MR Anch 85-5

CHROMITE DEPOSITS OF PIONEER CREEK, KNIK AREA, ALASKA.

KX 85-96

1942

During a ten day period commencing May 31, 1942 and terminating June 9, 1942, Gordon L. Picotte of the Materials Division, W.P.B., with the aid of Gaylord R. Skinner of Seward Alaska who acted as a guide, examined and sampled the six known chromite deposits at Pioneer Creek, Knik area, Anchorage Mining and Recording District, Alaska. Three of the six deposits at Pioneer Creek as well as two other outcrops in the vicinity are not worthy of any attention. The three best deposits have been designated zone one, zone two and outcrop two. No high-grade ore bodies are known of that would afford a small readily available source of shipping-ore.

The only known deposits worthy of attention are at Pioneer Creek. This creek is 32 miles from Anchorage, Alaska on the Palmer highway. The Palmer highway is a gravel surfaced road that is kept in good condition year around. The first chrome ore outcrop at Pioneer Creek occurs approximately two-thirds of a mile from the Palmer highway.

The original discovery of chromite in this area was made by Gaylord R. Skinner at Pioneer Creek in 1935. Four claims have been located on the ledge which outcrops along both sides of Pioneer Creek in 1937. The present locators are Gaylord R. Skinner of Seward, Alaska, O. F. Ohlson and George Johnson of Anchorage, Alaska.

The known chrome ore outcrops and deposits occurs within the boundaries of the Eklutna Indian School Reservation and valid claims cannot be filed. The reservation of 515 square miles was withdrawn temporarily in 1936 with the understanding that such land as was not permanently selected for the Eklutna Indian School Reservation would be returned to the public domain. This has not as yet been done. Very little prospecting had been done to determine the extent of the outcrops and to locate nearby deposits in the reservation.

The chromite occurs as black, sub-metallic, disseminated specks and stringers in a dark green, olivine rich rock. The country rock is dunite, an ultramafic rock, dark on freshly broken surfaces but weathered to a creamy buff on exposed surfaces. The distribution of the small stringers is apparentally irregular and no prediction can be made as to the possible occurrence of unexposed deposits. The contact of the dunite with the inclosing country rock was not observed because of the heavy growth of vegetation.

Several factors make the Pioneer Creek deposits attractive. The deposits are within one mile of a well traveled and kept road. A road could very easily be built from the Palmer highway to the first outcrop. This road would average approximately a twelve percent grade. A spur from the Alaska railroad could very easily be built over level ground to the junction of Pioneer Creek and the

Palmer highway which is two miles away. The Anchorage Power and Light Company has a power line within two and one-half miles from the deposits and a telephone line is the same distance away. Small spruce timber could be had nearby. Pioneer Creek carries about 150 miners inches of water during the summer and about 50 miners inches during the winter months.

The principle considerations from an economic standpoint are the reserves that could be developed, the percentage of chromic oxide and the ratio of the chromium to the iron. Present indications would not justify an estimate of the ore reserves that could be developed, however, it is my opinion that no large reserves could be developed judging from the observed indications on Pioneer Creek, and vicinity. Samples taken from outcrops and exposures reveals very low-grade material. Two chromium to the iron test were made on good samples and revealed a Cr:Fe of 2.9:1.

Chip samples were cut across the six known deposits on Pioneer Creek to determine the grade of the ore. The analyses were made in Anchorage, Alaska by Leo Saarela who is the assayer for the Alaska Territorial Bureau of Mines. For the exposures that were not sampled an estimate of grade has been made from the appearance and weight of the ore. The percentages of iron indicated on the assay report are not representative of the ore because the test were made on dunite, chromite, and any other material that was in the samples tested, without my knowledge of the procedure to be followed.

Present indications would not warrant large scale much less small scale operations that would be necessary for practical exploitation of the easily accessible low-grade deposit. Much time and money would have to be spent for trenching and diamond drilling and a large tonnage of ore would have to be revealed before any company would become interested in the known Knik area chromite deposits. Prospecting methods may reveal a large tonnage of conc. material but it is very likely that it would be to low-grade to mine profitably.

Zone No. 1.--The northernmost deposit is designated None No. 1. It is on the right limit of Pioneer Creek about two-thirds of a mile from the Palmer highway. The altitude of the zone is from 840 to 1,075 feet. The apparent strike is S. 71° E. and dips about 50° N. Small stringers and disseminated chromite occurs in this eastward-trending zone that may extend for 325 feet on the northwest end of a steep ridge. Zone No. 1 is exposed at the west end in a steep fifteen foot bluff adjacent to the creek and on the east end by a trench. The bluff and trench contains finely disseminated chromite whereas the exposures tested by samples 8, 9, and 11 contained small stringers of chromite in addition to disseminated chromite. Samples 2 to 7 were taken successively from north to south across the chromite bearing zone outcropping in a dunite bluff. Float containing finely disseminated chromite was observed in the trench tested by sample No. 10 so that the possibilities of a easterly continuation is indicated. Sampling of the deposits indicated that the zone becomes wider and leaner towards its sampled east and west end. It was difficult to determine the nature of this chromite

bearing zone because of the lack of exposures and heavy covering of vegetation. Sample No. 9 tested for chromium and iron revealed a chromium to the iron ratio of 1.97:1

Outcrop No. 1--On the left limit of Pioneer Creek, about 140 feet upstream from the west end of zone No. 1, disseminated chromite crops out along the base of a 35 foot cliff. The cliff was inaccessible so that is was difficult to determine whether chromite outcropped higher up the face. The chromite grains appeared to be evenly distributed in dunite so that samples 12 to 14 were combined for a single assay having a length of 12.7 feet and assaying 6.73% of Cr_2O_3. These samples were taken successively from the downstream (north) to the upstream (south) limits of the outcrop, five feet above the base of the cliff. The dunite beyond the limits sampled contained no visible chromite.

Zone No. 2.--About 400 feet south of Outcrop No. 1, a zone of chromite in dunite is exposed by trenches on the steep east slope of a ridge running north and south. The apparent strike is S. 78° W. and dips about 40° N. Trenches T_1, T_2, and T_3 revealed a very small amount of disseminated chromite grains. The zone exposed exposed by these trenches would probably assay 3% Cr_2O_3. T_1 is at an altitude of 1150 feet. Samples 28 to 32 were taken successively from the north to the south limits of the zone exposed by the longest trench that revealed small stringers of chromite as well as disseminated chromite grains. A small zone may exist twenty-five feet to the north and parallel to zone No. 2 as revealed by T3 and sample No. 34. Lack of exposures and a heavy covering of vegetation would make it difficult to trace the trend of the zone. A chromium to the iron test was run on samples numbered 31 and 34, and gave a Cr:Fe of 1.82:1 and 0.68:1 respectively.

Outcrop No. 2.--Outcrop No. 2 is sixty feet south from the assumed intersection of the creek and the strike of zone No. 2. The outcrop is exposed on the right limit of the creek in a steep cliff, whose talus-covered base is at an altitude of 980 feet. Four feet of fairly good concentrating ore at the top of the talus decreased to the northwest in an eight foot distance, and then disappeared beneath heavy talus. The fact that the ore decreases to the northwest and flares out to the southeast decreases the possibility for a workable orebody. A small fault offsets the ore a few feet near the top of the talus. In tenor the ore varies from low-grade concentrating material to weakly disseminated grains of chromite in the dunite. A chromium to the iron test run on sample No. 25 revealed a ratio of Cr:Fe of 1.55:1.

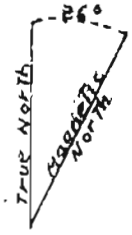
Outcrop No. 3.--Three hundred and fifty feet south of outcrop numbered 2 on the left limit of the creek there is a very small exposure of disseminated chromite in a dunite cliff that is about one hundred feet high. A four and one-half foot chip sample was taken from north to south across the ownly visible chromite exposure that occurred one-third of the way up the cliff at the top of heavy talus. The sample assayed 2.53 % of Cr_2O_3.

Outcrop No. 4.--The southernmost outcrop on Pioneer Creek is about 600 feet upstream from outcrop No. 3 on the left limit of the creek. Chromite occurs as disseminated grains in a 40 foot dunite cliff. Samples 15 to 18 were taken successively from north to south across visible chromite five feet above the base of the cliff. Samples 19 and 20 were taken 10 feet above samples 15 to 18 and directly above samples 16 and 17. The width of the zone containing visible appears to decrease with altitude. Due to the uniformity of the distribution of chromite grains, samples 15 to 18 were combined for a single assay as well as samples 19 and 20. The former had a total length of 13.5 feet and assayed 3.19% Cr_2O_3, the latter had a length of 8.4 feet and assayed 6.14% Cr_2O_3.

About one and one-half mile southwest of the southernmost outcrop on Pioneer Creek, cropping out on top of a high ridge trending east and west between the Knik and Eklutna river, an insignificant chromite outcrop was observed in dunite. This outcrop is at an elevation of 2200 feet and contains disseminated chromite grains. Very small layers of chromite was observed in large pieces of dunite in the talus at an altitude of about 2,000 feet in a gulch running perpendicular to the trend of the ridge. Very few outcroppings were observed at the crest of the ridge which is due to a light covering of moss.

Cropping out on the bluff side of the Palmer highway at mile 31.5 a very small and lean zone of disseminated chromite was observed in unaltered dunite. The observed indications were very discouraging and the outcrop of chromite was insignificant.

A sketch map has been prepared showing the locations of the deposits to Pioneer Creek. A larger scale sketch map of Zone No. 1, Zone No. 2 and Outcrop No. 2 has been prepared.

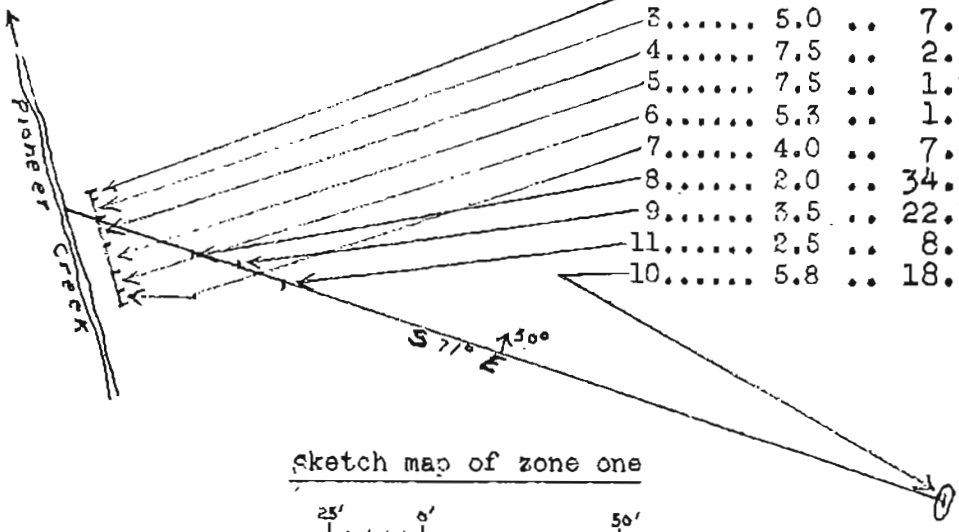


chromite

outline of trench

Analyses of chip samples

Sample No.	Length (feet)	Cr_2O_3 (percent)
2.....	2.0 ..	4.31
3.....	5.0 ..	7.81
4.....	7.5 ..	2.90
5.....	7.5 ..	1.73
6.....	5.3 ..	1.65
7.....	4.0 ..	7.61
8.....	2.0 ..	34.52
9.....	3.5 ..	22.30
11.....	2.5 ..	8.27
10.....	5.8 ..	18.27

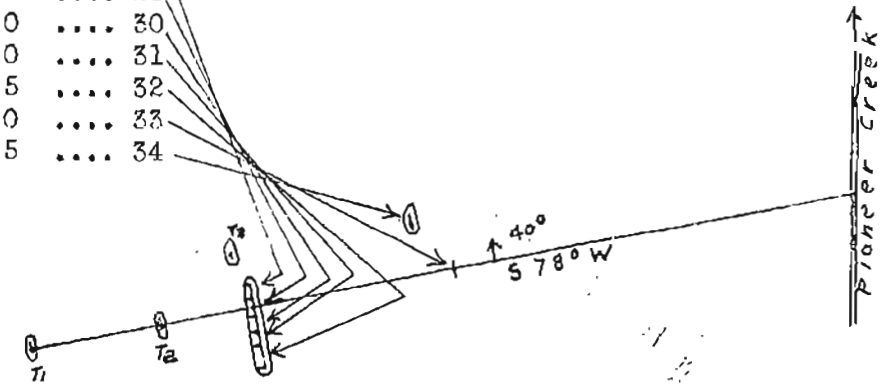


Sketch map of zone one

25' 0' 50'

Analyses of chip samples

Cr_2O_3 (percent)	Length (feet)	Sample No.
4.75 ..	4.0	28
13.84 ..	4.0	29
11.11 ..	4.0	30
18.46 ..	4.0	31
16.34 ..	5.5	32
15.61 ..	5.0	33
9.29 ..	5.5	34

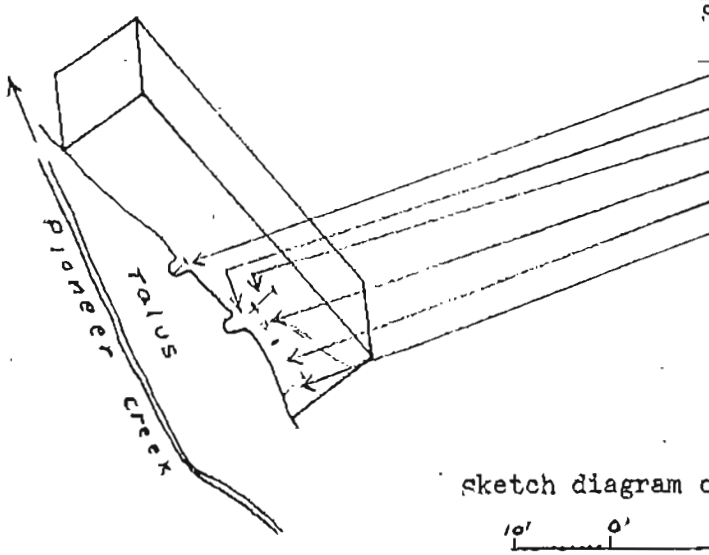


Sketch map of zone two

25' 0' 50'

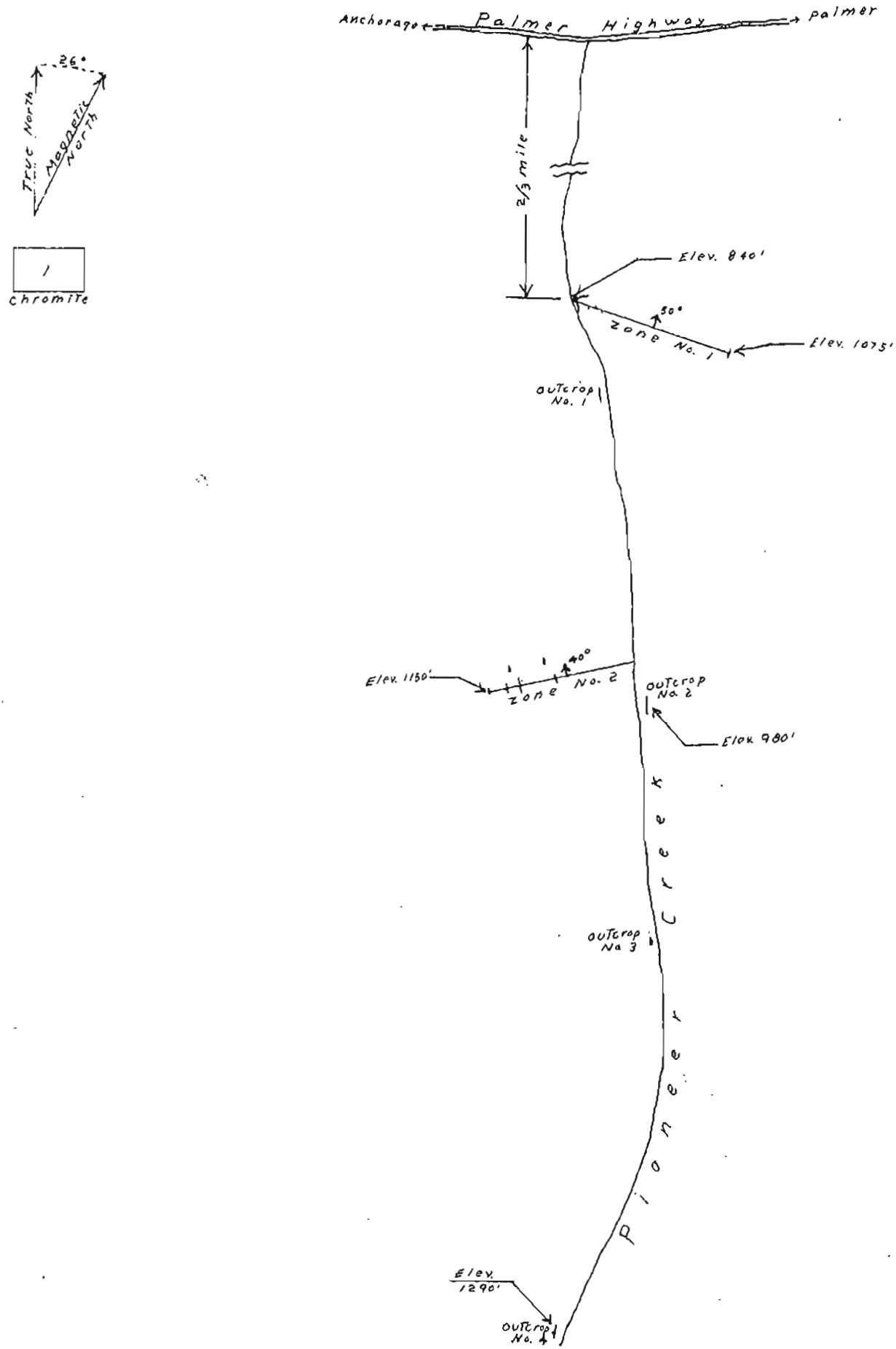
Analyses of chip samples

Sample No.	Length (feet)	Cr_2O_3 (percent)
22...	2.0 ..	15.67
23...	4.0 ..	14.48
24...	3.0 ..	6.65
25...	4.0 ..	29.80
26...	4.0 ..	6.00
27...	3.0 ..	5.77



Sketch diagram of outcrop No. 2

10' 0' 20'



Sketch map of Pioneer Creek, Knik Area, Alaska

TERRITORY OF ALASKA

DEPARTMENT OF MINES

ASSAY OFFICE

Anchorage, Alaska, June 15, 1942

REPORT OF ASSAY

On samples received from Gordon Picotte - W.P.B.

Address Seward, Alaska. Pioneer Creek Chrome--Skinner Prospect

Assay No.	Mark on Sample Owner's Description	OUNCES PER TON Sample Length Feet	Gold	Silver	Percent Cr_2O_3	PERCENTAGE OF	
1228	#2	2.0			4.31	2.24%	Chromium - Cr
1229	#3	5.0			7.81	4.06%	:
1230	#4	7.5'			2.90	1.51%	:
1231	#5	7.5'			1.73	0.90%	:
1232	#6	5.3			1.65	0.86%	:
1233	#7	4.0			7.61	3.96%	:
1234	#8	2.0			34.52	17.95%	:
1235	#9	3.5			22.3	11.60%	: 5.9% iron (
1236	#10	5.8			8.27	4.30%	:
1237	#11	2.5			18.27	9.50%	:
1238	#12, 13, 14	12.7			6.73	3.50%	:
1239	#15, 16, 17, 18	13.5			3.19	1.66%	:
1240	#19, 20	8.4			6.14	3.22%	:
1241	# 21	4.5			2.53	1.32%	:
1242	#22	2.0			15.67	8.15%	:
1243	#23	4.0			14.48	7.53%	:
1244	#24	3.0			6.65	3.46%	:

L. H. S.

Leo H. Saarela ASSAYER.

TERRITORY OF ALASKA

DEPARTMENT OF MINES

ASSAY OFFICE

Anchorage, Alaska, June 15, 19 42

REPORT OF ASSAY

On samples received from Gordon L. Picotte - W. P. B.

Address Seward, Alaska. Pioneer Creek Chrome Skinner Prospect

Assay No.	Mark on Sample Owner's Description	OUNCES PER TON Sample Length	Gold	Silver	Percent Value Per Ton Cr_2O_3	PERCENTAGE OF		
1245	# ~~XX~~ 25	4.0 FT.			29.8	15.50%	Chromium	10.0% Fe
1246	# 26	4.0			6.0	3.12%	:	
1247	# 27	3.0			5.77	3.00%	:	
1250	# 28	4.0			4.75	2.47%	:	
1251	# 29	4.0			13.84	7.20%	:	
1252	# 30	4.0			11.11	5.78%	:	
1253	# 31	4.0			18.46	9.60%	:	5.27% Fe
1254	# 32	5.5'			16.34	8.50%	:	
1255	# 33	5.0			15.61	8.12%	:	
1256	# 34	5.5'			9.29	4.83%	:	7.08% Fe

L. H. S.

Leo H. Saarela ASSAYER.