500

COPY
SURNAME:

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

Keating

SEP 12 1952

Mr. James D. Williams, President
Mt. Wheeler Mines, Inc.
P. O. Box 150
Salt Lake City 10, Utah

Re: Docket No. DMA-89X (Lead-Zinc)

Dear Mr. Williams:

This will acknowledge receipt of your letter of September 8, 1952, in which you agreed with our suggestion that the file of the above numbered application be closed. Therefore, your docket is being taken from the active file and sent to the closed files.

If in the future it should develop that you again wish to make application for exploration assistance, we will be pleased to consider your request.

Sincerely yours,

C. O. Mittendorf (for)

Administrator

9-12-52

AGKeating-mb
September 11, 1952
Copy to: Docket
Adm. Reading File
Operating Committee
Mr. Keller (2)
Mr. Keating
Mr. Bishop
Mr. McKnight
Region III (2)

MT. WHEELER MINES, INC.
P. O. BOX 150
SALT LAKE CITY 10, UTAH

September 3, 1952

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
SEP 8 1952
9/9/52 K

Mr. C. O. Mittendorf, Acting Administrator
Defense Minerals Administration
United States Department of the Interior
Washington 25, D.C.

Re: Mt. Wheeler Mines, Inc.
Docket No. DMA-89X (Lead-Zinc)

Dear Mr. Mittendorf:

Thank you for your kind letter of July thirty-first concerning the disposition of the above captioned application.

We are in agreement with your suggestion that the file on this application be closed. Geological information gained thus far under the exploration by DMEA-2082-Tungsten, Idm-E248, has materially altered our concept of the overall program and it would be quite impossible for us to present an integrated application at this time covering the two projects.

We wish to thank you and the Lead-Zinc Branch for the manner in which this application was processed. At some appropriate future time we undoubtedly shall submit a new application covering this exploration.

Sincerely yours,

MT. WHEELER MINES, INC.
By

James D. Williams
President

JDW-K

FILE COPY
SURNAME:

500

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

C C
O O
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Y

Keating
Keller

Mr. James D. Williams, President
Mt. Wheeler Mines, Inc.
P. O. Box 150
Salt Lake City, Utah

Re: Docket No. DMA-89X (Lead-Zinc)

Dear Mr. Williams:

This refers to your letter of May 6, 1952, addressed to Mr. Moulds of the Base Metals Division, in which you request the above-numbered application to be hald in abeyance pending completion of your contract No. Idm-E248, executed January 29, 1952.

The exploration as outlined in the contract and the overall program described in your letter contemplates extending the existing Pole Tunnel a distance of 4,300 feet to reach a possible downward extension of a tungsten outcrop, and then an additional 3,100 feet of drifting to reach a downward extension of a lead-zinc outcrop. The terms of the contract provide that much of the advance is contingent upon the result of previous work.

It appears that by the time you are prepared to proceed with the program of exploration under Docket No. DMA-89X, it will probably have to be extensively revised. Under the cercumstances, it would seem best to consider closing your file as to the application presently submitted and when you are again prepared to proceed, a new application can be made under the conditions which will obtain at that time.

Will you be kind enough to advise this office whether you plan to proceed reasonably soon under your application Docket No. DMA-89X, or if you wish to make a new and revised application. Unless word is received from you within thirty days, it will be assumed that you are no longer interested and your file will be closed.

Sincerely yours,

/s/ C. O. Mittendorf

Acting Administrator

AGKeating/mb
July 30, 1952
cc to: Docket
Adm R. File
Operating Comm.
Mr. Keller (2)
Mr. Keating
Mr. Bishop
Mr. McKnight
Region IV
Chron

C C
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MT. WHEELER MINES, INC.
P. O. BOX 150
SALT LAKE CITY 10, UTAH

May 6, 1952

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
MAY 9 1952

Mr. D. E. Moulds, Chief
Base Metal Division
Defense Minerals Exploration Administration
United States Department of the Interior
Washington 25, D.C.

Re: Docket No. 89-X, Lead-Zinc

Dear Mr. Moulds:

Thank you very much for your letter of May first regarding the above captioned exploration application. Our reply to your communication of February 14, 1952, has been delayed in order that we might investigate the possibility of performing the lead-zinc exploration project thru the facilities in Pole Canyon where we are currently driving an adit under DMEA-2082-tungsten, contract Idm-E 248. There appear to be a number of cogent reasons favoring such a revised program and we wish to give you our thinking at the moment.

We have just passed thru a very severe winter in that area; a total snowfall of 182" at 7,800 foot elevation, and studies made in Lincoln Canyon during the winter indicate that operations would have been extremely costly and perhaps even impossible. Several snow drifts in the lower portion of Lincoln Canyon measured approximately 50 feet deep and 200-300 feet long. across the entire width of the canyon. It is very doubtful that we will be able to get to the Bonanza tunnel much before July 15. However, under the same conditions, we were denied access to the Pole tunnel for only six weeks during the entire winter.

We have completed a very substantial camp just below the Pole tunnel and have installed facilities at the mine for mechanized advance of the main Pole adit. Extensive geological surface studies made last fall strongly indicate commercial tungsten occurrences at a point 4300 feet in advance of the present face of the Pole adit, and this point is within 3100 feet of the St. Lawrence fissure. Therefore, if we are successful in our tungsten exploration to this point, it would seem good economics to drive the remaining 3100 feet as the lead-zinc exploration, thus saving costly road and camp construction in Lincoln Canyon and other duplication of mining facilities. We have discussed this program with the U.S.G.S. field team assigned to our project and we are authorized to state that they concur in our conclusions.

In view of the foregoing, we respectfully request that our application for an exploration project, DMEA-89-X, be held in abeyance pending the completion of our Pole tunnel tungsten project now under way. By that time we should be in a position to evaluate this revised program for the lead-zinc project more fully. I am enclosing a map of the overall project for your information.

Mr. D. E. Moulds, Chief
Base Metal Division
No. r2-

Thank you for your kind consideration in this matter.

Sincerely yours,

James D. Williams
President

JDW-K

Encl.

FILE COPY
SURNAME:

Moulds

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

MAY 1 1952

Mr. James B. Williams, President
Mt. Lincoln Mines, Inc.
218 Felt Building
Salt Lake City, Utah

Re: Docket No. DMEA 89X

Dear Mr. Williams:

A review of the Defense Minerals Exploration Administration files indicates that on February 14, 1952, a letter was mailed to you requesting additional information and material relative to your application for exploration project assistance.

Since we have received no word from you regarding this application, we would appreciate your advising us if you are still interested, or your request to withdraw in the event you no longer desire Government assistance under the requirements of Mineral Order-5.

Sincerely yours,

D. E. Moulds (mef)

J.N. 5-1-52

D. E. Moulds, Chief
Base Metals Division
Defense Minerals Exploration
Administration

DEMoulds/hmj
5-1-52
CC to: Adm. Reading Files
Docket File Copy
Region IV
Mr. Bishop
Mr. McKnight
Mr. Moulds

FILE COPY
SURNAME: 500

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

Moulds

FEB 14 1952

Mr. James B. Williams
218 Felt Building
Salt Lake City, Utah

Re: Docket No. DMEA 89X

Dear Mr. Williams:

Tentative approval has been given to your proposal to accomplish exploration work on the St. Lawrence Fissure. The work to consist of approximately 2100 feet of adit from the Bonanza tunnel to the fissure, approximately 2400 feet of drifting on the fissure to explore intersection of the St. Lawrence and Canaan fissures. 700 feet of raising and 5000 feet of diamond drilling to be done at favorable sites in the drift to further explore the area.

In view of the November 1950 date of your initial application, we will appreciate being brought up-to-date on your desire to participate under Mineral Order 5 in this program. We also believe that a change has been made in the name of the organization to Mt. Lincoln Mines, Inc., instead of Mt. Wheeler Mines, Inc. now appearing as the applicant.

Processing of a contract for this work will require that you furnish the following information and material.

(1) Executed copy of assignment of leases and application to Mt. Lincoln Mines, Inc. as is shown on the Landlord's Subordination forms, for the two groups of claims involved.
(2) A breakdown of estimated costs for labor, supplies, equipment, supervision, engineering, etc. necessary to accomplish the crosscutting, drifting, raising and drilling.
(3) Information as to any work accomplished or other changes made relative to the project as presented in your application.

Upon receipt of the above information and material in satisfactory form and content, a contract will be drawn up for final approval.

Sincerely yours,

D. E. Moulds meh 2/14/52

D. E. Moulds, Acting Chief
Base Metals Division
Defense Minerals Exploration
Administration.

DEMoulds/meh
2/14/52
cc to: Adm. R. File
Docket File Copy
Mr. Moulds
Mr. Bishop
Mr. McKnight
Region IV

Defense Minerals Administration 2-11-52

Review of Application for Exploration Assistance

Docket No. DMA-89X

To: Mr. C. O. Mittendorf

Commodity Lead, zinc

Total Amount $250,000

Govt. Participation 50%, $125,000

1. Name and Address of Applicant Mt. Wheeler Mines, Inc. (see attached sheet)

James B. Williams, President, 218 Felt Building, Salt Lake City, Utah

2. Location of Property St. Lawrence Mine, T. 12 N., R. 68 E., M D B M

Mt. Washington Mining District - White Pine County, Nevada

3. Mineral or metal Lead-zinc Is it listed in Section 9 of MO-5? Yes

If not, application will be rejected.

4. Geologic probability of discovery—based on data in application (question #16, 17, 18, 20 and 22)*

Mines or Survey reports, etc., do you rate chances:

a) Good See field report

b) Poor

c) None

d) Don't know—needs field examination Has been examined

e) Is there an alternative and favorable project? See attached sheet (If so, attach an explanation)

5. Is the applicant's right to the property clearly stated? See attached sheet (question 5, 6, 7)*

6. If applicant is a lessee, is a copy of the lease attached? Yes

Does the lease have sufficient time to run to cover a future productive period? Yes

*question numbers are those of MF-103

1. The application was made in the name of the Mt. Wheeler Mines, Inc. According to the field team report, the Mt. Wheeler Mines, Inc. is assigning its lead-zinc property and application to the Mt. Lincoln Mines, Inc. No such transfer or amended application has been filed.

4. (e) H. C. Miller, Executive Officer, believes that the project should consist of the following. First, a detailed geologic study of the area and pinpointing of drilling targets. Drilling of a few holes, up to 1300 ft. in length to determine if the bed is mineralized. Estimated cost is $50,000. If no ore is found, the project would be abandoned. If ore is encountered, the remainder of the program - crosscutting and drifting - would be done by private capital.

This suggestion has been rejected by both the examining team and the present reviewers. The feasibility of investigating by drilling an ore deposit of this type in which the targets are the intersections of relatively narrow fractures with a favorable horizon is questionable when the depth is 1300 ft. or more, and as the project is geologically worthwhile, it is believed that the manner of investigation of the deposit should be such that the results will be unequivocal.

5. The leases covering the St. Lawrence and Bonanza groups of mining claims were made in the name of James B. Williams. A copy of these leases are attached to an amended application by the Mt. Wheeler Mines, Inc., covering their tungsten property, now in the custody of G. Selfridge - Room 3528, Interior Building. No assignment of the leases from James B. Williams to the applicant company can be found.

7. Are subordination agreements necessary? Yes

a) MF-201? _____

b) MF-202? Attached, but between owners and Mt. Lincoln Mines, Inc.

8. From the data presented, does the proposed project appear feasible from the point of view of:

a) Available manpower Yes

b) Equipment and supplies Yes
(question 14 plus general knowledge of availability)*

c) Accessibility (question 12)* Yes, after access road

d) Water (question 13)* Yes

e) Power (question 13)* Yes

Is a field check needed on any of these points? No

9. Does the experience of the applicant appear to be adequate to assure that he can properly conduct the proposed project? (question 4)* Yes

Is a field check needed on this point? No

10. Exhibit A. (question 21 and 22)*

a) Is the project adequately described? Yes

If not, are there sufficient data given so that you can describe the project? _____ If so, attach a draft.

b) Is there an adequate map or sketch of the proposed work? Yes

c) Is the proposed work "exploration" under the definition of Section 8, MO-5? Yes

If not, what part of it is? _____

EXHIBIT A

10. Exploration project The applicant wishes to explore two favorable horizons in the St. Lawrence limestone at the intersection of a strong N-S fracture zone (the St. Lawrence fissure) and an E-W shear zone. To accomplish this the applicant proposes to extend the Bonanza tunnel 2,100 ft. from the Lincoln canyon to intersect the St. Lawrence fissure 1,600 ft. below its outcrop. A drift will then be driven 3,400 ft. along the fissure and at the intersections with the cross fracture zone three raises, totaling 800 ft. will be driven to the favorable horizons. In addition, 5,000 ft. of diamond drilling will be done from underground into the upper and lower limestone beds. Total estimated cost of the project is:

2,100 ft. of crosscutting at $30/ft.	$ 63,000
3,400 ft. of drifting at $30/ft.	102,000
800 ft. of raising at $30/ft.	24,000
5,000 ft. of diamond drilling at $4/ft.	20,000
Road construction and repair	5,000
Supervision and overhead	15,000
Contingencies	21,000
	$ 250,000

The work will be done on a contract basis.

Fixtures and improvements Construction of 1,200 ft of road..$ 3,500

Operating equipment None

Labor and supervision Work will be done under contract

Supervision for 18 months.....$ 15,000

Rehabilitation and repairs

Grading and repair of access road.....$ 1,500

Is this part a worthwhile exploration project?_____

d) Are the cost estimates detailed? Yes

Can they be summarized, as on page 2 of Procedural Instruction 5-A, from the available data?_____ If so, attach a draft. They are summarized in attached Exhibit "A"

e) Are the cost estimates reasonable? No, according to field team

f) Should more information be requested from applicant? No

g) Is a field examination necessary to complete Exhibit A? Has been made

11. Exhibit B (question 23-d)*

a) Is it applicable? No - not for exploration program

b) If so, are sufficient data furnished?_____ If so, attach a draft.

c) Is a field check needed?_____

12. Exhibit C (question 23-e, f and g)*

a) Is it applicable? No

b) Sufficient data?_____ If so, attach a draft.

c) Are rents and charges reasonable?_____

d) Is a field check needed? No

13. Exhibit D (question 23-a, b)*

a) Are there sufficient data? Yes. All work to be done by contract.

b) Is the schedule adequate for the work proposed? Yes

c) Is the schedule excessive for the work proposed? No

d) Are the proposed wages and salaries reasonable? Yes as revised by field team

e) Is a field check needed? No

14. Exhibit E (question 23-c)*

a) Is it applicable? No

b) Sufficient data?

c) Reasonable?

d) Field check needed?

15. In your judgment, can the proposed work be done in the proposed time? Yes

(All exploration must be completed within two years)

16. If field examination is not needed, attach your recommendation.

17. If field examination is needed, do you have any special instructions for the field team not indicated by your answers to the foregoing question?

Reviewed by: Erwin J. Lyons GS 1-23-52

L. L. Farnham by OMB
L. L. Farnham, BM

O M Bishop, USBM
O. M. Bishop, BM

Date 2-11-52

16. This is a "long-shot" geologic gamble that could possibly result in a significant discovery of lead-zinc ores. Inasmuch as the project is looked upon with favor by competent private geologists as well as the DMA field examiners, it is recommended that the exploration be approved with the changes in costs as suggested in the report by the field team.

McKnight

Defense Minerals Administration 2-11-52

Review of Application for Exploration Assistance

Docket No. DMA-89X

To: Mr. C. O. Mittendorf

Commodity Lead, zinc

Total Amount $250,000

Govt. Participation 50%, $125,000

1. Name and Address of Applicant Mt. Wheeler Mines, Inc. (see attached sheet)

James B. Williams, President, 218 Felt Building, Salt Lake City, Utah

2. Location of Property St. Lawrence Mine, T. 12 N., R. 68 E., M D B M

Mt. Washington Mining District - White Pine County, Nevada

3. Mineral or metal Lead-zinc Is it listed in Section 9 of MO-5? Yes

If not, application will be rejected.

4. Geologic probability of discovery—based on data in application (question #16, 17, 18, 20 and 22)*

Mines or Survey reports, etc., do you rate chances:

a) Good See field report

b) Poor

c) None

d) Don't know—needs field examination Has been examined

e) Is there an alternative and favorable project? See attached sheet (If so, attach an explanation)

5. Is the applicant's right to the property clearly stated? See attached sheet (question 5, 6, 7)*

6. If applicant is a lessee, is a copy of the lease attached? Yes

Does the lease have sufficient time to run to cover a future productive period? Yes

*question numbers are those of MF-103

1. The application was made in the name of the Mt. Wheeler Mines, Inc. According to the field team report, the Mt. Wheeler Mines, Inc. is assigning its lead-zinc property and application to the Mt. Lincoln Mines, Inc. No such transfer or amended application has been filed.

4. (e) H. C. Miller, Executive Officer, believes that the project should consist of the following. First, a detailed geologic study of the area and pinpointing of drilling targets. Drilling of a few holes, up to 1300 ft. in length to determine if the bed is mineralized. Estimated dost is $50,000. If no ore is found, the project would be abandoned. If ore is encountered, the remainder of the program - crosscutting and drifting - would be done by private capital.

This suggestion has been rejected by both the examining team and the present reviewers. The feasibility of investigating by drilling an ore deposit of this type in which the targets are the intersections of relatively narrow fractures with a favorable horizon is questionable when the depth is 1300 ft. or more, and as the project is geologically worthwhile, it is believed that the manner of investigation of the deposit should be such that the results will be unequivocal.

5. The leases covering the St. Lawrence and Bonanza groups of mining claims were made in the name of James B. Williams. A copy of these leases are attached to an amended application by the Mt. Wheeler Mines, Inc., covering their tungsten property, now in the custody of G. Selfridge - Room 3528, Interior Building. No assignment of the leases from James B. Williams to the applicant company can be found.

7. Are subordination agreements necessary? **Yes**

a) MF-201? _____

b) MF-202? **Attached, but between owners and Mt. Lincoln Mines, Inc.**

8. From the data presented, does the proposed project appear feasible from the point of view of:

a) Available manpower **Yes**

b) Equipment and supplies **Yes**
(question 14 plus general knowledge of availability)*

c) Accessibility (question 12)* **Yes, after access road**

d) Water (question 13)* **Yes**

e) Power (question 13)* **Yes**

Is a field check needed on any of these points? **No**

9. Does the experience of the applicant appear to be adequate to assure that he can properly conduct the proposed project? (question 4)* **Yes**

_____

Is a field check needed on this point? **No**

10. Exhibit A. (question 21 and 22)*

a) Is the project adequately described? **Yes**

If not, are there sufficient data given so that you can describe the project? _____ If so, attach a draft.

b) Is there an adequate map or sketch of the proposed work? **Yes**

_____

c) Is the proposed work "exploration" under the definition of Section 8, MO-5? **Yes**

If not, what part of it is? _____

_____

_____

_____

EXHIBIT A

10. Exploration project The applicant wishes to explore two favorable horizons in the St. Lawrence limestone at the intersection of a strong N-S fracture zone (the St. Lawrence fissure) and an E-W shear zone. To accomplish this the applicant proposes to extend the Bonanza tunnel 2,100 ft. from the Lincoln canyon to intersect the St. Lawrence fissure 1,600 ft. below its outcrop. A drift will then be driven 3,400 ft. along the fissure and at the intersections with the cross fracture zone three raises, totaling 800 ft. will be driven to the favorable horizons. In addition, 5,000 ft. of diamond drilling will be done from underground into the upper and lower limestone beds. Total estimated cost of the project is:

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3,400 ft. of drifting at $30/ft.	102,000
800 ft. of raising at $30/ft.	24,000
5,000 ft. of diamond drilling at $4/ft.	20,000
Road construction and repair	5,000
Supervision and overhead	15,000
Contingencies	21,000
	$ 250,000

The work will be done on a contract basis.

Fixtures and improvements Construction of 1,200 ft of road.. $ 3,500

Operating equipment None

Labor and supervision Work will be done under contract

Supervision for 18 months $ 15,000

Rehabilitation and repairs

Grading and repair of access road $ 1,500

Is this part a worthwhile exploration project?_____

d) Are the cost estimates detailed? **Yes**

Can they be summarized, as on page 2 of Procedural Instruction 5-A, from the available data?_____ If so, attach a draft. **They are summarized in attached Exhibit "A"**

e) Are the cost estimates reasonable? **No, according to field team**

f) Should more information be requested from applicant? **No**

g) Is a field examination necessary to complete Exhibit A? **Has been made**

11. Exhibit B (question 23-d)*

a) Is it applicable? **No - not for exploration program**

b) If so, are sufficient data furnished?_____ If so, attach a draft.

c) Is a field check needed?_____

12. Exhibit C (question 23-e, f and g)*

a) Is it applicable? **No**

b) Sufficient data?_____ If so, attach a draft.

c) Are rents and charges reasonable?_____

d) Is a field check needed? **No**

13. Exhibit D (question 23-a, b)*

a) Are there sufficient data? **Yes. All work to be done by contract.**

b) Is the schedule adequate for the work proposed? **Yes**

c) Is the schedule excessive for the work proposed? **No**

d) Are the proposed wages and salaries reasonable? **Yes as revised by field team**

e) Is a field check needed? **No**

14. Exhibit E (question 23-c)*

a) Is it applicable? No

b) Sufficient data?

c) Reasonable?

d) Field check needed?

15. In your judgment, can the proposed work be done in the proposed time? Yes

(All exploration must be completed within two years)

16. If field examination is not needed, attach your recommendation.

17. If field examination is needed, do you have any special instructions for the field team not indicated by your answers to the foregoing question?

Reviewed by: Erwin J. Lyons GS 1-23-52

L. L. Farnham, BM

O. M. Bishop, BM

Date 2-11-52

16. This is a "long-shot" geologic gamble that could possibly result in a significant discovery of lead-zinc ores. Inasmuch as the project is looked upon with favor by competent private geologists as well as the DMA field examiners, it is recommended that the exploration be approved with the changes in costs as suggested in the report by the field team.

DEFENSE MIN
ADMINISTRA
WASHINGTON, D. C.

DEC 7 1 00 AM '51

WHEELER MINES, INC.

P. O. BOX 150
SALT LAKE CITY 10, UTAH

DEPARTMENT OF THE INTERIOR
RECEIVED
DEC 7 1951
Defense Minerals Administration,
Production Expansion Division.

December 4, 1951

RECEIVED
DEC 6 1951

Mr. G. E. Johnson, Acting Chief
Lead-Zinc Branch
Defense Minerals Administration
Department of the Interior
Washington 25, D. C.

Re: Mt. Lincoln Mines, Inc.
DMA-89 Lead-Zinc
Landlords' Agreements

Dear Mr. Johnson:

Enclosed are two sets of six (6) copies each of Landlords' Subordination Agreement, covering the St. Lawrence patented claims and Bonanza unpatented claims, which will be dedicated to the above captioned exploration project.

We regret the long delay in securing the execution of these agreements, but I am certain you will appreciate the difficulty in getting so many parties together, especially when they are located in many different places.

We trust that you will now be able to conclude the exploration contract at an early date.

Thank you for your kind consideration.

Very truly yours,

MT. LINCOLN MINES, INC.
By

James D. Williams
James D. Williams

F.T. Report received in Aug. 30.
Sent to Lead-Zinc. Sept. 3

JDW-K

Enc.

NOV 2 9 1951

DMA 39
Mt. Lincoln Mines, Inc.

Mr. James L. Williams, President
Mt. Lincoln Mines, Inc.
218 Felt Building
Salt Lake City, Utah

Dear Mr. Williams:

Your letter of October 17, 1951, to Mr. Billings with regard to the above subject has been received.

We are pleased to send you seven (7) additional copies of form MT-202 as requested.

Very truly yours,

G. E. Johnson, Acting Chief
Land-Zing Branch

Enclosures

JCHamilton'lm
10/25/51

cc: Administrator's reading file
Deputy Administrator
O. Bishop
W. T. McKnight
G. E. Johnson - 3620
DMA docket file

FILE COPY
SURNAME:
350

Lyons (EJM)
McKnight
Billings
Bishop

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

SEP 11 1951

Re: DMA-89

a. E. C —

Mr. James B. Williams, President
Mt. Lincoln Mines, Inc.
218 Felt Building
Salt Lake City, Utah

Dear Mr. Williams:

Before action can be completed on your application to explore the St. Lawrence mine in White Pine County, Nevada, for lead-zinc, it will be necessary for you to submit six copies of the lease and assignments as well as six copies of Form MF-202, "Landlord's Subordination Agreement". Seven copies of Form MF-202 are enclosed for your convenience.

Very truly yours,

T. P. Billings, Chief
Lead-Zinc Branch

Enclosures

EJLyons:emp
G 9-7-51
Copies to: H. H. East, Jr. Region IV (2)
Chief, Lead-Zinc Br.
E. T. McKnight 4204 GSA
R. H. Mote
Directors r. files 4214 GSA
Br. r. files 4214 GSA
Administrators r. file
DMA docket fiels

J 9-11

Return to Mr. [illegible]

UNITED STATES
DEPARTMENT OF THE INTERIOR

XXBUREAU OF MINESXX
XXXXXXXXXXXXXXXX
DEFENSE MINERALS ADMINISTRATION

DEPARTMENT OF THE INTERIOR
Defense Minerals Administration
RECEIVED
SEP 4 - 1951

1012 Flood Bldg.
870 Market St.
San Francisco 2, Calif.
XXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXX

OFFICE OF
XXXXXXXXXXXXXXXX
Executive Officer
DMA Field Team
Region III

August 30, 1951

Memorandum

To: Tom Lyon, Chairman, Coordinating Committee, DMA, Interior Building, Washington 25, D. C.

From: Executive Officer, DMA Field Team, Region III

Subject: DMA-89, Mt. Wheeler Mines, Inc., 218 Felt Bldg., Salt Lake City, Utah

Reference is to subject memorandum prepared by Otto Herres, Chief, Lead-Zinc Division, DMA, dated January 15, 1951, requesting a geological examination of the Mt. Wheeler mines.

" Attached are four copies each of two reports on the Mt. Wheeler Mines, Inc. properties by R. M. Smith and D. C. Arnold, Geologists of the U. S. Geological Survey. The two properties are near each other and the two exploration loans requested have been assigned the same DMA docket number (89X). As one property contains chiefly tungsten and the other lead-zinc, the examining geologists elected to prepare individual reports. Both reports, the Region III field team feels, need the few additional comments given below.

Tungsten report. Of the 15,755 tons of tungsten ore believed to be on the property only 355 tons are measured and indicated. Although the remainder may be present, the uncertainty involved is of a high order of magnitude. The applicant's proposal centers chiefly around driving a 2200 foot drift parallel to, and between, two veins only about 50 feet apart and crosscutting at intervals to test them. If the grade of ore as given is 1% WO_3, in our opinion the applicant should drive his drift along one of the veins, developing ore on it and stockpiling or shipping the ore removed in the exploration. By this means, the exploration could be put on a nearly self-supporting basis, and we do not concur with the examining geologists that a $131,326 loan is needed to explore the property. "

Lead-Zinc report. The lead-zinc report recommends the granting of a $250,000 loan to the applicant to drive a 2100 foot cross-cut, a 3400 foot drift, 800 feet of raises, and 5000 feet of diamond drilling. This work is to explore the intersections of a north-trending fissure, east-trending cross fractures and dikes, and a supposedly favorable limestone bed. The surface mineralization, although spread over a considerable

SEP 4 1951

length along the St. Lawrence fissure, yielded ore too low in grade to be economically mined in such an area of high altitude and heavy winter snowfall.

The proposal has considerable merit in that it might discover a large tonnage of lead-zinc ore, but it also has high risk in that there is no evidence, other than comparison with the Pioche district, that the limestone bed at the fracture intersections is mineralized. Although the applicant emphasizes the similarity of the mine area and the Pioche area, the surface mineralization is neither quite the same in character nor as rich as at Pioche. In our opinion, it would be possible to determine by drilling whether or not the favorable bed is mineralized at a cost far less than the $250,000 applied for. The first step should be the preparation of an accurate detailed geologic and topographic map, and the pinpointing of the drilling targets. Following this, a few holes, up to 1300 feet in length, could determine if the bed is mineralized. The geologic study should not cost more than $10,000 and the drilling no more than $40,000. If no ore is encountered, the project should be abandoned, whereas if ore is discovered, the remainder of the program possibly would be carried out by private capital, as the potential of the mine would be large if the lower limestone bed is known to be ore-bearing.

Docket DMA-89 is being returned herewith.

H. C. Miller
Executive Officer, DMA Field Team
Region III

Attachments

Copy to: E. H. Bailey, USGS

UNITED STATES
DEPARTMENT OF THE INTERIOR
OSCAR L. CHAPMAN, SECRETARY

DEFENSE MINERALS ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
Region III

Docket DMA 89, Mount Wheeler Mines, Inc.

White Pine County, Nevada

(Lead-Zinc)

R. M. Smith and D. C. Arnold, Geologists
U. S. Geological Survey

August 21, 1951

CONTENTS

	Page
Introduction	1
Location and accessibility	1
History and production	2
Geology	2
Ore deposits	4
Ore reserves	8
Proposed exploration	9
Exploration costs	10
Conclusions and recommendations	11

ILLUSTRATIONS

Figure 1. Index map of Nevada.

Figure 2. St. Lawrence Mine and proposed Lincoln Tunnel.

Figure 3. Longitudinal section along St. Lawrence fissure.

Figure 4. Wheeler Peak quadrangle map.

Docket DMA 89, Mount Wheeler Mines, Inc.

White Pine County, Nevada

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The Mount Wheeler Mines Inc. has applied for a development loan of $400,910.00. The Lead-Zinc Division, DMA, requested that as there are no measured ore reserves, the application be considered for an exploration loan and that a field examination be made to substantiate the applicant's inferred ore reserve estimate. A field examination was made July 11-13, 1951 by R. M. Smith and D. Arnold of the Geological Survey.

The rocks in the area include quartzite, shale, and limestone of Cambrian age. These rocks have been intruded by porphyry dikes, and are cut by three sets of faults: north-striking fracture zones, east-striking shear zones, and bedding shear zones.

Small, discontinuous lead-silver ore bodies have been mined from a north striking fracture zone in limestone at the St. Lawrence Mine. These ore bodies are not promising, but indicate that mineralizing solutions have passed through the rocks and may indicate ore bodies at depth. It is inferred that ore bodies may be found along the fracture zones and at the intersection of fracture zones and favorable beds.

Several conditions must be met to localize an ore body in the Mt. Wheeler area. These conditions are as follows: (1) a favorable limestone bed must be present at the intersection of a north-striking fracture zone and east-striking shear zone. The fractured zone can be the locus of an orebody if, (2) mineralizing solutions pass through the zone for a sufficient time under, (3) the proper physico-chemical conditions.

It is concluded that the stratigraphic and structural conditions have been met in the Mt. Wheeler area. Whether the mineralizing solutions passed through favorable ground for a sufficient time under the proper conditions is conjectural, but it seems reasonable to assume that ore bodies are present at depth. It is further concluded that the project has a fair chance of making a significant discovery of lead-zinc-silver ore in an area that so far has yielded only a small production.

The applicant has estimated that the ore reserves total 904,000 tons of lead-zinc-silver ore assaying 6 to 9 percent lead, 1 to 15 percent zinc, and 8.5 oz. silver per ton. The examining geologists agree that the ore bodies may well be where the applicant predicts, but consider that the reserve figures may be too high. They have calculated the reserves on a more conservative basis, and estimate that the inferred ore reserves may total 225,000 tons, averaging 6 to 19 percent lead, 1 to 15 percent zinc, and 8.5 oz. silver per ton. Ore of this tonnage and grade would have a gross smelter return value of about $7,500,000 at present prices [1]. The estimated reserves

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[1] Market value: Lead $.17 per lb.; Zinc $.17-1/2 per lb.; Silver $.90-1/2 per oz.

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are adequate to return the government's share of the cost of proposed exploratory work. The applicant's proposed program is well planned and can be completed in about 18 months at a cost of $250,000. It is, therefore, recommended that the Defense Minerals Administration enter into a contract with the applicant and make available a loan of $125,000 to do the proposed exploration work.

Docket DMA 89, Mount Wheeler Mines, Inc.

White Pine County, Nevada

INTRODUCTION

Docket DMA 89, Mt. Wheeler Mines, Inc., 218 Felt Building, Salt Lake City, Utah, requested a Production loan of $400,910.00 to explore the St. Lawrence lead-silver mine near Wheeler Peak, White Pine County, Nevada. The company proposes to extend the Bonanza tunnel (fig. 2) 2,100 feet from Lincoln Canyon to cut the St. Lawrence fissure 1,600 feet below its outcrop, to drift 3,400 feet and raise a total of 800 feet along the vein and to diamond drill 5,000 feet into upper and lower limestone beds that are favorable to replacement ore bodies.

A field examination was requested by the Lead-Zinc Branch to substantiate the applicant's ore reserve estimate, and to determine the projects eligibility for an exploration loan. An examination was made July 11-13, 1951 by R. M. Smith and D. C. Arnold of the Geological Survey with James D. Williams, president, and Harry Poller, engineer, of the Mt. Wheeler Mining Company. The authors wish to acknowledge the assistance given by Mr. Earl B. Young, Chief Geologist, Combined Metals Reduction Company, Salt Lake City, Utah.

Location and accessibility

The St. Lawrence Mine is in T. 12 N., R. 68 E. White Pine County, Nevada at an altitude of 10,000 feet (fig. 1). The property is 45 miles southeast of Ely and can be reached from U. S. Highway 93 by a 19 mile gravelled road that leads southeast from the intersection of U. S. Highways 6 and 93. The mine is inaccessible during the winter months because of heavy snowfall. The proposed exploration, however, is to be done at an altitude that will permit year around operation after access road work and additional outside installations are completed.

History and production

The original claims at Mt. Wheeler were located in the early 1870's. Total production is not known but it is reported to total several hundred tons of hand-sorted ore containing about 75 percent lead and 18 oz. silver per ton. This ore was transported on muleback for shipment to the U. S. Smelting Co. at Midvale, Utah. Production during 1948 was 46 tons that contained 19 percent lead and 8.5 oz. silver per ton.

Mt. Wheeler Mines, Inc. acquired the property in 1950. In all, 15 claims have been staked.

The applicant stated that Mt. Wheeler Mines, Inc. is assigning its property and its application DMA 89 to Mt. Lincoln Mines, Inc., 218 Felt Building, Salt Lake City, Utah, and that Mr. Lincoln Mines Inc. has $125,000 available to use as its share of an exploration project. Mr. J. D. Williams will manage both corporations.

The applicant also stated that he has recently submitted a separate application in the name of Mt. Wheeler Mines, Inc., for a loan of $131,326 to explore a tungsten occurrence on the property. Both projects were reviewed in the field.

GEOLOGY

The Mt. Wheeler area is underlain by sedimentary rocks of Cambrian age. The oldest formation in the mine area is the Prospect Mountain quartzite of Lower Cambrian age; it is overlain successively by the Pioche shale, the St. Lawrence limestone and the Lincoln limestone [1,2] of Lower and Middle Cambrian

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1/ Lemmon, D. M., U.S.G.S. open file report, 1945, Tungsten Deposits of the Minerva District, White Pine County, Nevada .....This unit correlated with the "Upper White limestone" in Minerva area.

2/ Young, Earl B., Private report, DMA 89.

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age. A columnar section of these units is shown on fig. 3.

The Prospect Mountain quartzite forms the west flank of the range up to an altitude of 7,000 feet. It is overlain by the Pioche shale which has a thickness of 350 feet in the area and contains a limestone bed 15 feet thick which is locally called the Wheeler bed. The Pioche shale is overlain by the St. Lawrence limestone, a well bedded limestone 670 feet thick that contains two thin-bedded carbonaceous limestone layers; these carbonaceous limestone layers are considered to be favorable units for ore deposits. The St. Lawrence limestone is overlain by the Lincoln limestone, a massive, fine grained white limestone that is 1,300 feet thick in the mine area.

The sedimentary rocks strike eastward and dip 10°- 15° S. They have been cut by many small faults of 50 feet displacement or less and broken by fractures, but faults of large displacement are noticeably lacking in the mine area. Three principal sets of faults were observed: (1) north-striking vertical fracture zones 5 to 35 feet wide that contain calcite veins up to 6 inches wide; (2) east-striking shear zones that dip about 75° N. and are now filled with quartz stringers and veins; and (3) gently dipping shear zones along the bedding that are now filled with quartz and carbonate stringers.

The St. Lawrence fracture zone is the most persistent of the north-striking set and can be traced for about 2 miles over rugged terrain. It is this exceptional strike length that justifies the projection of 2,000 feet down dip.

All three sets locally contain small amounts of galena and scheelite, but minable concentrations of lead ore encountered to date have been found only in north-striking fractures, and tungsten concentrations are only in east-striking

shear zones near their intersections with north-striking fractures.

Porphyry dikes as much as 200 feet wide that trend northeastward cut the sedimentary rocks. The dips of these dikes are not known, but are believed to be northwest (fig. 3).

ORE DEPOSITS

The ore deposits that have been discovered thus far are small silver-lead bodies along faults. The solutions that formed these bodies, however, rose upward through a thick sequence of rocks containing beds favorable for localizing ore deposits. The intersections of these beds with faults are considered to be the most likely places in which ore deposits might have been formed. The factors that may have aided in localizing the ore are discussed briefly in the following paragraphs.

The ore bodies in the St. Lawrence mine were formed in the massive Lincoln limestone which is about 1,300 feet thick in the mine area (fig. 3). The ore bodies are small pods and shoots up to 3 feet wide composed mainly of galena and calcite. In places the pods are nearly pure galena, but generally they are made up of galena stringers and crystals in the calcite. Scheelite and fluorite were also noted in a vein parallel to the St. Lawrence vein.

The ore bodies at the St. Lawrence mine are localized at the intersections of north-striking fractures with east-striking shear zones. Small shipments of sorted ore aggregating a few hundred tons were made from the St. Lawrence workings, and it is reported that the shipments averaged 75 percent lead and 18 oz. of silver per ton.

The ore bodies in the massive Lincoln limestone were formed by solutions that rose upward through a thick section of rocks. It is therefore possible

that the major deposition of sulfides took place below in favorable limestone units that have been brecciated at their intersections with faults.

Study of base-metal mining districts in the Great Basin area reveals that the largest replacement ore deposits are commonly localized in the lower limestone units of the Paleozoic rocks. This is true at Park City, Tintic, Mercur, and Drum Mountains, Utah, and Eureka, Groom, and Pioche, Nevada.

The applicant has pointed out that the general geology and ore deposits of the Mt. Wheeler area are strikingly analogous to the geology and ore deposits at Pioche. Likewise the early mining at Pioche was in fissures in the upper limestone units and the bedding replacement deposits that have yielded the great bulk of production were discovered later in the Highland Peak limestone and the Combined Metals bed of the Pioche shale [1]. The

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[1] Westgate, L. G. and Knopf, Adolph, Geology and Ore Deposits of the Pioche District, Nevada: U.S.G.S. PP 171, pp 5-6, 1932.

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applicant has also included reports by Earl Young and Paul Gemmill [1], geologists

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[1] Young, Earl and Gemmill, Paul, preliminary report of St. Lawrence Mine: DMA 89.

Young, Earl B., The Pioche District: Int. Geol. Cong., Rpt of the 18th Session, Great Britain, 1948, Part VII.

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of the Combined Metals Corporation, who have carefully analyzed the geologic factors at Mt. Wheeler. They conclude that there is a real chance for the discovery of ore deposits at depth and the Mt. Lincoln Mines Inc. is prepared to participate in the necessary exploratory work to test this conclusion.

In order to appraise the project, it seems desirable to review the factors that might influence ore deposition at Mt. Wheeler.

Several stratigraphic and structural conditions must be met to form an environment favorable to ore deposition. The first requirement is a favorable bed that can be brecciated and replaced. The second is favorable fracture zones along which mineralizing solutions may rise, but in addition, the faults must be of sufficient magnitude to shatter the rock over a reasonably wide area so that minable ore bodies can be formed. Then thirdly, the physico-chemical factors must be such that ore deposition can take place, and lastly, the solutions bearing the metals must flow long enough to bring in the amount of ore minerals required.

The first condition concerns stratigraphic controls. Three limestone beds have been described in the area that may be considered likely host beds for ore deposits. These are the Wheeler bed and two limestone beds in the St. Lawrence limestone.

The Wheeler bed is the lowest limestone unit in the section at Mt. Wheeler. This bed is 45 feet above the contact of the Prospect Mountain quartzite and Pioche shale. It is 15 feet thick in this area and as it is the lowest limestone, it may well have been replaced in shattered areas by ore minerals. The Wheeler bed is below the level of the proposed drift, however, and could not easily be reached except from the north end of the proposed drift (fig. 3).

The basal St. Lawrence limestone is 30 feet thick. It rests on the Pioche shale and would be the second favorable limestone unit. The proposed 3,400 foot drift would intersect this unit near the north face. Two fracture zones that are projected from the surface should intersect the basal limestone

just above the level; a raise is planned to determine whether the bed is mineralized in that area.

The upper St. Lawrence limestone is the third unit in the section that may be favorable for lead-silver metallization. The limestone is 170 feet thick, and will come into the 3,400-foot drift at the end of the crosscut. Large ore bodies are inferred at the intersection of the bed and a dike, at the junction with the Canaan vein, and at the intersections of two fracture zones. Two raises are planned to test the extent of ore in the bed.

The second condition, that of favorable structures is met by the north-striking fractures and the east-striking shear zones. None of the fractures examined in the area appear to have large displacements. The shattering along them is, therefore, not intense, but openings were present that would permit movement of solutions. The area is not as intensely faulted as many western mining districts, but the faults and shears mapped in the area seem persistent and probably extend to depth. The St. Lawrence fracture zone is the most persistent of the north-striking fractures; it contains galena that came from below, and it seems it is possible that galena ore bodies exist below. The most likely places for large ore bodies would be at the intersections of the fractures and shears with the favorable beds that have been discussed.

The third and fourth conditions are harder to evaluate. It is impossible to guess the conditions that prevailed at depth when ore deposition took place. As galena is found at the present surface it seems reasonable to assume that galena and related minerals could have been deposited 2,000 feet down. Likewise, it is difficult to guess whether the solutions brought in enough material to make large ore bodies. The only way to answer the question is to carry on the exploratory work.

ORE RESERVES

As the ore bodies in the St. Lawrence Mine are small and difficult of access, the applicant does not plan to carry on further exploratory work there. The main targets of the exploratory work will be the intersections of the lower favorable limestone units with fracture zones.

The applicant has estimated that the inferred ore reserves to be expected in the block extending from the surface down to the proposed level 1,600 feet below the St. Lawrence mine workings total about 904,000 tons; of this about 304,000 tons was considered to be ore in fissures and to have an average assay of 19.2 percent lead, 1.2 percent zinc, and 8.5 oz. silver a ton, the remaining 600,000 tons was considered to be ore along bedding averaging 5.8 percent lead, 14.7 percent zinc, and 8.5 oz. silver per ton. These figures were based on the assumptions that the ore bodies of the Mt. Wheeler area are analagous to the ore bodies at Pioche in size, grade, and ratio of fissure ore to bedding ore.

There is no method of accurately evaluating the assumptions, but, although the basis seems sound, the figures appear to be rather liberal. The applicant considers that the ore bodies will be continuous and uniformly large. It seems more prudent to expect that metallization might be discontinuous and the inferred reserves have accordingly been recalculated on this basis.

The examining geologists infer that ore may be present in the St. Lawrence fissure at favorable intersections between the St. Lawrence workings and the 3,400 foot drift over a strike length of 2800 feet, and average width of 4 feet. The longitudinal sections of the ore blocks are shown on figure 3. The inferred tonnage of fissure ore in these six blocks totals 75,000 tons.

It is also inferred that ore may be present along favorable beds adjacent to the St. Lawrence fracture zone.

The traces of the longitudinal sections of the inferred replacement blocks are the same as the sections of fissure ore (fig. 3). Two beds considered to be favorable should be cut in the proposed drift. The first bed will be the upper St. Lawrence limestone; four blocks of ore are inferred at the intersections of the porphyry dike, Canaan vein, and two shear zones. The second bed that will be cut is the lower St. Lawrence limestone; two blocks of ore may be cut near the face where the shear zones cut the beds.

The grade of ore used by the applicant is based on recent shipments from the St. Lawrence mine and is believed to be realistic.

At present prices the inferred ore tonnage would be valued as follows: -/

	Net Smelter Value
Ore in fissures	
75,000 tons at $36.75 a ton	$2,756,250
Bedding ore	
150,000 tons at $32.08 a ton	4,812,000
Total	$7,568,250

-/Lead $.17 per lb., zinc .17-1/2 per lb., silver $.90-1/2 per oz.

The inferred tonnage is therefore adequate to return the government's share of the cost.

PROPOSED EXPLORATION

The applicant proposed the following program to prove the inferred ore: (1) crosscut 2,100 feet to the St. Lawrence fissure from the face of the existing Bonanza tunnel; (2) drift 3,400 feet north along the St. Lawrence

fissure; [1] (3) diamond drill 5,000 feet from underground stations into

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[1] A diamond drilling program to test the favorable intersections from surface locations has been discussed with the applicant. He feels that diamond drilling is not practicable for this purpose. An adequate drilling program would require 5,000 feet or more of holes from almost inaccessible locations. The cost of such a program would approach that of the crosscut phase of the proposed project and would be less informative than the underground program. The precise location of the inferred ore blocks are not predictable. If a drilling program were to be set up under these conditions, the drilling might fail to locate the inferred ore bodies, whereas a drifting program can be directed to the target and more adequately prove or disprove the inferred ore.

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upper and lower favorable limestone beds including the Wheeler bed; (4) raise a total of 800 feet in three locations to cut favorable beds at the intersections with shear zones.

This program was outlined by the applicant and is based on careful study of the engineering problems by competent engineers and geologists. The exploration program seems well planned and adequate to do the proposed work. It would require about 18 months to complete.

Exploration costs

The original application requested a production loan totalling $400,910 of which $150,910 was for construction of a camp and for mine equipment, and $250,000 was for exploration. The exploration costs were based on a firm bid of $26.50 for cross-cutting but as this quotation has expired the figure is revised upward to $30.00 per foot. The estimated cost of the exploration program only, using revised costs is as follows:

Cross cutting	2100 ft. @ $30.00 per ft.	$ 63,000
Drifting	3400 ft. @ $30.00 per ft.	102,000
Raising	800 ft. @ $30.00 per ft.	24,000
Diamond Drilling	5000 ft. @ $ 4.00 per ft.	20,000
Road Construction		5,000
Contingency allowance		21,000
Supervision and overhead		15,000
Total		$250,000

CONCLUSIONS AND RECOMMENDATIONS

It is concluded that an ore deposit may well be present at depth and that the proposed exploration has a good chance of revealing significant quantities of lead-zinc-silver ore.

The inferred ore in the block below the St. Lawrence Mine totals 225,000 tons averaging 6 percent ot 19 percent lead, 1 percent to 15 percent zinc and about 8.5 oz. of silver per ton.

The exploration program as outlined by the applicant seems logical and complete. It can be accomplished for a cost of about $250,000 in about 18 months time. It is recommended, therefore, that the Defense Minerals Administration enter into a contract with the applicant on a matching-funds basis to the extent of $125,000 and that the applicant's proposed exploration program be approved.

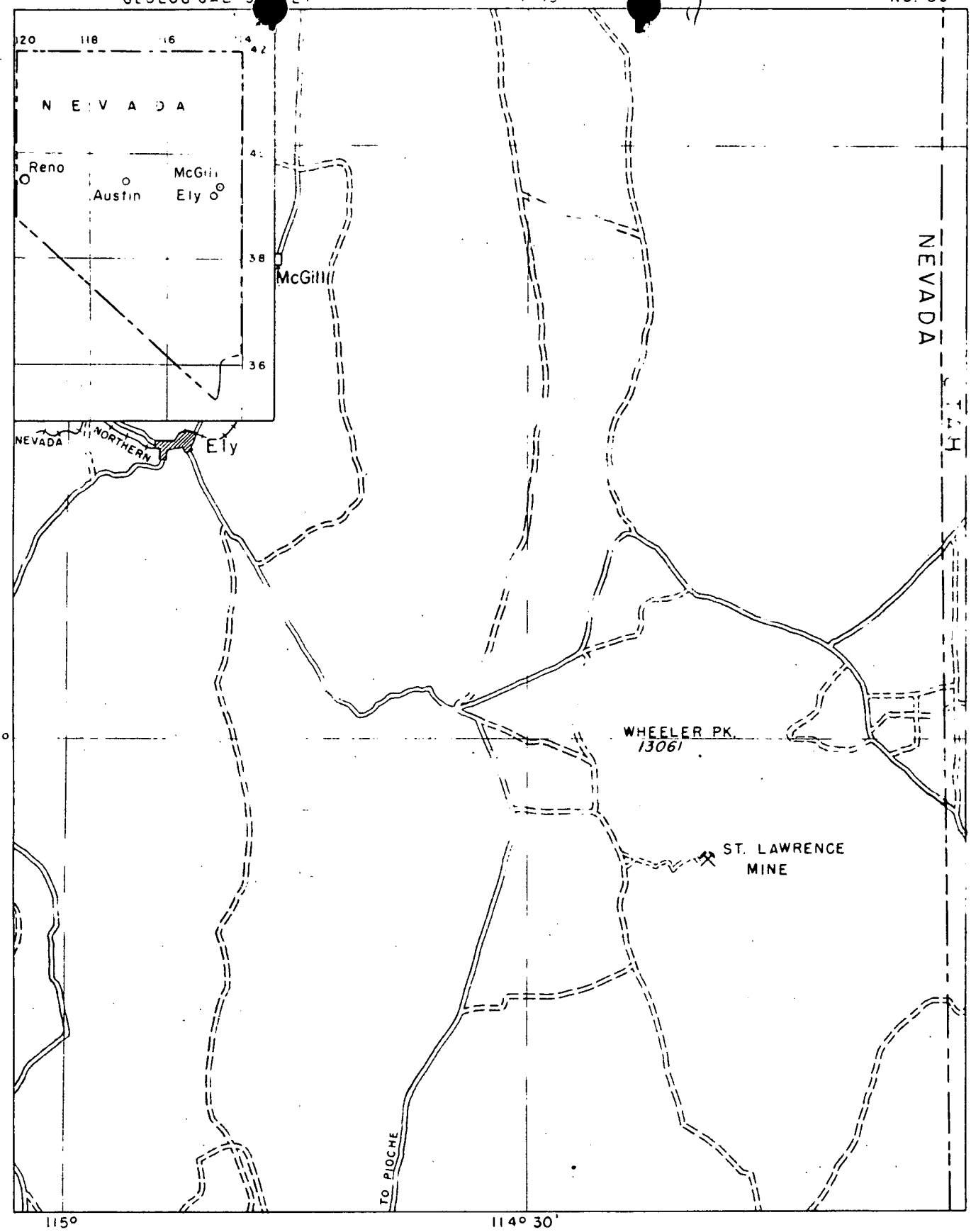
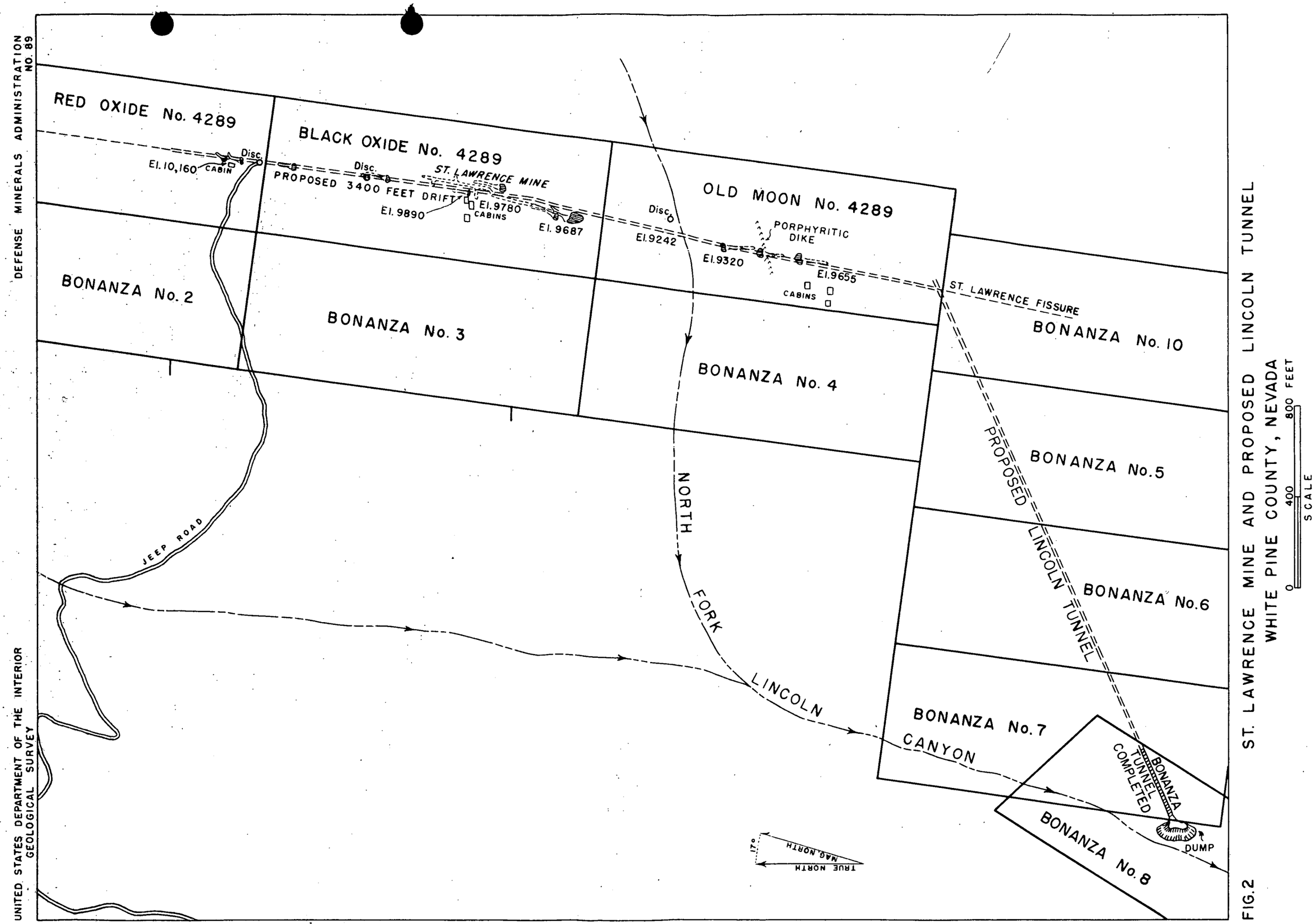


FIG. 1 INDEX MAP OF NEVADA

0 5 10 MILES
Scale



ST. LAWRENCE MINE AND PROPOSED LINCOLN TUNNEL
WHITE PINE COUNTY, NEVADA

FIG. 2

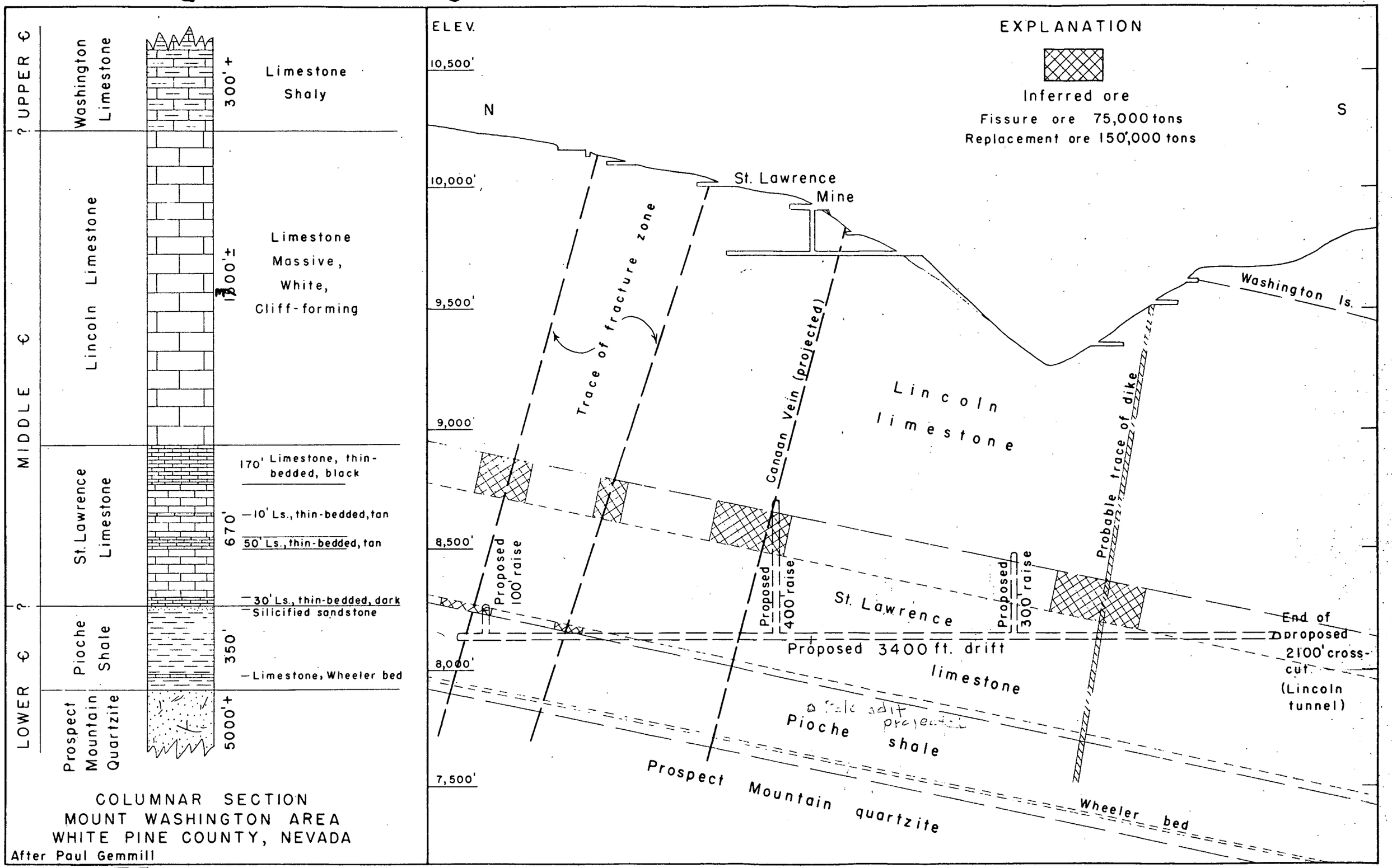


FIG. 3 LONGITUDINAL SECTION ALONG ST. LAWRENCE FISSURE, WHITE PINE COUNTY, NEVADA

UNITED STATES
DEPARTMENT OF THE INTERIOR
OSCAR L. CHAPMAN, SECRETARY

DEFENSE MINERALS ADMINISTRATION

REPORT OF EXAMINATION BY FIELD TEAM
Region III

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(Lead-Zinc)

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CONTENTS

	Page
Introduction	1
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Geology	2
Ore deposits	4
Ore reserves	8
Proposed exploration	9
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ILLUSTRATIONS

Figure 1. Index map of Nevada.

Figure 2. St. Lawrence Mine and proposed Lincoln Tunnel.

Figure 3. Longitudinal section along St. Lawrence fissure.

Figure 4. Wheeler Peak quadrangle map.

Docket DMA 89, Mount Wheeler Mines, Inc.

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Docket DMA 89, Mount Wheeler Mines, Inc.

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INTRODUCTION

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2/ Young, Earl B., Private report, DMA 89.

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age. A columnar section of these units is shown on fig. 3.

The Prospect Mountain quartzite forms the west flank of the range up to an altitude of 7,000 feet. It is overlain by the Pioche shale which has a thickness of 350 feet in the area and contains a limestone bed 15 feet thick which is locally called the Wheeler bed. The Pioche shale is overlain by the St. Lawrence limestone, a well bedded limestone 670 feet thick that contains two thin-bedded carbonaceous limestone layers; these carbonaceous limestone layers are considered to be favorable units for ore deposits. The St. Lawrence limestone is overlain by the Lincoln limestone, a massive, fine grained white limestone that is 1,300 feet thick in the mine area.

The sedimentary rocks strike eastward and dip 10°- 15° S. They have been cut by many small faults of 50 feet displacement or less and broken by fractures, but faults of large displacement are noticeably lacking in the mine area. Three principal sets of faults were observed: (1) north-striking vertical fracture zones 5 to 35 feet wide that contain calcite veins up to 6 inches wide; (2) east-striking shear zones that dip about 75° N. and are now filled with quartz stringers and veins; and (3) gently dipping shear zones along the bedding that are now filled with quartz and carbonate stringers.

The St. Lawrence fracture zone is the most persistent of the north-striking set and can be traced for about 2 miles over rugged terrain. It is this exceptional strike length that justifies the projection of 2,000 feet down dip.

All three sets locally contain small amounts of galena and scheelite, but minable concentrations of lead ore encountered to date have been found only in north-striking fractures, and tungsten concentrations are only in east-striking

shear zones near their intersections with north-striking fractures.

Porphyry dikes as much as 200 feet wide that trend northeastward cut the sedimentary rocks. The dips of these dikes are not known, but are believed to be northwest (fig. 3).

ORE DEPOSITS

The ore deposits that have been discovered thus far are small silver-lead bodies along faults. The solutions that formed these bodies, however, rose upward through a thick sequence of rocks containing beds favorable for localizing ore deposits. The intersections of these beds with faults are considered to be the most likely places in which ore deposits might have been formed. The factors that may have aided in localizing the ore are discussed briefly in the following paragraphs.

The ore bodies in the St. Lawrence mine were formed in the massive Lincoln limestone which is about 1,300 feet thick in the mine area (fig. 3). The ore bodies are small pods and shoots up to 3 feet wide composed mainly of galena and calcite. In places the pods are nearly pure galena, but generally they are made up of galena stringers and crystals in the calcite. Scheelite and fluorite were also noted in a vein parallel to the St. Lawrence vein.

The ore bodies at the St. Lawrence mine are localized at the intersections of north-striking fractures with east-striking shear zones. Small shipments of sorted ore aggregating a few hundred tons were made from the St. Lawrence workings, and it is reported that the shipments averaged 75 percent lead and 18 oz. of silver per ton.

The ore bodies in the massive Lincoln limestone were formed by solutions that rose upward through a thick section of rocks. It is therefore possible

that the major deposition of sulfides took place below in favorable limestone units that have been brecciated at their intersections with faults.

Study of base-metal mining districts in the Great Basin area reveals that the largest replacement ore deposits are commonly localized in the lower limestone units of the Paleozoic rocks. This is true at Park City, Tintic, Mercur, and Drum Mountains, Utah, and Eureka, Groom, and Pioche, Nevada.

The applicant has pointed out that the general geology and ore deposits of the Mt. Wheeler area are strikingly analogous to the geology and ore deposits at Pioche. Likewise the early mining at Pioche was in fissures in the upper limestone units and the bedding replacement deposits that have yielded the great bulk of production were discovered later in the Highland Peak limestone and the Combined Metals bed of the Pioche shale [1]. The

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[1] Westgate, L. G. and Knopf, Adolph, Geology and Ore Deposits of the Pioche District, Nevada: U.S.G.S. PP 171, pp 5-6, 1932.

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applicant has also included reports by Earl Young and Paul Gemmill [1], geologists

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[1] Young, Earl and Gemmill, Paul, preliminary report of St. Lawrence Mine: BMA 89.

Young, Earl B., The Pioche District: Int. Geol. Cong., Rpt of the 18th Session, Great Britain, 1948, Part VII.

---

of the Combined Metals Corporation, who have carefully analyzed the geologic factors at Mt. Wheeler. They conclude that there is a real chance for the discovery of ore deposits at depth and the Mt. Lincoln Mines Inc. is prepared to participate in the necessary exploratory work to test this conclusion.

In order to appraise the project, it seems desirable to review the factors that might influence ore deposition at Mt. Wheeler.

Several stratigraphic and structural conditions must be met to form an environment favorable to ore deposition. The first requirement is a favorable bed that can be brecciated and replaced. The second is favorable fracture zones along which mineralizing solutions may rise, but in addition, the faults must be of sufficient magnitude to shatter the rock over a reasonably wide area so that minable ore bodies can be formed. Then thirdly, the physico-chemical factors must be such that ore deposition can take place, and lastly, the solutions bearing the metals must flow long enough to bring in the amount of ore minerals required.

The first condition concerns stratigraphic controls. Three limestone beds have been described in the area that may be considered likely host beds for ore deposits. These are the Wheeler bed and two limestone beds in the St. Lawrence limestone.

The Wheeler bed is the lowest limestone unit in the section at Mt. Wheeler. This bed is 45 feet above the contact of the Prospect Mountain quartzite and Pioche shale. It is 15 feet thick in this area and as it is the lowest limestone, it may well have been replaced in shattered areas by ore minerals. The Wheeler bed is below the level of the proposed drift, however, and could not easily be reached except from the north end of the proposed drift (fig. 3).

The basal St. Lawrence limestone is 30 feet thick. It rests on the Pioche shale and would be the second favorable limestone unit. The proposed 3,400 feet drift would intersect this unit near the north face. Two fracture zones that are projected from the surface should intersect the basal limestone

just above the level; a raise is planned to determine whether the bed is mineralized in that area.

The upper St. Lawrence limestone is the third unit in the section that may be favorable for lead-silver metallization. The limestone is 170 feet thick, and will come into the 3,400-foot drift at the end of the crosscut. Large ore bodies are inferred at the intersection of the bed and a dike, at the junction with the Canaan vein, and at the intersections of two fracture zones. Two raises are planned to test the extent of ore in the bed.

The second condition, that of favorable structures is met by the north-striking fractures and the east-striking shear zones. None of the fractures examined in the area appear to have large displacements. The shattering along them is, therefore, not intense, but openings were present that would permit movement of solutions. The area is not as intensely faulted as many western mining districts, but the faults and shears mapped in the area seem persistent and probably extend to depth. The St. Lawrence fracture zone is the most persistent of the north-striking fractures; it contains galena that came from below, and it seems it is possible that galena ore bodies exist below. The most likely places for large ore bodies would be at the intersections of the fractures and shears with the favorable beds that have been discussed.

The third and fourth conditions are harder to evaluate. It is impossible to guess the conditions that prevailed at depth when ore deposition took place. As galena is found at the present surface it seems reasonable to assume that galena and related minerals could have been deposited 2,000 feet down. Likewise, it is difficult to guess whether the solutions brought in enough material to make large ore bodies. The only way to answer the question is to carry on the exploratory work.

ORE RESERVES

As the ore bodies in the St. Lawrence Mine are small and difficult of access, the applicant does not plan to carry on further exploratory work there. The main targets of the exploratory work will be the intersections of the lower favorable limestone units with fracture zones.

The applicant has estimated that the inferred ore reserves to be expected in the block extending from the surface down to the proposed level 1,600 feet below the St. Lawrence mine workings total about 904,000 tons; of this about 304,000 tons was considered to be ore in fissures and to have an average assay of 19.2 percent lead, 1.2 percent zinc, and 8.5 oz. silver a ton, the remaining 600,000 tons was considered to be ore along bedding averaging 5.8 percent lead, 14.7 percent zinc, and 8.5 oz. silver per ton. These figures were based on the assumptions that the ore bodies of the Mt. Wheeler area are analagous to the ore bodies at Fiesche in size, grade, and ratio of fissure ore to bedding ore.

There is no method of accurately evaluating the assumptions, but, although the basis seems sound, the figures appear to be rather liberal. The applicant considers that the ore bodies will be continuous and uniformly large. It seems more prudent to expect that metallization might be discontinuous and the inferred reserves have accordingly been recalculated on this basis.

The examining geologists infer that ore may be present in the St. Lawrence fissure at favorable intersections between the St. Lawrence workings and the 3,400 foot drift over a strike length of 2800 feet, and average width of 4 feet. The longitudinal sections of the ore blocks are shown on figure 3. The inferred tonnage of fissure ore in these six blocks totals 75,000 tons.

It is also inferred that ore may be present along favorable beds adjacent to the St. Laurence fracture zone.

The traces of the longitudinal sections of the inferred replacement blocks are the same as the sections of fissure ore (fig. 3). Two beds considered to be favorable should be cut in the proposed drift. The first bed will be the upper St. Laurence limestone; four blocks of ore are inferred at the intersections of the porphyry dike, Cameron vein, and two shear zones. The second bed that will be cut is the lower St. Laurence limestone; two blocks of ore may be cut near the face where the shear zones cut the beds.

The grade of ore used by the applicant is based on recent shipments from the St. Laurence mine and is believed to be realistic.

At present prices the inferred ore tonnage would be valued as follows: /

	Net Smelter Value
Ore in fissures	
75,000 tons at $36.75 a ton	$2,756,250
Bedding ore	
150,000 tons at $32.08 a ton	4,812,000
Total	$7,568,250

/Lead $.17 per lb., zinc 17-1/2 per lb., silver $.90-1/2 per oz.

The inferred tonnage is therefore adequate to return the government's share of the cost.

PROPOSED EXPLORATION

The applicant proposed the following program to prove the inferred ore: (1) crosscut 2,100 feet to the St. Laurence fissure from the face of the existing Romanza tunnel; (2) drift 3,400 feet north along the St. Laurence

fissure; [1] (3) diamond drill 5,000 feet from underground stations into

---

[1] A diamond drilling program to test the favorable intersections from surface locations has been discussed with the applicant. He feels that diamond drilling is not practicable for this purpose. An adequate drilling program would require 5,000 feet or more of holes from almost inaccessible locations. The cost of such a program would approach that of the crosscut phase of the proposed project and would be less informative than the underground program. The precise location of the inferred ore blocks are not predictable. If a drilling program were to be set up under these conditions, the drilling might fail to locate the inferred ore bodies, whereas a drifting program can be directed to the target and more adequately prove or disprove the inferred ore.

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upper and lower favorable limestone beds including the Wheeler bed; (4) raise a total of 800 feet in three locations to cut favorable beds at the intersections with shear zones.

This program was outlined by the applicant and is based on careful study of the engineering problems by competent engineers and geologists. The exploration program seems well planned and adequate to do the proposed work. It would require about 18 months to complete.

Exploration costs

The original application requested a production loan totalling $400,910 of which $150,910 was for construction of a camp and for mine equipment, and $250,000 was for exploration. The exploration costs were based on a firm bid of $26.50 for cross-cutting but as this quotation has expired the figure is revised upward to $30.00 per foot. The estimated cost of the exploration program only, using revised costs is as follows:

Cross cutting	2100 ft. @ $30.00 per ft.	$ 63,000
Drifting	3400 ft. @ $30.00 per ft.	102,000
Raising	800 ft. @ $30.00 per ft.	24,000
Diamond Drilling	5000 ft. @ $ 4.00 per ft.	20,000
Road Construction		5,000
Contingency allowance		21,000
Supervision and overhead		15,000
Total		$250,000

CONCLUSIONS AND RECOMMENDATIONS

It is concluded that an ore deposit may well be present at depth and that the proposed exploration has a good chance of revealing significant quantities of lead-zinc-silver ore.

The inferred ore in the block below the St. Lawrence Mine totals 225,000 tons averaging 6 percent et 19 percent lead, 1 percent to 15 percent zinc and about 8.5 oz. of silver per ton.

The exploration program as outlined by the applicant seems logical and complete. It can be accomplished for a cost of about $250,000 in about 18 months time. It is recommended, therefore, that the Defense Minerals Administration enter into a contract with the applicant on a matching-funds basis to the extent of $125,000 and that the applicant's proposed exploration program be approved.

LARGE FORMAT DOCUMENTS AT END OF FILE

UNITED STATES DEPARTMENT THE INTERIOR DEFENS MINERALS ADMINISTRATION
GEOLOGICAL SURVE NO. 89

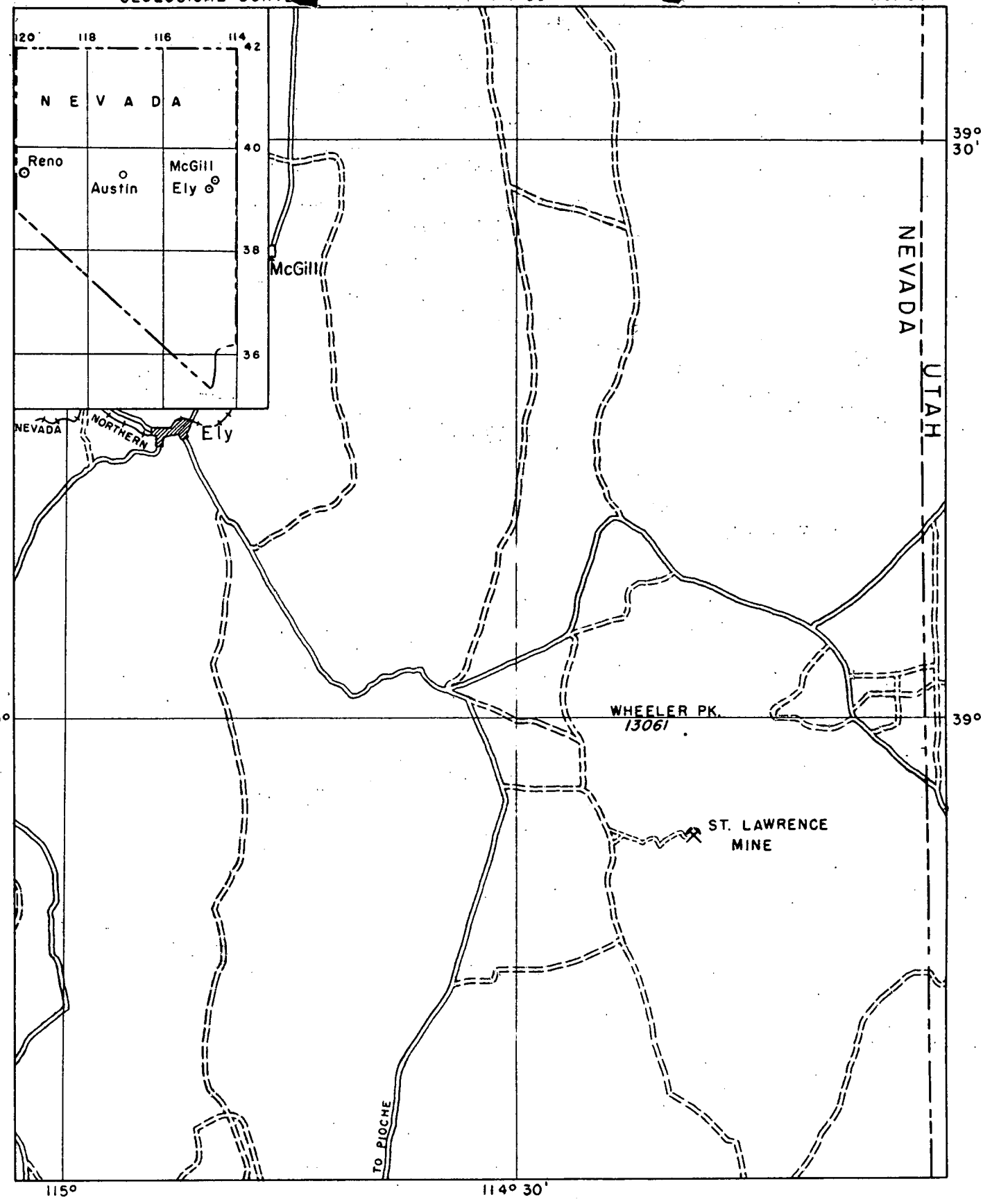
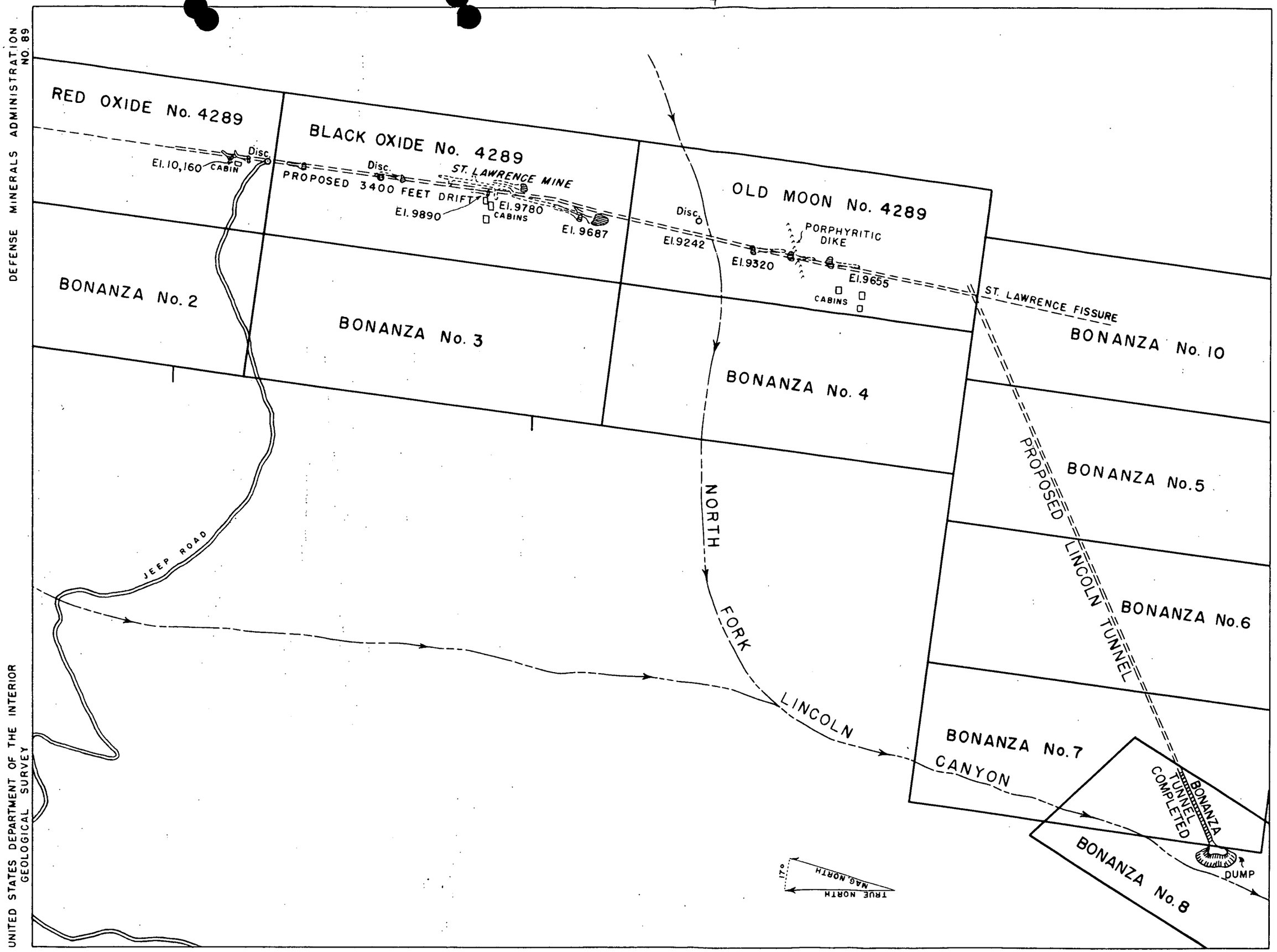


FIG. I INDEX MAP OF NEVADA

0 5 10 MILES
Scale



DEFENSE MINERALS ADMINISTRATION NO. 89

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ST. LAWRENCE MINE AND PROPOSED LINCOLN TUNNEL
WHITE PINE COUNTY, NEVADA

FIG. 2

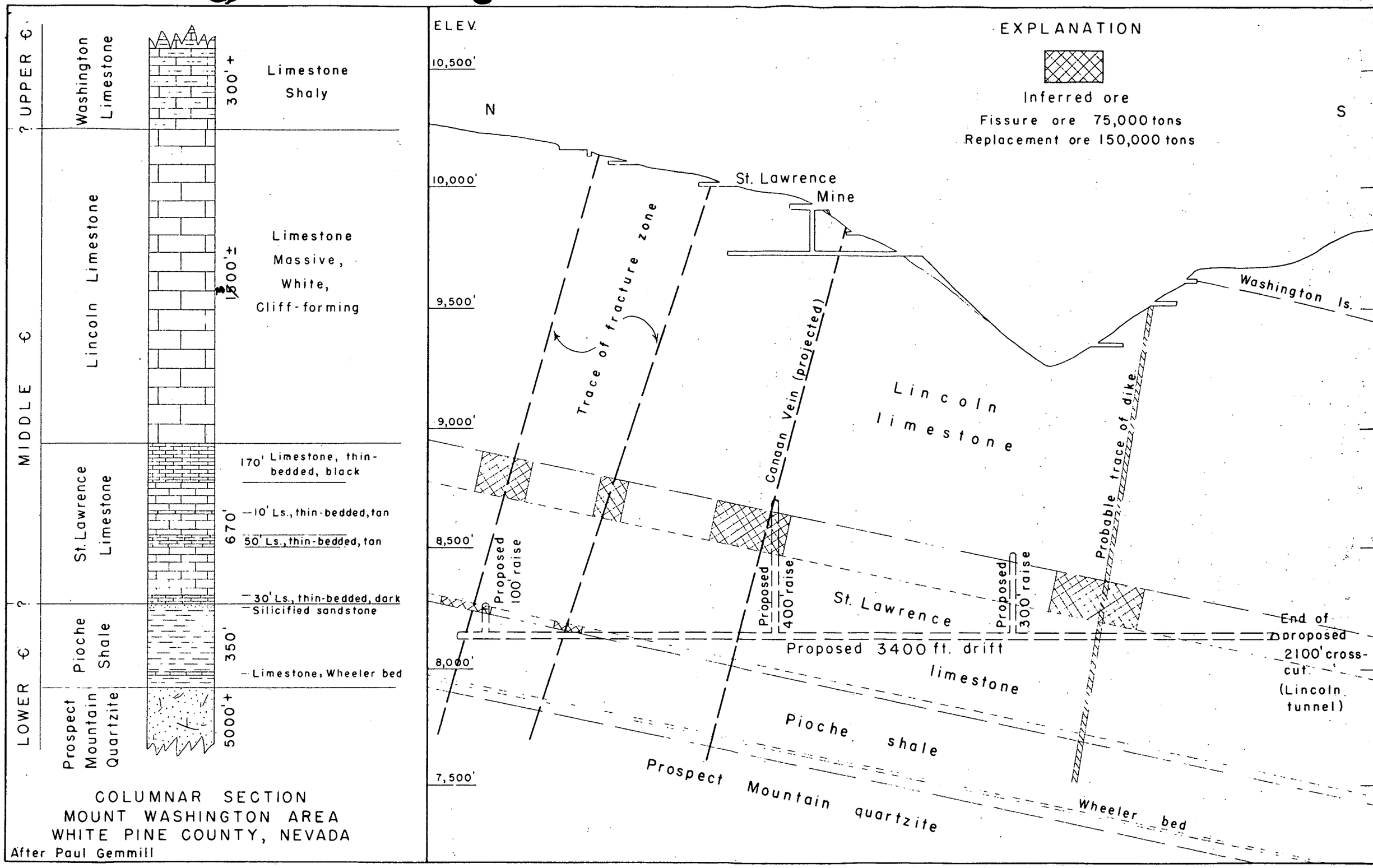


FIG. 3 LONGITUDINAL SECTION ALONG ST LAWRENCE FISSURE, WHITE PINE COUNTY, NEVADA

To: The Production Expansion Division
From: The Lead-Zinc Branch
Subject: Permit DMA-89, application submitted by the Mt. Wheeler Mines, Inc., 218 Felt Building, Salt Lake City, Utah

The original application was submitted by the Mt. Wheeler Mines, Inc. However, according to the field team report, the original applicant will assign its permit and application to Mt. Lincoln Mines, Inc., 218 Felt Building, Salt Lake City, Utah.

T. P. Billings

REGIONAL DIRECTOR

File

UNITED STATES
DEPARTMENT OF THE INTERIOR

BUREAU OF MINES
1415 U. S. APPRAISERS BLDG.,
630 SANSOME STREET,
SAN FRANCISCO 11, CALIF.

February 2, 1951

Memorandum

To: Otto Herres, Chief, Lead-Zinc Division,
Defense Minerals Administration, Washington, D. C.

From: H. C. Miller, Executive Officer, Region III Field Team

Subject: Docket DMA-89--Mt. Wheeler Mines, Inc.

Your subject memorandum, dated January 15, has been considered by the DMA Field Team, Region III, and a geological examination will be made by a geologist of the Geological Survey, as soon as it is possible to get to the mines, which are at elevations of 8000 to 11,000 ft. Ward Smith, of the Survey, informs me by copy of letter he sent to Mr. Olaf N. Rove, dated February 1, that the month of May is the earliest practical time for the work.

Consequently, as suggested by Mr. Smith in his letter to Mr. Rove, unless we are urged to attempt an immediate investigation under very adverse conditions, we will defer the examination until such time as weather conditions permit.

OK. ETH

H. C. Miller
Regional Director, Region III

Copy to: Ward Smith, Geological Survey

BUREAU OF MINES
WASHINGTON, D.C.

FEB 6 4 03 PM '54

FILE COPY
SURNAME:

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

ALBrokaw
McKnight
Mote
Herres

January 15, 1951

Mr. James D. Williams, President
Mt. Wheeler Mines, Inc.
218 Felt Building
Salt Lake City 1, Utah

In replying please refer
to DMA Docket 89

Dear Mr. Williams:

Your application for a Government loan under provisions of the Defense Production Act of 1950 has been reviewed by the Lead-Zinc Division of the Defense Minerals Administration. Before your application can be considered further, certain additional information is required.

Enclosed are five copies of N.S.R.B. form 146, Application for Government Loan. Please supply the data requested and return four of these schedules to Dr. James Boyd, Administrator, Defense Minerals Administration, Department of the Interior, Washington 25, D. C. The Geological Survey Regional Office in Salt Lake City, Utah, will be pleased to assist you in completing form 146 in case you have any questions regarding the information requested. A prompt return of this form will be appreciated.

Very truly yours,

OTTO HERRES, Chief
Lead-Zinc Division, DMA

Enclosures 5

ALBrokaw:jeh
G-1/15/51

copy to: Chief, Lead-Zinc Division
Geological Survey - McKnight
C. W. Merrill
S. H. Williston
J. H. Hedges
R. H. Mote
2 copies to Executive Officer,
Regional Field Team, Region ~~IV~~ III
Base Metals Files
Files

DMA-89

P

856

FILE COPY
SURNAME:

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

Alpstean
McLaughlin
Herzer
Fitzgerald
Fox
Rose

January 15, 1951

Memorandum L. H. East Denver

To: Executive Officer of Field Team, Region IV

From: Lead-Zinc Division, DMA

Subject: Docket LA 89
Mt. Wheeler Mines, Inc.
218 Felt Building, Room 332
Salt Lake City, Utah

The Mt. Wheeler Mines, Inc. Application as presented by James D. Williams, President, has been reviewed by the Lead-Zinc Division.

The Application does not indicate that the property proposed for development has measured ore reserves. However, it is estimated by the applicant that the property has inferred ore as follows: 304,000 tons lead-silver fissure ore, Ag 8.5 oz. Pb 19.2% Zn 1.2% and 600,000 ton lead-zinc replacement ore containing 8.5% Ag, 5.8% Pb, 14.6% Zn. In addition 110,000 tons of tungsten ore, averaging 1.73% WO_3 is present. These tonnages are based on analogy with districts having similar geological environments. Production from the property has been only a few hundred tons. The exhibits included with application are in good detail but more information is needed regarding the large inferred ore reserve.

The Lead-Zinc Division therefore recommends:

(1) That the information submitted by the applicant in requesting a loan be referred to the field for investigation.

(2) That upon receipt of the field information the application be considered for exploration grant and not a development loan. The proposal indicates that the project is exploration rather than development.

The committee's review of the papers indicates that the suitability of the project in the exploration program will depend first of all upon a geological examination to substantiate the reserve estimates made by the applicant.

DMA 89

852

The report by the Bureau of Mines (Region III) referred to by the applicant should be made available to the examining geologist.

OTTO HERRES

OTTO HERRES, Chief
Lead-Zinc Division, DMA

Approved:
DMA Operating Committee

S. H. Williston, Chairman

J. H. Hedges

Olaf N. Rove

ALBrokaw:jeh
G-1/15/51

copy to: Chief, Lead-Zinc Division
Geological Survey - McKnight
C. W. Merrill
S.H. Williston
J. H. Hedges
R.H.Mote
2 copies to Executive Officer,
Regional Field Team, Region IV
Base Metals Files
Files

Mr. Herres

DMA - 89

LEAD-ZINC.

Mt. Wheeler Mines, Inc.
(James D. Williams, president)

Mr. Herres: Attached in triplicate is a letter dated 12/12/50, from James D. Williams, president, Mt. Wheeler Mines, Inc. addressed to Dr. James A. Boyd. Also attached in triplicate is a phamplet on the Pioche District by E. B. Young.

Received: 11/24/50

11/27/50

Referred to MR. HERRES Date: 12/26/50

Mr. C. W. Merrill

DEFENSE MINERALS ADMINISTRATION

Referral of Applications for Government Aid

Docket No. DMA 89

Commodity: lead

Name of Applicant: Mt. Wheeler Mines, Inc.

Address of Applicant: 218 Felt Building
S. L. C., Utah

Name of Property: St. Lawrence Mine

Location of Property: White Pine County, Nevada
(5 miles south of Wheeler Peak)

Nature of Application: exploration and development loan

Action Dates

Application: 11-24-50

Received: 11-27-50

Referred to NONFERROUS METALS Committee 11-30-50

Kam

Dec. 11-'50

Mt. Wheeler Mines Inc. DMA-89
218 Felt Bldg. Room 332
Salt Lake City 1, Utah.

Criteria Determination: Under Title III Sec. 302 Def. Act '50.

1. c. Exploration O.K.
2. a. Time element - probably 1.5 to 2 years.
3. Other funds probably not otherwise available.
4. Believe lead can be obtained more readily elsewhere.
5. Believe equipment can be obtained.
6. Present facilities of project practically nil.
7. Management probably acceptable.
8. If production is obtained (lead) it will help.
9. Yes - private enterprise.

Findings: A-This property may be a good prospect for future investigation but hardly one for immediate help. (Note - letter by A.C. Johnson, Chief Mining Div. Region III, dated Sept. 29, 1950 says this project, the St. Lawrence mine, was examined by the Bureau of Mines. Such report should be examined in connection with this application) Property has "inferred" ore only.
B.- Application lacks credit information upon which RFC can come to a decision.

Ernest Wm. Ellis
Mining Eng.

December 4, 1950

Mt. Wheeler Mines, Inc.
210 Felt Building
Salt Lake City, Utah

Gentlemen:

Your request for assistance under the Defense Production Act of 1950 has been received and is being considered for eligibility under the Act.

All correspondence relating to your project should be identified with the Docket Number DPA-89.

Very truly yours,

CHARLES W. MERRILL, Chief
Base Metals Branch

CWMERRILL:mec

Copy to - Base Metals Branch
Lowell Moon
Files

DPA 89

556

MF-202

DEFENSE MINERALS ADMINISTRATION WASHINGTON, D. C.

DEC 7 1 00 AM '51

LANDLORD'S SUBORDINATION AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, the undersigned is the owner in fee simple of that certain parcel of ground in the county of White Pine, State of Nevada, described in a certain Exploration Project Contract dated _____, 195__, between Mt. Lincoln Mines, Inc., the Lessee of said property, and the United States of America;

NOW, THEREFORE, the undersigned, as Lessor of said property under lease dated July 9, 1950, does by these presents subordinate all of his right, title, and interest under the provisions of said lease to the right, title, and interest of the United States of America under the provisions of said Exploration Project Contract, and agrees that the lien and claim of the United States of America under the provisions of said contract shall be prior to the undersigned's rights to rentals or royalties under the terms of said lease; and

The undersigned further agrees that if said leasehold interest should be surrendered or if said lease should terminate at any time prior to the expiration of the rights of the United States of America under said Exploration Project Contract, the undersigned shall assume and does hereby assume all of the obligations of the Lessee under said Exploration Project Contract to make repayment to the United States of America according to the terms of said contract; and

The undersigned agrees to commit no act, nor assert any claim under judicial process or otherwise that may contravene or conflict with the prior lien and claim of the United States of America under the provisions of said Exploration Project Contract.

This undertaking and covenant shall be binding upon the heirs, successors, and assigns of the undersigned.

Dated this 15th day of November, 1951.

Victor Cottino

Agnes Cottino

U. S. GOVERNMENT PRINTING OFFICE 16—64582-1

James G. Hulse

Berene C. Hulse

Shirley Lee Robison

Marjorie M. Robison

MF-202

DEFENSE MINERALS
ADMINISTRATION
WASHINGTON, D. C.

DEC 7 1 00 AM '51

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Marjorie M. Robison

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MF-202

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Dated this 15th day of November, 1951.

Victor Cottino

Agnes Cottino

James G. Hulse

Berene C. Hulse

Shirley Geo. Robinson

Marjorie M. Robinson

U. S. GOVERNMENT PRINTING OFFICE 16—84592-1

MF-202

DEFENSE MINERALS ADMINISTRATION WASHINGTON, D. C.
DEC 7 1 00 AM '51

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Agnes Cottino
James L. Hulse
Irene C. Hulse
Shirley Lee Robison
Marjorie M. Robison

U. S. GOVERNMENT PRINTING OFFICE 16—64592-1

MF-202

DEFENSE MINERALS ADMINISTRATION WASHINGTON, D. C.
DEC 7 1 00 AM '51

LANDLORD'S SUBORDINATION AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, the undersigned is the owner in fee simple of that certain parcel of ground in the county of White Pine, State of Nevada, described in a certain Exploration Project Contract dated _____, 195__, between Mt. Lincoln Mines, Inc., the Lessee of said property, and the United States of America;

NOW, THEREFORE, the undersigned, as Lessor of said property under lease dated July 9, 1950, does by these presents subordinate all of his right, title, and interest under the provisions of said lease to the right, title, and interest of the United States of America under the provisions of said Exploration Project Contract, and agrees that the lien and claim of the United States of America under the provisions of said contract shall be prior to the undersigned's rights to rentals or royalties under the terms of said lease; and

The undersigned further agrees that if said leasehold interest should be surrendered or if said lease should terminate at any time prior to the expiration of the rights of the United States of America under said Exploration Project Contract, the undersigned shall assume and does hereby assume all of the obligations of the Lessee under said Exploration Project Contract to make repayment to the United States of America according to the terms of said contract; and

The undersigned agrees to commit no act, nor assert any claim under judicial process or otherwise that may contravene or conflict with the prior lien and claim of the United States of America under the provisions of said Exploration Project Contract.

This undertaking and covenant shall be binding upon the heirs, successors, and assigns of the undersigned.

Dated this 15th day of November, 1951.

Victor Cottino
Agnes Cottino
James G. Hulse
Verene C. Hulse
Shirley Ann Robison
Marjorie M. Robison

U. S. GOVERNMENT PRINTING OFFICE 16—84692-1

MF-202

DEFENSE MINERALS ADMINISTRATION
WASHINGTON, D. C.
DEC 7 1 00 AM '51

LANDLORD'S SUBORDINATION AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, the undersigned is the owner in fee simple of that certain parcel of ground in the county of White Pine, State of Nevada, described in a certain Exploration Project Contract dated _____, 195__, between Mt. Lincoln Mines, Inc.,

the Lessee of said property, and the United States of America;

NOW, THEREFORE, the undersigned, as Lessor of said property under lease dated _____ July 9, 1950, does by these presents subordinate all of his right, title, and interest under the provisions of said lease to the right, title, and interest of the United States of America under the provisions of said Exploration Project Contract, and agrees that the lien and claim of the United States of America under the provisions of said contract shall be prior to the undersigned's rights to rentals or royalties under the terms of said lease; and

The undersigned further agrees that if said leasehold interest should be surrendered or if said lease should terminate at any time prior to the expiration of the rights of the United States of America under said Exploration Project Contract, the undersigned shall assume and does hereby assume all of the obligations of the Lessee under said Exploration Project Contract to make repayment to the United States of America according to the terms of said contract; and

The undersigned agrees to commit no act, nor assert any claim under judicial process or otherwise that may contravene or conflict with the prior lien and claim of the United States of America under the provisions of said Exploration Project Contract.

This undertaking and covenant shall be binding upon the heirs, successors, and assigns of the undersigned.

Dated this 15th day of November, 1951.

Victor Cottiner
Agnes Cottiner
James G. Hulse
Berene C. Hulse
Ruby Geo. Robison
Marjorie M. Robison

U. S. GOVERNMENT PRINTING OFFICE 16—64582-1

MF-202

DEFENSE MINERALS ADMINISTRATION WASHINGTON, D. C.
DEC 7 1 00 AM '51

LANDLORD'S SUBORDINATION AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, the undersigned is the owner in fee simple of that certain parcel of ground in the county of White Pine, State of Nevada, described in a certain Exploration Project Contract dated _____, 195__, between Mt. Lincoln Mines, Inc., the Lessee of said property, and the United States of America;

NOW, THEREFORE, the undersigned, as Lessor of said property under lease dated November 25, 1950, does by these presents subordinate all of his right, title, and interest under the provisions of said lease to the right, title, and interest of the United States of America under the provisions of said Exploration Project Contract, and agrees that the lien and claim of the United States of America under the provisions of said contract shall be prior to the undersigned's rights to rentals or royalties under the terms of said lease; and

The undersigned further agrees that if said leasehold interest should be surrendered or if said lease should terminate at any time prior to the expiration of the rights of the United States of America under said Exploration Project Contract, the undersigned shall assume and does hereby assume all of the obligations of the Lessee under said Exploration Project Contract to make repayment to the United States of America according to the terms of said contract; and

The undersigned agrees to commit no act, nor assert any claim under judicial process or otherwise that may contravene or conflict with the prior lien and claim of the United States of America under the provisions of said Exploration Project Contract.

This undertaking and covenant shall be binding upon the heirs, successors, and assigns of the undersigned.

Dated this 31 day of October, 195.1

ST. LAWRENCE MINING COMPANY
By: Harry P. Durkee
President

ATTEST:
Edwarth O Nichols
Secretary

U. S. GOVERNMENT PRINTING OFFICE 16—64582-1

MF-202

DEFENSE MINERALS ADMINISTRATION WASHINGTON, D. C.
DEC 7 1 00 AM '51

LANDLORD'S SUBORDINATION AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, the undersigned is the owner in fee simple of that certain parcel of ground in the county of White Pine, State of Nevada, described in a certain Exploration Project Contract dated _____, 195__, between Mt. Lincoln Mines, Inc., the Lessee of said property, and the United States of America;

NOW, THEREFORE, the undersigned, as Lessor of said property under lease dated November 25, 1950, does by these presents subordinate all of his right, title, and interest under the provisions of said lease to the right, title, and interest of the United States of America under the provisions of said Exploration Project Contract, and agrees that the lien and claim of the United States of America under the provisions of said contract shall be prior to the undersigned's rights to rentals or royalties under the terms of said lease; and

The undersigned further agrees that if said leasehold interest should be surrendered or if said lease should terminate at any time prior to the expiration of the rights of the United States of America under said Exploration Project Contract, the undersigned shall assume and does hereby assume all of the obligations of the Lessee under said Exploration Project Contract to make repayment to the United States of America according to the terms of said contract; and

The undersigned agrees to commit no act, nor assert any claim under judicial process or otherwise that may contravene or conflict with the prior lien and claim of the United States of America under the provisions of said Exploration Project Contract.

This undertaking and covenant shall be binding upon the heirs, successors, and assigns of the undersigned.

Dated this 31 day of October, 1951

ST. LAWRENCE MINING COMPANY
By: Harry P. Dinkey
President

ATTEST:
Ellsworth Nichols
Secretary

U. S. GOVERNMENT PRINTING OFFICE 16—64582-1

MF-202

DEFENSE MINERALS ADMINISTRATION
WASHINGTON, D. C.
DEC 7 1 00 AM '51

LANDLORD'S SUBORDINATION AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, the undersigned is the owner in fee simple of that certain parcel of ground in the county of White Pine, State of Nevada, described in a certain Exploration Project Contract dated _____, 195__, between Mt. Lincoln Mines, Inc., the Lessee of said property, and the United States of America;

NOW, THEREFORE, the undersigned, as Lessor of said property under lease dated November 25, 1950, does by these presents subordinate all of his right, title, and interest under the provisions of said lease to the right, title, and interest of the United States of America under the provisions of said Exploration Project Contract, and agrees that the lien and claim of the United States of America under the provisions of said contract shall be prior to the undersigned's rights to rentals or royalties under the terms of said lease; and

The undersigned further agrees that if said leasehold interest should be surrendered or if said lease should terminate at any time prior to the expiration of the rights of the United States of America under said Exploration Project Contract, the undersigned shall assume and does hereby assume all of the obligations of the Lessee under said Exploration Project Contract to make repayment to the United States of America according to the terms of said contract; and

The undersigned agrees to commit no act, nor assert any claim under judicial process or otherwise that may contravene or conflict with the prior lien and claim of the United States of America under the provisions of said Exploration Project Contract.

This undertaking and covenant shall be binding upon the heirs, successors, and assigns of the undersigned.

Dated this 31 day of October, 1951

ST. LAWRENCE MINING COMPANY
By: Amy P. Dunkey
President

ATTEST:
Elsworth O. Nichols
Secretary

U. S. GOVERNMENT PRINTING OFFICE 16—64582-1

MF-202

DEFENSE MINERALS ADMINISTRATION
WASHINGTON, D. C.
DEC 7 1 00 AM '51

LANDLORD'S SUBORDINATION AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, the undersigned is the owner in fee simple of that certain parcel of ground in the county of White Pine, State of Nevada, described in a certain Exploration Project Contract dated _____, 195__, between M. Lincoln Mines, Inc., the Lessee of said property, and the United States of America;

NOW, THEREFORE, the undersigned, as Lessor of said property under lease dated November 25, 1950, does by these presents subordinate all of his right, title, and interest under the provisions of said lease to the right, title, and interest of the United States of America under the provisions of said Exploration Project Contract, and agrees that the lien and claim of the United States of America under the provisions of said contract shall be prior to the undersigned's rights to rentals or royalties under the terms of said lease; and

The undersigned further agrees that if said leasehold interest should be surrendered or if said lease should terminate at any time prior to the expiration of the rights of the United States of America under said Exploration Project Contract, the undersigned shall assume and does hereby assume all of the obligations of the Lessee under said Exploration Project Contract to make repayment to the United States of America according to the terms of said contract; and

The undersigned agrees to commit no act, nor assert any claim under judicial process or otherwise that may contravene or conflict with the prior lien and claim of the United States of America under the provisions of said Exploration Project Contract.

This undertaking and covenant shall be binding upon the heirs, successors, and assigns of the undersigned.

Dated this 31 day of October, 195[illegible]

[illegible] MINING COMPANY
By Harry P. Dinkey
President

ATTEST:
Ellsworth E. Nichols
Secretary

U. S. GOVERNMENT PRINTING OFFICE 16—64532-1

MF-202

DEFENSE MINERALS ADMINISTRATION WASHINGTON, D. C.
DEC 7 1 00 AM '51

LANDLORD'S SUBORDINATION AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, the undersigned is the owner in fee simple of that certain parcel of ground in the county of White Pine, State of Nevada, described in a certain Exploration Project Contract dated _____, 195__, between Mt. Lincoln Mines, Inc., the Lessee of said property, and the United States of America;

NOW, THEREFORE, the undersigned, as Lessor of said property under lease dated November 25, 1950, does by these presents subordinate all of his right, title, and interest under the provisions of said lease to the right, title, and interest of the United States of America under the provisions of said Exploration Project Contract, and agrees that the lien and claim of the United States of America under the provisions of said contract shall be prior to the undersigned's rights to rentals or royalties under the terms of said lease; and

The undersigned further agrees that if said leasehold interest should be surrendered or if said lease should terminate at any time prior to the expiration of the rights of the United States of America under said Exploration Project Contract, the undersigned shall assume and does hereby assume all of the obligations of the Lessee under said Exploration Project Contract to make repayment to the United States of America according to the terms of said contract; and

The undersigned agrees to commit no act, nor assert any claim under judicial process or otherwise that may contravene or conflict with the prior lien and claim of the United States of America under the provisions of said Exploration Project Contract.

This undertaking and covenant shall be binding upon the heirs, successors, and assigns of the undersigned.

Dated this 31 day of October, 1951.

ST. LAWRENCE MINING COMPANY
By: Harry P. Dinkey
President

ATTEST:
Elsworth E. Nichols
Secretary

U.S. GOVERNMENT PRINTING OFFICE 16—64582-1

MF-202

DEFENSE MINERALS ADMINISTRATION WASHINGTON, D. C.
DEC 7 1 00 AM '51

LANDLORD'S SUBORDINATION AGREEMENT

KNOW ALL MEN BY THESE PRESENTS:

WHEREAS, the undersigned is the owner in fee simple of that certain parcel of ground in the county of White Pine, State of Nevada, described in a certain Exploration Project Contract dated _____, 195__, between Mt. Lincoln Mines, Inc., the Lessee of said property, and the United States of America;

NOW, THEREFORE, the undersigned, as Lessor of said property under lease dated November 25, 1950, does by these presents subordinate all of his right, title, and interest under the provisions of said lease to the right, title, and interest of the United States of America under the provisions of said Exploration Project Contract, and agrees that the lien and claim of the United States of America under the provisions of said contract shall be prior to the undersigned's rights to rentals or royalties under the terms of said lease; and

The undersigned further agrees that if said leasehold interest should be surrendered or if said lease should terminate at any time prior to the expiration of the rights of the United States of America under said Exploration Project Contract, the undersigned shall assume and does hereby assume all of the obligations of the Lessee under said Exploration Project Contract to make repayment to the United States of America according to the terms of said contract; and

The undersigned agrees to commit no act, nor assert any claim under judicial process or otherwise that may contravene or conflict with the prior lien and claim of the United States of America under the provisions of said Exploration Project Contract.

This undertaking and covenant shall be binding upon the heirs, successors, and assigns of the undersigned.

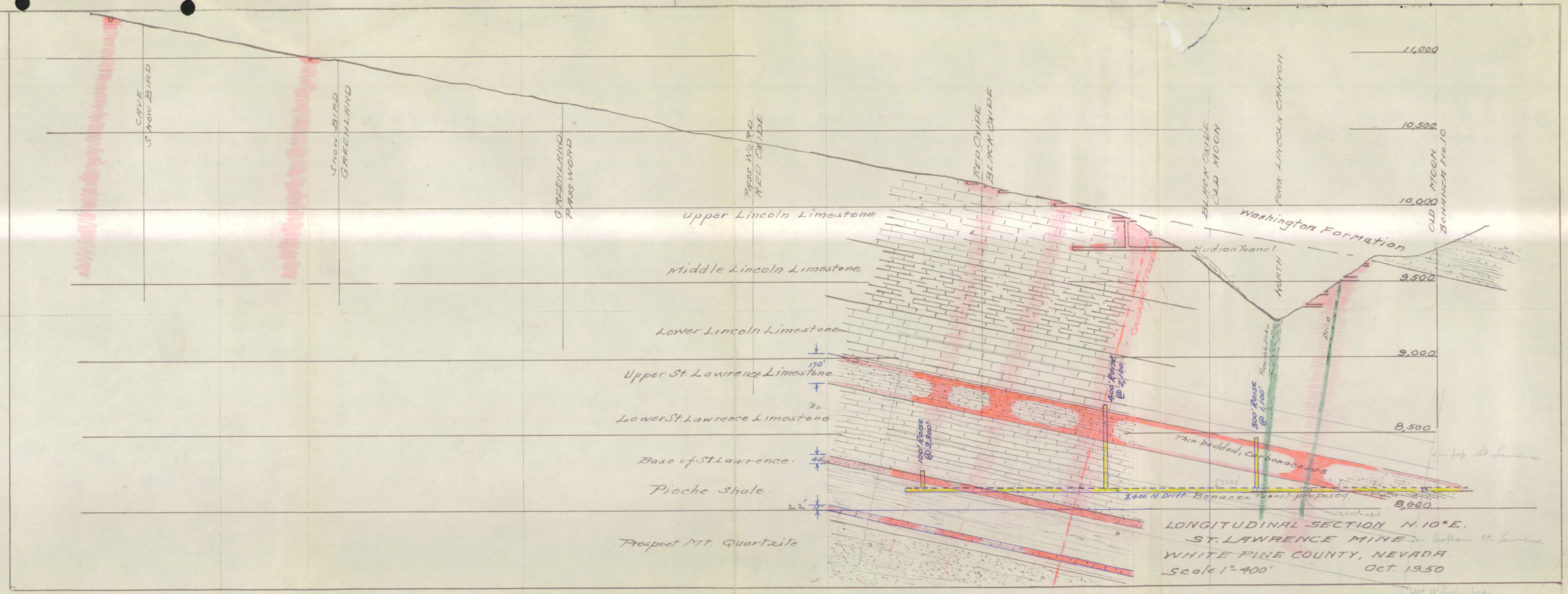
Dated this 31 day of October, 1951

GR. LAKE NO. MINING COMPANY
By: Harry P. Dinkey
President

ATTEST:
Kenneth Nichols
Secretary

U. S. GOVERNMENT PRINTING OFFICE 16—64582-1

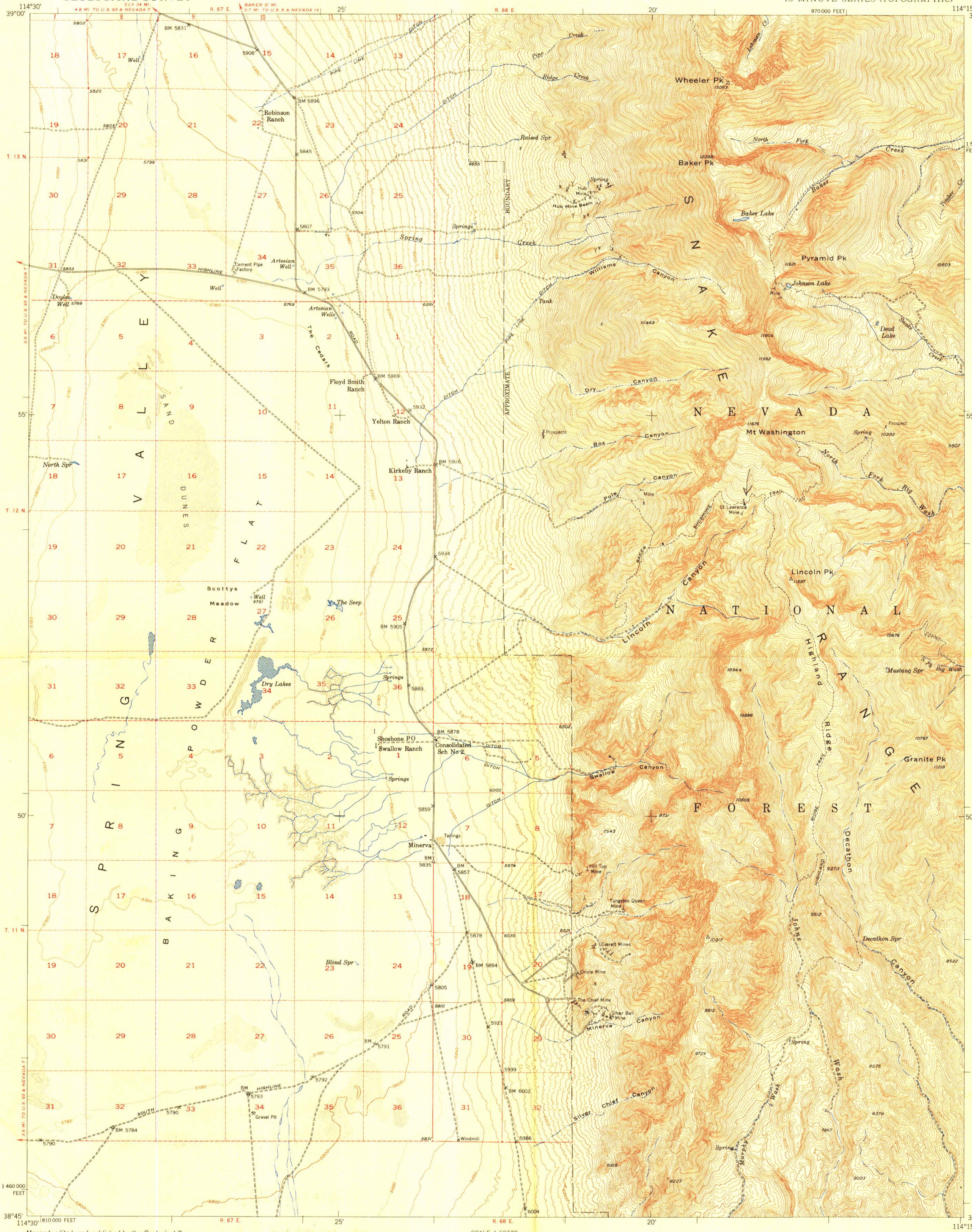
LARGE FORMAT DOCUMENTS AT END OF FILE


CAVE
SNOW BIRD
SNOW BIRD
GREENLAND
GREENLAND
PASS WORD
PASS WORD
RED OXIDE
RED OXIDE
BLACK OXIDE
BLACK OXIDE
OLD MOON
FORK LINCOLN CANYON
OLD MOON
BONANZA No. 10
11,000
10,500
10,000
9,500
9,000
8,500
8,000
Upper Lincoln Limestone
Middle Lincoln Limestone
Lower Lincoln Limestone
Upper St. Lawrence Limestone
170'
30
Lower St. Lawrence Limestone
Base of St. Lawrence.
40
Pioche Shale.
2.2'
Prospect Mt. Quartzite
Washington Formation
Hudson Tunnel
NORTH
CANYON FISSURE
Fault Dike
Dike
100' Raise @ 3,300'
400' Raise @ 2,100'
300' Raise @ 1,100'
Thin-bedded, Carbonaceous
3,400' N. Drift Bonanza Tunnel - proposed.
3000'
2400' adit
top St. Lawrence
bottom St. Lawrence
Mt. Wheeler beds
LONGITUDINAL SECTION N. 10° E.
ST. LAWRENCE MINE
WHITE PINE COUNTY, NEVADA
Scale 1" = 400'
Oct. 1950

LARGE FORMAT DOCUMENTS AT END OF FILE

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WHEELER PEAK QUADRANGLE
NEVADA-WHITE PINE CO.
15 MINUTE SERIES (TOPOGRAPHIC)



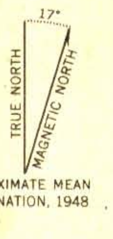
Mapped, edited, and published by the Geological Survey

Control by USGS, and USC&GS

Topography from aerial photographs by multiplex methods, and by plane-table surveys 1948
Aerial photographs taken 1945.

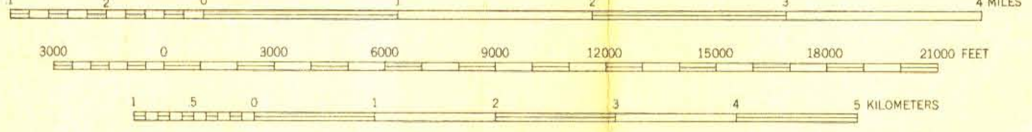
Polyconic projection. 1927 North American datum
10,000-foot grid based on Nevada coordinate system, east zone

Dashed land lines indicate approximate location



APPROXIMATE MEAN DECLINATION, 1948

SCALE 1:62500



CONTOUR INTERVAL 40 FEET
DOTTED LINES REPRESENT HALF-INTERVAL CONTOURS
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, FEDERAL CENTER, DENVER, COLORADO OR WASHINGTON 25, D. C.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

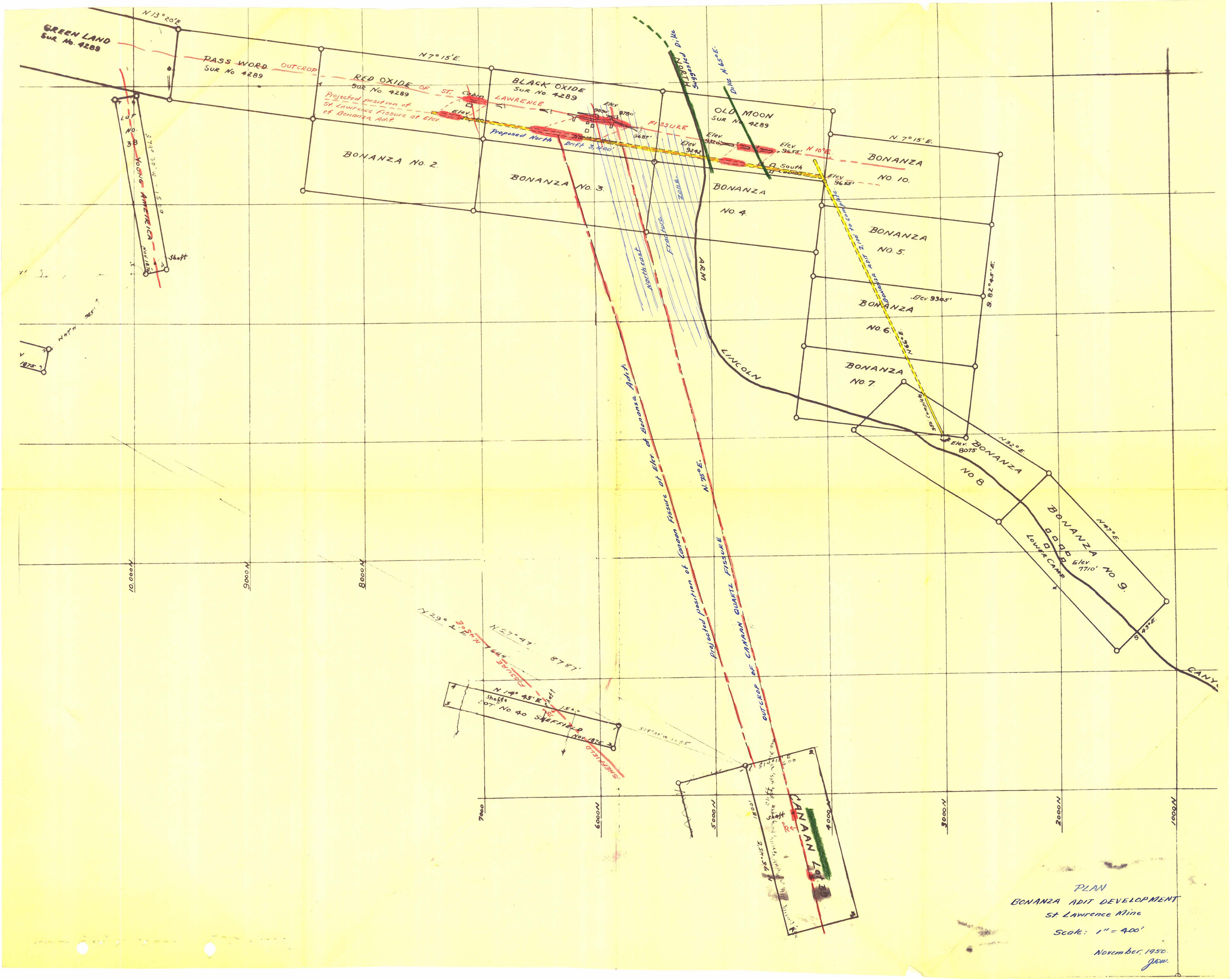
ROAD CLASSIFICATION

HARD-SURFACE ALL WEATHER ROADS		DRY WEATHER ROADS
Heavy-duty	4 LANE 6 LANE	Improved dirt
Medium-duty	4 LANE 6 LANE	Unimproved dirt

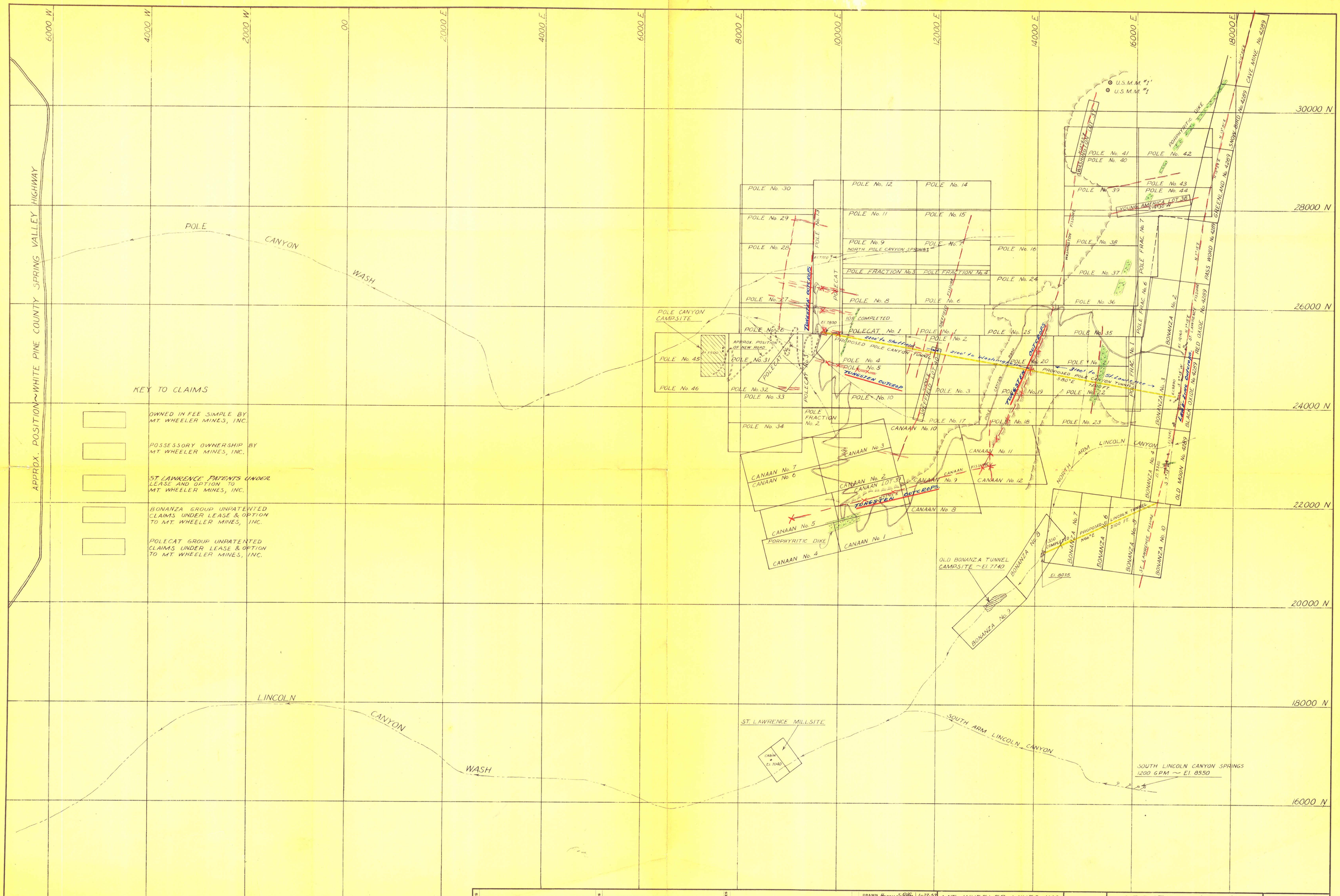
Loose-surface, graded, or narrow hard-surface
U. S. Route   State Route

WHEELER PEAK, NEV.
N3845—W11415/15

EDITION OF 1950



PLAN
BONANZA ADIT DEVELOPMENT
St. Lawrence Mine
Scale: 1" = 400'
November, 1950.
JRW.

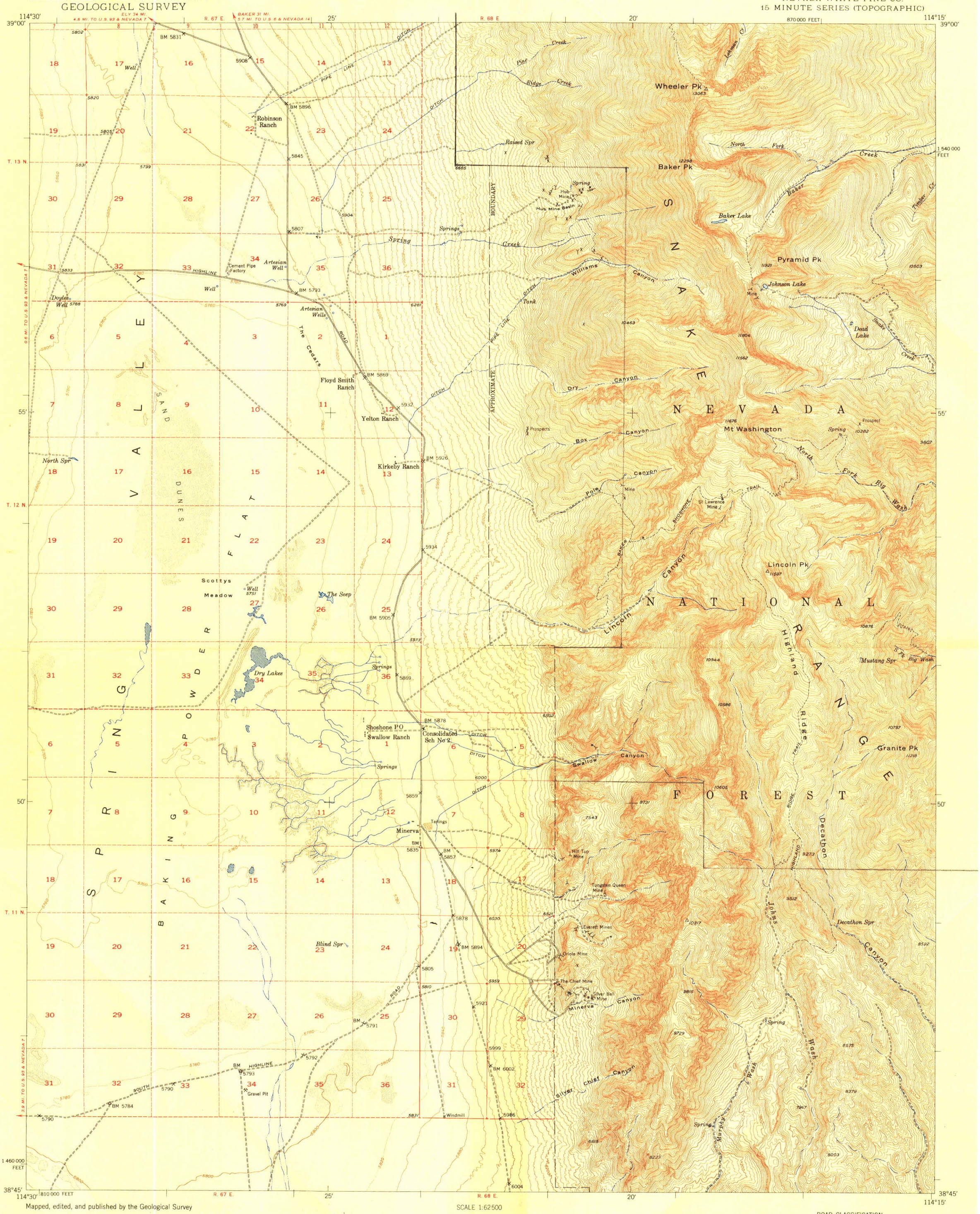


REVISIONS	DRAWN Harry S. Allen 1-27-52	MT. WHEELER MINES INC. 218 FELT BUILDING SALT LAKE, UTAH	PROJECT MAP OF POLE & LINCOLN CANYONS
REVISIONS	TRACED		SCALE 1" = 800'
REFERENCES	CHECKED		D-102-0
	F.D.W. 1/31/52		

PEMBROKE CO. - #166 Photo

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

WHEELER PEAK QUADRANGLE
NEVADA-WHITE PINE CO.
15 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey

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Topography from aerial photographs by multiplex methods, and by plane-table surveys 1948
Aerial photographs taken 1945.

Polyconic projection. 1927 North American datum
10,000-foot grid based on Nevada coordinate system, east zone

Dashed land lines indicate approximate location

17°
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION, 1948

SCALE 1:62500

1 ½ 0 1 2 3 4 MILES

3000 0 3000 6000 9000 12000 15000 18000 21000 FEET

1 .5 0 1 2 3 4 5 KILOMETERS

CONTOUR INTERVAL 40 FEET
DOTTED LINES REPRESENT HALF-INTERVAL CONTOURS
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS

FOR SALE BY U. S. GEOLOGICAL SURVEY, FEDERAL CENTER, DENVER, COLORADO OR WASHINGTON 25, D. C.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

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Loose-surface, graded, or narrow hard-surface

U. S. Route State Route

WHEELER PEAK, NEV.
N3845—W11415/15

EDITION OF 1950