PE-114-13

TERRITORY OF ALASKA
DEPARTMENT OF MINES
BOX 1381
JUNEAU, ALASKA

PROPERTY EXAMINATION REPORT

ARIEL PROPERTY, SITKA QUADRANGLE, GOLD AND TUNGSTEN KX 114-25

James A. Williams
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The Ariel property is the former El Nido mine on Lisianski Inlet, renamed by Mr. Joe Ott of Pelican, who now holds it. Mr. Clell Hodson, also of Pelican, presently holds the adjacent Apex property. As Mr. Ott has been making efforts to develop the Ariel, and the property is a former producing mine, it seemed that an examination was in order when requested by the owner. The undersigned made the investigation on October 12 and 13, 1955. Samples JW55-26 through 36 were taken, but no mapping was done as a good map already exists. The Ariel vein is a sharply defined, but quite narrow, structure. Three samples showed good values in tungsten, and the best one of these had also a fair amount of gold.

Lisianski Inlet is on the western side of Chichagof Island in the northwest part of the Sitka quadrangle. The Ariel is on the southwest side of Lisianski Inlet at Cann Creek which is west of Pelican, across the Inlet. A vicinity map is attached. The geographical coordinates of the property are 136°17' W longitude and 57°57' N latitude. A corduroy road which can be travelled by foot only leads from the beach about 1-1/4 miles to the remains of the mill buildings at an elevation of about 500 feet. From here, a rough steep foot trail is followed to the former living

quarters at 800 feet. One small building still affords shelter there. The heavy snows have mashed the other buildings down in varying degrees. The large bunkhouse will probably not last much longer, and the mess hall is a mass of splintered boards and timbers. The lower adit is at 1060 feet and the upper at 1245. Ore was transported to the mill by aerial trams, and the concentrates trucked down the corduroy road. Only the cable of the trams remains.

Snow is extremely heavy in the winter and does not all melt until late in the summer. This year, last winter's seasonal snow did not completely melt before the fall snows started again. The country is well timbered up to 1100 or 1200 feet. The terrain is rough and precipitous except the floor of the large glacial cirque, in the walls of which are the Ariel and Apex workings.

The area is one of diorite which has a number of well-defined faults running through it. Some of these faults have been mineralized by filling to form remarkably consistent narrow veins with sharply marked walls. Such a vein is that of the Ariel property, (formerly the El Nido vein) a fissure-type vein of quartz striking generally N68°E and dipping from 30° to 80° to the southeast. The vein carries values in gold and tungsten. An aplite dike is also contained within the fault, and the vein is occasionally found on both sides of it. A newly-released USGS open file report "Ore Deposits on Northwestern Chichagof Island, Alaska" by D. L. Rossman has an excellent section on the geology of the El Nido (Ariel) and anything further the writer might say on the subject would be only repetition of that report. The reader is urged to refer to it.

The gold is largely free-milling and is often found in association with a green malachite stain, which probably comes from small amounts of

tetrahedrite (?) in the vein. A green mica was also observed in the quartz. The quartz is often "ribbony" or banded. The tungsten appears in the form of scheelite, which makes quite a spectacular display in some places underground with the aid of the UV light.

The sampling was done mostly where the vein crops out on the surface and at the ends of the two drifts in an effort to determine whether further development at those points might be advisable. Sample points are as shown on the attached map of the Ariel workings. Widths and values are as follows:

Sample No.	Width	Oz. Au	Oz. Ag	% WO_3	*$/Ton
JW55-26	4"	0.04	Nil	Nil	$ 1.40
JW55-27	6"	0.03	Nil	Tr	1.05
JW55-28	7"	0.01	Tr	2.30	145.25
JW55-29	7"	Tr	Tr	2.93	184.59
JW55-30	**	Tr	Nil	Tr	0.00
JW55-31	12"	0.02	Tr	Tr	0.70
JW55-32	14"	0.06	Nil	Tr	2.10
JW55-33	10"	0.25	Tr	0.02	10.01
JW55-34	8"	0.90	1.00	4.90	341.10
JW55-35	8"	0.10	Tr	Nil	3.50

* Tungsten values calculated at Government supported price of $63 per unit.
** Sample of wall rock
Samples JW55-26 and 27 were each a portion of a 10" width.

From these results, it appears that the best place from which to continue development (if more development is to be done) is the west face of the lower adit. Scheelite was noted to be abundant in the last 6 or 8 feet of this drift, and it may continue. However, the narrow width should be kept in mind. Sample JW55-34, by far the best, was taken from an obvious ore shoot. A very small amount of stoping overhead and in the bottom of the drift has been done here. For a start, if some mining is to be done, the

quickest and cheapest way to take out some values would be to continue the stoping at this location.

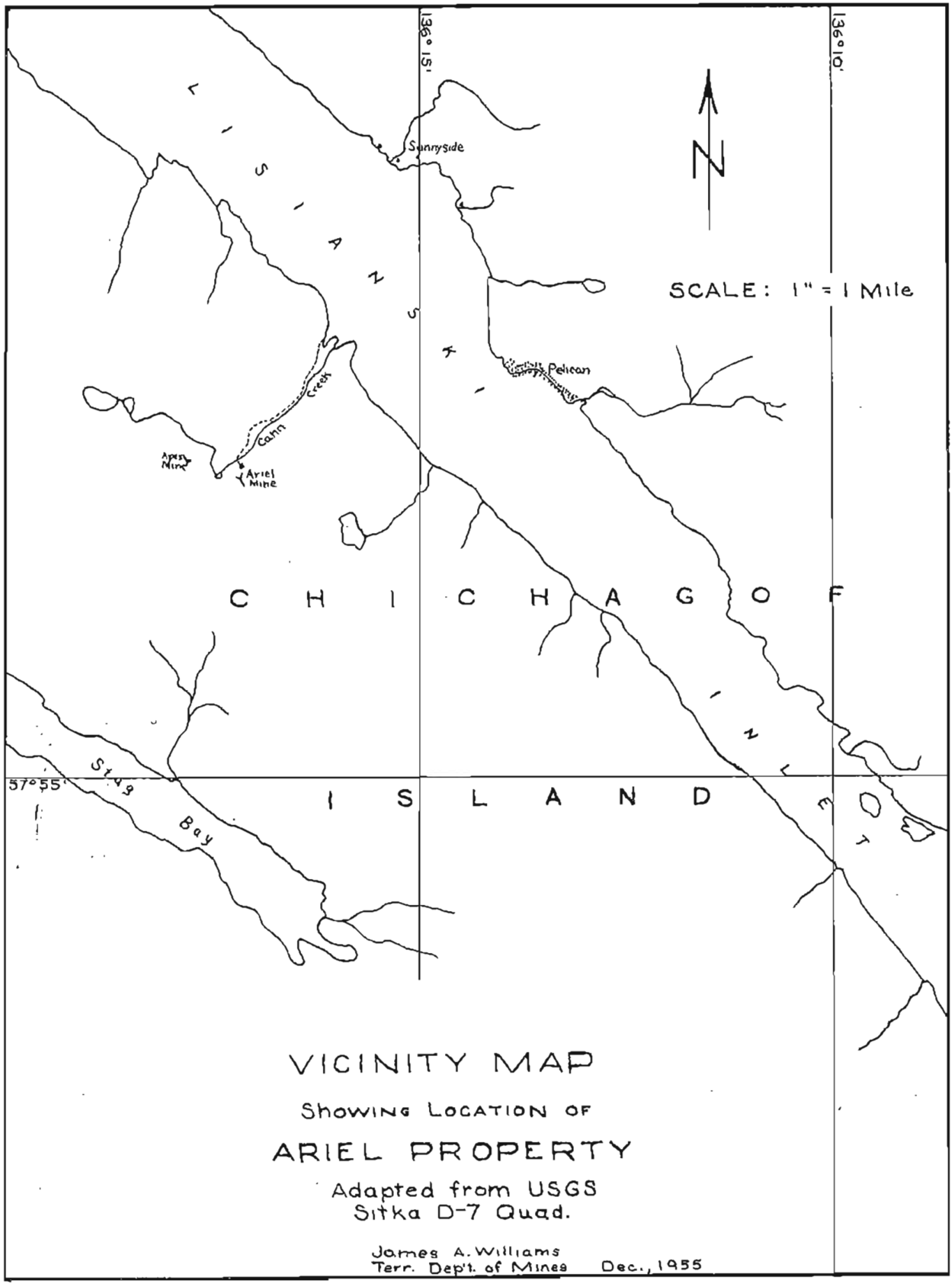
In addition to the large cost of rehabilitating and rebuilding the mill, trams, bunkers, living quarters, etc., the actual mining problems and costs should be considered when contemplating the reopening of the Ariel property. The vein has a probable average width of about ten inches, which would necessitate the mining of much wall rock, or waste, to allow sufficient working space to mine the vein. In a small operation, such as this would be, the most efficient method of mining a very narrow vein is to mine the waste from one side of the vein, and then mine the vein separately, to eliminate a hand-sorting problem. A mining width of about three feet would be required in the waste, so that for every ton of vein, 3 to 3-1/2 tons of waste would have to be mined. This would divide per-ton value by at least four. The highest sample value taken would be cut to something like $85 per ton which would probably write off the cost of mining successfully if there was sufficient material of the same grade.

Milling would probably require coarse grinding then amalgamation to remove the gold, then concentration to recover the scheelite. Since the largest values at the Ariel are in the scheelite, the treatment problems of this mineral should be considered. The tungsten from this property has never been saved, so there is nothing in the past records to judge from as to probable WO_3 recovery. However, scheelite is notoriously difficult to mill and concentrate. One of the big difficulties of milling scheelite is the sliming problem. Others are low recovery and low-grade concentrate. As a result of work done on and for the Riverside lead-silver-tungsten

property near Hyder by the USBM, they expect an 85% recovery and a 10% WO_3 concentrate for future operations. In four flotation tests on material from the neighboring Mountain View property reported on in R.I. 3944, the USBM obtained WO_3 recoveries of 43.0% to 79.3% and concentrates of 39.85% to 57.52%. Taggart reports a typical scheelite milling operation as producing an average rough concentrate of 10 to 15% and a 60 to 90% recovery, averaging probably about 80%. The flotation concentrate was cleaned on slime tables to 50 to 65% WO_3 with a yield of 50 to 80% recovery.

In view of the above facts and figures, the possibility of working the Ariel property on a tonnage basis appears remote under the existing economic conditions.

James A. Williams
Territorial Mining Engineer



VICINITY MAP

Showing Location of

ARIEL PROPERTY

Adapted from USGS
Sitka D-7 Quad.

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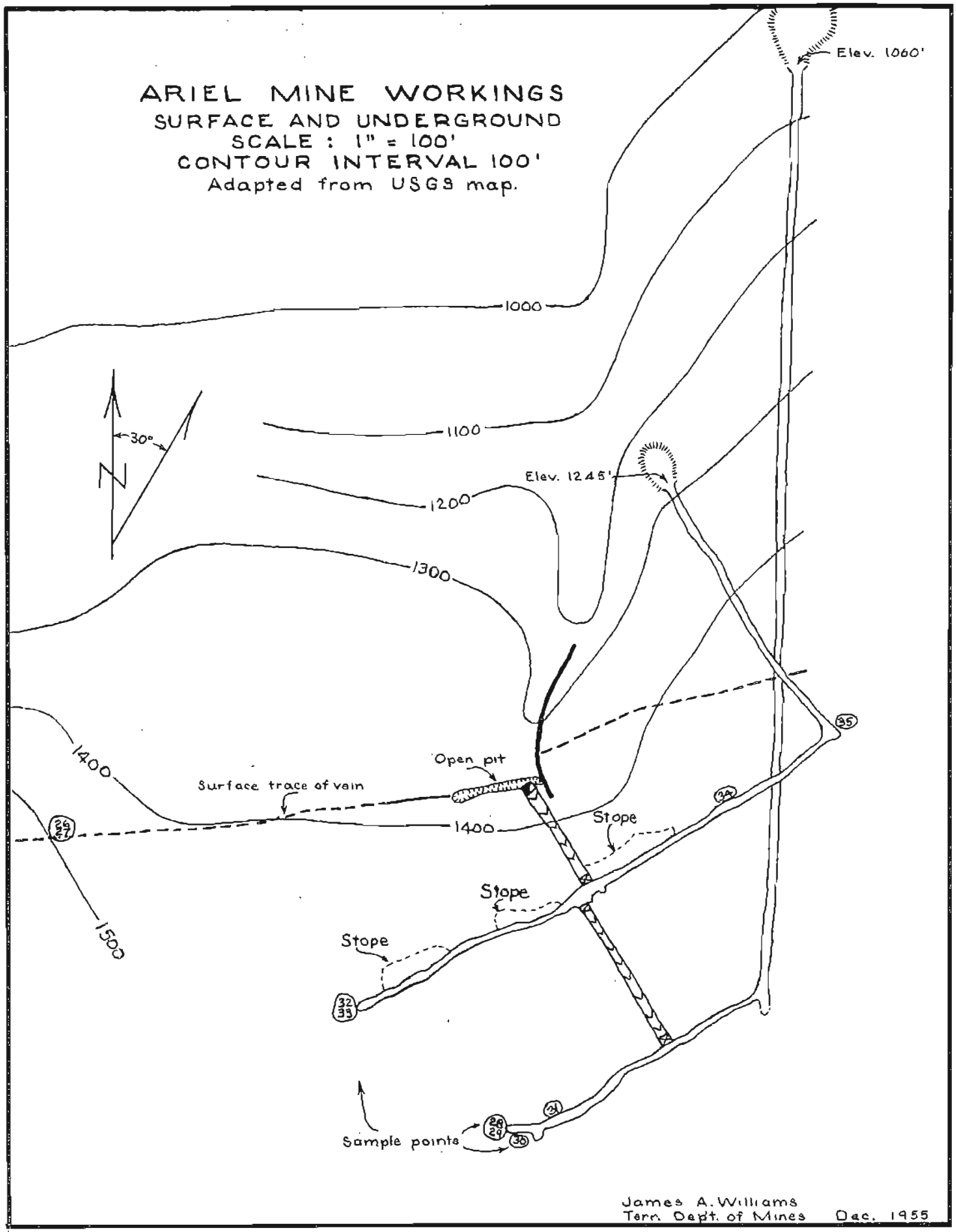
Terr. Dep't. of Mines Dec., 1955

ARIEL MINE WORKINGS

SURFACE AND UNDERGROUND
SCALE : 1" = 100'
CONTOUR INTERVAL 100'
Adapted from USGS map.



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