DMEA Form 9
Rev. 6/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration

OFFICIAL DOCKET FILE Idm-E NO._____ DMEA NO. 4999

Application
- [x] Denied
- [ ] Withdrawn

Contract
- [ ] Terminated - Not Certified
- [ ] Terminated - Certified
- [ ] Cancelled
- [ ] Royalty Agreement

The records contained in this file are marked (x) and arranged in this order:

Folder No. 1:

Left Side

- [ ] Royalty Audits
- [ ] Certification of Discovery
- [ ] Closing Letter
- [ ] Cost Audits
- [ ] Termination Notice or Agreement
- [ ] Recision Notice
- [ ] Assignment of Contract
- [ ] Contract Amendments
- [ ] Contract with all exhibits and annexes
- [ ] Owner's Consent to Lien and Subordination Agreement
- [x] Application and attachments

Right Side

- [x] Project summary (final)
- [ ] Work Completed analysis (final)

All other material filed in chronological order including the following reports if checked:

- [ ] Field Team Semi-Annual Report for Certified Project
- [ ] Final Field Team Report (Tab)
- [ ] Operator's Final Report (Tab)
- [ ] Interim Field Team Reports
- [ ] Operator's monthly reports and all attachments
- [x] On-site Exam Report (Tab)
- [ ] Settlement Sheets
- [ ] Drill Logs

Additional Folders:

Left Side

Folders No._____: Reports
- [ ] Analysis of Semi-Annual Inspection Reports
- [ ] Project Summary (Interim) by DMEA Engineers

Right Side

- [ ] Field Team Semi-Annual Report for Certified Project
- [ ] Field Team Interim Reports
- [ ] Operator's Monthly Reports with transmittal, narrative and maps.

Folders No._____: Maps (Use pocket folder or envelope)

Folders No._____: Settlement Sheets

Folders No._____: Drill Logs

Folders No._____: Royalty material

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
So. 157 Howard Street
Spokane 4, Washington

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DMEA
RECEIVED MAY 2 1958
DATE | CODE
WSM

April 29, 1958

Mr. George C. Selfridge, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

Re: New Application (Cobalt)
Penn-Idaho Mines, Inc.
Big Nickle & Desert Group
Lemhi County, Idaho

Dear Mr. Selfridge:

Enclosed are the original and two copies of an application for DMEA assistance to explore for cobalt in Lemhi County, Idaho. The applicant claims to hold by right of location 25 claims called the Desert group and is negotiating to lease two other claims, the Big Nickle No. 1 and No. 2 formerly the Haynes-Stellite mine. The two groups are about 4 miles apart. The applicant proposes to explore both groups and the intervening ground providing the requirement that he hold this ground be waived, by detailed geologic mapping and sampling, diamond drilling, drifting and crosscutting, and geochemical methods at an estimated total cost of $293,880, of which the Government's share would be 75 percent or $220,410.

Obviously we could only consider participating in work on the Desert group and on the Big Nickle claims if a lease is negotiated. Information in the application is not very convincing that a project in either area is justified. However, in a telephone conversation Mr. Shockey stated that erytherite is commonly found on many of the outcrops in the Desert claims. Also we know from previous Survey work that there is some low-grade cobalt mineralization in and about the Haynes-Stellite mine on the Big Nickle claims. Although we doubt that this is of much importance, we do not have samples to confirm this.

Frankly, we cannot be very optimistic about the chances of finding a significant ore body on either property and we doubt that in any event we could recommend a program of the type and magnitude proposed by the applicant. Still, it is difficult to recommend a denial without making an examination. Our field men will be going to Idaho next week and will attempt to make an examination during that trip.

Sincerely yours,

A. E. Weissenborn

A. E. Weissenborn
Executive Officer, DMEA
Field Team, Region I

Enclosures

cc: USBM (2)
Alvord

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APPLICATION FOR AID IN AN EXPLORATION PROJECT

By

PENN-IDAHO MINES, INC.

April, 1958

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Form MF-103
Revised Feb. 1957

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION

Budget Bureau No. 42-R1035.3
Approval expires June 30, 1958

RECEIVED MAY 2

APPLICATION FOR AID IN AN EXPLORATION PROJECT

PURSUANT TO DMEA ORDER I, UNDER THE DEFENSE PRODUCTION ACT OF 1950, AS AMENDED

NAME OF APPLICANT (Full legal name and mailing address as it should appear on contract if one is executed)

PENN-IDAHO MINES, INC.
555 SCHOONMAKER AVENUE
MONESSEN, PENNSYLVANIA

IDAHO OFFICE: BOX 92 SALMON, IDAHO

RECEIVED
APR 28 1958
U. S. G. S.
SPOKANE, WASH.

APPLICANT NOT TO USE THIS BLOCK

Docket Number	DMEA-4999
Date Received	5-2-58
Government Participation %	
Region	I
Division Code	400

BUSINESS ORGANIZATION (Check one)

- Individual [ ]
- Corporation [X]
- Partnership [ ]
- Other (Specify) [ ]

State in which firm is organized: Pennsylvania

LIST CORPORATE OFFICERS OR PARTNERS HERE, IF APPLICABLE

Name	Address	Title
Harry B. Strickland	4720 Center Ave., Pittsburgh, Pa.	President
Louis Manderino	555 Schoonmaker Ave. Monessen, Pa.	Secretary-Treasurer
Philip N. Shockey	Box 92, Salmon, Idaho	Vice President
Wallace R. Oref	Box 92, Salmon, Idaho	2nd Vice President

Mineral(s) for which you wish to explore: Cobalt

Estimated Cost of Project: $ 293,880.00

LOCATION OF PROPERTY

Name	County	State
Big Nickle Group	Lemhi	Idaho
Desert Group	Lemhi	Idaho

GENERAL INSTRUCTIONS

Before filling out this application, please read DMEA Order-I, Amended, "Government Aid in Defense Exploration Projects." To assure prompt action, your application must provide all applicable material and information specified on the back of this application form. Avoid unnecessary correspondence and delays by submitting complete and accurate information. *Please submit four copies of this application and all accompanying papers* except as otherwise noted. Place your name and address on each sheet. Each item of information, maps, and reports required as a part of this application is described on the back of this form. Identify each attached statement by the item number to which it applies. If an item does not apply to your application, show the item number on your statement and after it write "not applicable." Maps or sketches should be used to supplement narrative descriptions of the property location and boundaries in item 1, existing mine workings and geology in item 2, and the proposed exploration project in item 4. When this information is not too complex, all of it may be shown on one map or sketch. All documents and other attachments submitted as a part of this application, except those in item 2(g) which you mark to be returned, become the property of the Government and will not be returned to the applicant. Send true copies, *not originals*, of leases, contracts, and other documents which are an essential part of your business records. *File this application with the Defense Minerals Exploration Administration, Department of the Interior, Washington 25, D. C., or with the nearest DMEA Field Office.*

CERTIFICATION

The undersigned, whether as an individual, corporate officer, partner, or otherwise, both in his own behalf and acting for the applicant, certifies that the information set forth in this form and accompanying papers is correct and complete, to the best of his knowledge and belief.

April 24, 1958
Dated

Philip N. Shockey
BY *(Signature)*

Vice President
Title

A wilfully false statement or certification to any Department or Agency of the United States Government is a criminal offense. U. S. Code, Title 18, Sec. 1001.

INFORMATION REQUIRED WITH THIS APPLICATION

1. *Applicant's Property Rights:*

(a) State the legal description (section, township, and range; metes and bounds; patent number of claims) of the land upon which you wish to explore and all land adjacent to the proposed project area which you own or control. Describe any part of the project land or workings which should not be subject to Government lien for royalty payments. If the land consists of unpatented claims, state the book and page number for each recorded location notice, including amended locations, and the place where recorded (courthouse, recorder's office, county, and state).

(b) State all the names by which you know the property.

(c) State your interest in the land, whether owner, lessee, purchaser under contract, or otherwise. If you are not the owner, submit with this application one exact copy of the lease, contract, or other document (with address of owner) under which you control the property.

(d) Describe all liens, mortgages, or other encumbrances on the property.

2. *Physical Description:*

(a) Describe in detail and illustrate with maps or sketches all mining or exploration operations which you know have been or are being conducted upon the lands, including existing mine workings. Describe all production facilities.

(b) State your interest, if any, in operations stated in 2*(a)*.

(c) State, as far as you know, the past and current production, supporting your statement with copies of settlement sheets, mine records, or published data if available.

(d) Describe known ore reserves on the property giving quantities and grades and sampling methods used, supporting your statement with copies of assay certificates and assay maps if available.

(e) Describe by narrative and maps or sketches the geologic features of the property, including ore minerals, geologic formations if known, and type of deposit (vein, bedded, etc.).

(f) State your reasons for expecting to find ore, and if you have sampled the area you propose to explore, show where the samples were taken, describe sampling methods used, and provide copies of assay certificates.

(g) Send with your application at least *two* copies of all geologic or engineering reports, assay maps, or technologic information which you may have, indicating on each whether you require its return to you.

3. *Accessibility of Project:*

(a) To aid DMEA representatives who may be required to examine the property, state the name and address of the person who will meet the DMEA representative; give directions for reaching the property; and describe accessibility of the property including the mine workings.

(b) Name the shipping and supply points and places where employees reside and state the distances between them and the property.

4. *The Exploration Project:*

(a) Describe fully the proposed exploration project giving individual footages and sizes of openings *for each item of work.* Use narrative, maps, plans, and longitudinal and cross sections as necessary. Show the location of the proposed work as related to geologic features such as veins, ore-bearing beds, contacts of rock formations, etc. Show also the relation of the proposed work to any existing mine workings and to *property boundaries* or to the closest identifiable corner.

(b) If an access road to the project must be built, show the location on the property map and state the length, type, and construction methods proposed.

(c) In the event that an exploration contract with DMEA is executed, how soon will the work start and how many months will be required to complete it? State your anticipated average daily or monthly rate of progress for each type of work.

5. *Experience:*

State your operating experience and background with relation to your ability to carry out this exploration project, and also that of the person or persons who will supervise the operations.

6. *Estimate of Costs:*

Furnish detailed estimates of the costs *for each item of the work proposed in 4(a)* under the headings listed below with a total for each heading and the estimated total cost of the project. Costs for any work to be performed by an independent contractor should be shown separately under category *(a)* below. Costs for any work that is not to be performed by an independent contractor should be given in detail under categories *(b)* through *(g)*.

(a) Independent contracts. State the cost of any proposed independent contract for the performance of all or any part of the work, expressed in units of work, such as per foot of drilling, per foot of drifting, per hour of bulldozer operations, per cubic yard of material moved. Cost estimates should be supported by bids from three contractors if possible. *(Note* – If none of the work is to be contracted, write "none" after this item.)

(b) Personal services. For necessary supervision, engineering and geological services, and labor, include an itemized schedule of numbers, classes, rates of wages, salaries or fees, and periods of employment. State whether these technicians and employees are available.

(c) Operating materials and supplies. List items of material and supplies with their cost. Include under this heading power, water, and fuel, and units of equipment and tools costing less than $50 each.

(d) Operating equipment. List items of operating equipment to be used giving specifications and indicating how each item is to be acquired – i.e., rented, purchased, or provided by the applicant. If it is rented or purchased, state the estimated rental or purchase price. If it is to be furnished by the applicant, give its present fair market value.

(e) Initial rehabilitation and repairs. Describe the type and the cost of necessary *initial* rehabilitation or repair of existing buildings, fixtures, installations (exclusive of mine workings), and movable operating equipment now owned by the applicant, which will be used on the exploration project.

(f) New buildings, fixtures, installations. Describe each building, fixed improvement, and installation to be purchased, constructed, or installed for the exploration project stating specifications and cost including labor, materials and supervision.

(g) Miscellaneous. For the operating equipment listed in 6*(d)*, describe the type and estimate the cost of repairs and maintenance expected during project operations. Do not repeat initial repairs listed in 6*(e)*. Show also the costs of analytical work, accounting, workmen's compensation and employees' liability insurance, payroll taxes, and other required costs that do not fall within the previous categories.

Note – No items of general overhead, corporate management, interest, taxes (other than payroll and sales taxes), or any other indirect costs, or work performed or costs incurred before the date of the contract, should be included in the estimate of costs.

7. *(a)* State whether you are prepared to furnish your share of the cost of the proposed project in accordance with the regulations on Government participation stated in Sec. 7 of DMEA Order–I, Amended.

(b) Explain to what extent you propose to furnish your share of the costs by providing money, by use of equipment owned by you, or otherwise.

* * * * *

INT.-DUP. SEC., WASH., D.C. 15539

SUMMARY

Penn-Idaho Mines, Inc. proposes to direct a four-phase cobalt exploration project at specific targets in the Blackbird district, Lemhi County, Idaho, an area of known cobalt mineralization. Phases of the project would be: (1) detailed geologic mapping and sampling: surface and underground, (2) diamond core drilling, (3) drifting and crosscutting, and (4) geochemical prospecting. The latter three phases are not necessarily listed in chronological order. The project would cost a total of up to $293,880, and all of the work would be completed within the two year period immediately following a contract grant.

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PAPER
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STATEMENT TO ACCOMPANY

APPLICATION FOR AID IN AN EXPLORATION PROJECT

By

PENN-IDAHO MINES, INC.

Item 1. APPLICANT'S PROPERTY RIGHTS:

Penn-Idaho Mines, Inc. wishes to explore the old Haynes-Stellite property in Secs. 35 and 36; R. 18E.; T. 21N. and a newly located property, the Desert group, in Secs. 2, 3, and 4; R. 19E.; T. 20N., Boise meridian, Blackbird district, Lemhi County, Idaho(Fig. 1.) If the DMEA Administrator would waive present deficiencies in Penn-Idaho's ownership of the land between the two specified areas, Penn-Idaho would also explore that intervening land.

The old Haynes-Stellite property consisted of 30 unpatented claims(Hess, 1920b, p. 899). Sometime after 1921 these claims were allowed to lapse. In October, 1938, J. Howard Sims et al. restaked two lode claims over the abandoned Haynes-Stellite workings, and named the new claims: Big Nickle and Big Nickle No. 2 (Figs. 2 and 3). The Big Nickle claims are recorded on pages 89 and 90, Book 1, Recorder's Office, Courthouse, Lemhi County, Idaho.

Penn-Idaho is arranging to lease the Big Nickle claims from Sims et al. Only shortness of time prevented completion of Penn-Idaho's transaction with owners of the Big Nickle claims prior to submission of this application. The accompanying statement signed by J. Howard Sims, Salmon, Idaho, is presented as proof of Penn-Idaho's interest in the Big Nickle group.

I, J. Howard Sims, speaking for all owners of the Big Nickle and Big Nickle No. 2 claims do attest that Penn-Idaho Mines, Inc. is negotiating a lease on the Big Nickle claims; that I with others own these claims; and that only shortness of time has prevented successful completion of negotiations between Penn-Idaho and owners of the Big Nickle claims.

J. Howard Sims

J. Howard Sims

Notary Public for Idaho
Residing at Salmon, Idaho
My commission expires 2/27/60

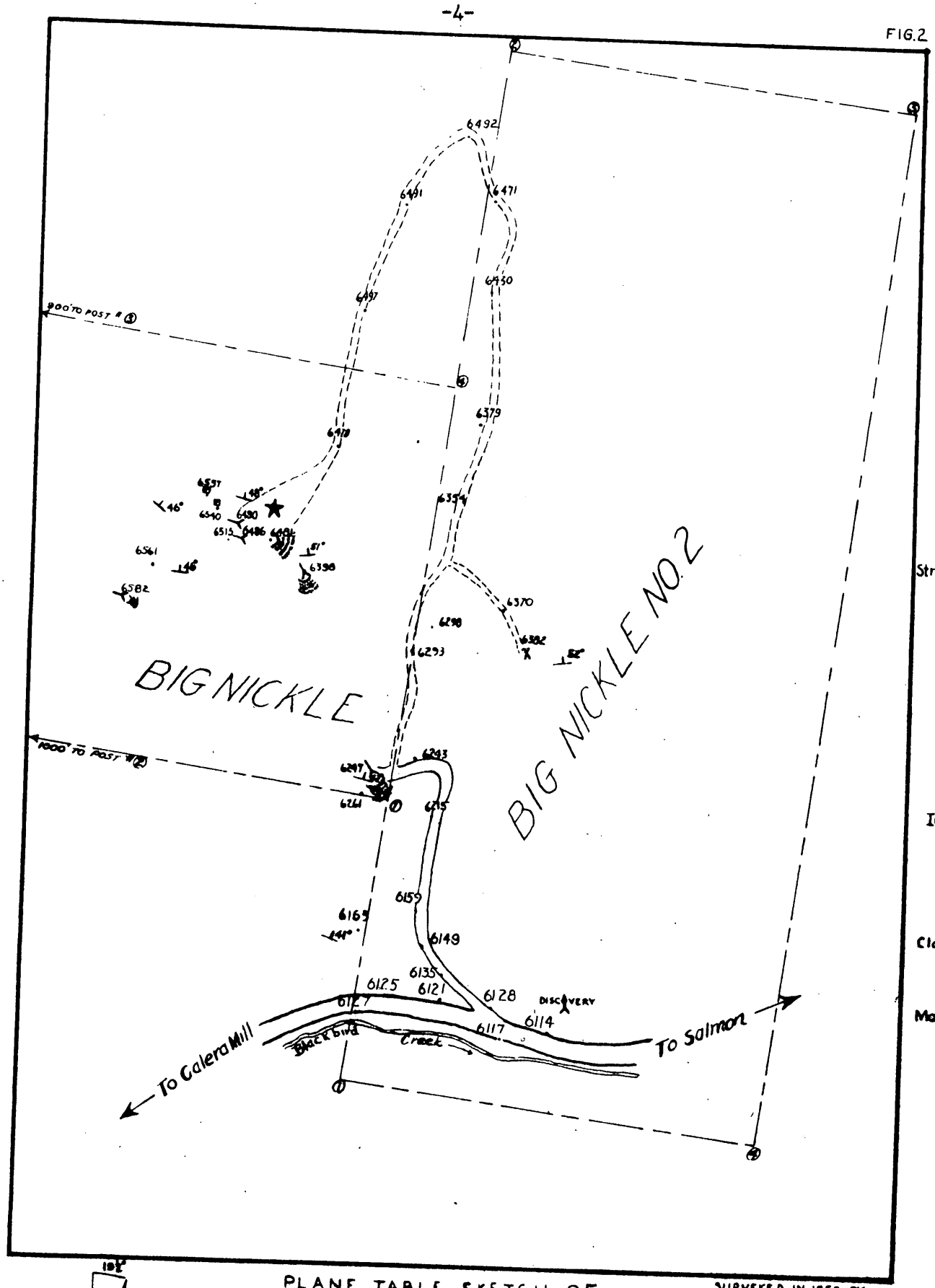
In late fall, 1957, Penn-Idaho staked 25 lode claims in R. 19E; T. 20N.(Fig. 3) over ground where mineralization is very similar to that at the old Haynes-Stellite property. These new claims constitute the Desert group, which includes Sahara Nos. 1 to 13 on the north and Mojave Nos. 1 to 12 on the south(Fig. 3). The Desert group is recorded at the Courthouse, Lemhi County, Idaho as follows:

Recorder's Office

	Book	Page(s)		Book	Page(s)
Sahara No. 1	9	231-232	Mojave No. 1	9	227-228
2	9	232	Mojave No. 2	9	228
3	9	233	3	9	229
4	9	233-234	4	9	229-230
5	9	234	5	9	230
6	9	235	6	9	231
7	9	265-266	7	9	261-262
8	9	266	8	9	262
9	9	267	9	9	263
10	9	267-268	10	9	263-264
11	9	268	11	9	264
12	9	269	12	9	265
13	9	269-270			

No mill site claims have been located for either the Big Nickle or Desert groups.

FIG.2



PLANE TABLE SKETCH OF
INACTIVE HAYNES STELLITE PROPERTY

Scale 1/2400

0 200' 400' 600 Feet

Datum is approximate

SURVEYED IN 1958 BY
P. SHOCKEY & W. GREF

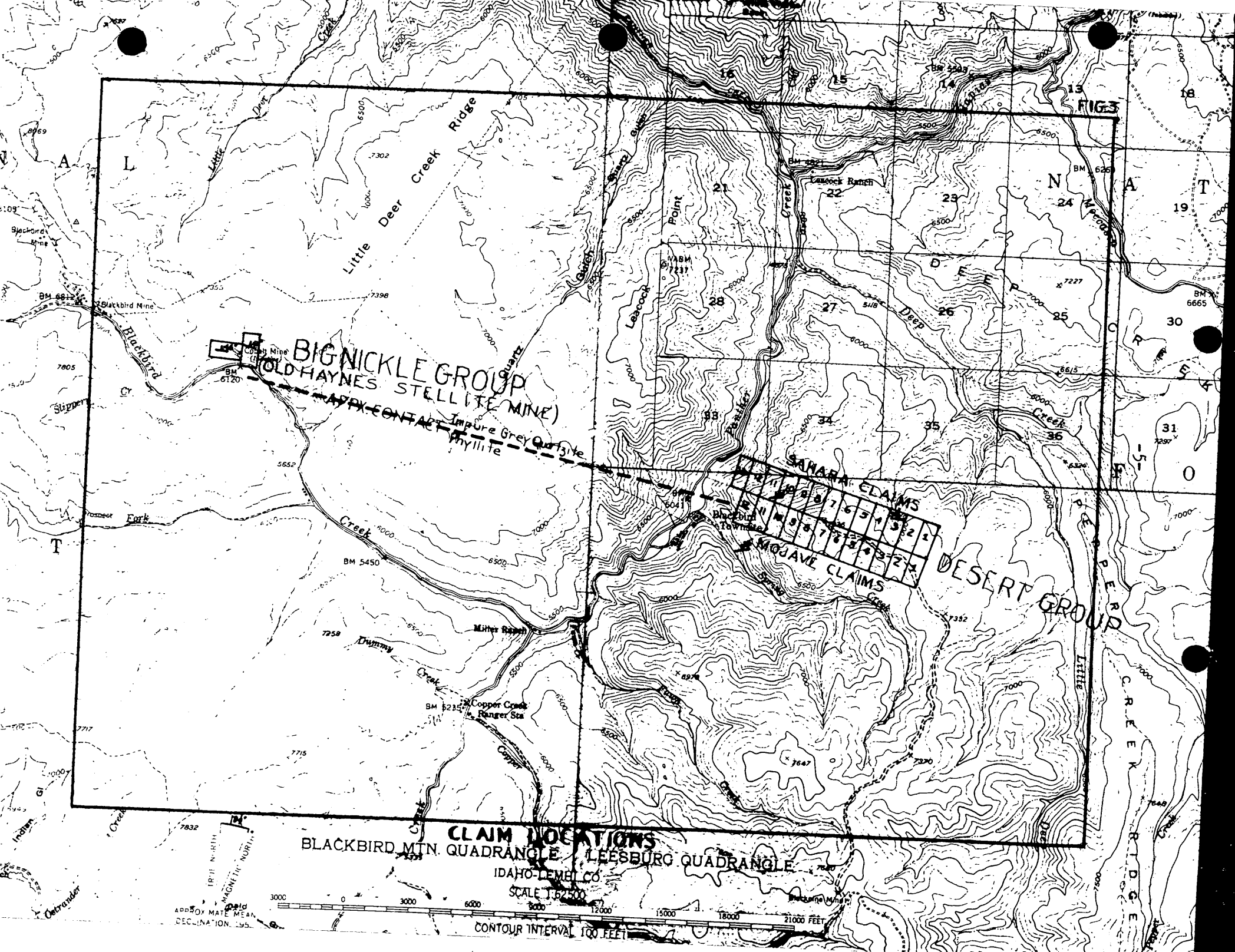


FIG 3
BIG NICKLE GROUP
(OLD HAYNES STELLITE MINE)
APX CONTACT
Impure Grey Quartzite
Phyllite
SAMARA CLAIMS
MOJAVE CLAIMS
DESERT GROUP
Little Deer Creek Ridge
Blackbird Mine
Blackbird Townsite
Leacock Ranch
Leacock Point
Deep Creek
Miller Ranch
Copper Creek Ranger Sta
Dummy Creek
Slippery Cr
Trosbeer Fork
Little Deer Creek
Little Deer Creek Ridge
BM 6120
BM 5450
BM 5235
BM 6041
BM 6665
BM 626
BM 5509
BM 5821
VABM 7237
-5-
CLAIM LOCATIONS
BLACKBIRD MTN. QUADRANGLE
LEESBURG QUADRANGLE
IDAHO-LEMHI CO.
SCALE 1:62500
CONTOUR INTERVAL 100 FEET
APPROXIMATE MEAN DECLINATION 1955
TRUE NORTH
MAGNETIC NORTH
3000 0 3000 6000 9000 12000 15000 18000 21000 FEET

There are no liens, mortgages, or other encumbrances on any of the described property. All of it would be subject to Government lien for royalty payments.

Item 2. PHYSICAL DESCRIPTION:

Penn-Idaho wishes it clearly understood that this and some subsequent application items would be far more detailed had time been available for gathering data. In explanation, Penn-Idaho has been caught in a time squeeze between the winter season and the ultimate date for making application for DMEA assistance.

A check of the literature, discussion with natives, and examination of the ground indicate that no significant development work has been done on the old Haynes-Stellite property for many years. There are reportedly some 2,000 feet of drifts, crosscuts, shafts, and stopes on the property. Most of this work must have been done in the years just prior to 1920. No old mine maps have been found by the writers. Portals to the larger workings are located in Figure 2. At present, less than 1,000 feet of these workings are accessible; the remainder is blocked by cave-ins. There are no production facilities on the property. Electrical power is readily available, and adequate timber is nearby. Surface water supply is meager but could probably be augmented by ground water from drilled wells.

The only Haynes-Stellite production statistics known to the writers are those published by Hess(1920a, p. 791). Hess' comments are quoted below:

"Cobalt was produced in the United States in 1918 principally by the Haynes-Stellite Co. at Haynes Camp, on Blackbird Creek, Lemhi County, 32 miles southwest of Salmon, Idaho. The 10-stamp experimental mill was operated only part of the year and crushed 4,000 short tons of ore, from which 55 short tons of concentrates were obtained, of which the following is a typical partial analysis:

Analysis of cobalt concentrates from Lemhi County, Idaho

Insoluble	16.73
Iron(Fe)	15.32
Sulphur(S)	23.75
Arsenic(As)	14.15
Cobalt(Co)	17.74
Copper(Cu)	.63

The cobalt content of the ore was 19,514 pounds, not quite 10 short tons."

Development work on the Desert group consists only of discovery pits, and a 2½ mile access road has been built across the high eastern claims(Fig. 3). This property has had no production. During November 1957, an attempt was made to sample the more accessible part of the property with a diamond core drill. This attempt was unsuccessful for three reasons: (1) surface water was not available for drilling, and snow had to be melted, (2) sub-freezing temperatures hindered the operation, and (3) oberburden was commonly deeper than the length of available casing. Timber is abundant on the property, and adequate surface or ground water could be supplied. Electric power is nearby.

It is not possible for Penn-Idaho to discuss ore reserves at the old Haynes-Stellite property or the new Desert group in detailed terms of quantity and grade, because the properties have not yet been carefully studied. Nevertheless, available evidence can be interpreted as indicating the presence of a very large reserve of relatively low grade, but commercial, cobalt ore in the specified terrane. The evidence is presented in subsequent paragraphs.

Hess'(1920b, p. 899-900) geologic description of the old Haynes-Stellite mine is the best available to date, and it is quoted below:

"The deposits are in a banded, thin-bedded, very fine grained grey and black quartzite, with some interbedded dark-green schist. Both rocks are very resistant to weathering, so that the valleys cut through them are narrow, with steep walls buttressed by great accumulations of sharp-edged talus lying at angles as great as 41 degrees. Narrow zones in the quartzite have been shattered, and in these zones solutions have deposited quartz, tourmaline, and minerals containing cobalt combined with arsenic and sulphur, probably mostly cobaltite, the arseno-sulphide(CoAsS) as indicated by the pinkish color; there is also some smaltite, the arsenide($CoAs_2$). It is probable that arsenopyrite(the iron arsenosulphide, FeAsS) is also present, and as shown by the green efflorescence or "bloom" (annabergite) in some places on the outcrops, nickel is present in small quantity. No careful determinative work has yet been done on the minerals to show the exact proportions of cobalt, nickel, iron arsenic, and sulphur.

The tourmaline in the veins on these claims is in crystals so minute that they are indistinguishable to the unaided eye; consequently tourmaline was not recognized in the field. It forms so large a part of the gangue that the vein is black and can not ordinarily be told from the country rock. Most of the particles of cobalt minerals are so minute that they can not be seen in the rough rock, and whether ore or barren rock is at hand can be ascertained, at least by the inexperienced, only by crushing and panning. The country rock is hard and dense, but the vein matter is harder and denser, and this in itself gives some guidance to the miner in places where the infiltration of vein matter has been insufficient to make its characteristics visible. Such masses weather more slowly and stand out from the quartzite and schist. Microscopic measurements of the minerals from these claims showed many grains to be less than 0.01 millimeter(0.0004 inch) in diameter; probably most of the grains in specimens collected by the writer are about 0.03 millimeter(0.0012 inch) in diameter, and the larger grains reach 0.25 millimeter(0.01 inch). In places, however, the grains are the size of popcorn or even larger but these are exceptional.

It is claimed that the ore as mined gave, in an experimental mill run before the property changed hands, more than 1 per cent cobalt. The problem of milling is difficult, and it would seem probable that the ore should be ground to less than 200 mesh in order to make a reasonable saving. If this is not done, only the occasional large particles and aggregates of smaller mineral particles in tourmaline can be saved. Coarser crushing will leave a large percentage of the particles inclosed in quartz and tourmaline, and they will be lost in the tailings."

Vhay(1948) described this part of the Blackbird district in some detail. On page 25 of his report, Vhay makes the following statements specifically concerning the old Haynes-Stellite property:

> "....The Haynes-Stellite mine was operated during 1917-1921, when the price of cobalt went very high(as much as $6.00 a pound). The middle and upper level show the typical mineralized rock of this block--a breccia zone(presumably a fault) in quartzite, heaveily silicified and replaced by tourmaline, in which is disseminated very fine grained cobaltite in separate grains, small masses, and veinlets. The two upper levels show a fairly definite north(footwall) side of the mineralized rock and a rather indefinite south wall; the mineralized rock is apparently cut off by a northdipping(?) fault above the lowest level which passes beneath the showings on the upper levels without exposing any mineralized rocks....."

Anderson (1947) published generalized information on the Blackbird district.

More recent reconnaissance work to the east by Shockey(1957) pertains in part to the area covered by Penn-Idaho's Desert group of claims.

Data pertaining to this cobalt mineralization lead to the conclusion that the deposits are hypothermal, i.e., they formed at relatively great depth under conditions of high temperature and high pressure. Consequently, the mineralization may reasonably be assumed to have considerable vertical and horizontal extent. That related cobalt deposits do have strong extent in depth has been proven at Calera's Blackbird Mine. Penn-Idaho has only general knowledge of the known depth of Blackbird ore, but some Government agencies must have specific information on this subject.

That these deposits also have considerable horizontal extent is indicated by the fact that Penn-Idaho has located new ground (Desert group, Fig. 3), where mineralization is very similar to that at the old Haynes-Stellite property. Outcrops on the Desert group are adequate to prove the preceding statement. In Figure 3, it can be seen that the Desert group lies some five miles slightly south of east from the old Haynes-Stellite property. Vhay(1948, p.19) implies that similar mineralization occurs several miles northwest of the Haynes-Stellite mine. Therefore, it is established that locally for a distance of about 10 miles along a northwesterly trending zone Haynes-Stellite type mineralization has been discovered. It should also be noted that in general, cobalt mineralization of the Blackbird district is distributed along a northwesterly lineament.

Correlation of Shockey's(1957) work in the Leesburg quadrangle with Vhay's(1948) work to the west in the Blackbird quadrangle makes possible formulation of a working hypothesis to explain localization of the zone of Haynes-Stellite type mineralization.

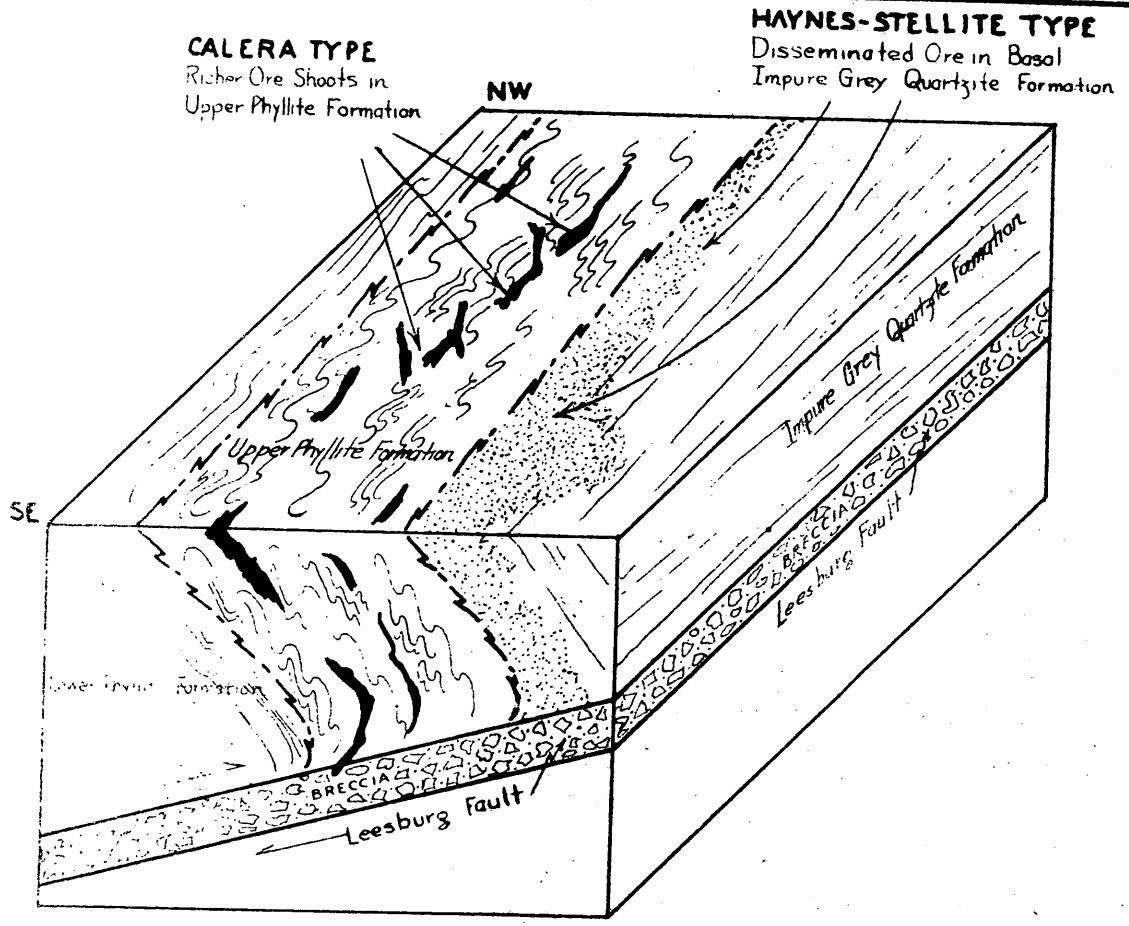
A probable composite stratigraphic column for part of both the Blackbird and Leesburg quadrangles follows:

Blackbird quadrangle(Vhay, 1948)	Leesburg quadrangle(Shockey, 1957)
Haynes-Stellite structural block	Impure grey quartzite formation
Blackbird structural block	Phyllite formation
Lookout structural block	Graywacke quartzite toward bottom

Areal distribution of these Precambrian (Belt) rock units is shown in the indicated reports(See also Figs. 2 and 3).

The Leesburg fault(Shockey, 1957, p.16), which is high-angle reverse, cuts beneath the Blackbird district, so that this district is on the hanging-wall side of the fault. Assuming that mineralizing solutions ascended from great depth along the Leesburg fault(Shockey, 1957, p.20), and encountered a precipitating environment generally throughout rocks of the Blackbird district, lithology and local structure probably controlled localization of the cobalt deposits. Being less competent, the upper Phyllite formation(or Blackbird structural block) was more intensely deformed during orogenesis than enclosing less pelitic strata. This relatively intense deformation induced the mineralizing solutions to ascend more freely through the upper Phyllite formation, and, thus, richer ore shoots developed within that formation. However, where the ascending solutions did not find adequate openings through the upper Phyllite formation, they continued along the Leesburg fault, ultimately to rise and be more or less disseminated through the lower portion of the coarser-grained (inherently more permeable) Impure Grey Quartzite formation (or Haynes-Stellite structural block). In this hypothetical way, the zone of Haynes-Stellite type mineralization may have formed. That this zone lies within the basal part of the Phyllite formation and strikes approximately parallel to the contact between the Phyllite and Impure Grey Quartzite formations(Fig. 3) lends support to the concept. Figure 4 is a schematic diagram illustrating the hypothesis.

FIG.4



DIAGRAMATIC SKETCH
HYPOTHETICAL ORIGIN OF COBALT DEPOSITS
BOBTAIL DISTRICT, LEMHI CO., IDAHO

The foregoing evidence strongly indicates considerable extension of Haynes-Stellite mineralization both in depth and horizontally. Consequently, a very large volume of this mineralized rock in the specified terrane can reasonably be assumed. That this volume occurs in minable width is proven by the gaping main workings at the old Haynes-Stellite mine. That much of the mineralized rock may be of commercial grade will be shown in subsequent paragraphs.

Calculation shows that the 4,000 tons of ore run through the old Haynes-Stellite mill contained at least 0.24 per cent cobalt(see page 7, this statement.) According to Hess(see page 8, this statement) this ore was not crushed fine enough, implying that the actual cobalt content of the ore was significantly greater than the calculated 0.24 per cent. Most if not all of this milled ore must have come from the main Haynes-Stellite workings(Fig. 2). During a March, 1958 visit to this old property, the main workings and rock in the old ore bin were randomly chip and grab sampled by the writers. As Hess(See page 8, this statement) and others have stated, Haynes-Stellite ore is commonly not distinguishable from country rock. Consequently, the writers' samples could not have been intentionally high-graded. Mr. J. Howard Sims had a composite of these samples assayed by Calera Mining Company at their Blackbird office. Calera's assayer notified Sims by telephone that the cobalt content of this composite was 0.94 per cent. Penn-Idaho has no certified proof of this assay, but there is no apparent reason for doubting its validity.

No meaningful samples have been taken from the Desert group.

Considering the 4,000 ton sample mined from the main Haynes-Stellite workings, the chip and grab sample taken there by the writers, and the similarity of Haynes-Stellite type mineralization from place to place, it can be assumed that much of this type of rock contains between 0.50 and 1.00 per cent cobalt plus some nickel and copper. If so, cobalt content of Haynes-Stellite type ore rivals that of Calera Mining Company, for example. A more efficient concentrating process for Haynes-Stellite type ore would make up for possible greater by-product value in, say, Calera's ore. Battelle Memorial Institute, Columbus 1, Ohio has indicated that they probably could develop a concentrating process for ore of the Haynes-Stellite type that would be superior to processes now being used in the United States and Canada. The cost of this process development work would be within Penn-Idaho's means. Proof of these statements may be obtained from Battelle.

Thus, it is apparent that Penn-Idaho's cobalt holdings and the intervening land may have the potential to increase greatly United States production and known reserves of cobalt.

Item 3. ACCESSIBILITY OF PROJECT:

In the event that DMEA personnel are required to visit these properties, the representatives will be met by:

Philip Shockey
Box 92
Salmon, Idaho
Phone: 2577
and/or

Wallace Oref
Box 92
Salmon, Idaho
Phone: 2293

The area of general interest is accessible at all times. From Salmon, Idaho, the route is south on U.S. 93 five miles to Shoup bridge, thence southwestward on light-duty roads along Williams, Moccasin, Napias, Panther, Blackbird and Copper Creeks for about 45 miles(Fig. 1).

From April thru October, when snow is absent, the old Haynes-Stellite workings are accessible by trails from Blackbird Creek road. (Figs. 1, 2 and 3). Examination of this property does not require strenuous physical exertion.

The higher-numbered claims of the Desert group are accessible April thru October from Blackbird townsite(Fig. 3). The climb to any of these claims is rather strenuous. From late May thru October, all of the Desert claims are easily accessible by motoring across the lower-numbered claims and walking downhill over the higher-numbered claims(Figs. 1 and 3).

Salmon, some 50 miles from the exploration area, is the permanent home of present employees. Temporary(Tent-camp) quarters were and ean be established within the target area as required. Salmon is also a minor supply point. Mackay, Idaho, about 100 miles to the south on all-weather water-grade Panther and Morgan Creek roads and thence on U.S. 93(Fig. 1), is the nearest rail head and major supply and shipping point.

Item 4. THE EXPLORATION PROJECT:

Penn-Idaho proposes to direct a four-phase cobalt exploration project at specific targets in the area here delimited. Results of the first phase of exploration will largely dictate whether successive phases will be executed and if so, exactly how, when, where and to what extent. The exploration project is outlined below:

Phase	Type of Work
1	Detailed geologic mapping and sampling: surface and underground
2	Diamond core drilling
3	Drifting and crosscutting
4	Geochemical exploration

Detailed geologic mapping and sampling have to be considered bonafide exploration work under the DMEA program, because DMEA order-1 Amended clearly states:

> Sec. 2. Definition. As used in this order:
>
> (a)"Exploration project" means the search for indicated or undeveloped sources of strategic or critical metals or minerals within a specified area or parcel of ground in the United States, its territories or possessions, whether conducted from the surface or underground, including recognized and sound procedures for obtaining pertinent geological, geophysical, and geochemical information. . . . . .

Specific targets for Penn-Idaho's detailed geologic mapping and sampling are: (1) the old Haynes-Stellite mine and the immediately adjacent area, (2) the Desert group of claims, and (3) the intervening Federal land, if the DMEA Administrator would waive deficiencies in Penn-Idaho's interest in that land.

Surface geologic mapping would be based on a plane table survey at a scale of 200 feet to the inch. Underground mapping would be on a scale of 20 feet to the inch. Mine workings as mapped would be reduced in scale to match the surface map. From the composite, longitudinal and cross sections would be constructed. Where practicable, channel samples would be taken across veins or mineralized zones at five foot intervals. These samples would be assayed for cobalt and nickel.

Assay maps would be prepared. Petrographic studies would be made.

Every effort would be directed toward conducting this mapping and sampling program at high levels of efficiency and accuracy, using recognized and sound procedures, so that the end product would be firm basis for either commencing or cancelling proposed subsequent phases of the project.

No access roads would have to be built for the mapping and sampling phase of this project. In the target areas, outcrops are abundant. However, after mapping has progressed, bulldozed trenches might facilitate extension and confirmation of concepts based on data from underground and natural surface exposures. Therefore, Penn-Idaho requests:

Type of Work	Size	Amount
Bulldozer Trenching	D-8 or equivalent tractor	up to 100 hours

If Penn-Idaho is granted a DMEA contract, work on the first phase of the exploration project will start immediately thereafter. It is difficult to estimate rates of mapping and sampling progress when office and laboratory time must also be considered, but it seems that four months should be adequate for complete study of the old Haynes-Stellite (Big Nickle) and Desert groups. If the Administrator would waive Penn-Idaho's ownership deficiencies in Federal land between these two groups, probably two additional months would be required to complete the mapping and sampling.

Favorable results in the mapping and sampling phase would dictate execution of the outlined subsequent phases of the exploration project.

Obviously, Penn-Idaho can not state exactly where and to what extent core drilling and drifting or crosscutting should be done, until the mapping and sampling program is completed. However, so that the Government will know the order of magnitude of Penn-Idaho's exploration intentions, "up to" amounts of these types of work are requested:

Type of Work	Size	Amount
Drifting and/or Crosscutting	5x7 feet	12,000 feet
Diamond Core Drilling	AX	10,000 feet

In comparison to drilling and underground work, the geochemical phase of this exploration project is not quite so dependent upon results of the mapping and sampling phase. For example, it appears now that the headwater area of Quartz Gulch(Fig. 3) is a logical and ideal place to conduct geochemical(soil sample) prospecting. If results of the mapping program would generally support this concept, Penn-Idaho would claim the favorable ground in that area prior to any extensive geochemical prospecting. The mapping program might also disclose other favorable areas(which would be claimed) for geochemical prospecting, for example in the immediate vicinity and northwest of the old Haynes-Stellite mine or on the Desert group. The requested "up to" amount of geochemical exploration is:

Type of Work	Size	Amount
Geochemical(Soil Sample)Prospecting	probable 100 foot grid	10 square miles

Access roads suitable for conventional truck traffic would have to be built so that the drilling and drifting or crosscutting phases ((possibly also some of the geochemical phase - a jeep road follows the electric power line(Fig. 3) and gives limited access to part of the area of interest)) could be efficiently conducted.

The requested "up to" amount of access road is:

Type of Work	Size	Amount
Access Road	Suitable for Conventional Truck Traffic	10 miles

It is not presently possible, for obvious reasons, to discuss in detail rates of progress of indicated drilling, underground, and geochemical work. If a DMEA contract is granted, Penn-Idaho will acquire adequate manpower and equipment to insure completion of all of this work(drilling, underground, and geochemical) in 18 months or less, so that the entire project(including up to 6 months for initial mapping and sampling) should be completed within the two year period immediately following a contract grant.

Item 5. EXPERIENCE:

Penn-Idaho Mines, Inc. is a new company chartered in Pennsylvania, September, 1957. Penn-Idaho's principal endeavor has been prospecting and examination of mining properties in Lemhi County, Idaho. Promising properties are claimed, where the ground is open, or leased, where the ground is privately owned. In addition to its cobalt holdings, Penn-Idaho is lessee of two copper-gold properties in Lemhi County and owns five per cent of E-dah-how Uranium, Inc., lessee of the Donna Lou uranium claims(See Docket No. DMEA 4899). To date, all of Penn-Idaho's work has been mapping and sampling. Any Penn-Idaho property which is shown by mapping and sampling to contain economically minable reserves will either be put into production or sold to another mining company. Penn-Idaho has not reached this advanced stage, because the corporation has been in existence only eight months, and during much of that time snow and poor weather have hindered operation.

Penn-Idaho's field program is directly supervised by: Philip N. Shockey, Vice President and Chief Geologist; and Wallace R. Oref, Second Vice President and Assistant Chief Geologist. Major policy decisions are made by the Board of Directors in Pittsburgh, Pennsylvania. The Board is composed of stockholders and officers who are successful business and professional men. Further statement of their qualifications seems unnecessary and beyond the scope of this statement.

Qualifications of Penn-Idaho's field personnel follow:

Shockey, Philip N.:

Age 26

Education:	7/49 to 8/51	U. S. Military Academy	
	9/51 to 6/53	West Virginia University	A.B. Geology
	7/53 to 8/54	West Virginia University	M.S. Geology
	9/54 to 6/57	Cornell University	Ph.D. Geology

Experience:

(1) Academic: Field Geology; Geology Summer Camp; M. S. Thesis-Structural; Ph.D. Thesis-General and Economic.

(2) Practical: W. Virginia Geological Survey; South Penn Gas Company; U.S. Geological Survey; Idaho Bureau of Mines and Geology; Penn-Idaho,Mines, Inc.

Publications: Reconnaissance Geology of the Leesburg Quadrangle, Lemhi County, Idaho; Idaho Bureau of Mines and Geology, Pamph. 113, Aug. 1957; See also Docket No. DMEA-4899.

Oref, Wallace R.

Age 28

Education:	9/47 to 6/51	Washington Lee University,	A.B. Geology
	9/51 to 7/52	West Virginia University	Grad. Work

Experience:

(1) Academic: Field Geology; Geology Summer Camp

(2) Practical: West Virginia State Road Commission; Equitable Gas Company, Pittsburgh, Pa.; U.S. Army Engineers; Penn-Idaho Mines, Inc.

Publications: Mineralogical Studies of the Slate River, Buckingham County, Va: Virginia Academy of Science 1951; See also Docket No. DMEA-4899.

Item 6. ESTIMATE OF COSTS:

Phase 1. DETAILED GEOLOGIC MAPPING AND SAMPLING

Sub Total . . . . up to $18,880

(a) Independent contracts

Bull dozer trenching, D-8 or equivalent tractor -
100 hours @$15 . . . . . .$1500.00

(b) Personal services

Two(2) geologists (Shockey and Oref)-
6 months @ $600 per month each $7200.00

(c) Operating material and supplies

Fuel
Gasoline
Motor - 900 gallons @ 32¢. . . . . .$ 288.00
White - 24 gallons @ 50¢. 12.00
Carbide - 20 pounds @ 40¢. 8.00

Lubrication
Chasis each 500 miles-
18 times @ $1.50 . . . . . 27.00
Oil each 1000 miles
9 times @ $2.00. . . . . 18.00

Equipment and tools
Tires-2 @ $30.00 . . . . . 60.00
Canvas sample sacks 100 @ 50¢. 50.00
Sample splitter-1 @ $35.00 . . . . . 35.00
Plane table paper, notebooks, etc. . . 25.00
Rope(for descending shafts) -
300' X 3/4" @ 7¢ per foot. 21.00

(d) Operating equipment

Jeep pickup truck, 1958, 4-wheel drive to be furnished by applicant $2500.00

Gurley explorers' alidade, plane table, and stadia rod -
to be furnished by applicant . . 250.00

Bausch & Lomb petrographic microscope and accessories for study of nonopaque and opaque minerals -
to be purchased new $1320.00

(e) Initial rehabilitation and repairs. . . . . .$none

(f) New buildings, fixtures, installations

Canvas tent, 13' x 10' - 1 @ $80.00 . . . . . 80.00

(g) Miscellaneous

Vehicle repairs and instruments adjustments	150.00
Assays(cobalt and nickel) - 400 @ $9.00	3600.00
Thin sections - 150 @ $1.50	225.00
Polished sections - 50 @ $2.00.	100.00
Accounting - 6 months @ $75 per month	450.00
Workmen's Compensation - $7200 @ $4.88 per $100 plus $15.00	367.00
Employees liability insurance	400.00
Payroll taxes(unemployment compensation) $7200 @ 2.7 per cent.	194.00

Sub Total $18,880.00

Phase 2. DIAMOND CORE DRILLING

Sub Total . . . . . .up to $90,000

This work would be contracted at about $8 per foot. Thus, 10,000 feet of drilling would cost about $80,000 Allowing for construction of up to five miles of access road to drill sites, a frame dwelling, and other incidentals like surveying hole collars, geologists' core-logging time, assays, core boxes, etc., cost of the drilling program would probably increase an additional $10,000.

Sub Total $90,000.00

Phase 3. DRIFTING AND CROSSCUTTING

Sub Total . . . . . .up to $85,000

This work would be contracted at about $35 per foot. Thus, 2,000 feet of drifting and crosscutting would cost about $75,000, Allowing for construction of up to five miles of access road a frame dwelling, and other incidentals like surveying, etc., the underground work would probably cost an additional $10,000.

Sub Total $85,000.00

including up to 1,000 ft of timbering @ $5.00 per ft

Phase 4. GEOCHEMICAL(Soil sample)PROSPECTING

Sub Total . . . . . up to $100,000.

Without preliminary orientation or at least additional information, for example an outline of costs of earlier U.S. Geological Survey geochemical exploration in the Blackbird district, it is impossible to estimate accurately the cost of this phase of the project. A considered guess is that the geochemical prospecting would cost between $50,000 and $100,000.

Sub Total $100,000.00

ESTIMATED TOTAL COST OF THE PROJECT $293,880.00

Item 7. COST SHARING

Penn-Idaho is now prepared to furnish its 25 per cent share ($4720) in the first phase of the outlined exploration project. If results are favorable and successive phases commence, Penn-Idaho will be prepared to furnish its share of subsequent costs.

In the first or mapping and sampling phase, Penn-Idaho proposes to furnish its 25 per cent share($4720) as follows:

$2750 - in Penn-Idaho equipment((See Item 6, Phase 1, (d), p. 21))
1970 - in cash money

Total $4720

In later phases, Penn-Idaho would probably contribute the described and possibly some additional equipment and money; money would constitute most of Penn-Idaho's later contribution.

Respectfully submitted for
Penn-Idaho Mines, Inc. by:

Philip N. Shockey

Philip N. Shockey
Vice President

April 24, 1958

Wallace R. Oref

Wallace R. Oref
Second Vice President

REFERENCES CITED

Anderson, Alfred L.(1947) Cobalt mineralization in the Blackbird district, Lemhi County, Idaho: Econ. Geol., vol. 52, no. 1, pp. 22-46

Hess, Frank L. (1920a) Cobalt, molybdenum, nickel, tantalum, titanium, radium, uranium, and vanadium in 1918: U.S. Geol. Survey, Mineral Resources, 1918, pt. 1, pp. 791-817.

_____(1920b) Cobalt, molybdenum, nickel, titanium, tungsten, radium, uranium, and vanadium, in 1917: U.S. Geol. Survey, Mineral Resources, 1917, pt. 1, pp. 899-959.

Shockey, Philip N. (1957) Reconnaissance geology of the Leesburg quadrangle, Lemhi County, Idaho: Idaho Bur. Mines and Geol., pamph. 113, 42 pp.

Vhay, J. S.(1948) Cobalt-copper deposits of the Blackbird district, Lemhi County, Idaho: U.S. Geol. Survey, Strategic Minerals Investigations, Prelim. Rept. 3-219, 26 pp.

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
8-1	Chapman	400
8-1	Martin	400
		110
		100

August 1, 1958

MEMORANDUM

To: Administrator, DMEA

From: Division of Iron and Ferro-Alloys, DMEA

Subject: Denial of the subject application for exploration assistance in the amount of $293,880.00.
Docket No. DMEA 4999 - Cobalt
Penn-Idaho Mines, Inc.
Big Nickle and Desert groups
Lemhi County, Idaho

The processing of this application was not completed prior to June 30, 1958. However, had the processing been completed, we would have been unable to ~~approve~~ recommend a project based on the information available to us in Washington concerning your property.

The above-noted properties were the subject for a request dated April 28, 1958, for exploration assistance, at an estimated cost of $293,880.00 for geologic mapping, sampling, geochemical exploration, diamond drilling, drifting and crosscutting.

The property was examined on May 9 through 16, 1958, by Donald C. Alvord, Geological Survey, accompanied by Philip N. Shockey and Wallace R. Oref, geologists and vice-presidents of the corporation.

Applicant: Penn-Idaho Mines, Inc.
555 Schoonmaker Avenue
Monessen, Pennsylvania

Property Ownership: The Big Nickle and Big Nickle No. 2 claims are owned by J. Howard Sims, et al., of Salmon, Idaho, and are located in sections 35 and 36, T. 21 N., R.18 E., Boise Meridian, Lemhi County, Idaho. A lease on these claims is being negotiated by the applicant.

The Desert group of claims are controlled by right of location by the Applicant. These claims are recorded as follows:

Claim names	Book No.	Page No.
Sahara Nos. 1 to 6 inclusive	9	231-235
Sahara Nos. 7 to 13 inclusive	9	265-270
Mojave Nos. 1 to 6 inclusive	9	227-231
Mojave Nos. 7 to 12 inclusive	9	261-265

All are located in sections 2, 3 and 4, T. 20 N., R. 19 E., Boise Meridian, Lemhi County, Idaho.

Geology: The Blackbird District is underlain principally by metamorphosed quartzites, schists and some argillites of Precambrian age. These have been differentiated into three adjacent north trending units designated from east to west, respectively, as the Haynes-Stellite, the Blackbird and the Lookout blocks. These rocks are cut by basic dikes, faults and shear zones. The rocks of the Haynes-Stellite group consist principally of bedded quartzites, interbedded with some thin layers of phyllite.

In the Haynes-Stellite (Big Nickle) group the mineral deposits consist almost solely of fine grained disseminated cobaltite occurring along the tourmanlinized breccia zones. Presumably the Desert group of claims is located over rocks of the Haynes-Stellite block. Unlike the Blackbird group, the Haynes-Stellite group shows little or no copper.

Past History and Production: The Desert group of claims about four miles east of the Big Nickle was staked by the Penn-Idaho Mines, Inc., in the fall of 1957.

The Big Nickle was originally composed of two groups of claims, 30 in all, in the early 1900's. These claims were taken over by Haynes-Stellite Company which operated the property from 1917 through 1921. The only production was during 1918 when the price of Cobalt was up to $6.00 per pound. About 4,000 tons of ore were milled to produce about 55 tons of concentrate. The concentrates averaged 17.74 percent cobalt and 0.65 percent copper. Allowing for an 80 percent recovery the ore would average about 0.30 percent cobalt. There has been no work or production since that time.

There has been no development or production from the Desert claims.

Ore Values and Tonnage: Samples taken gave the following results: Haynes-Stellite group

Sample No.	Width, ft.	Cu. %	Co. %	Location
1-A	5.0	--	0.04	Fig. 3
1-B	5.0	--	0.16	"
1-C	5.0	--	0.07	"
1-D	5.0	--	0.09	"
2-A	2.0	--	0.02	"
2-B	3.5	--	0.03	"
2-C	1.0	--	0.02	"
3-A	1.2	--	1.10	"
3-B	3.0	--	0.03	"
4	3.0	--	0.03	"
5	6.0	--	0.12	"
6	grab	--	0.41	Grab from ore bin at intermediate level.
HS-1	5.0	Tr.	0.17	Plate 1
HS-2	5.0	"	0.04	"
HS-3	7.0	"	0.07	"
HS-4	8.0	"	0.11	"
HS-5	4.5	"	0.33	"
HS-6	2.5	0.24	0.03	"
HS-7	4.0	0.04	0.31	"
HS-8	2.0	0.12	0.23	"

From the above samples it is obvious that the grade of ore is low and indications are that there is little possibility of making a significant discovery of cobalt or cobalt-copper ore.

The Desert group claims show massive clifflike outcrops, which are strongly jointed and fractured and show a few small faults. Some of these faults show a fair amount of iron and manganese oxides. Locally, along some of the fracture surfaces a cobalt bloom is shown. Samples show the following results:

Sample No.	Length, ft.	Copper %	Cobalt %	Remarks
D-1	Chip	Tr.	0.13	Bloom scraped and chipped
D-2	4.0	Tr.	Tr.	Channel across iron stained zone
D-3	3.0	Tr.	0.05	Iron stained zone
D-4	1.2	Tr.	0.04	Manganese stain and bull-quartz veinlets.

No structure was found that would merit Government supported exploration.

Conclusions and
Recommendations:

The Big Nickle or Haynes-Stellite property has about 2,900 feet of under-ground workings from which 4,000 tons of ore were mined and milled. Twenty samples showed an average of 0.17 percent cobalt and 0.10 percent copper. The Haynes-Stellite and Desert groups show little possibility of developing any ore bodies of a significant size or grade. The examining team recommends denial of the project and the Field Team concurs in this recommendation.

The Commodity Divisions of the Geological Survey and the Bureau of Mines concur in the recommendations of the examining team and the Field Team.

W S Martin

W. S. Martin, Director
Division of Iron and Ferro-Alloys

TLCHAPMAN/dlm 8-1-58
cc to: Code 400
Admr. R. File
Oper. Comm.
Code 110

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

8/7 H.G. 221
8/7 WSM 400

August 6, 1958

Re: DMEA 4999 (Cobalt)
Penn-Idaho Mines, Inc.
Big Nickle and Desert Groups
of Claims, Lemhi County, Idaho

Memorandum:

To: W. S. Martin, Director, Division of Iron and Ferro-Alloys, Defense Minerals Exploration Administration

From: H. W. Davis, Branch of Ferrous Metals and Ferroalloys

Subject: Review of Application Examination Report

The subject property was examined by Donald C. Alvord, U. S. Geological Survey, who states that the probability of making a significant discovery of a cobalt or of a cobalt-copper ore body is unfavorable and recommends that the application be denied.

I concur with the recommendation of the Field Team and Mr. Alvord that the application be denied.

H. W. Davis

H. W. Davis

Attachment

Copy to: Ferrous Metals (2)
Div. of Minerals
Thor H. Kiilsgaard, U.S.Geol.Survey
Frank D. Lamb
Files

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
8-1	Chapman	400
8-1	Martin	400
		~~130~~
	Lopez	
	Kilsgaard	
8/	Johnson	110
/	Mittendorf	100
		220

AUG 1 1958

Penn-Idaho Mines, Inc.
555 Schoonmaker Avenue
Monessen, Pennsylvania

Re: Docket No. DMEA 4999- Cobalt
Big Nickle and Desert Groups
Lemhi County, Idaho

Gentlemen:

We regret that we were unable to completely process your application for exploration aid prior to June 30, 1958, the termination date for approving new contracts, as announced in the enclosed copy of a news release of June 6, 1958.

However, had the processing been completed, we would have been unable to approve a project based on the information available to us in Washington concerning your property.

We wish to thank you for your interest in the DMEA program and for bringing the exploration plan to our attention.

Sincerely yours,

C. O. Mittendorf (fw)

Administrator

Enclosure

TLCHAPMAN/dlm 8-1-58
cc to: Code 400
Admr. R. File
Oper. Comm.
REG. I
Messrs. H. W. Davis, USBM
T. H.Kiilsgaard, USGS

8623

OFFICIAL FILE COPY
DMEA
IN REPLY REFER TO:
RECEIVED JUL 31 1958

DATE	INIT	CODE
8/1	C	220
	WSM	400

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

July 30, 1958

Memorandum

To: W. S. Martin, Defense Minerals Exploration Administration

From: W. P. Williams, U. S. Geological Survey

Subject: Review of field examination report, DMEA 4999, (Cobalt), Penn-Idaho Mines, Inc., Big Nickle and Desert Claims, Lemhi County, Idaho

The examining geologist reports that geologic conditions on the applicant's property are not favorable for the presence of economic cobalt ore deposits.

Twenty samples taken from the Big Nickle property afforded an average of less than 0.17 percent cobalt. The 'ore' is found as tourmalinized rock, but, according to the examining geologist, the rock is wide-spread and insufficiently localized to constitute an exploration target. A well-defined geologic structure was not found that would serve to localize mineral deposits.

The other group of claims about 4 miles from the Big Nickle group, known as the Desert claims, have undergone little prospecting. Cobalt bloom is found on fracture surfaces and along minor faults. The cobalt-bearing zones extend laterally only a few feet. A major geologic structure does not appear to be present on the claims.

The applicant proposed an exploration project consisting of geologic mapping, sampling, geochemical surveys, diamond core drilling, drifting, and crosscutting. It seems desirable that some of the proposed work should be done for the applicant's own account. The application could appropriately be denied without prejudice, pending further work by the applicant. The alternative would be to deny the application outright.

W. P. Williams

W. P. Williams

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
So. 157 Howard Street
Spokane 4, Washington
July 17, 1958

DMEA
RECEIVED JUL 22 1958

DATE	INITIALS	CODE
7/22	C	220
7/25	esf	130
	CT	220
	WSM	400

Mr. George C. Selfridge, Chairman
Operating Committee, DMEA
Department of the Interior
Washington 25, D. C.

Re: Docket No. DMEA-4999 (Cobalt)
Penn-Idaho Mines, Inc.
Big Nickle and Desert Groups
of Claims
Lemhi County, Idaho

Dear Mr. Selfridge:

Enclosed are three copies of a memorandum application examination report by Donald C. Alvord, U. S. Geological Survey, recommending denial of the application by Penn-Idaho Mines, Inc., to explore the Big Nickle and Desert groups of claims in Lemhi County, Idaho.

At the Big Nickle group mapping and sampling of the Haynes-Stellite mine showed the presence of some cobalt but the results were not sufficiently encouraging to indicate that DMEA should participate in the proposed exploration. At the Desert group cobalt bloom was noted in scattered outcrops and shallow pits but nothing was seen to suggest that the cobalt was localized along a structural zone or stratigraphic unit. The property has been very incompletely prospected but at its present stage of development there is no indication of a target for exploration.

The Field Team concurs with the recommendation of Alvord that the application be denied.

By Field Team, Region I

A. E. Weissenborn by Ellen
A. E. Weissenborn, Exec. Officer
U. S. Geological Survey

Thomas E Howard
for: Wing G. Agnew, Member
U. S. Bureau of Mines

Enclosures
cc: USBM(2)
USGS(SRO)
Alvord

Reviewed by
DMEA OPERATING COMMITTEE
7/25/58
(date)

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DMEA
RECEIVED JUL 22 1958

DATE	INITIALS	CODE

UNITED STATES
DEPARTMENT OF THE INTERIOR
Defense Minerals Exploration Administration
So. 157 Howard Street
Spokane 4, Washington

MEMORANDUM

To: DMEA Field Team, Region I

From: Donald C. Alvord, Geologist, U. S. Geological Survey

Subject: Application Examination Report, Docket No. DMEA-4999 (Cobalt), Penn-Idaho Mines, Inc., Big Nickle and Desert Groups of Claims, Lemhi County, Idaho

INTRODUCTION

An application for Government aid to explore for cobalt was received on April 28, 1958, from the Penn-Idaho Mines, Inc., 555 Schoonmaker Avenue, Monessen, Pennsylvania. The company proposes to explore two groups of claims, separated by about 4 miles, with an ambitious program consisting of detailed geologic mapping and sampling, geochemical exploration, diamond core drilling, drifting and crosscutting. The estimated cost of the project is $293,880, of which the Government's share would be 75 percent or $220,410.

The author examined the property on May 9 and 16, 1958, in company with Philip N. Shockey and Wallace R. Oref, geolgists and vice-presidents of the corporation. All of the accessible workings on the Big Nickle group were examined with the aid of maps furnished by the applicant. The lower croppings on the surface of the Desert group were also studied. A total of 12 samples were taken -- 8 on the Big Nickle group and 4 on the Desert group. About 16 hours were spent on the property. Shortly before the examination, 12 samples were taken by Shockey and Oref in the workings on the Big Nickle group.

ON SITE EXAM

SUMMARY AND CONCLUSIONS

The applicant's properties are underlain principally by well-bedded quartzites of Precambrian age. One of the properties, the Haynes-Stellite or Big Nickle, contains more than 2,900 feet of underground workings, from which were obtained 4,000 short tons of mill rock in 1918. There has been no subsequent production. The workings expose faults and breccia zones, some of which have been mineralized with quartz, tourmaline and, in places very fine-grained cobaltite. Twenty samples, taken to obtain a

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(date)

representative grade of the structures, contained an average of less than 0.17 percent cobalt. Eight of the samples were assayed for copper, but these contained an average of less than 0.10 percent copper. The probability of making a significant discovery of a cobalt or of a cobalt-copper ore body on the Haynes-Stellite property is not very good.

The other property, the Desert group, was staked in 1937, has not been explored, and there has been no production from it. Outcrops on the Desert group are strongly jointed and fractured and contain a few small faults of very short strike length. Locally, along some of the fracture surfaces and minor faults, a cobalt bloom is present. The cobalt bloom is associated with tourmalinized quartzite similar to that of the Haynes-Stellite mine, but no persistent faults or well-developed breccia zones are present. Four samples were taken, either of pure cobalt bloom or across structures which appeared likely to contain cobalt. These samples contained only a trace to 0.13 percent cobalt and only a trace of copper. There is no known structure on the Desert group mariting Government-supported exploration.

RECOMMENDATION

It is recommended that the application be denied.

LOCATION AND ACCESSIBILITY

The Big Nickle claims (Haynes-Stellite property) are in secs. 35 and 36, R. 18 E., T. 21 N., and the Desert group are in secs. 2, 3, and 4, R. 19 E., T. 20 N. Boise meridian, Blackbird District, Lemhi County, Idaho (fig. 1). The Desert claims are located immediately to the east of the town of Cobalt and the Big Nickle claims lie about 5 miles west of Cobalt whence they may be reached by traveling over a well-maintained graveled road. Salmon, Idaho, the nearest town of substantial size, is about 35 miles from the property via the Williams Creek-Panther Creek roads. Challis, Idaho, is about 60 miles southeast of the property via Morgan Creek road. There is a railhead at Mackay, Idaho, about 120 miles south of the area, and at Darby, Montana, about 113 miles north of the area. Most of the mileage over the cited routes is over well-graveled roads that are maintained the year around. Climatic conditions in the area vary according to the altitude, but throughout the region hot, dry summers and moderately wet winters are the rule. At the altitudes of the property, snow can be expected from October to as late as mid-June.

PROPERTY RIGHTS

The applicant has applied for aid to explore the Big Nickle claims and the Desert group. The Desert group of claims are controlled by right of location in the corporation's name, but at the time the application was submitted, the corporation was still negotiating a lease for the Big Nickle claims. J. Howard Simms and others of Salmon, Idaho, are the present owners of the Big Nickle claims. Both the Desert group and the Big Nickle claims are filed at the County Recorder's Office, Salmon, Lemhi County, Idaho, as follows:

Claim	Book	Page(s)
Big Nickle	1	89
Big Nickle No. 2	1	90
Desert group		
Sahara No. 1	9	231-232
2	9	232
3	9	233
4	9	233-234
5	9	234
6	9	235
7	9	265-266
8	9	266
9	9	267
10	9	267-268
11	9	268
12	9	269
13	9	269-270
Mojave No. 1	9	227-228
2	9	228
3	9	229
4	9	229-230
5	9	230
6	9	231
7	9	261-262
8	9	262
9	9	263
10	9	263-264
11	9	264
12	9	265

DESCRIPTION OF THE PROPERTY

The Big Nickle claims are located on south-facing slopes of Little Deer Creek ridge along Blackbird Creek Canyon. Altitudes on the property range from barely over 6,000 feet to more than 7,000 feet, the slopes frequently averaging 40° or 45°. Locally, the slopes are precipitous, but over most of the area they are heavily covered with talus. The road to the various workings is constructed over talus, but due both to steepness and to the very coarse nature of the ballast, the workings may not presently be accessible by vehicle. The claims are explored by 3 adit workings totaling 2,900 feet and a few very short adits and shafts now largely caved.

The Desert group of claims is located along the flanks and back of a northwesterly trending ridge and covers land ranging in altitude from less than 5,500 feet to more than 7,300 feet. The upper reaches of the property are rolling, but the flanks are precipitous to very steep with slopes of 40° being quite common. Deep talus, probably up to several tens of feet in depth, cover many of the lower reaches of the property. Precipitous outcrops are moderately abundant along the flanks of the ridge. A soil overburden of undetermined depth covers the rolling land along the upper reaches of the property. Fir and jack pine cover most portions of the property. This timber would have limited use in underground mining operations. The property is not developed and it is doubtful if there are discovery cuts on most of the claims.

THE APPLICANT

The applicant is Penn-Idaho Mines, Inc., 555 Schoonmaker Avenue, Monessen, Pennsylvania. The officers are: Harry B. Strickland, President, 4720 Center Avenue, Pittsburgh, Pa., Louis Manderino, Secretary-Treasurer, 555 Schoonmaker Avenue, Monessen, Pa., Philip N. Shockey, Vice-President, Box 92, Salmon, Idaho, and Wallace R. Oref, 2d Vice-President, Box 92, Salmon, Idaho. The Corporation is a new company organized in Pennsylvania in 1957. The company's purpose is to prospect and examine mine properties with the object of either putting them into production or selling them. Messrs. Shockey and Oref represent the company in the field and do the work for which the company was organized. Shockey has a PhD in geology from Cornell University, but almost no practical experience; Oref has completed a year of graduate work at West Virginia University and has accumulated about 2 years of experience with mining companies, state road commissions, and Government organizations. According to the application, the corporation is prepared to furnish its share of the first phase of the outlined exploration and would be able to furnish its share of subsequent costs.

HISTORY AND PRODUCTION

Penn-Idaho, Inc., staked the Desert group of claims in the fall of 1957. There has been no production from these claims.

The Big Nickle group was originally composed of two groups of claims, 30 in all, which apparently were staked in the early 1900's. These claims were taken over by the Haynes-Stellite Company which operated the claims during 1917 through 1921, when the price of cobalt was as much as $6 per pound. Since that time the Big Nickle group has been known as the old Haynes-Stellite mine. Presumably most of the workings shown on plate 1 of this report were driven under the management of the Haynes-Stellite Company. Although the Haynes-Stellite Company operated the property at least from 1917 through 1921, the mine apparently yielded ore only in 1918, during which year 4,000 short tons of ore were stamped and milled to produce 55 short tons of concentrates. According to Hess (1921) a typical partial analysis of these concentrates is as follows:

Insolubles	16.73
Iron (Fe)	15.32
Sulphur (S)	23.75
Arsenic (As)	14.15
Cobalt (Co)	17.74
Copper (Cu)	0.63

The cobalt content of the ore was 19,514 pounds. Assuming complete recovery, which is unlikely, this would mean that the ore contained an average of 0.25 percent cobalt. Apparently gold and copper are not present in the Haynes-Stellite ore and it is doubtful that the Haynes-Stellite property has been subjected to any activity other than prospecting subsequent to 1921.

GEOLOGY

The geology of the Blackbird District and nearby areas and of some of its deposits has been described in the following:

Anderson, A. L., 1947, Cobalt mineralization in the Blackbird district, Lemhi County, Idaho: Econ. Geol., v. 52, no. 1, p. 22-46.

Ness, F. L., 1920-A, Cobalt, molybdenum, nickel, tantalum, titanium, radium, uranium, and vanadium in 1918: U. S. Geol. Survey, Mineral Resources of the United States, 1918, pt. 1, p. 791-817.

_____, 1920-B, Cobalt, molybdenum, nickel, tantalum, titanium, radium, uranium, and vanadium in 1917: U. S. Geol. Survey, Mineral Resources of the United States, 1917, pt. 1, p. 899-959.

Umpleby, J. B., 1913, Geology and ore deposits of Lemhi County, Idaho: U. S. Geol. Survey Bull. 528, p. 71-72, and 159-165.

Shockey, E. N., 1957, Reconnaissance Geology of the Leesburg quadrangle, Lemhi County, Idaho: Idaho Bur. Mines & Geology, pamph. 113, 42 pages.

Vhay, J. S., 1948, Cobalt and copper deposits of the Blackbird district, Lemhi County, Idaho: U. S. Geol. Survey, Strategic Minerals Investigations Prelim. Report 3-219, 26 pages.

Of these, the reports by Ness, Shockey, and Vhay are most germane to the scope of this memorandum. The best detailed discussion of the geology and deposits of the Blackbird District is contained in Vhay, 1948. The following brief discussion of the district and of its mines is taken freely from the above-cited papers.

The Blackbird District is underlain principally by dynamometamorphosed quartzites, schists, and some argillites of Precambrian age. They have been broadly differentiated into three adjacent north-trending strati-metamorphic units designated from east to west, respectively, as the Haynes-Stellite, the Blackbird, and the Lookout blocks. The rocks of the Blacbird block are strongly schistose and in places are tightly folded, the plunge of the folds being to the north. These rocks are cut by basic dikes, faults, and numerous shear zones. North- and northeast-striking shears with steep dips and northwest-striking shears with moderate northeast dips are predominant. The rocks of the Haynes-Stellite block consist

principally of well-bedded quartzites interbedded with some thin layers of phyllite. In contrast to those of the Blackbird, these rocks are in relatively open north-plunging folds and are cut by faults and breccia zones, many of which have been mineralized with quartz and fine-grained, disseminated tourmaline. The Blackbird and Haynes-Stellite blocks are in places separated by zones of faulting and in other places by gradational contacts. In the application, the quartzites and phyllites of the Haynes-Stellite block have been correlated with the impure gray quartzite formation of Shockey (1947).

ORE DEPOSITS

The Blackbird District is characterized by hydrothermal replacement deposits of copper and cobalt, some of which contain gold. To date, important ore bodies have been found only within the Blackbird block along the northwest- and north-trending shear zones. Here, the mineralization was controlled mainly by the shear zones, but in part by the north-plunging folds. The resulting ore bodies, formed principally by replacement, lie along the shear zone and plunge north between 35° and 50°. The principal minerals of the Blackbird deposits are chalcopyrite, cobaltite, pyrite, pyrrhotite, quartz, biotite, and siderite.

Within the Haynes-Stellite block the mineral deposits consist almost solely of very fine-grained disseminated cobaltite occurring along the tourmalinized breccia zones. The Haynes-Stellite (Big Nickle) workings explore a typical tourmalinized breccia zone. Presumably, because the Desert group of claims is located over rocks of the Haynes-Stellite block (impure gray quartzite formation) any deposits found here would also be of the cobaltite-tourmalinized breccia variety.

Deposits in the Blackbird District can be large and of an impressive grade. Very recently, in the Blackbird block an ore body was found which contains an estimated 730,000 tons of rock with an average grade of 0.80 percent cobalt and 2.8 percent copper. This deposit was formed along a northwest-trending shear zone. To date bodies of ore comparable in size and grade have not been found in the Haynes-Stellite block. The Haynes-Stellite mine contains the largest deposit known in the Haynes-Stellite block. The production from this mine has already been discussed.

APPLICANT'S PROPERTIES

Penn-Idaho, Inc., has proposed exploration in the Big Nickle and Desert groups of claims.

Big Nickle group.--Jointly, Shockey, Oref, and Alvord consumed about 10 man-days examining the Haynes-Stellite mine. Nevertheless, a good understanding of the geology of this mine was not obtained. During the course of the first day of examination on May 9, 1958, it rapidly became apparent that even with the combined efforts of the three of us, we were unable to tell ore from country rock and were not even sure of the controlling structures. Furthermore, when we reached the portion of the upper level supposedly caved, we found that with only about 15 minutes of digging we were able to gain access to the remainder of the workings (pl. 1). After stumbling through these workings, it was decided that Shockey and Oref should return to the mine during the next few days and map all of the accessible levels in the hope that from this work we would be able to interpret the geology sufficiently well to guide the sampling. Accordingly, Shockey and Oref mapped the workings on May 12, 13, and 14, and I returned to the mine with them on the 16th to complete the examination.

From the results of Shockey and Oref's mapping and from sampling carried out by them earlier at my request (fig. 3) we concluded that we would never learn to recognize the ore in a reasonable length of time but that perhaps, as suggested from sample 3a (fig. 3) and from the location of some of the raises and enlargements of the level workings, the ore was localized in the vicinity of a steeply dipping fault which trends to the northwest and has been followed by the workings for a distance of about 320 feet (pl. 1). We were able to recognize the tourmalinized rock described by Ness (1920, p. 899-900) and by Vhay (1948, p. 25), but this is widespread and insufficiently localized to constitute a target for sampling. We were unable to recognize the breccia zone described by both Vhay and Ness. It undoubtedly is there and probably is localized more or less along the northwesterly trending fault mentioned earlier.

The samples taken during this examination and those taken previously by Shockey and Oref (fig. 3) are tabulated below:

Sample No.	Width (ft.)	Copper (%)	Cobalt (%)	Location	Remarks
1-A	5.0	--	0.04	fig. 3	
1-B	5.0	--	0.16	do.	
1-C	5.0	--	0.07	do.	
1-D	5.0	--	0.09	do.	
2-A	2.0	--	0.02	do.	
2-B	3.5	--	0.03	do.	
2-C	1.0	--	0.02	do.	
3-A	1.2	--	1.10	do.	
3-B	3.0	--	0.03	do.	
4	3.0	--	0.03	do.	
5	6.0	--	0.12	--	Stope near portal not shown on map.
6	grab	--	0.41	--	Grab from ore bin by intermediate level.
HS-1	5.0	Tr	0.17	pl. 1	
HS-2	5.0	Tr	0.04	do.	
HS-3	7.0	Tr	0.07	do.	
HS-4	8.0	Tr	0.11	do.	
HS-5	4.5	Tr	0.33	do.	
HS-6	2.5	0.24	0.03	do.	
HS-7	4.0	0.04	0.31	do.	
HS-8	2.0	0.12	0.23	do.	

From the above it is obvious that either the tenor of ore in the Haynes-Stellite is low or the sampling was inadequate. Actually, there is little question but the sampling was inadequate, insofar as the requirements of a thorough examination are concerned. The sampling was adequate as a reconnaissance, however, and I think it can be concluded that the probability of making a significant discovery of a cobalt or cobalt-copper ore body on the Haynes-Stellite property is not very good. Samples HS-7 and HS-8 were cut on the 6400 or intermediate level. The cobalt in these showings is surprisingly high considering the results of the sampling above on the 6480 level. I believe that HS-7 was cut on the hanging-wall zone of a northeasterly striking shear zone which, according to cross sections, may be the equivalent to the northwesterly trending faults on the 6480 or upper level. The significance of HS-8 is unknown

except that at the face where this sample was cut a little pyrite and cobalt bloom was noticed. The 6250 level consists of a cross-cut barren all the way to the face. According to cross sections, the heading of this level would have to be turned northward or northeastward and driven about 20 feet to intersect the projection of the faults from the upper level. It is possible that work from this lowermost level would develop an ore body but this possibility is considered remote. There is no known geologic evidence to infer improvement of the structure with depth.

Desert group.--Many of the Desert group of claims include massive clifflike outcrops of quartzites (impure gray quartzite of the Haynes-Stellite type). The beds strike north-northwesterly and dip steeply to the northeast. These rocks are strongly jointed and fractured and contain a few small faults of very short strike length. Some of these faults are apparently minor readjustments on a local scale, but others are apparently of somewhat greater significance and contain a fair amount of iron and manganese oxides. Locally, along some of the fracture surfaces and minor faults, a cobalt bloom, probably bieberite ($CoSO_4 \cdot 7H_2O$), is present. As a general rule none of the bieberite zones extended for more than a dozen or so feet in any one direction and none had more than 2 or 3 feet of width. Their distribution is erratic and nothing suggestive of a broad trend extending for hundreds or thousands of feet was observed. The cobalt bloom, in general, is associated with tourmalinized quartzite similar to that of the Haynes-Stellite and there is bull quartz as minor veinlets in many of the fractures in the general area. Undoubtedly, the cobalt bloom is a result of the oxidation of primary cobalt sulfide introduced into the general country rock. Whether or not there is a major structure likely to contain deposits is a matter of conjecture and it would require considerable prospecting and geologic reconnaissance to determine. However, four samples were chipped from the exposures in the area. The are as follows:

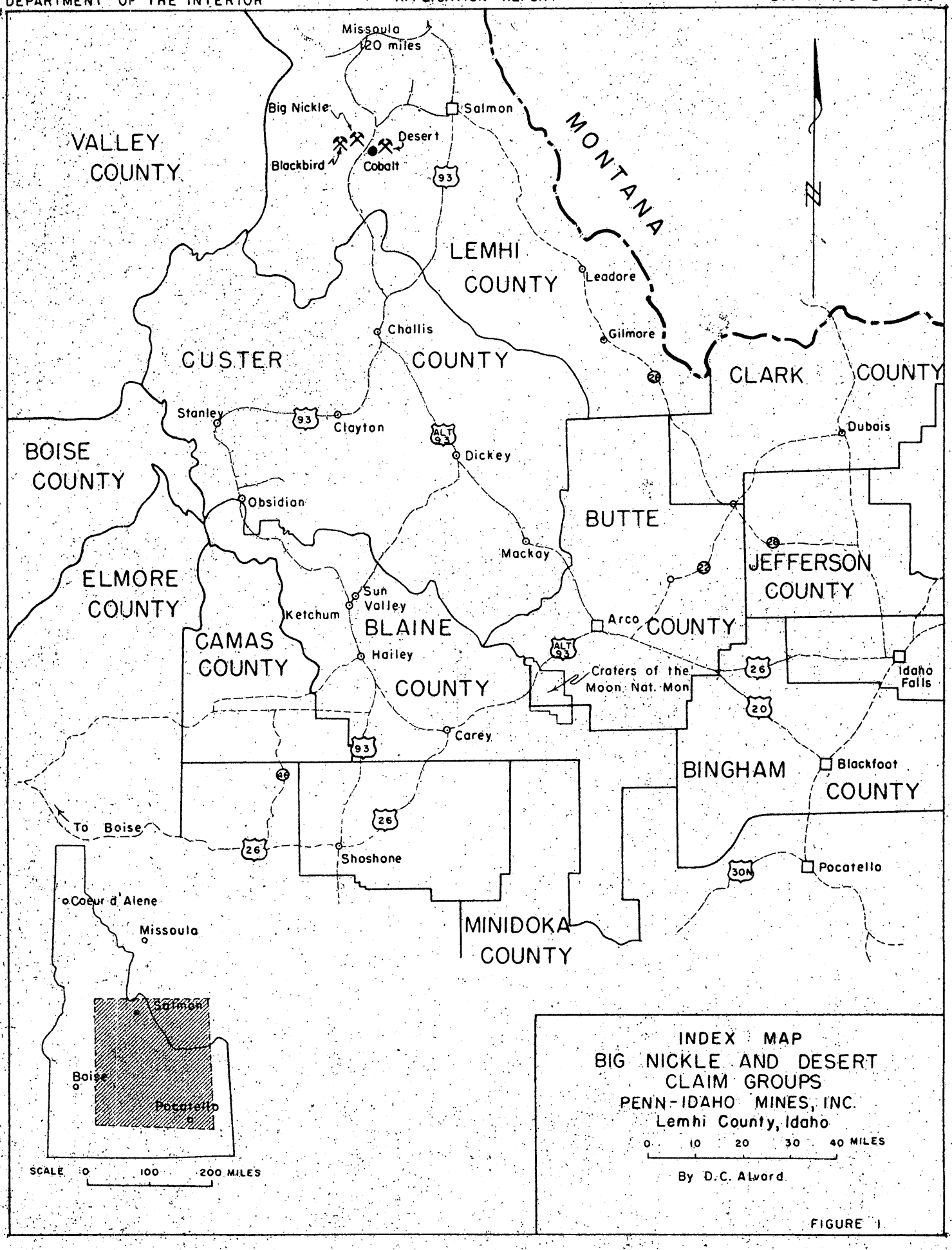
Sample No.	Length (ft.)	Copper (%)	Cobalt (%)	Location	Remarks
D-1	Chip	Tr	0.13	No. 12 Sahara	Essentially pure bloom scraped and chipped from exposures to obtain as high grade sample as possible.
D-2	4.0	Tr	Tr	No. 12 Sahara	Channel across iron-stained and fractured zone.
D-3	3.0	Tr	0.05	No. 12 Sahara	Across fracture zone strongly stained with iron.
D-4	1.2	Tr	0.04	No. 12 Mojave	Across manganese-stained fracture zone containing bull-quartz veinlets.

The author has seen only a small fraction of the Desert group of claims; however, according to Shockey, we saw what is typical of the exposures in the area. The Sahara claims are located within the boundaries of the Leesburg quadrangle, which Shockey has mapped for his PhD thesis at approximately 1 inch to a mile. If Shockey was unable to pick up a structure of significance which would be likely to localize deposits of cobalt while staking these claims, it is unlikely that a DMEA examining team could do so, even if many days were spent wandering over the property. There is no known structure on the Desert group meriting Government-supported exploration.

APPLICANT'S PROPOSAL

The applicant's proposal is discussed in detail on pages 15 through 19 of the application. Since Government-supported exploration is not recommended, there would be little point in a detailed description of the work proposal or of a discussion of the merits of this proposed work.

Attachments
cc: DMEA(3)
USBM(2)
USGS(SRO)
Docket
Alvord



INDEX MAP
BIG NICKLE AND DESERT
CLAIM GROUPS
PENN-IDAHO MINES, INC.
Lemhi County, Idaho

0 10 20 30 40 MILES

By D.C. Alword

FIGURE 1

FILE COPY
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DATE	INITIALS	CODE

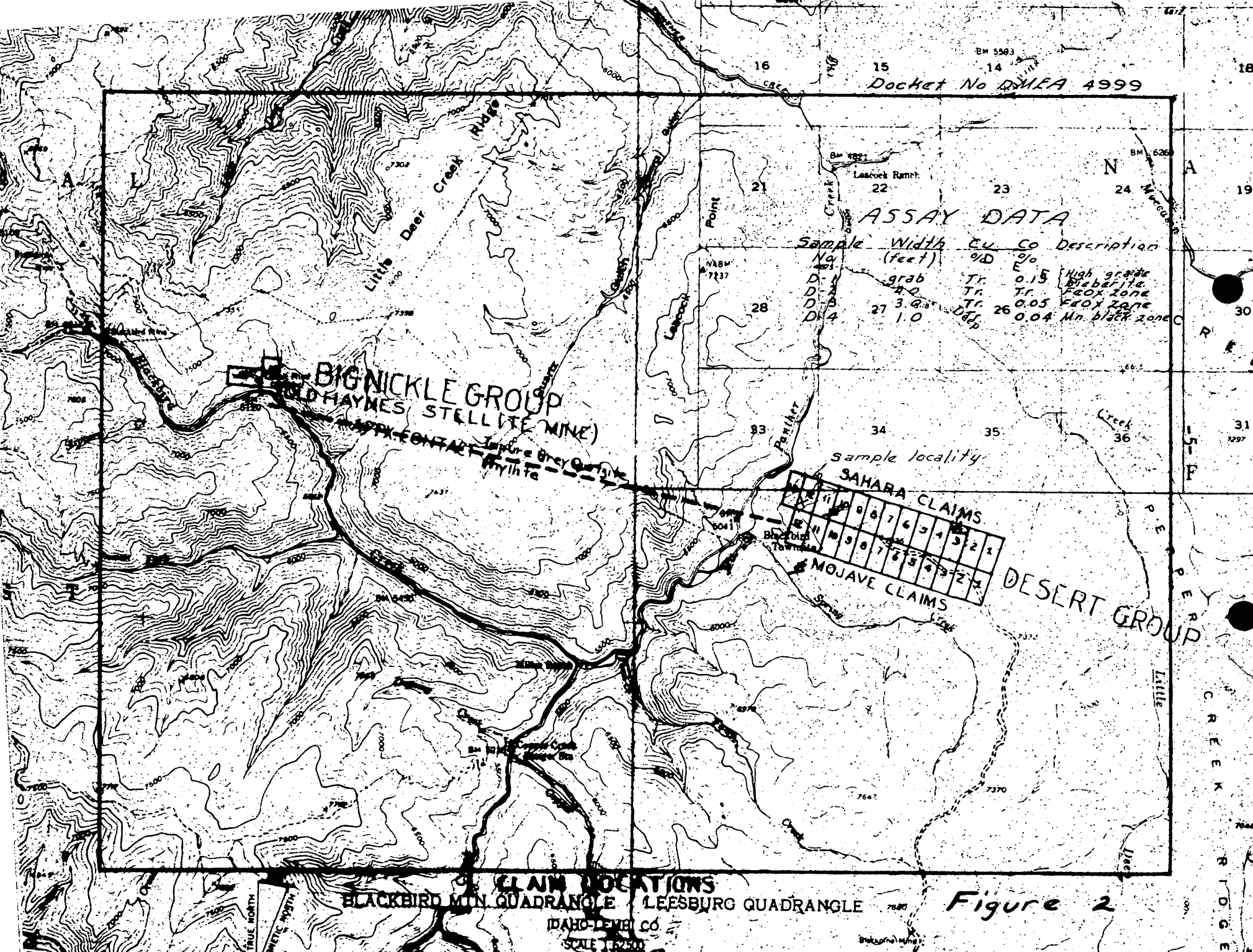
Docket No. OMEA 4999
ASSAY DATA
Sample No. | Width (feet) | Cu % | Co %
D-1 | grab | Tr. | 0.15 | High grade Blaberite
D-2 | 4.0 | Tr. | Tr. | FeOx zone
D-3 | 3.0 | Tr. | 0.05 | FeOx zone
D-4 | 1.0 | Tr. | 0.04 | Mn black zone
BIG NICKLE GROUP
OLD HAYNES (STELLITE MINE)
Impure Grey Quartzite
Rhyolite
Sample locality
SAHARA CLAIMS
MOJAVE CLAIMS
DESERT GROUP
Little Deer Creek Ridge
Lesbock Ranch
Blackbird Town
Panther
Lesbock
Spring
Little Deer Creek
Mine Road
Blackbird Mine
Copper Creek
Silver Bar
Blackbird Mines
CLAIM LOCATIONS
BLACKBIRD MTN. QUADRANGLE
LEESBURG QUADRANGLE
IDAHO-LEMHI CO.
SCALE 1:62500
TRUE NORTH
MAGNETIC NORTH

Figure 2

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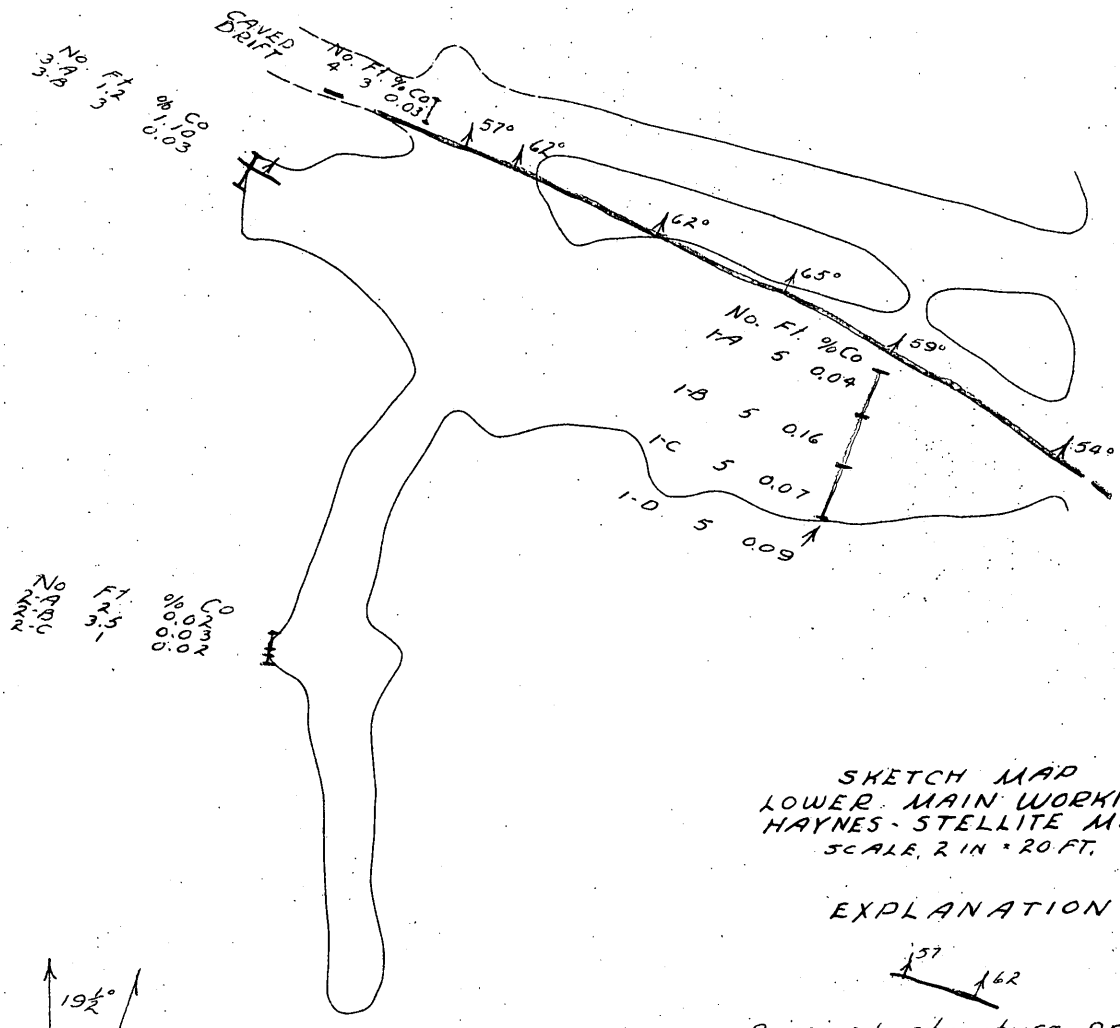


SKETCH MAP
LOWER MAIN WORKINGS
HAYNES - STELLITE MINE
SCALE, 2 IN = 20 FT.

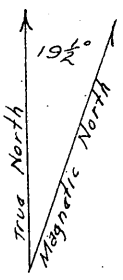
EXPLANATION

57 62

Principal structure probably a fault, possibly an altered dike

No. Ft. % Co

Chip channel sample location, showing number of sample length of channel (not necessarily true width of mineralized zone) and a blank space in which % cobalt is to be recorded



P. Shockey
Apr 30, 58

Figure 3

DMEA FORM 6 REFERENCE SLIP

REV. 12-56 DEFENSE MINERALS EXPLORATION ADMINISTRATION

TO:	INI LS	DATE
1. 400		
2.		
3.		
4.		
5.		
FROM: 100		

FOR: Check items for action desired

____ Action ____ Reply for signature of ____

____ Approval ____ Investigate ____ Surname

____ Comment ____ Recommendations ____ Signature

____ Conference ____ Rewrite ____ File

____ Instructions ____ Your information

REMARKS:

Applicant never renewed their call. Must have gotten in touch with Field Team and cleared up his questions.

fw

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So. 157 Howard Street
Spokane 4, Washington

June 5, 1958

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RECEIVED JUN 9 1958

DATE	INITIALS	CODE
6/9	C	220
	WSM	400

Dr. Philip N. Shockey
Penn-Idaho Mines, Inc.
Box 92
Salmon, Idaho

Re: Docket No. DMEA-4999 (Cobalt)
Penn-Idaho Mines, Inc.
Big Nickle and Desert Group
Lemhi County, Idaho

Dear Phil:

Under separate cover by registered mail, I am returning the field sheets and original compilation sheet of the Haynes-Stellite mine prepared by you and Oref. Thanks again for your whole-hearted cooperation during the examination.

Sincerely yours,

Donald C. Alvord
Geologist

cc: DMEA (2)
USBM (2)
Alvord

DMEA Form 7
(12-56)

OFFICIAL FILE COPY

Date	Surname	Code
5-16	Chapman	400
5-16	Martin	400
5/16	[illegible]	130
"	[illegible]	110
"	[illegible]	100
5/19	[illegible]	220
		400

MAY 16 1958

Mr. A. E. Weissenborn, Executive Officer
DMEA Field Team, Region I
South 157 Howard Street
Spokane 4, Washington

Re: Docket No. DMEA 4999 - Cobalt
Penn-Idaho Mines, Inc.
Big Nickle and Desert Group
Lemhi County, Idaho

Dear Mr. Weissenborn:

Reference is made to your letter of April 29, 1958, which stated that the Field Team would be in Idaho next week and would try to make an examination during the trip.

We will, therefore, hold this application in abeyance until the report and recommendations of the Field Team are received.

Enclosed are copies of memoranda, dated May 5 and 14, 1958, by Hubert W. Davis, Bureau of Mines, and W. P. Williams, Geological Survey, respectively, with an extra copy of the application for the use of the Field Team.

Enclosure

Sincerely yours,

George C. Selfridge

Chairman, Operating Committee

APPROVED:

Frank D. Lamb
Member, Bureau of Mines

Thor H. Kiilsgaard
Member, Geological Survey

TLCHAPMAN/dlm 5-16-58
cc to: Code 400
Admr. R. File
Oper. Comm.
REGION I
Messrs. H. W. Davis, USBM
T. H. Kiilsgaard, USGS

8623

DMEA Form 7
(12-56)

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Date	Surname	Code
5-16	Chapman	400
5-16	Martin	400
5/16	Selfridge	130
5/16	Lovelle	130
5/16	Kilsgaard	130
"	Shaw	110
"	Mittendorf	100
		270

MAY 16 1958

Penn-Idaho Mines, Inc.
555 Schoonmaker Avenue
Monessen, Pennsylvania

Re: Docket No. DMEA 4999 - Cobalt
Big Nickle and Desert Groups
Lemhi County, Idaho

Gentlemen:

The application for assistance in exploring the subject property under the captioned docket number has been reviewed by the Division of Iron and Ferro-Alloys, of the Defense Minerals Exploration Administration, and has been referred to Mr. A. E. Weissenborn, Executive Officer, DMEA Field Team, Region I, South 157 Howard Street, Spokane 4, Washington, for further consideration.

The Regional office will notify you, if it has not already done so, in case additional information concerning your application is needed. Any assistance you may give the members of the Field Team will be appreciated.

Sincerely yours,

C. O. Mittendorf (for)

Administrator

TLCHAPMAN/dlm 5-16-58
cc to: Code 400
Admr. R. File
Oper. Comm.
REGION I
Messrs. H. W. Davis, USBM
T. H. Kiilsgaard, USGS

8623

IN REPLY REFER TO:

OFFICIAL FILE COPY
DMEA
RECEIVED MAY 14 1958

DATE	INITIALS	CODE
5/14/58	KVB	220
	WSM	400

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WASHINGTON 25, D. C.

Memorandum

May 14, 1958

To: W. S. Martin, Defense Minerals Exploration Administration

From: W. P. Williams, U. S. Geological Survey

Subject: Review of application, DMEA 4999 (Cobalt), Penn-Idaho Mines, Inc., Big Nickle & Desert Group, Lemhi County, Idaho.

The applicant proposes an ambitious project to explore for cobalt ore deposits. The property involved consists of 25 mining claims located in Salmon National Forest, Idaho. The claims are in two groups separated by about four miles. Two of the claims cover part of the old Haynes-Stellite cobalt property, which was described by Hess of the U. S. Geological Survey in 1920.

The Haynes-Stellite mine was operated during 1917 and 1921, but apparently large amounts of cobalt were not produced. The applicant believes that the cobalt mineralization has large lateral and vertical extent and that a large low-grade deposit of cobalt ore exists on the property. The applicant's geologist told the Executive Officer, Region I, that erytherite is commonly found on many of the outcrops on the Desert claims. Erytherite is a hydrous cobalt arsenate commonly found in upper portions of cobalt mineral deposits.

The applicant proposes an exploration project consisting of detailed geologic mapping and sampling, geochemical exploration, diamond core drilling, and drifting and crosscutting. The estimated cost of the project is $293,880.00.

Although considerable information already exists about this property in U. S. Geological Survey files, it would be well to make final evaluation of this property through field examination. I accordingly recommend that the application be referred to the Field Team for final analysis and report. The Executive Officer, Region I, stated on April 29, 1958, that field men would be in Idaho soon and would examine the property during that trip. It seems likely that the property has been examined by this date.

W. P. Williams

W. P. Williams

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
WASHINGTON 25, D. C.

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DMEA
RECEIVED

DATE	INITIALS	CODE
5/7	C	220
	WSM	480

May 5, 1958

Re: DMEA - 4999
Penn-Idaho Mines, Inc.
Big Nickle Group and Desert Group
Lemhi County, Idaho
$293,880 - Cobalt

Memorandum

To: W. S. Martin, Director, Division of Iron and Ferro-Alloys
Defense Minerals Exploration Administration

From: Hubert W. Davis, Branch of Ferrous Metals and Ferroalloys

Subject: Review of Application

Applicant's proposal pertains to a loan of $293,880 to explore for cobalt at the Big Nickle Group and Desert Group in Lemhi County, Idaho. Applicant proposes to direct a four-phase exploration project at specific targets in the Blackbird district, as follows: (1) Detailed geologic mapping and sampling, (2) diamond core drilling, (3) drifting and crosscutting, and (4) geochemical prospecting.

Information furnished by applicant is insufficient on which to base an opinion concerning the loan; therefore, it is recommended that the application be referred to the Field Team for its recommendations after completing an examination of the properties.

Hubert W. Davis
Hubert W. Davis

Attachments 2

Copy to: Ferrous Metals (2)
Div. of Minerals
Frank D. Lamb
Thor H. Kiilsgaard, U.S.Geol.Survey
Files

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

May 2, 1958

Penn-Idaho Mines, Inc.
555 Schoonmaker Avenue
Monessen, Pennsylvania

Subject: DMEA-4999

Gentlemen:

Your application for exploration assistance, dated April 24, 1958 submitted to our office at Spokane, Washington has been assigned Docket Number DMEA-4999 and referred to the Iron and Ferro-Alloys Division in the Washington office.

Kindly identify all future correspondence relating to your application by this Docket Number.

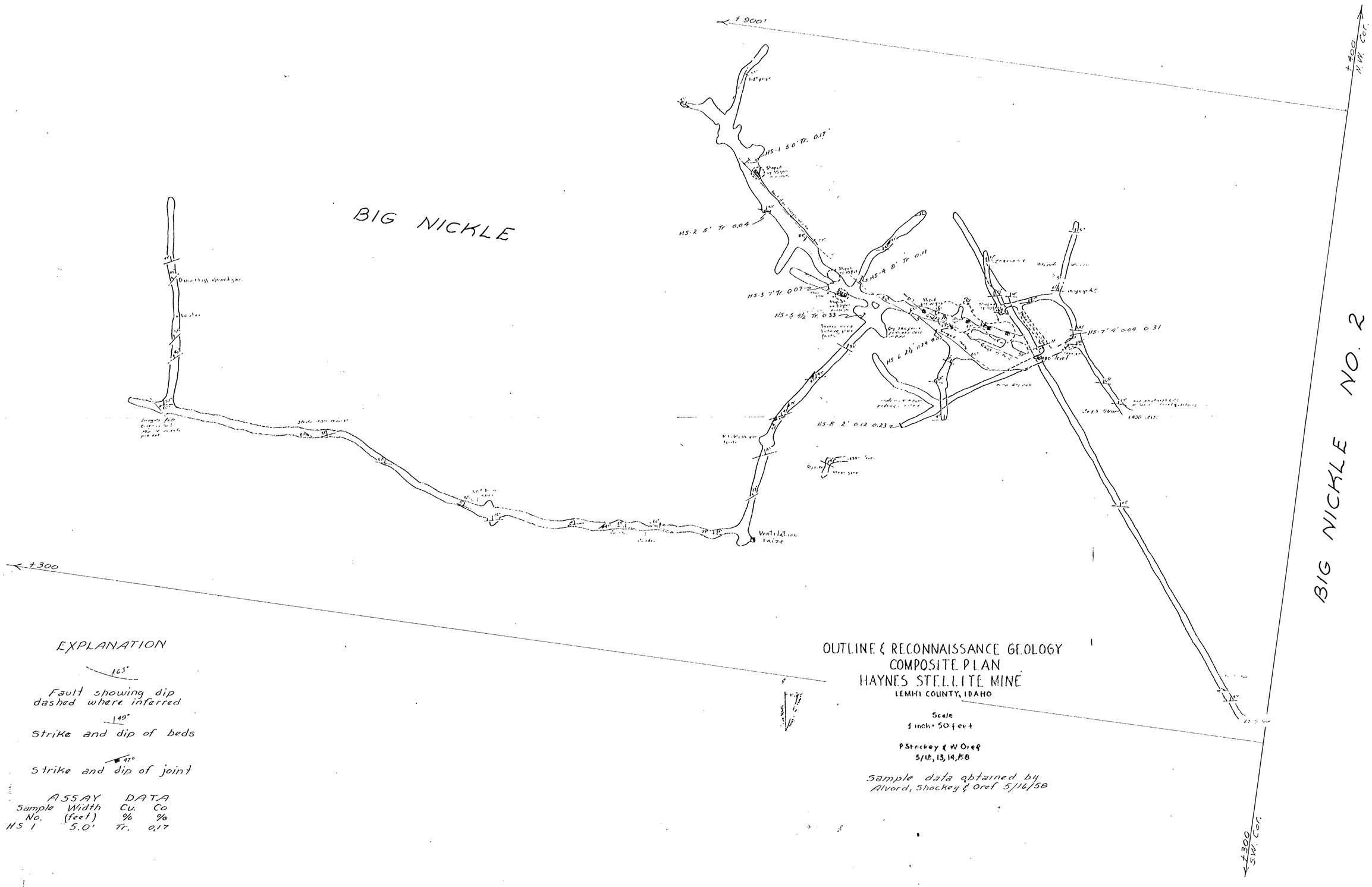
Sincerely yours,

Allen S. Dakan, Director
Operations Control and
Statistics Division

Copy to: Region I.

UNITED STATES
DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS
EXPLORATION ADMINISTRATION
WASHINGTON 25, D. C.

OFFICIAL BUSINESS



EXPLANATION

163°
Fault showing dip
dashed where inferred

49°
Strike and dip of beds

47°
Strike and dip of joint

ASSAY DATA

Sample No.	Width (feet)	Cu. %	Co %
HS 1	5.0'	Tr.	0.17

OUTLINE & RECONNAISSANCE GEOLOGY
COMPOSITE PLAN
HAYNES STELLITE MINE
LEMHI COUNTY, IDAHO

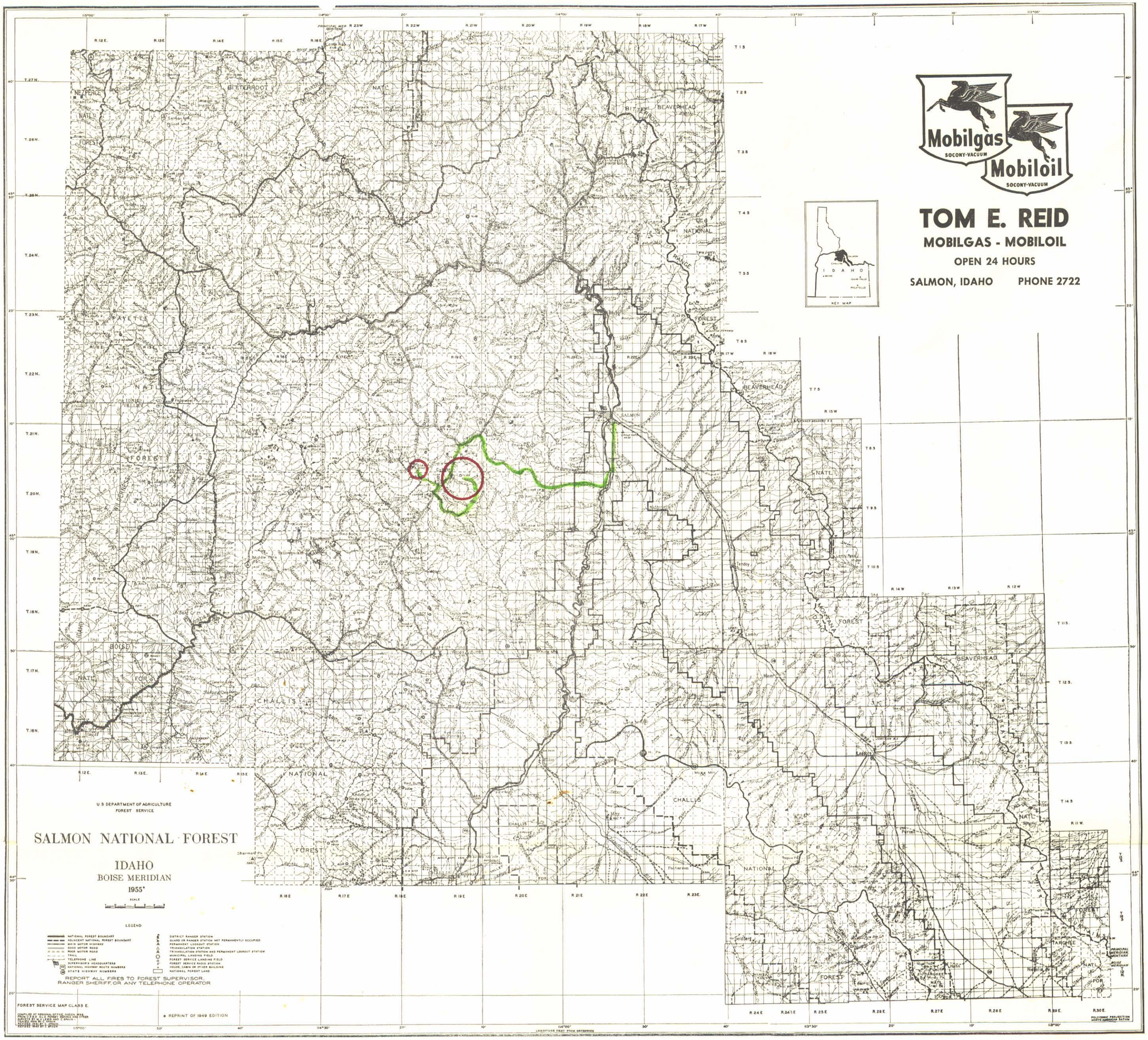
Scale
1 inch = 50 feet

P Stockey & W Oref
5/12, 13, 14, 58

Sample data obtained by
Alvord, Shockey & Oref 5/16/58

Plate 1

FIG.1


Mobilgas
SOCONY-VACUUM
Mobiloil
SOCONY-VACUUM
TOM E. REID
MOBILGAS - MOBILOIL
OPEN 24 HOURS
SALMON, IDAHO PHONE 2722
IDAHO
KEY MAP
U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
SALMON NATIONAL FOREST
IDAHO
BOISE MERIDIAN
1955*
SCALE
LEGEND
NATIONAL FOREST BOUNDARY
ADJACENT NATIONAL FOREST BOUNDARY
MAIN MOTOR HIGHWAY
GOOD MOTOR ROAD
POOR MOTOR ROAD
TRAIL
TELEPHONE LINE
SUPERVISOR'S HEADQUARTERS
NATIONAL HIGHWAY ROUTE NUMBERS
STATE HIGHWAY NUMBERS
DISTRICT RANGER STATION
GUARD OR RANGER STATION NOT PERMANENTLY OCCUPIED
PERMANENT LOOKOUT STATION
TRIANGULATION STATION
TRIANGULATION STATION AND PERMANENT LOOKOUT STATION
MUNICIPAL LANDING FIELD
FOREST SERVICE LANDING FIELD
FOREST SERVICE RADIO STATION
HOUSE, CABIN OR OTHER BUILDING
NATIONAL FOREST LAND
REPORT ALL FIRES TO FOREST SUPERVISOR,
RANGER SHERIFF OR ANY TELEPHONE OPERATOR
FOREST SERVICE MAP CLASS E.
* REPRINT OF 1949 EDITION
BITTERROOT
NEZ PERCE
BEAVERHEAD
PAYETTE
BOISE
CHALLIS
TARGHEE
SALMON
MONTANA
IDAHO
POLYCONIC PROJECTION
NORTH AMERICAN DATUM