July 12, 1944
Bondi's Resort, Bighorn National Forest, 22 miles west of Dayton, Wyoming

Subject: NICKEL property. Reference may be made to Mr. Edward Cooper, plumbing contractor of Sheridan, Wyoming, who is reported to have undertaken this exploratory work.

Location: About 400 feet northward of U.S. Highway 14, and 1.7 miles west of Bondi's Resort. The workings are situated in Section 31, T. 56 N., R. 88 W., Sheridan County, Wyoming, in the Bighorn National Forest.

Purpose: To determine geologic relations at the mine and the probability of nickel production.

Observations

A detailed plane table and alidade map of the mine workings and immediate vicinity was made on a scale of 1" - 60'. A shaft which, judging from the size of the dump, is probably not more than 40 feet deep, and is now water-filled to within 20 feet of the collar, has been sunk on or very near the contact of an ultrabasic dike with the enclosing granitic country rock (see map). One shallow prospect hole has been sunk on the southern contact of the dike. West of the shaft two trenches wholly in the dike have been dug across the trend of the mass. Another small prospect in the dike itself has been sunk between the trenches and the shaft.

The general geologic relations are simple and involve a northeast-southeast trending dike-like mass of exceedingly basic rock intrusive into a pinkish granite, the latter very widespread in this part of the Bighorn Mountain uplift.

The lithology of the dike is difficult to determine megascopically. The rock has the appearance of cortlandite although it might also be pyroxenite. The peculiar metallic sheen on the cleavage faces of the mafic mineral grains suggests an orthorhombic pyroxene, perhaps bronzite or hypersthene. The dike is dark green to black, has very uniform, massive structure. It appears to be essentially monomineralic and to consist of some mafic mineral or minerals to the virtual exclusion of plagioclase.

As can be seen from the map the strike of the dike is about N. 70° E. and the dip, as determined approximately from an exposure of the contact in one of the prospect holes is 25° - 30° towards the northwest. Though the general form of the mass is dike-like it is characterized by rather irregular outlines, as is shown by the sharp re-entrant near the western end and the rather rapid changes in thickness within the some 700 feet of exposure. The maximum width of the dike is about 120 feet along a line southeastward from the shaft. The ends of the dike cannot be seen and their form is merely conjectural.

The basic dike rock and enclosing granite have been sheared, especially along the northern contact zone upon which the shaft has been sunk. The sheared granite is much modified and has an exceedingly vitreous aspect and greenish color as compared with the normal fresh rock. The sheared basic rock is also highly altered, especially along slickensided surfaces, to talcose and serpentinous secondary products. Perhaps also some asbestos has developed locally by modification of the original magnesium-rich minerals. Some of the slickensided surfaces show traces of pyrite and small amounts of this sulphide also occur in minute veinlets of talc, serpentine and asbestos developed along the shear planes. Occasional, narrow 1/8" - 1/4" veinlets of epidote cut the granite near the dike contacts.

It is probable that such nickel assays as were obtained from this dike rock were derived from pentlandite-bearing pyrrhotite of accessory character. From the general geologic situation and the absence of any evidence of intensive or wide-spread mineralization it is concluded that there is little possibility of nickel production from the property.

Respectfully submitted,

John C. Hall

Cabin

Prospect Trenches

Shaft

Shear zone

ND-11 7962.1

ND-10 7967.5

ND-9 7973.5

ND-8 7968.5

ND-7 7970.6

ND-6 7973.6

ND-5 7975.8

ND-4 7984.3

ND-3 7990.8

ND-2 7986.7

ND-1 Epob.b

8000

7990

7980

7970

7960

7950

ND-12 1952.2

ND-13 7963.1

ND-14 7957.5

ND-15

ND-16 7948.5

ND-17 7948.3

BONDI'S RESORT 1.7 MILES

U.S. HIGHWAY 14.

PLANETABLE MAP OF NICKEL PROSPECT

SEC. 31, T. 56 N., R. 88 W.,
SHERIDAN CO., WYOMING.

SCALE 1" = 60' ELEVATION ASSUMED

Geol.: J.C. Haff

Instr.: F.J. Adler

Date: July 12, 1944

LEGEND

BASIC DIKE

GRANITE