<0.001				
[2]AK17689	Box	0.028	<0.001	<0.001	1 ft^3	1342	2.62	Stockpiled material screened to -18 mesh. No visible gold reported
	Tailings	<0.0002	<0.001	<0.001				
[2]AK17690	Box	---			1 ft^3	---	---	Six ft depth at south end of stockpile. >20 colors reported in pan sample from same location (only tailings received).
	Tailings	<0.005	<0.001	<0.001				
[2]AK17691	Box	0.000*	<0.001	<0.001	1 ft^3	455	2.60	Five ft depth on east side of inland stockpile. Five colors in pan from southern end, 25 colors in pan from northern end. Visible gold also observed in pan sample from top of stockpile.
	Tailings	<0.0002	<0.001	<0.001				
[2]AK17692	Box	0.005	<0.001	<0.001	1 ft^3	482	2.60	Sample from red channel. Four small colors seen in pan sample from same location.
	Tailings	0.0003*	<0.001	<0.001				
[2]AK17693		0.000*	<0.001	<0.001	1 ft^3	435	2.64	Six ft depth at north clearing, 90 yd from river. Five to 10 colors in each of various pans from this location.
		<0.0002	<0.001	<0 001				

See footnotes at the end of this table.

Pan and sluice box concentrate samples from Shulin Bar, Kahiltna River[1] - Continued

Sample No.		Au	Pd	Pt	Orig. sample volume	Concentrate wt(g)	sp.gr.	Description
[2]AK17694	Box	0.010	<0.001	<0.001	1 ft^3	472	2.64	Five ft depth at south end of property, 20 yd from river. Thirty-five colors including 6 coarse ones in pan sample from same location.
[2]AK17695	Box	0.011	<0.001	<0.001	1 ft^3	457	2.65	Same location as AK17694 but from 8 ft depth (below waterline). Ten colors in pan sample from same location.
	Tailings	0.001	<0.001	<0.001				
[2]AK17696	Box	0.004	<0.001	<0.001	1 ft^3	478	2.70	1300 ft east of main stockpile. Platinum reported along with 7 colors of gold in pan sample from same location.
	Tailings	<0.0002	<0.001	<0.001				
[2]AK17697	Tailings	<0.0002	<0.001	<0.001				Sample collected at 4 ft depth at site of coal seam.
[2]AK17698	Box	0.014	<0.001	<0.001	1 ft^3	524	2.60	Blue clay layer beneath red channel and coal seam. Seven colors reported in pan sample from same location.
	Tailings	0.0004*	<0.001	<0.001				
[2]AK17699A	Tailings	0.007	<0.001	<0.001	.25 yd^3	---	---	Original sample collected from coal seam and below coal seam. Greater than 100 colors in pan sample from same location.
	B	0.040	<0.001	<0.001				

See footnotes at the end of this table.

Pan and sluice box concentrate samples from Shulin Bar, Kahiltna River[1] - Continued

Sample No.	Au	Pd	Pt	Orig. sample volume	Concentrate wt(g)	Concentrate sp.gr.	Description
[2]AK17700 Box	0.605	<0.001	<0.001	1 ft^3	1250	2.60	Sample collected 20 ft north of test plant site. Pans yielded from 5 to 100 colors.
Tailings	0.001	<0.001	<0.001				
[2]AK17701 Box	0.008	<0.001	<0.001	1 ft^3	---	---	Sample collected from 8 ft depth, 25 yd north of test plant and 30 yd from river. Blue clay encountered at 8 ft, water at 9 ft. Twenty fine colors in pan sample.
[2]AK17702 Box	0.018	<0.001	<0.001	1 ft^3	---	---	Sample collected from 6 ft depth into red channel. Thirty to 40 colors from 6 ft depth in pan sample from same location.

[1] Fire assay preconcentration by Bureau's analytical section, Juneau, Alaska. Beads analyzed by inductively coupled plasma at Bureau's Reno Research Center, Reno, Nevada.

[2] Indicated samples donated by Jon Adams. Box indicated concentrate from 4 ft x 8 in sluice box. Tailings are grab samples of screened overflow.

NOTE. - All analyses reported in oz/ton
---not reported.
* indicates results near detection limit and should be interpreted accordingly.

RECOMMENDATIONS

The potential for significant gold-platinum placer resources still exists in the Yentna Districe in spite of the negative results obtained during this investigation.

It is recommended that additional sluice concentrate samples be obtained. These samples might be obtained from local miners. Where samples are warranted but no mining is taking place bulk concentrate samples should be collected by the Bureau, using a 6 in suction dredge and sluice box to increase sample size and to enhance recovery of any platinum metals present.

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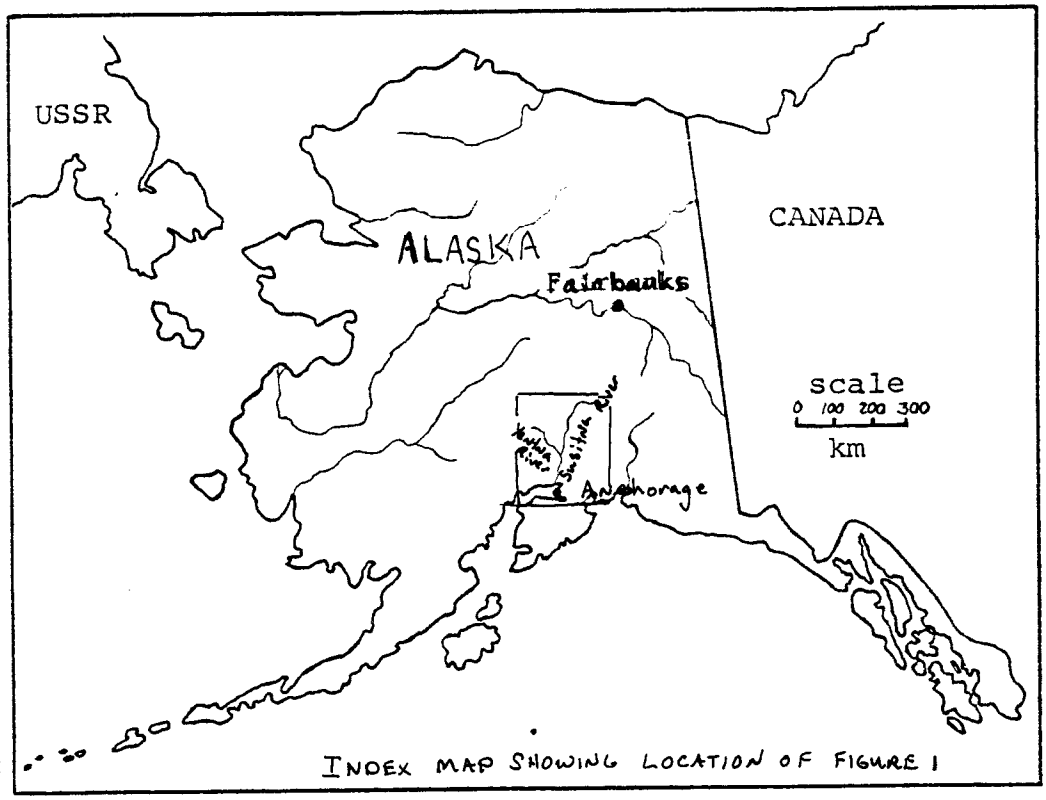
9. Reed, B. L. and others. Mineral Resource Map of the Talkeetna Quadrangle, Alaska. U.S. Geol. Survey Misc. Field Studies Map MF-870-D, 1978, 1 plate.



INDEX MAP SHOWING LOCATION OF FIGURE 1

Figure 1- Location Map

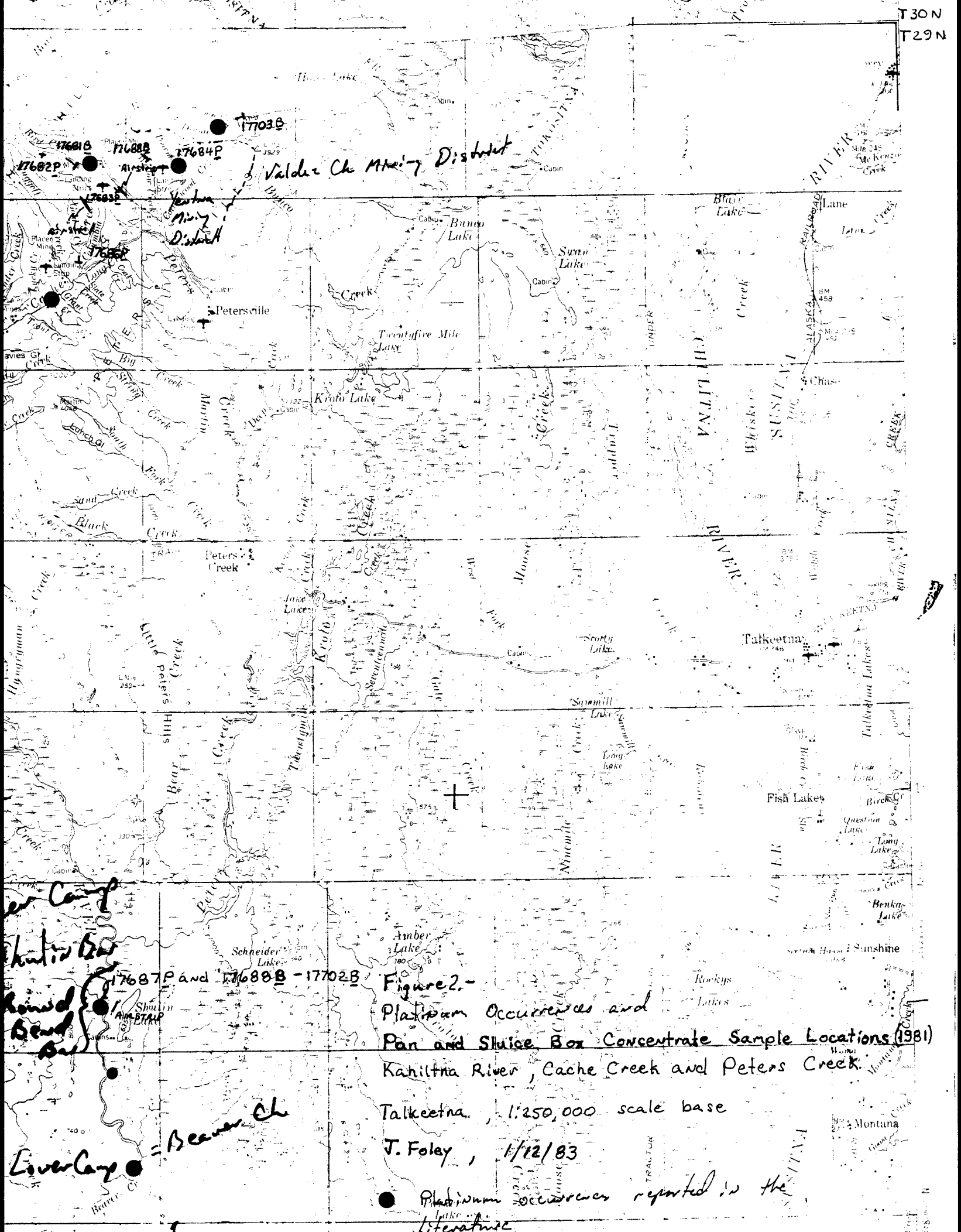
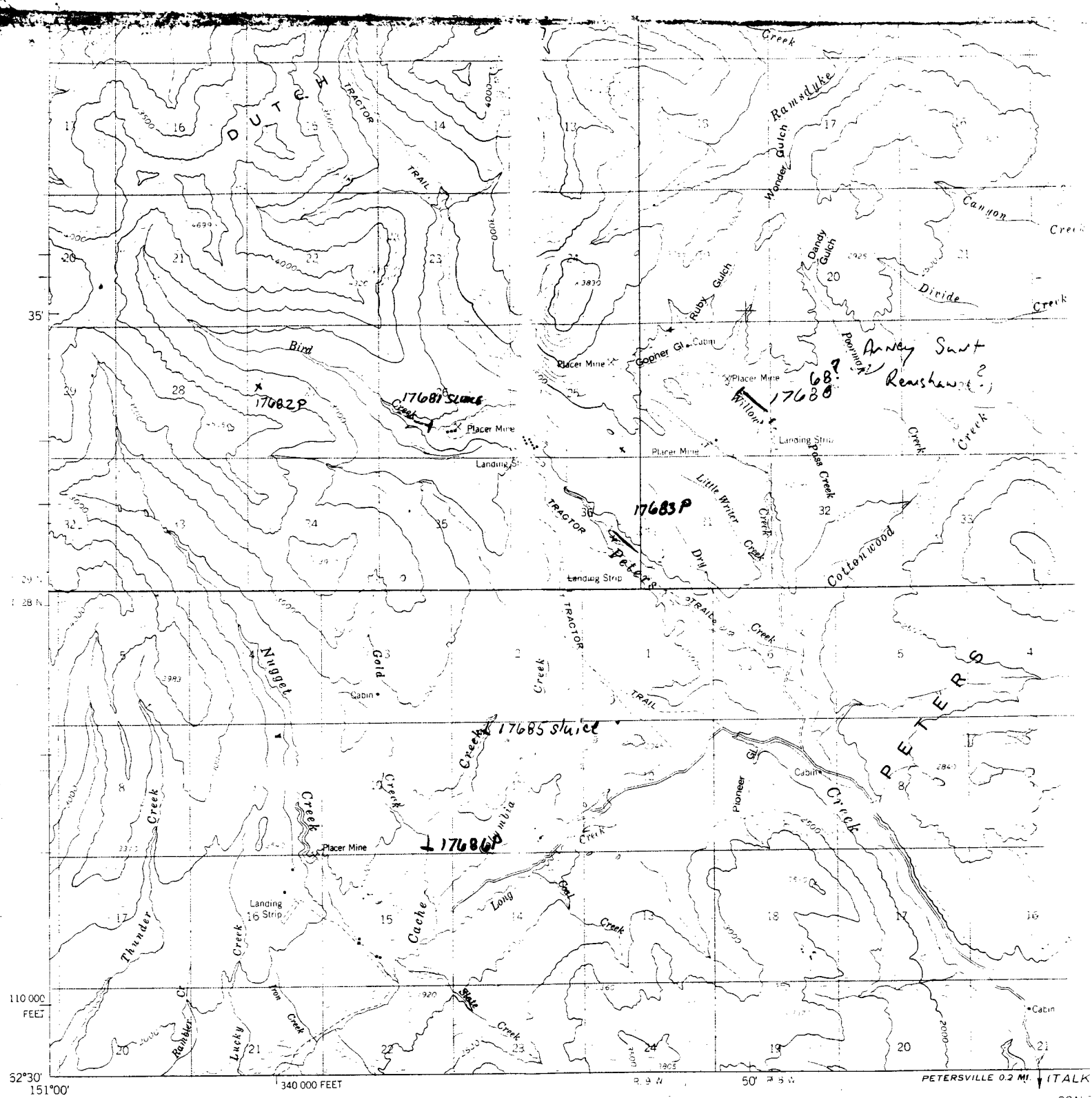


Figure 2.- Platinum Occurrences and Pan and Sluice Box Concentrate Sample Locations (1981) Kahiltna River, Cache Creek and Peters Creek. Talkeetna, 1:250,000 scale base. J. Foley, 1/12/83.

● Platinum occurrences reported in the literature



Mapped, edited, and published by the Geological Survey

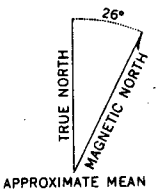
Control by USGS and USC&GS

Topography by photogrammetric methods from aerial photographs taken 1953–1954. Field annotated 1958. Map not field checked

Universal Transverse Mercator projection, 1927 North American datum
10,000-foot grid based on Alaska coordinate system, zone 4
1000-meter Universal Transverse Mercator grid ticks, zone 5 shown in blue

Gray land lines represent unsurveyed and unmarked locations predetermined by the Bureau of Land Management. Folio S-2, Seward Meridian

Swamps, as portrayed, indicate only the wetter areas, usually of low relief, as interpreted from aerial photographs



APPROXIMATE MEAN DECLINATION, 1958

SCALE

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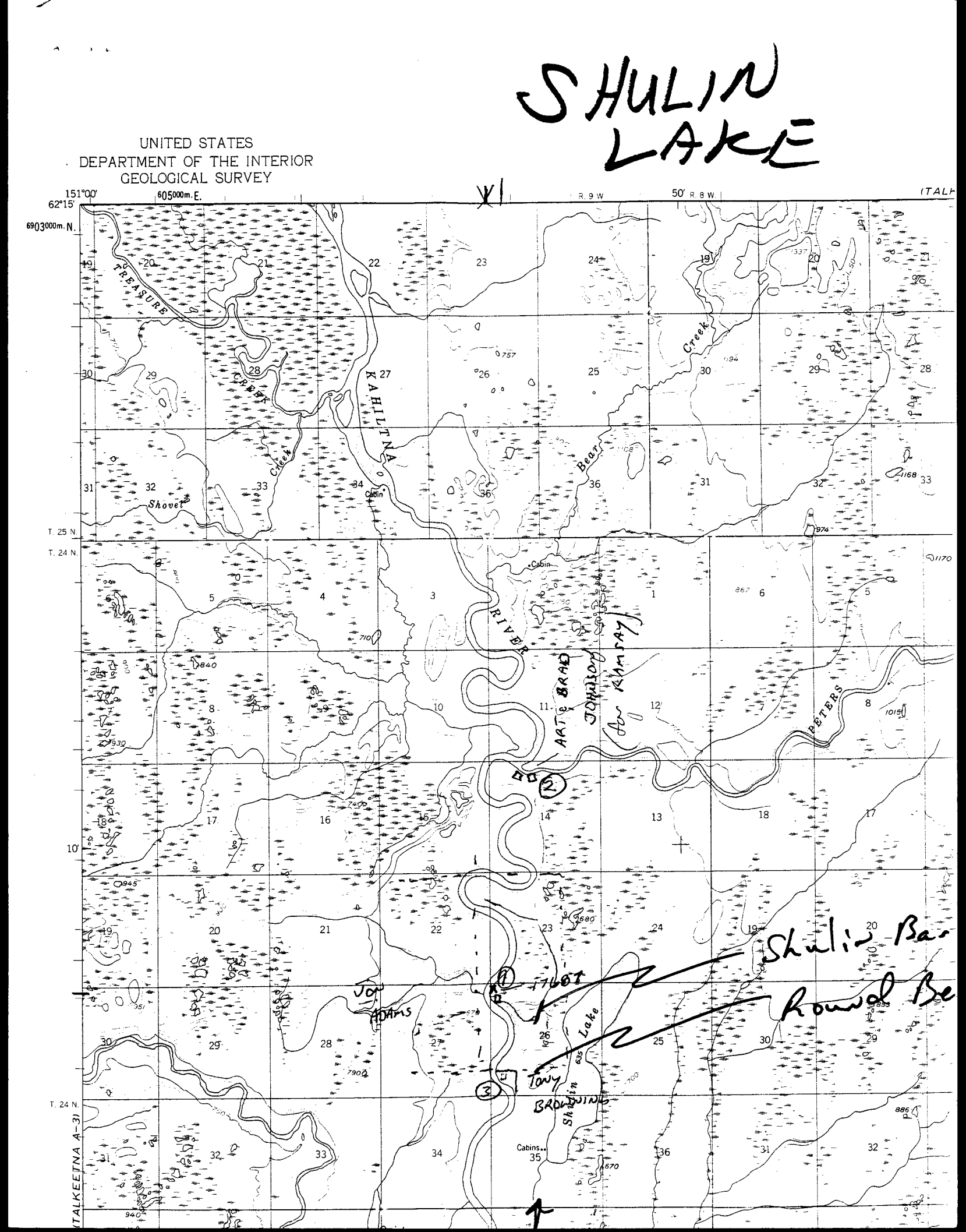
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