400

FILE COPY
SURNAME:

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

Brewer
Selfridge

JAN 3 1952

S. A.

J. R. Simplot Company
P.O. Box 912
Pocatello, Idaho

Re: Docket No. DMA 1716X - Manganese
Bannock County, Idaho

Gentlemen:

In accordance with the advice contained in your letter of November 1, 1951, we herewith withdraw your application (DMA 1716X - Manganese), without prejudice.

Sincerely yours,

C. O. Mittendorf (for) S.N. 1-3-52

Acting Administrator
Defense Minerals Exploration
Administration

QLBrewer:lm
1/3/52

cc: Admn. Reading File
Mails and Files Br.
C. O. Mittendorf
N. B. Melcher, USBM
M. D. Crittenden, USGS
Field Team Reg. II
Docket
G. C. Selfridge
Q. L. Brewer

A.a.

IRON & FERRO-ALLOYS BR.

Simplot Fertilizer Company

BOX 912

POCATELLO, IDAHO

Nov. 1, 1951

Mr. George B. Holderer, Chief
Manganese Branch
United States Dept. of the Interior
Defense Minerals Administration
Washington 25, D. C.

DMA-1716X - Manganese

J. R. SIMPLOT Co.

Dear Mr. Holderer:

This is to advise that we do not contemplate an exploration program at this time with regards to the program we had outlined in our Application No. DMA-1716X.

Very truly yours,

SIMPLOT FERTILIZER CO.

Wm. Hahn

Wm. Hahn
Chief Accountant

DEFENSE MINERALS ADMINISTRATION WASHINGTON, D.C.
Nov 5 11 00 AM '51

340
FILE COPY
SURNAME:

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

Holderer
Ballard

OCT 12 1951

J. R. Simplot Company
Box 912
Pocatello, Idaho

In reply please refer
to DMA-1716X - Manganese

Gentlemen:

We have had no reply to our letter dated July 23, 1951. Please advise us if you are still interested in an exploration loan.

Very truly yours,

George D. Holderer

George D. Holderer
Chief, Manganese Branch

TJBallard:ec
10/10/51

CC: DMA Docket File
Adm. Reading File
Mr. Holderer

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : George B. Holderer DATE: October 8, 1951

FROM : T. P. Thayer Thayer

SUBJECT: DMA 1716-X J. R. Simplot Company

In absence of reply from the applicant, another inquiry seems to be in order, to find out whether the company is still interested. Until a reply is received, the docket should be held.

If and when the docket is referred to the field, the following points should be checked:

1. Possibility of open-pit mining; Hewett's report indicates that depth of overburden on the layer containing Mn in recoverable nodules is about 100 feet, probably far too much for open-pit mining.

2. Brief reconnaissance to indicate possible width of manganese zone, between edge of valley and overlap on bedrock.

3. Likelihood that faults described by Hewett will be serious problem in mining.

4. Evidence of persistence of beds along strike.

5. Probable success of prospecting by churn drilling; diamond drilling obviously is not applicable in soft silts.

FILE COPY
SURNAME:

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

Holderer
Jacoby

July 28, 1951

J. R. Simplot Company
c/o W. Grant Kilbourne
Box 912
Pocatello, Idaho

In reply please refer to:
DMA-1716-X- Manganese

Dear Mr. Kilbourne:

The Defense Minerals Administration has given careful consideration to your application for assistance in the development of your manganese property in Cleveland, Bannock County, Idaho. The geologic report which you include provides and excellent summary of the general conditions of the deposit, and indicates the nature of the ore that can be shipped from the deposit by careful sorting. However it is believed that you may have additional assays of the material as it occurs in the ground, and also that you may have specific plans for utilization of the ore. It will be helpful to determine whether or not your application can finally be approved if you will submit any additional information you may have, particularly any indications that the ore may be acceptable for the manufacture of dry batteries. Also as in the case of your Hot Springs property, it will ultimately be necessary to submit a plane-table map and cross sections of the outcropping of ore, location of existing workings, the location of proposed drill holes and possible future open cuts.

We would also like to advise you of the probability of poor and misleading results that may be obtained by diamond drilling.

Very truly yours,

George B. Holderer

pam

George B. Holderer
Chief, Manganese Branch

CHJacoby:awj

cc:File
Adm. Reading File
Reports & Records Unit
Mr. Holderer

Holden File

FILE COPY
SURNAME:

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

June 22, 1951

Mr. W. Grant Kilbourne
Vice President
J. R. Simplot Company
Box 912
Pocatello, Idaho

Subject: DMA-1716X
Re: Exploration Loan

My dear Mr. Kilbourne:

Receipt is acknowledged of your application and attachments of May 31, 1951 for an exploration loan under the Defense Production Act of 1950.

The application was assigned Docket Number DMA-1716X and was referred to Mr. George B. Holderer, Chief, Manganese Branch on June 19, 1951.

In any future correspondence relating to your application, kindly refer to DMA-1716X.

Sincerely yours,

LANDON F. STROBEL

Landon F. Strobel
Executive Secretary

LFSTROBEL:js
cc: Strobel-2
Files
Holderer
Lyon

FILE COPY
SURNAME:

Crittenden
Holderer

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

July 23, 1951

J. R. Simplot Company
P.O. 972
Pocatello, Idaho

In reply please refer to:
DMA-1716-X — Manganese

Gentlemen:

Your request for assistance in developing the manganese property in Cleveland, Bannock County, Idaho, has been reviewed. The geologic report you have included provides an excellent summary of the general conditions of the deposit, and indicates the nature of the ore that can be shipped from the deposit by careful sorting. However, it is believed that you may have additional assays of the material as it occurs in the ground, and also that you may have specific plans for utilization of the ore. It will be helpful in determining whether or not your application can finally be approved if you will submit any such additional information you may have, particularly any indications that the ore may be amenable for the manufacture of dry batteries. Also, as in the case of your Hot Springs property, it will be ultimately necessary to submit a map showing the outcrop of the ore horizon, the location of existing workings, the location of proposed drill holes, and possible future open-pits.

Very truly yours,

George B. Holderer

George B. Holderer
Chief, Manganese Branch

MDCrittenden:awj

cc:File
Adm. Reading File
Reports & Records Unit
Mr. Crittenden
Mr. Holderer

DMA-1716

852

STANDARD FORM NO. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : George B. Holderer DATE: July 17, 1951

FROM : M. D. Crittenden

SUBJECT: DMA-1716 X J. R. Simplot Company

The report by D. F. Hewett attached to the proposal is the only information available concerning these deposits, and the report does not indicate much about the possible magnitude of the reserves or of the grade of the ore in the ground. It may be necessary to refer this proposal to the Field for an additional check but before doing so I suggest that we ask the applicant for possible additional information. It seems likely that having gone so far as to prepare an application, and arrange for leases on this property, that the Simplot Co. may have taken additional samples, and may have determined what market they expect to find. A draft of a letter requesting this information follows:

"Your request for assistance in developing the manganese property in Cleveland, Bannock County, Idaho, has been reviewed. The geologic report you have included provides an excellent summary of the general conditions of the deposit, and indicates the nature of the ore that can be shipped from the deposit by careful sorting. However, it is believed that you may have additional assays of the material as it occurs in the ground, and also that you may have specific plans for utilization of the ore. It will be helpful in determining whether or not your application can finally be approved if you will submit any such additional information you may have, particularly any indications that the ore may be acceptable for the manufacture of dry batteries. Also, as in the case of your Hot Springs property, it will be ultimately necessary to submit a map showing the outcrop of the ore horizon, the location of existing workings, the location of proposed drill holes, and possible future open-pits."

June 22, 1951

Mr. W. Grant Kilbourne
Vice President
J. R. Simplot Company
Box 912
Pocatello, Idaho

Subject: DMA-1716X
Re: Exploration Loan

My dear Mr. Kilbourne:

Receipt is acknowledged of your application and attachments of May 31, 1951 for an exploration loan under the Defense Production Act of 1950.

The application was assigned Docket Number DMA-1716X and was referred to Mr. George B. Holderer, Chief, Manganese Branch on June 19, 1951.

In any future correspondence relating to your application, kindly refer to DMA-1716X.

Sincerely yours,

LANDON F. STROBEL

Landon F. Strobel
Executive Secretary

LFSTROBEL:js
cc: >Strobel-2
Files
Holderer
Lyon

Form MF-103
(April 1951)

U. DEPARTMENT OF THE INTERI

DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. Dma-1716X

Date received 6/18/51

Participation

J. R. SIMPLOT COMPANY
BOX 912
POCATELLO, IDAHO

Name and address of applicant

Date MAY 31, 1951

FILL IN THIS BLOCK

Date of application MAY 31, 1951

Estimated cost $ 42,000.00

Mineral or metal Manganese Oxides

Percentage of Government participation 75 %

Location of mine 1 Mile S.E. of CLEVLAND, IDAHO

Date of filing MF-100 No Previous or Present operation

DMA Docket Number, if available

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation?
*2. If a partnership, state names and addresses of partners.
*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.
*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project.
*5. Are you the owner or the lessee of the property?
6. If owner, state what claims, liens, or encumbrances, if any, are against the property.
7. If lessee, attach a copy of the lease and state if it is in good standing.

NOTE.—It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the Government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.
9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?

*If you have already answered these questions on MF-100, you are not required to answer the questions for this application.

16—64067-1

THE PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

    NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any.
*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.
*13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.
*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.
15. State in detail how the ore could be shipped and how and where milled.
*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.
*17. Production:
    (*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)
    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.
19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?
21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.

22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.
    (*i*) Cost of power, water, utilities, and any other items not provided for above.
24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this form and accompanying papers is correct and complete to the best of their knowledge and belief.

J. R. SIMPLOT COMPANY
(Name of company)

By W. Grant Kilbourne
(Signature of authorized official)

MAY 31, 1951
(Date)

Vice President
(Title)

Title 18, U. S. Code (Crimes), Section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

*Same as footnote on page 1.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

APPLICATION FOR AID FOR AN EXPLORATION PROJECT
PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE
PRODUCTION ACT OF 1950

---

1. Corporation

2. Not applicable

3. J. R. Simplot Company

J. R. Simplot, President, 1500 Harrison Blvd. Boise, Idaho
W. Grant Kilbourne, Vice President, 111 Crestline Drive, Boise, Idaho
Leon C. Jones, Vice President - 324 Everett St., Caldwell, Idaho
J. Dahl, Secretary-Treasurer - 3426 Meadow Drive, Boise, Idaho

Directors:
J. R. Simplot
Ruby A. Simplot
Leon C. Jones

Stockholders of J. R. Simplot Company: J. R. Simplot
Ruby A. Simplot
Scott Robert Simplot - Trust Fund
Gay Corine Simplot - " "
Don John Simplot - " "
Richard Simplot - " "

4. (a) Experience of Operators:

Operating Company is at present mining the following:

Phosphates	5,000	tons day basis
Fluorspar	100	" " "
Barite	10,000	" annual basis
Uranium (Carnotite)	300	" monthly basis

(b) Applicant is well known in the mining industry. Management is under the direction of Geo. A. McHugh, Manager of Mines, and Charles A. Lee, Geologist.

5. Lessee

6. Not applicable

7. Copy of Lease attached

8. Copy of financial statement attached

9. $10,500.00, yes.

10. Contained in attached report

11. Idaho Manganese Corporation

12. Contained in attached report

13. Adequate water available from Bear River. Adequate power available from Utah Power & Light Company lines, which are at a distance of approximately one mile.

14. None, except existing roads.

15. (a) Ore would be hauled by truck to Grace, Idaho, a distance of 14 miles over good roads, and thence by rail to destination. The quality (grade) of this ore is sufficiently high, that no milling process would be required.
    (b) Production on this property began in 1926, but was suspended in 1930 due to the small demand and correspondingly low price. See attached report for additional information.
    (c) Report attached, contained in U.S.G.S. Bulletin 795, pages 211 to 218 Incl.

17. Not in production at present time.

18. See attached report.

19. Possibility that this could be almost entirely an open pit mining operation.

20. Manganese Oxides.

21. We propose to do diamond drilling to the extent of approximately 5000 ft. Further development would depend on results obtained from the diamond drilling. This program could be accomplished in four months time.

22. Outcrops of exposed Manganese indicates that beds continue for extended distances and that bedded deposits of great magnitude prevail. Past production indicates continuous lenses of Manganese Oxides occuring in lake deposits or sediments. Plans are for an open pit operation and hence would require no mine openings. See attached report for assays on past shipments.

23. (a) None

(b) One Manager (part time)	$1,600.00
One Resident Engineer	1,800.00
One Junior Engineer	1,200.00
One Assayer (Part Time)	800.00
(c) None	
(d) None required	
(e) One pickup truck	1,800.00
(One Jeep	1,800.00
(f) Diamond Drilling to be contracted 5000 ft. at $~~6,000.00~~ 5,000 per ft.	25,000.00
(g) None	
(h) Approximately $2,000.00 per mo. would cover all necessary supplies and also expenses of personnel	8,000.00

(i) None. To be furnished by Contractor
Total estimated Cost $42,000.00

24. The total cost would be nearly equally distributed over the four month period.

EXCERPT FROM U. S. GEOLOGICAL

BULLETIN NO. 795

CONTRIBUTION TO ECONOMIC

GEOLOGY

BY

D. F. HEWETT

C
O
P
Y

A MANGANESE DEPOSIT OF PLEISTOCENE AGE IN BANNOCK COUNTY, IDAHO

Field Work

Reports of the discovery and exploration of manganese deposits in southeastern Idaho within recent years having come to the Geological Survey, the writer took advantage of an opportunity to spend a day at the deposits in October, 1926. The examination was made in company with V. C. Heikes, of the Bureau of mines. The local operators, especially Mr. George L. Smith, of the Idaho Manganese Co., courteously gave assistance during the visit.

Situation and Accessibility

The deposits thus far known in the region lie along the west slope of the ridge east of Bear River, about 1 mile southeast of Cleveland, Bannock County, Idaho. The principal deposit, operated by the Idaho Manganese Co., is in the E. ½ sec. 31, T. 11 S., R. 40 E., and others lie farther south in sec. 6, T. 12 S., R. 40 E. The ore that has been shipped thus far has been hauled in motor trucks either to Grace, 14 miles north, on a branch of the Oregon Short Line, or to Oxford, 20 miles west, on the main line of the Oregon Short Line running from Ogden to Pocatello. The cost of hauling to Grace is $3.00 a ton, and the freight rate from Grace to Ironton, Utah, where most of the ore has been sold, is $2 a ton. The area lies within the Preston quadrangle, which is covered by one of the topographic maps published by the United States Geological Survey.

History

According to the local operators, float manganese minerals were found in this region in April, 1922, by Sam Ames on the property of the Cleveland Mining Co., a part of the W. C. McGregor ranch. In April, 1924, explorations showed the presence to another deposit half a mile north, and this has since been explored almost continuously by the Idaho Manganese Co., of which Nathan Smith, of Cleveland, is president. Recent explorations south of the McGregor ranch have shown the presence of sporadic manganese minerals, but no ore has yet been shipped.

General Geology

Bear River rises east of the Wasatch Mountains in Northeastern Utah, flows north into southwestern Wyoming, then northwest into southeastern Idaho, and finally south into Salt Lake in Utah. Along its course are several broad valleys separated by constricted valleys or canyons. Gentile Valley, in southeastern Idaho, is one of these broad valleys. At its south end is the settlement of Cleveland, near the point where Bear River, flowing south, enters a narrow canyon. Twelve miles south of Cleveland the canyon ends and the river enters Cache Valley, one of the large open valleys of northern Utah. East of Gentile and Cache Valleys lie the Wasatch Range and its minor ridges and spurs.

The geology of the region was studied in a reconnaissance manner as early as 1872,[1] and it is within the area of the geologic map prepared by Peale in 1877.[2] Briefly stated, Peale recognized that the higher mountains, such as the Wasatch Range, were made up of a thick section of Palezoic and Mesozoic rocks that were greatly deformed and faulted in early Tertiary time, after which erosion and minor faulting produced ranges and ridges much as they appear today, except that the valleys were deeper and the mountains relatively higher. In late Tertiary time (Pliocene?) a few areas, several of which are exposed in upper Bear River Valley, received sand and gravel, in part of local origin and in part from remote sources. Similar beds, nearly horizontal, cover the divide between Gentile Valley and Cache Valley. During early Pleistocene time each valley contained a lake that received sediments from the bordering ridges to a maximum altitude of 5,800 feet. Terraces at lower levels were also noted--at 5,526 feet, 5,185 feet (Lake Bonneville state), and 4,825 feet (Provo stage).[3] The terrace at 5,526 feet is well shown on both sides of the southern part of Gentile Valley, and the manganese deposits that are described herein occur in the horizontally bedded fine sand, 100 to 150 feet below this terrace.

---

1. Bradley, F. H., Report on the geology of the Snake River Division: U. S. Geol. Survey Terr. Ann. Rept. for 1872, pt.1, pp. 189-271, 1873.

2. Peale, A. C., Report on the geology of the Green River district; U. S. Geol. Survey Terr. Ann. Rpt. for 1877, pp. 509-646, 1879

3. Idem, pp. 601-604, 641-643.

In 1883 Gilbert made rather exhaustive phsiographic studies of the Lakr Bonneville basin, on the basis of which he threw doubt on the existence of a shore terrace at 5,800 feet, reported by Peale, and concluded that although there are terraces existing in Gentile Valley above 5,200 feet they were formed by rivers instead of lakes.[4]

Although the writer's visit in this region was brief and necessarily devoted largely to an examination of the manganese deposits, it yielded observations which indicate that the ridges on both sides of Gentile Valley are covered with a veneer of horizontally bedded fine sediment up to a uniform altitude of about 5,500 feet and that this was deposited along the borders of a lake that was in existence in early pleistocene time, before Lake Bonneville, farther south, stood at an altitude of 5,200 feet.

The Manganese Deposits

Workings: The workings on the tract of the Idaho Manganese Co. include three tunnels - the highest, 75 feet long, at an altitude of about 5,440 feet; the intermediate, 75 feet long, at an altitude of about 5,432 feet; and the lowest, 225 feet long, at an altitude of 5,375 feet. (~~See fig. 12.~~) These tunnels

4. Bilgert, G. K., Lake Bonneville: U. S. Geol. Survey Mon. 1 pp. 94-96, 1890.

explore the beds that underlie the terrace, the top of which ranges locally from 5,475 to 5,500 feet. The floor of Bear River Valley near by lies at an altitude of about 4,900 feet. On the property of the Cleveland Manganese Co., half a mile to the south, there is a tunnel 90 ft. long at an altitude of 5,250 feet.

The highest tunnel of the Idaho Manganese Co. explores a poorly defined zone of impure, earthy brown wad, 2 to 3 feet thick, which overlies thinly laminated fine sands. Unlike the zone explored in the lowest tunnel, it contains no nodules of hard pure oxides of manganese. The zone is of doubtful value as a source of manganese and is interesting largely because it shows the presence of more than a single manganiferous zone.

The intermediate tunnel extends 20 ft. to the top of a shaft, and a drift 75 ft. long to the northwest explores an irregular zone of soft wad in which there are sporadic hard nodules of manganese oxides. With the upper part of the shaft, these workings have yielded about 85 tons of ore.

The lowest tunnel (~~fig. 12~~) follows a nearly horizontal zone of earthy wad and hard manganese oxides to the point, 140 ft. from the entrance, where it is cut off by a northwestward-trending fault. The tunnel continues 80 ft. farther to the bottom of the shaft, but an irregular drift 22 ft. above the tunnel explores what appears to be the same manganese zone beyond the fault. The indicated vertical displacement of the fault is therefore 22 ft. The workings ~~shown in Figure 12~~ have yielded by sorting 13 cars or about 500 tons of ore that ranged in manganese content from 37.7 to 47.3 per cent. West of the 22 ft. fault mentioned above are four minor faults, which trend northwest but dip steeply northeast and along each of which the manganese-bearing zone on the northeast side is dropped from 1 to 4 ft. The central block, bounded on the northeast by the 22 ft. fault, appears to be a wedge that has dropped with reference to the adjacent blocks. Water stands at the face of this tunnel and in several of the drifts south.

A letter from Geo. L. Smith, dated May 4, 1927, states that since October, 1926, the drift 22 ft. above the lowest tunnel has been driven 105 feet east and from it 150 feet of crosscuts have been run.

The sediments.-- The materials exposed in these workings include sand, sandy clay, sandy marl, and manganese oxides. In part they are thinly laminated, but generally the materials occur in layers 1 to 4 ft. thick, not sharply separable. The colors commonly range from pale gray to greenish gray, but some beds are buff, chocolate-brown, or black. The presence of volcanic ash was suspected, but samples proved to lack characteristic features of ash, and it is probably absent. The most abundant material is pale greenish-gray sandy clay, showing faint traces of lamination. A fragment was disintegrated in water and washed free from clay. The remainder, about half the original specimen, was examined under the microscope. The largest grains were well-rounded quartz 0.10 millimeter in diameter, but most of the grains range from 0.02 to 0.07 millimeter. Of these, about 80% were subangular quartz and the remainder were angular orthoclase and microcline. Glass and biotite were absent. A fragment of the coarsest material slightly stained by wad was similarly examined. The largest grains were well-rounded quartz 0.15 millimeter in diameter, but most of them ranged from 0.05 to 0.10 millimeter. Of these

about 90% were angular quartz and the rest were orthoclase and microcline. Sandy marl is present but not abundant.

Manganese Minerals.-- The manganese-bearing layers are brown wad with admixed brownish sand, in which are scattered hard, cavernous nodules of mixed psilomelane and pyrolusite, some as much as 2 ft. in diameter. Some zones contain brown wad only, but the zone explored in the lowest tunnel contains more nodules than wad. The nodules are not the simple smooth rounded forms that are characteristic of manganese deposits in the eastern United States but are irregular in outline and highly cavernous. There is no simple relation between the distribution of psilomelane and that of pyrolusite. Iron oxides are inconspicuous or absent (see analysis, p. 218), but a pit near the mouth of the lowest tunnel showed a local bed in which the lumps contained 10 to 20% of iron. Some of the rather pure black nodules show thin films of calcite along shrinkage cracks. In the light of what is known of manganese nodules elsewhere, it seems clear that the hard cavernous nodules have grown where they are now found in the layers of brown wad, which was doubtless deposited as a sediment. The hard nodules have grown only in the purest layers of wad, however, so that impure layers are now found just as they were laid down. The cause of their deposition is obscure; they may be chemical precipitates in shallow water or may have been deposited by microorganisms.

The principal ore zone ranges from 1 to 4 ft. in thickness in the existing workings. It trends northeast and dips southeast at a low angle, probably at no place more than 5°.

An examination of the surface of the ridge east of the mine shows that the loosely consolidated sand and clay are limited eastward by an irregular surface cut across beds of hard limestone and quartzite, which have a complicated structure. No fossils were found in these beds, but it seems clear from what is known of the geology of the region that the beds belong to Paloexoic formations.

Fossils in the sediments.--In the course of the exploration of the deposit the owners found three well-preserved teeth and some fragments at the point marked near the end of the lowest tunnel, 100 ft. below the surface. Through their courtesy the teeth were sent to the United States National Museum, where theywhere they have been examined by J. W. Gidley. His report follows:

> The three larger specimens are parts of molors or grinding teeth of an extinct species of mammoth, known as Elephas colombi. The two smaller pieces are parts of a mastodon tooth. Both of these mammals were very numerous in North America during parts of the Pleistocene.

The presence of these teeth shows that the beds in which the manganese oxides are found were deposited during the Pleistocene epoch.

The workings of the Cleveland Mining Co. appear not to have yet found a persistent zone of manganese minerals. One and one-half carloads of material of good grade have been shipped from workings largely within a few feet of the surface, at a horizon lower than that explored by the workings of the Idaho Manganese Co. The material contains more iron than that mined by the Idaho Company.

Genesis of the deposits.--The data gathered during this examination indicate that the deposits of brown wad were laid down in a body of water present in the region during the Pleistocene epoch and were immediately covered with sandy clay and fine sand. There can be no doubt that if explored inward from

the outcrop they will be found to terminate at or near the place where the recent sediments meet the surface of older hard rocks that form the near-by ridges. Here, as in many other localities, the hard nodules of pure manganese oxides appear to have grown by accretion from manganese in solution since the wad was laid down. It is interesting to speculate whether the manganese was disseminated or locally concentrated in the Paleozoic rocks, and whether the body of water in which the sediments were laid down was relatively permanent, such as a lake, or intermittent, such as a stream, as indicated by Gilbert.

The uniform fineness of the sediments that overlie and underlie the manganese beds, considered with their locally laminated character, indicates that the body of water was relatively permanent and quiet. Consistent with this interpretation is the even height of the terrace that marks the top of the loosely consolidated sediments. In the south end of Gentile Valley the top of the terrace stands uniformly about 5,500 feet above sea level, and the topographic map shows that it extends northward on both sides of the valley for 15 miles or more at this altitude. The conclusion seems justified that in early Pleistocene time Gentile Valley was occupied by a lake, the surface of which remained constant at about 5,500 feet long enough to allow considerable sediment to accumulate along the borders of the lake if not over its entire bed. Probably the hard-rock lip at the south end of the basin stood at 5,500 feet, and the Pleistocene beds have only been dissected to their present form with its erosion. It seems entirely possible that this lake in Gentile Valley was local, and that its equivalent at this altitude was not present in the Salt Lake basin.

As horizontal beds of unconsolidated material of probable Pliocene age attain an altitude of 6,200 ft. over thebroad, flat divide between Gentile Valley and Cache Valley, such beds may be present sporadically in Gentile Valley.

Accumulations of manganese minerals are not uncommon in geologically recent depressions, such as marshes and lakes, and are known though much less common in stream channels, recent or old. In very few places, however, has the source of the manganese been definitely established, and the mineral is generally assumed to have been disseminated as minute particles in the near-by rocks. In the United States geologically recent manganese bogs are known in Columbia County, N. Y.,[5] Jefferson County, Mont.,[6] and elsewhere. Such deposits appear to be more common in the Canadian provinces, as they have been reported from a number of localities in Albert County, N.B.,[7] in the Cypress Hills, Alberta, and near Kaslo, B. C.[8] Some of these deposits of bog manganese minerals have been explored, but none of record have produced more than several hundred tons of marketable ore, although some are reported to be larger.

Accumulations of manganese in river-channel deposits are recorded but are uncommon. Two deposits have been explored in Virginia[9] and another is known in California.[10]

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5. Dale, N.C., Postglacial manganese in Columbia County, N.Y.: New York State Mus. Bull. 207-208, pp.85, 100, 1918.
6. Harder, E.C., Manganese deposits of the United States: U. S. Geol. Survey Bull. 427, pp. 185-137, 1910.
7. New Brunswick Crown Land Dept., Fifty-eighth Ann. Rept. p. 16, 1918.
8. Bancroft, M. F., Investigations in the Slocan district, B. D.,: Canada Geol. Survey Summary Rept. for 1917, pt. B, pp. 28-33, 1918.
9. Hewett, D. F., Some manganese deposits in Virginia and Maryland: U.S. Geol. Survey Bull. 640, pp. 54-56 61, 1917.
10. Renrose, R.A.F., Manganese, its uses, ores, and deposits: Arkansas Geol. Survey Ann. Rept. for 1890, vol. 1, p. 494, 1891.

This investigation does not indicate the source from which the manganese concentrated in certain beds near Cleveland, Idaho, has been derived. A lead deposit has been explored in the Paleozoic rocks about 2 miles to the east, but although manganese minerals occur in some lead deposits none have been observed here. It seems that the source of the manganese must be the minute quantities known to occur in many rocks, sedimentary as well as igneous.

Mining.--Thus far neither the ore nor the inclosing sand has been sufficiently coherent to require the use of much explosive, and most of the drifts have been run and the ore mined by use of pick and shovel only. After being mined, the material is trammed by hand to an open bin on one side of the dump, where the hard nodules of manganese oxides are broken and sorted. When sufficient cleaned ore has accumulated in the bin to make a shipment, it is drawn into trucks and hauled to the railroad.

Production and reserves.-- The following table presents the weight and analyses of all except one of the cars of ore that had been shipped up to May 3, 1927, by the Idaho Manganese Company.

Summary of shipments by the Idaho Manganese Co.

Date	Tons, Dry Weight	Manganese (per cent day basis)	Insoluble (per cent)	Water Per-cent	Date	Tons, dry weight	Manganese (per cent, dry basis)	Insoluble (per cent)	Water Per Cent
1925	1 car	(?)	(?)	(?)	Nov. 13	33.50			
					Nov. 13	38.95	46.8	7.7	15.5
1926					Nov. 29	35.26	47.6	8.0	16.7
Jan. 23	25.78	44.46	10.3	15	Nov. 29	36.73	44.8	11.0	18.4
Apr. 29	34.57	36.50	15.2	20	Dec. 2	30.94	40.8	13.7	23.7
June 8	34.41	37.7	20.6	6.5	Dec. 17	25.09	42.2	13.7	30.9
June 23	41.38	41.4	10.3	8.4	Dec. 29	33.25	45.75	9.4	18.9
July 2	37.90	44.5	5.2	6.5					
July 12	44.65	46.5	6.8	7.4	1927				
July 16	36.73	43.6	12.3	10.6	Jan. 12	34.75	43.1	7.5	14.5
July 27	42.38	42.8	9.4	16.0	Jan. 25	30.40	41.0	10.6	23.1
July 29	46.61	45.4	5.8	8.2	Feb. 3	32.45	44.6	6.6	14.9
Aug. 3	33.92	45.0	7.7	12.2	Feb. 15	39.63	49.2	6.4	12.7
Aug. 7	43.63	43.0	9.4	10.6	Feb. 17	36.14	48.0	6.4	15.0
Aug. 12	32.89	43.8	10.8	16.3	Mar. 2	21.22	40.4	9.8	19.6
Aug. 24	38.44	38.0	11.7	14.8	Apr. 5	32.40	42.3	9.5	20.0
Sept. 11	36.29	47.3	6.95	5.6	April 20	25.55	47.4	7.4	22.2
Sept. 21	43.46	46.1	8.0	7.0	Apr. 27	35.12	40.2	11.2	18.6
Oct. 11	32.25	41.4	10.4	10.0	May 3	38.00	42.4	3.4	9.9
Nov. 1	35.77	41.5	10.4	14.2					
						1,200.45			

A 50-pound sample of ore sent to the Montana Laboratories Co., Butte, Montana, for analysis, showed manganese 57.12% and available oxygen 15.67% equivalent to 85.12% manganese dioxide; silica 3.04%; iron 0.14%; copper 0.026%; lead 0.05%; arsenic 0.04%; water 0.5%. Such material is well adapted for use in dry batteries, but in order to obtain large quantities it would have to be closely sorted free from the small quantities of calcite commonly present.

The yield of the part of the lowest zone that has been explored in the lowest tunnel indicates that it may be expected to yield about 3,000 tons of shipping ore to the acre. Although exploration has not yet determined the extent of the principal bed, it would be surprising if the bed were persistent over more than a few acres. If more than one bed is found, however, the reserve would be correspondingly increased.

STATEMENT OF FINANCIAL CONDITION

J. R. Simplot Company
December 31, 1950

ASSETS

Current Assets		
Cash		
Notes and accounts receivable	$ 717,291.99	
Less: Allowance for doubtful	15,384.76	701,907.23
Inventories:		
Finished goods	$ 852,253.91	
Raw materials	202,233.53	
Manufacturing supplies	194,408.60	1,248,896.04
Total Current Assets		$1,941,514.93
Due from Affiliates		248,438.88
Investments and Other Assets		124,819.60
Property, Plant & Equipment	$4,385,993.21	
Less: Allowance for depreciation	1,970,491.72	2,415,501.49
Deferred Charges		20,798.90
Total		$4,751,073.80

LIABILITIES

Current Liabilities		
Notes & contracts payable:		
To Banks	$ 659,599.53	
To Others	88,750.92	$ 748,350.45
Accounts payable		199,934.14
Accrued expenses		101,969.74
Reserve for taxes on income:		
Prior year	$ 2,258.96	
Current year - estimated	110,000.00	112,258.96
Total Current Liabilities		$1,162,513.29
Due to Affiliates		341,036.86
Other Liabilities		
Mortgages and contracts payable	$ 661,198.27	
Accounts payable	157,697.32	
Contingency reserve	26,000.00	844,895.59
Capital Stock and Surplus		
Capital Stock - authorized & issued	$ 50,000.00	
Surplus	2,449,387.81	
	$2,499,387.81	
Deduct: Cost of Treasury Stock	96,759.75	2,402,628.06
Total		$4,751,073.80

John M Dahl
Treasurer

ANALYSIS OF SURPLUS

J. R. Simplot Company
Period of ten months ended December 31, 1950

Paid-in Surplus			$ 288,736.21
Earned Surplus			
Balance at March 1, 1950		$1,963,131.26	
Add:			
Profit for ten months ended December 31, 1950	$307,520.34		
Provision for income taxes	110,000.00		
Net Profit		197,520.34	
Earned Surplus - Balance at December 31, 1950			$2,160,651.60
Total Surplus - Balance at December 31, 1950			$2,449,387.81

SUMMARY OF INCOME & EXPENSE

J. R. Simplot Company
Ten months ended December 31, 1950

Net Sales	$5,585,362.25
Cost of Sales	4,595,029.45
Gross profit	$ 990,332.80
General & Sales expense	202,171.42
Operating Profit	$ 788,161.38
Deduct:	
Depreciation	$ 307,319.63
Interest	53,349.84
	$ 360,669.47
	$ 427,491.91
Other expenses - net	
Profit before income taxes	$ 307,520.34
Provision for taxes on income	110,000.00
Net profit	$ 197,520.34

OPTION AND LEASE AGREEMENT

THIS AGREEMENT Made and entered into this 25th day of May, 1951, by and between IDAHO MANGANESE MINING COMPANY, a corporation, hereinafter known and designated as First Party, and J. R. SIMPLOT COMPANY, a corporation, hereinafter known and designated as Second Party,

WITNESSETH:

WHEREAS, First Party is the owner of the hereinafter described rights, namely, mineral rights on the hereinafter described lands; and

WHEREAS, It is the desire of said First Party that said Second Party shall be privileged to explore and perform certain development work thereon for the purpose of ascertaining the amount and quantity of ore thereon and therein; and

WHEREAS, Said Second Party desires to have a ninety day option for the performance of such exploration and development work, and in the event the results are satisfactory to have a lease on said premises, all as hereinafter stated,

NOW, THEREFORE, In consideration of the sum of Ten Dollars ($10.00), cash in hand paid, the receipt of which is hereby acknowledged, said First Party does hereby grant, option and lease to said Second Party, and said Second Party options of and leases of said First Party the hereinafter described land and the right to remove minerals therefrom, and to explore and to develop the same, all as hereinafter stated, under the following terms and conditions:

Said First Party covenants as follows:

1. To permit said Second Party to have the exclusive possession of said hereinafter described premises for a period of ninety days, except as hereinafter stated, with the right to explore, develop and to do such work as deemed necessary in the opinion of said Second Party for the purpose of ascertaining the quality and quantity of manganese ore thereon, and such other minerals as may be found, hereby granting to said

Second Party a lease on said premises at the termination of the said ninety day period, or an extension thereof, above mentioned for the purpose of operating said premises and paying a royalty thereon as hereinafter stated; and

Said Second Party covenants as follows:

1. To enter in and upon the said premises and to do such exploratory work, such as diamond drilling and the like, as it deems advisable, and in a mining like fashion, for the ascertainment of the qualitity and quantity of manganese ore within said premises. That the diamond drilling shall consist of at lease twelve hundred (1200) feet.

2. To report to said First Party its findings growing out of its said exploratory work.

3. In the event said Second Party, on account of something that cannot be foreseen at this time, is unable to obtain the appropriate and necessary equipment to perform such exploration work and is proceeding in good faith, said First Party will grant an additional ninety (90) days in which to perform such exploratory work.

IT IS FURTHER AGREED By and between the parties hereto that in the event said Second Party, after the performance of said exploratory work, desires to proceed further in said matter it shall so advise the said First Party in writing, and the terms under which it shall operate shall be as follows:

1. To go into and upon the said premises, within a reasonable time, said premises to be hereinafter described, and to develop and operate the same, and to remove therefrom manganese ore and such other ore or minerals as may be ascertained that are within said premises, on the following basis:

a. 12½% royalty upon the net returns, namely, after all transportation charges have been deducted.

b. To mine said premises in a good mining like fashion and to keep reports thereof and make such reports available to said First Party.

2. To operate said premises in a mining like fashion as long as manganese ore can be removed therefrom commercially and profitably.

3. Upon the determination by said Second Party that manganese ore cannot be mined therefrom profitably said Second Party agrees to return said premises to said First Party, PROVIDED, HOWEVER, that in lieu of returning said premises and in the event that the Second Party, following the completion of the preliminary exploration program, desires to go forward and states in writing that it is its intention to further develop and mine the property as herein stated, and in the event the said Second Party finds that it is not profitable at that time, or within nine months thereafter, to carry on such mining program, or for other reasons that make such a mining program inexpedient, then the said Second Party shall have the privilege, in lieu of mining said property, to pay to said First Party $1,000.00 a year for a period of three years, and $2,000.00 per year for the next succeeding three years. In the event the property is subsequently operated by said Second Party, then the royalty payments that are to be made from the ore removed shall be retained by the said Second Party until they have been reimbursed for the sums of money so paid for any of such years as rental in lieu of royalties by reason of mining ore commercially, PROVIDED, HOWEVER, that the said sums of money aforementioned are to be paid in cash at the beginning of each of the said years for which said money may become due.

IT IS FURTHER UNDERSTOOD AND AGREED by and between the parties hereto that said Second Party shall be privileged to place on

said premises such structure, or structures, as it deems advisable, and it shall always be privileged to remove the same upon the termination of this agreement and within thirty (30) days after said termination has been had.

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that in the event other ores or other minerals or minerals of any type are found within said premises, that said Second Party will pay as royalty thereon the established royalty for such ores or minerals as has been set within this area by the U.S.G.S.

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that said Second Party will fully account for and make reports to said First Party of all shipments of manganese ore or other minerals, and at all times perform its work in a mining like fashion.

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that said books of said Second Party shall at all times be open to inspection by said First Party or its said officers, and that said rents shall be paid monthly, and that payment of all royalties shall be made monthly within five days after the first of each and every month hereafter.

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that said First Party will use all such royalties, at the rate of 2½% of the 12½%, to liquidate the claim of O. R. Baum, Trustee for the former stockholders of the Western Manganese Company.

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that in the event said First Party desires to sell said premises said Second Party shall have the first right and privilege to purchase said property at the reasonable going marketable value thereof, and at such price as may be mutually agreed upon by and between said parties, and in the event an agreement cannot be had as to the value of said premises said Second Party shall be privileged, for a period of sixty (60) days after any offer has been made by any third party to

purchase said premises, to meet the price and conditions of said proposed purchase, and upon so meeting the same said First Party shall forthwith transfer by marketable title the said premises hereinafter described to said Second Party.

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that the premises referred to herein are as follows:

All the mineral found in the lands hereinafter described reserving to first party hereto only the surface thereof, granting to second party the right of ingress and egress and the earth beneath the surface and sufficient of the surface ground upon which to erect roads, buildings, machine shops, bunk houses, shacks and buildings necessary for the operation of the mines, ditches, sluices, hoists and shafts, in fine, all the surface that is necessary for the extraction of the ores and development of the mines in and upon the following described lands located in Bannock and Franklin Counties, Idaho, to-wit:

Beginning at a point 1320 feet ($\frac{1}{4}$ mile) East and 1347 feet North of Southeast corner (stone in place) of Section 31, Township 12 South, of Range 41 East of the Boise Meridian, running thence South 83°10' West 3990 feet more or less (said line being identical to and a projection of the North boundary line of the Blue Lizzard mine) to the $\frac{1}{4}$ section line; thence North 453 feet to Northwest corner of Southwest quarter, Southeast quarter of said Section 31, thence East one half mile to Northeast corner of Southeast quarter Southeast quarter of said Section 31, thence North one fourth mile to the $\frac{1}{4}$ corner common to Section 31, and 32, thence East one $\frac{1}{4}$ mile to Northeast corner of Northwest quarter Southwest quarter Section 32, thence South 1293 feet, more or less, to point of beginning, and containing approximately 60.4 acres.

Also, North half of the Southeast quarter Section 31, Township 12 South, Range 41 East of the Boise Meridian, in Idaho.

South half of Northeast quarter Section 31, Township 12 South, Range 41 East of Boise Meridian, and Southwest quarter of Northwest quarter of Section 32, Township 12 South, Range 41 East of Boise Meridian, all in Bannock County, Idaho.

Together with the right to use for mining and domestic purposes that certain spring of water known as Ed's Hollow decreed to J. D. McGregor Jr., in that certain water suit brought by Utah Power and Light Company against Last Chance Canal Company, et al, in United States District Court, and

decreed July 14, 1920 for amount of 2.6 feet
of date of June 21, 1924

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that as and when the shareholders of said First Party prove this Option and Lease Agreement, then the information referred to that is to be furnished by said Second Party as to its findings, shall be delivered over to said First Party.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands and seals this 25th day of May, 1951.

IDAHO MANGANESE MINING COMPANY, a corporation

By Howard R. Smith
President
Party of the First Part

ATTEST:

N. LeRoy Smith
Secretary

J. R. SIMPLOT COMPANY, A corporation

By E. W. Hansen
Manager

Party of the Second Part

STATE OF IDAHO)
) SS.
COUNTY OF BANNOCK)

On this 25th day of May, in the year 1951, before me, the undersigned, a Notary Public in and for said State, personally appeared HOWARD R. SMITH, known to me to be the President of the corporation that executed the foregoing instrument, and acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

Byron. J. Sherman
Notary Public for Idaho
Residing at Arco, Idaho

(SEAL)

STATE OF IDAHO)
) SS.
COUNTY OF BANNOCK)

On this 29th day of May, in the year 1951, before me, the undersigned, a Notary Public in and for said State, personally appeared N. LEROY SMITH, known to me to be the Secretary of the corporation that executed the foregoing instrument, and acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

O. R. Baum
Notary Public for Idaho,
Residing at Pocatello, Idaho

(SEAL)

STATE OF IDAHO)
) SS.
COUNTY OF BANNOCK)

On this 29th day of May, in the year 1951, before me, the undersigned, a Notary Public in and for said State, personally appeared E. W. Hansen, known to me to be the Manager of J. R. Simplot Company, a corporation, and acknowledged to me that he, on behalf of said corporation, executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

O. R. BAUM
Notary Public for Idaho
Residing at Pocatello, Idaho

(SEAL)

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. Dma-1716X

Date received 6/18/51

Participation

J. R. SIMPLOT COMPANY
BOX 912
POCATELLO, IDAHO

Name and address of applicant

Date MAY 31, 1951

FILL IN THIS BLOCK

Date of application MAY 31, 1951

Estimated cost $ 42,000.00

Mineral or metal Manganese Oxides

Percentage of Government participation 75 %

Location of mine 1 Mile S.E. of CLEVLAND, IDAHO

Date of filing MF-100 No Previous or Present Operation

DMA Docket Number, if available

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation?
*2. If a partnership, state names and addresses of partners.
*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.
*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project.
*5. Are you the owner or the lessee of the property?
6. If owner, state what claims, liens, or encumbrances, if any, are against the property.
7. If lessee, attach a copy of the lease and state if it is in good standing.

NOTE.—It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the Government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.
9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?

*If you have already answered these questions on MF-100, you are not required to answer the questions for this application.

THE PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

    NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any.
*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.
*13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.
*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.
15. State in detail how the ore could be shipped and how and where milled.
*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.
*17. Production:
    (*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)
    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.
19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?
21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.
22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.
    (*i*) Cost of power, water, utilities, and any other items not provided for above.
24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this form and accompanying papers is correct and complete to the best of their knowledge and belief.

J. R. SIMPLOT COMPANY (Name of company) By W. Grant Kilbourne (Signature of authorized official)

MAY 31, 1951 (Date) Vice President (Title)

Title 18, U. S. Code (Crimes), Section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

*Same as footnote on page 1.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

APPLICATION FOR AID FOR AN EXPLORATION PROJECT
PURSUANT TO MINERAL ORDER 6, UNDER DEFENSE
PRODUCTION ACT OF 1950

1. Corporation

2. Not applicable

3. J. R. Simplot Company

J. R. Simplot, President, 1500 Harrison Blvd. Boise, Idaho
W. Grant Kilbourne, Vice President, 111 Crestline Drive, Boise, Idaho
Leon G. Johns, Vice President - 424 Everett St., Caldwell, Idaho
J. Dahl, Secretary-Treasurer - 3626 Meadow Drive, Boise, Idaho

Directors:
J. R. Simplot
Ruby A. Simplot
Leon C. Jones

Stockholders of J. R. Simplot Company: J. R. Simplot
Ruby A. Simplot
Scott Robert Simplot - Trust Fund
Gay Corine Simplot - " "
Don John Simplot - " "
Richard Simplot - " "

4. (a) Experience of Operators:

Operating Company is at present mining the following:

Phosphates	5,000	tons day basis
Fluorspar	100	" " "
Barite	10,000	" annual basis
Uranium (Carnotite)	300	" monthly basis

(b) Applicant is well known in the mining industry. Management is under the direction of Geo. A. McHugh, Manager of Mines, and Charles A. Lee, Geologist.

5. Leases

6. Not applicable

7. Copy of lease attached

8. Copy of financial statement attached

9. $10,500.00, yes.

10. Contained in attached report

11. Idaho Manganese Corporation

12. Contained in attached report

13. Adequate water available from Bear River. Adequate power available from Utah Power & Light Company lines, which are at a distance of approximately one mile.

14. None, except existing roads.

16. (a) Ore would be hauled by truck to Grace, Idaho, a distance of 14 miles over good roads, and thence by rail to destination. The quality (grade) of this ore is sufficiently high, that no milling process would be required.
(b) Production on this property began in 1926, but was suspended in 1930 due to the small demand and correspondingly low price. See attached report for additional information.
(c) Report attached, contained in U.S.G.S. Bulletin 795, pages 211 to 218 Incl.

17. Not in production at present time.

18. See attached report.

19. Possibility that this could be almost entirely an open pit mining operation.

20. Manganese Oxides.

21. We propose to do diamond drilling to the extent of approximately 5000 ft. Further development would depend on results obtained from the diamond drilling. This program could be accomplished in four months time.

22. Outcrops of exposed Manganese indicates that beds continue for extended distances and that bedded deposits of great magnitude prevail. Past production indicates continuous lenses of Manganese Oxides occurring in lake deposits or sediments. Plans are for an open pit operation and hence would require no mine openings. See attached report for assays on past shipments.

23. (a) None

(b) One Manager (part time)	$1,800.00
One Resident Engineer	1,800.00
One Junior Engineer	1,200.00
One Assayer (Part Time)	800.00
(c) None	
(d) None required	
(e) One pickup truck	1,800.00
One Jeep	1,800.00
(f) Diamond Drilling to be contracted 5000 ft. at ~~$5,000.00~~ 5.00 per ft.	25,000.00
(g) None	
(h) Approximately $2,000.00 per mo. would cover all necessary supplies and also expenses of personnel	8,000.00

(i) None. To be furnished by Contractor
Total estimated Cost $42,000.00

24. The total cost would be nearly equally distributed over the four month period.

EXCERPT FROM U. S. GEOLOGICAL

BULLETIN NO. 795

CONTRIBUTION TO ECONOMIC

GEOLOGY

BY

D. F. HEWETT

C
O
P
Y

A MANGANESE DEPOSIT OF PLEISTOCENE AGE IN

BANNOCK COUNTY, IDAHO

Field Work

Reports of the discovery and exploration of manganese deposits in southeastern Idaho within recent years having come to the Geological Survey, the writer took advantage of an opportunity to spend a day at the deposits in October, 1926. The examination was made in company with V. C. Heikes, of the Bureau of mines. The local operators, especially Mr. George L. Smith, of the Idaho Manganese Co., courteously gave assistance during the visit.

Situation and Accessibility

The deposits thus far known in the region lie along the west slope of the ridge east of Bear River, about 1 mile southwest of Cleveland, Bannock County, Idaho. The principal deposit, operated by the Idaho Manganese Co., is in the E. ½ sec. 31, T. 11 S., R. 40 E., and others lie further south in sec. 6, T. 12 S., R. 40 E. The ore that has been shipped thus far has been hauled in motor trucks either to Grace, 14 miles north, on a branch of the Oregon Short Line, or to Oxford, 20 miles west, on the main line of the Oregon Short Line running from Ogden to Pocatello. The cost of hauling to Grace is $3.00 a ton, and the freight rate from Grace to Ironton, Utah, where most of the ore has been sold, is $2 a ton. The area lies within the Preston quadrangle, which is covered by one of the topographic maps published by the United States Geological Survey.

History

According to the local operators, float manganese minerals were found in this region in April, 1922, by Sam Ames on the property of the Cleveland Mining Co., a part of the W. G. McGregor ranch. In April, 1924, explorations showed the presence to another deposit half a mile north, and this has since been explored almost continuously by the Idaho Manganese Co., of which Nathan Smith, of Cleveland, is president. Recent explorations south of the McGregor ranch have shown the presence of sporadic manganese minerals, but no ore has yet been shipped.

General Geology

Bear River rises east of the Wasatch Mountains in Northeastern Utah, flows north into southwestern Wyoming, then northwest into southeastern Idaho, and finally south into Salt Lake in Utah. Along its course are several broad valleys separated by constricted valleys or canyons. Gentile Valley, in southeastern Idaho, is one of these broad valleys. At its south end is the settlement of Cleveland, near the point where Bear River, flowing south, enters a narrow canyon. Twelve miles south of Cleveland the canyon ends and the river enters Cache Valley, one of the large open valleys of northern Utah. East of Gentile and Cache Valleys lie the Wasatch Range and its minor ridges and spurs.

The geology of the region was studied in a reconnaissance manner as early as 1872,[1] and it is within the area of the geologic map prepared by Peale in 1877.[2] Briefly stated, Peale recognized that the higher mountains, such as the Wasatch Range, were made up of a thick section of Paleozoic and Mesozoic rocks that were greatly deformed and faulted in early Tertiary time, after which erosion and minor faulting produced ranges and ridges much as they appear today, except that the valleys were deeper and the mountains relatively higher. In late Tertiary time (Pliocene?) a few areas, several of which are exposed in upper Bear River Valley, received sand and gravel, in part of local origin and in part from remote sources. Similar beds, nearly horizontal, cover the divide between Gentile Valley and Cache Valley. During early Pleistocene time each valley contained a lake that received sediments from the bordering ridges to a maximum altitude of 5,800 feet. Terraces at lower levels were also noted—at 5,526 feet, 5,185 feet (Lake Bonneville state), and 4,825 feet (Provo stage).[3] The terrace at 5,526 feet is well shown on both sides of the southern part of Gentile Valley, and the manganese deposits that are described herein occur in the horizontally bedded fine sand, 100 to 150 feet below this terrace.

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1. Bradley, F. H., Report on the geology of the Snake River Division: U. S. Geol. Survey Terr. Ann. Rept. for 1872, pt.1, pp. 189-271, 1873.

2. Peale, A. C., Report on the geology of the Green River district; U. S. Geol. Survey Terr. Ann. Rpt. for 1877, pp. 509-646, 1879

3. Idem, pp. 601-604, 641-643.

In 1885 Gilbert made rather exhaustive phsiographic studies of the Lakr Bonneville basin, on the basis of which he threw doubt on the existence of a shore terrace at 5,800 feet, reported by Peale, and concluded that although there are terraces existing in Gentile Valley above 5,200 feet they were formed by rivers instead of lakes.[4]

Although the writer's visit in this region was brief and necessarily devoted largely to an examination of the manganese deposits, it yielded observations which indicate that the ridges on both sides of Gentile Valley are covered with a veneer of horizontally bedded fine sediment up to a uniform altitude of about 5,500 feet and that this was deposited along the borders of a lake that was in existence in early pleistocene time, before Lake Bonneville, farther south, stood at an altitude of 5,200 feet.

The Manganese Deposits

Workings: The workings on the tract of the Idaho Manganese Co. include three tunnels - the highest, 75 feet long, at an altitude of about 5,440 feet; the intermediate, 75 feet long, at an altitude of about 5,432 feet; and the lowest, 225 feet long, at an altitude of 5,375 feet. (~~See fig. 12.~~) These tunnels

4. Gilbert, G. K., Lake Bonneville: U. S. Geol. Survey Mon. 1 pp. 94-96, 1890.

explore the beds that underlie the terrace, the top of which ranges locally from 5,475 to 5,500 feet. The floor of Bear River Valley near by lies at an altitude of about 4,900 feet. On the property of the Cleveland Manganese Co., half a mile to the south, there is a tunnel 90 ft. long at an altitude of 5,250 feet.

The highest tunnel of the Idaho Manganese Co. explores a poorly defined zone of impure, earthy brown wad, 2 to 3 feet thick, which overlies thinly laminated fine sands. Unlike the zone explored in the lowest tunnel, it contains no nodules of hard pure oxides of manganese. The zone is of doubtful value as a source of manganese and is interesting largely because it shows the presence of more than a single manganiferous zone.

The intermediate tunnel extends 20 ft. to the top of a shaft, and a drift 75 ft. long to the northwest explores an irregular zone of soft wad in which there are sporadic hard nodules of manganese oxides. With the upper part of the shaft, these workings have yielded about 85 tons of ore.

The lowest tunnel (~~fig. 12~~) follows a nearly horizontal zone of earthy wad and hard manganese oxides to the point, 140 ft. from the entrance, where it is cut off by a northwestward-trending fault. The tunnel continues 80 ft. farther to the bottom of the shaft, but an irregular drift 22 ft. above the tunnel explores what appears to be the same manganese zone beyond the fault. The indicated vertical displacement of the fault is therefore 22 ft. The workings ~~shown in Figure 12~~ have yielded by sorting 13 cars or about 500 tons of ore that ranged in manganese content from 37.7 to 47.3 per cent. West of the 22 ft. fault mentioned above are four minor faults, which trend northwest but dip steeply northeast and along each of which the manganese-bearing zone on the northeast side is dropped from 1 to 4 ft. The central block, bounded on the northeast by the 22 ft. fault, appears to be a wedge that has dropped with reference to the adjacent blocks. Water stands at the face of this tunnel and in several of the drifts south.

A letter from Geo. L. Smith, dated May 4, 1927, states that since October, 1926, the drift 22 ft. above the lowest tunnel has been driven 105 feet east and from it 150 feet of crosscuts have been run.

The sediments.— The materials exposed in these workings include sand, sandy clay, sandy marl, and manganese oxides. In part they are thinly laminated, but generally the materials occur in layers 1 to 4 ft. thick, not sharply separable. The colors commonly range from pale gray to greenish gray, but some beds are buff, chocolate-brown, or black. The presence of volcanic ash was suspected, but samples proved to lack characteristic features of ash, and it is probably absent. The most abundant material is pale greenish-gray sandy clay, showing faint traces of lamination. A fragment was disintegrated in water and washed free from clay. The remainder, about half the original specimen, was examined under the microscope. The largest grains were well-rounded quartz 0.10 millimeter in diameter, but most of the grains range from 0.02 to 0.07 millimeter. Of these, about 80% were subangular quartz and the remainder were angular orthoclase and microcline. Glass and biotite were absent. A fragment of the coarsest material slightly stained by wad was similarly examined. The largest grains were well-rounded quartz 0.15 millimeter in diameter, but most of them ranged from 0.05 to 0.10 millimeter. Of these

about 90% were angular quartz and the rest were orthoclase and microcline. Sandy marl is present but not abundant.

Manganese Minerals.-- The manganese-bearing layers are brown wad with admixed brownish sand, in which are scattered hard, cavernous nodules of mixed psilomelane and pyrolusite, some as much as 2 ft. in diameter. Some zones contain brown wad only, but the zone explored in the lowest tunnel contains more nodules than wad. The nodules are not the simple smooth rounded forms that are characteristic of manganese deposits in the eastern United States but are irregular in outline and highly cavernous. There is no simple relation between the distribution of psilomelane and that of pyrolusite. Iron oxides are inconspicuous or absent (see analysis, p. 218), but a pit near the mouth of the lowest tunnel showed a local bed in which the lumps contained 10 to 20% of iron. Some of the rather pure black nodules show thin films of calcite along shrinkage cracks. In the light of what is known of manganese nodules elsewhere, it seems clear that the hard cavernous nodules have grown where they are now found in the layers of brown wad, which was doubtless deposited as a sediment. The hard nodules have grown only in the purest layers of wad, however, so that impure layers are now found just as they were laid down. The cause of their deposition is obscure; they may be chemical precipitates in shallow water or may have been deposited by microorganisms.

The principal ore zone ranges from 1 to 4 ft. in thickness in the existing workings. It trends northeast and dips southeast at a low angle, probably at no place more than 8°.

An examination of the surface of the ridge east of the mine shows that the loosely consolidated sand and clay are limited eastward by an irregular surface cut across beds of hard limestone and quartzite, which have a complicated structure. No fossils were found in these beds, but it seems clear from what is known of the geology of the region that the beds belong to Paleozoic formations.

Fossils in the sediments.--In the course of the exploration of the deposit the owners found three well-preserved teeth and some fragments at the point marked near the end of the lowest tunnel, 100 ft. below the surface. Through their courtesy the teeth were sent to the United States National Museum, where theywhere they have been examined by J. W. Gidley. His report follows:

> The three larger specimens are parts of molars or grinding teeth of an extinct species of mammoth, known as Elephas columbi. The two smaller pieces are parts of a mastodon tooth. Both of these mammals were very numerous in North America during parts of the Pleistocene.

The presence of these teeth shows that the beds in which the manganese oxides are found were deposited during the Pleistocene epoch.

The workings of the Cleveland Mining Co. appear not to have yet found a persistent zone of manganese minerals. One and one-half carloads of material of good grade have been shipped from workings largely within a few feet of the surface, at a horizon lower than that explored by the workings of the Idaho Manganese Co. The material contains more iron than that mined by the Idaho Company.

Genesis of the deposits.--The data gathered during this examination indicate that the deposits of brown wad were laid down in a body of water present in the region during the Pleistocene epoch and were immediately covered with sandy clay and fine sand. There can be no doubt that if explored inward from

the outcrop they will be found to terminate at or near the place where the recent sediments meet the surface of older hard rocks that form the near-by ridges. Here, as in many other localities, the hard nodules of pure manganese oxides appear to have grown by accretion from manganese in solution since the wad was laid down. It is interesting to speculate whether the manganese was disseminated or locally concentrated in the Paleozoic rocks, and whether the body of water in which the sediments were laid down was relatively permanent, such as a lake, or intermittent, such as a stream, as indicated by Gilbert.

The uniform fineness of the sediments that overlie and underlie the manganese beds, considered with their locally laminated character, indicates that the body of water was relatively permanent and quiet. Consistent with this interpretation is the even height of the terrace that marks the top of the loosely consolidated sediments. In the south end of Gentile Valley the top of the terrace stands uniformly about 5,500 feet above sea level, and the topographic map shows that it extends northward on both sides of the valley for 15 miles or more at this altitude. The conclusion seems justified that in early Pleistocene time Gentile Valley was occupied by a lake, the surface of which remained constant at about 5,500 feet long enough to allow considerable sediment to accumulate along the borders of the lake if not over its entire bed. Probably the hard-rock lip at the south end of the basin stood at 5,500 feet, and the Pleistocene beds have only been dissected to their present form with its erosion. It seems entirely possible that this lake in Gentile Valley was local, and that its equivalent at this altitude was not present in the Salt Lake basin.

As horizontal beds of unconsolidated material of probable Pliocene age attain an altitude of 6,200 ft. over the broad, flat divide between Gentile Valley and Cache Valley, such beds may be present sporadically in Gentile Valley.

Accumulations of manganese minerals are not uncommon in geologically recent depressions, such as marshes and lakes, and are known though much less common in stream channels, recent or old. In very few places, however, has the source of the manganese been definitely established, and the mineral is generally assumed to have been disseminated as minute particles in the near-by rocks. In the United States geologically recent manganese bogs are known in Columbia County, N. Y.,[5] Jefferson County, Mont.,[6] and elsewhere. Such deposits appear to be more common in the Canadian provinces, as they have been reported from a number of localities in Albert County, N.B.,[7] in the Cypress Hills, Alberta, and near Kaslo, B. C.[8] Some of these deposits of bog manganese minerals have been explored, but none of record have produced more than several hundred tons of marketable ore, although some are reported to be larger.

Accumulations of manganese in river-channel deposits are recorded but are uncommon. Two deposits have been explored in Virginia[9] and another is known in California.[10]

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5. Dale, N.C., Postglacial manganese in Columbia County, N.Y.: New York State Mus. Bull. 207-208, pp.85, 100, 1918.
6. Harder, E.C., Manganese deposits of the United States: U. S. Geol. Survey Bull. 427, pp. 185-187, 1910.
7. New Brunswick Crown Land Dept., Fifty-eighth Ann. Rept. p. 16, 1918.
8. Bancroft, M. F., Investigations in the Slocan district, B. C.,: Canada Geol. Survey Summary Rept. for 1917, pt. B, pp. 28-33, 1918.
9. Hewett, D. F., Some manganese deposits in Virginia and Maryland: U.S. Geol. Survey Bull. 640, pp. 54-56 61, 1917.
10. Renrose, R.A.F., Manganese, its uses, ores, and deposits: Arkansas Geol. Survey Ann. Rept. for 1890, vol. 1, p. 494, 1891.

This investigation does not indicate the source from which the manganese concentrated in certain beds near Cleveland, Idaho, has been derived. A lead deposit has been explored in the Paleozoic rocks about 2 miles to the east, but although manganese minerals occur in some lead deposits none have been observed here. It seems that the source of the manganese must be the minute quantities known to occur in many rocks, sedimentary as well as igneous.

Mining.--Thus far neither the ore nor the inclosing sand has been sufficiently coherent to require the use of much explosive, and most of the drifts have been run and the ore mined by use of pick and shovel only. After being mined, the material is trammed by hand to an open bin on one side of the dump, where the hard nodules of manganese oxides are broken and sorted. When sufficient cleaned ore has accumulated in the bin to make a shipment, it is drawn into trucks and hauled to the railroad.

Production and reserves.-- The following table presents the weight and analyses of all except one of the cars of ore that had been shipped up to May 3, 1927, by the Idaho Manganese Company.

Summary of shipments by the Idaho Manganese Co.

Date	Tons, Dry Weight	Manganese (per cent dry basis)	Insoluble (per cent)	Water Per-cent	Date	Tons, dry weight	Manganese (per Cent, dry basis)	Insoluble (per cent)	Water Per Cent
1925	1 car	(?)	(?)	(?)	Nov. 13	33.50			
					Nov. 15	38.95	46.8	7.7	15.5
1926					Nov. 29	35.26	47.6	8.0	16.7
Jan. 23	25.79	44.46	10.3	15	Nov. 28	35.75	44.8	11.0	18.4
Apr. 29	34.57	36.50	15.2	20	Dec. 2	30.94	40.8	13.7	23.7
June 8	34.41	37.7	20.6	6.5	Dec. 17	25.69	42.2	13.7	20.9
June 25	41.38	41.4	10.3	8.4	Dec. 29	33.35	45.75	9.4	12.9
July 2	37.90	44.5	5.2	6.5					
July 12	44.68	46.6	6.3	7.4	1927				
July 16	36.73	43.6	12.3	10.6	Jan. 12	34.75	43.1	7.5	14.5
July 27	42.58	42.8	9.4	16.0	Jan. 25	30.40	41.0	10.6	23.1
July 29	46.61	45.4	5.8	8.2	Feb. 3	32.45	44.6	6.6	14.9
Aug. 3	35.32	45.0	7.7	12.2	Feb. 15	39.65	49.2	6.4	12.7
Aug. 7	45.63	45.0	9.4	10.6	Feb. 17	36.14	48.0	6.4	15.0
Aug. 12	32.89	43.8	10.8	16.3	Mar. 2	21.22	40.4	9.8	19.6
Aug. 24	38.44	38.0	11.7	14.8	Apr. 5	32.40	42.3	9.5	20.0
Sept. 11	36.29	47.3	6.95	5.8	April 20	25.56	47.4	7.4	22.2
Sept. 21	43.46	46.1	8.0	7.9	Apr. 27	35.12	40.2	11.2	18.6
Oct. 11	32.35	41.4	10.4	10.0	May 3	38.00	42.4	3.4	9.9
Nov. 1	35.77	41.5	10.4	14.2					
						1,200.45			

A 50-pound sample of ore sent to the Montana Laboratories Co., Butte, Montana, for analysis, showed manganese 57.12% and available oxygen 15.67% equivalent to 85.12% manganese dioxide; silica 3.04%; iron 0.14%; copper 0.026%; lead 0.05%; arsenic 0.04%; water 0.5%. Such material is well adapted for u use in dry batteries, but in order to obtain large quantities it would have to be closely sorted free from the small quantities of calcite commonly present.

The yield of the part of the lowest zone that has been explored in the lowest tunnel indicates that it may be expected to yield about 5,000 tons of shipping ore to the acre. Although exploration has not yet determined the extent of the principal bed, it would be surprising if the bed were persistent over more than a few acres. If more than one bed is found, however, the reserve would be correspondingly increased.

STATEMENT OF FINANCIAL CONDITION

J. R. Simplot Company
December 31, 1950

ASSETS

Current Assets		
Cash		
Notes and accounts receivable	$ 717,291.99	
Less: Allowance for doubtful	15,384.76	701,907.23
Inventories:		
Finished goods	$ 852,253.91	
Raw materials	202,233.53	
Manufacturing supplies	194,408.60	1,248,896.04
Total Current Assets		$1,941,514.93
Due from Affiliates		248,438.88
Investments and Other Assets		124,819.60
Property, Plant & Equipment	$4,385,993.21	
Less: Allowance for depreciation	1,970,491.72	2,415,501.49
Deferred Charges		20,798.90
Total		$4,751,073.80

LIABILITIES

Current Liabilities		
Notes & contracts payable:		
To Banks	$ 659,599.53	
To Others	88,750.92	$ 748,350.45
Accounts payable		199,934.14
Accrued expenses		101,969.74
Reserve for taxes on income:		
Prior year	$ 2,258.96	
Current year - estimated	110,000.00	112,258.96
Total Current Liabilities		$1,162,513.29
Due to Affiliates		341,036.86
Other Liabilities		
Mortgages and contracts payable	$ 661,198.27	
Accounts payable	157,697.32	
Contingency reserve	26,000.00	844,895.59
Capital Stock and Surplus		
Capital Stock - authorized & issued	$ 50,000.00	
Surplus	2,449,387.81	
	$2,499,387.81	
Deduct: Cost of Treasury Stock	96,759.75	2,402,628.06
Total		$4,751,073.80

John M. Dalal
Treasurer

ANALYSIS OF SURPLUS

J. R. Simplot Company
Period of ten months ended December 31, 1950

Paid-in Surplus			$ 288,736.21
Earned Surplus			
Balance at March 1, 1950		$1,963,131.26	
Add:			
Profit for ten months ended December 31, 1950	$307,520.34		
Provision for income taxes	110,000.00		
Net Profit		197,520.34	
Earned Surplus - Balance at December 31, 1950			$2,160,651.60
Total Surplus - Balance at December 31, 1950			$2,449,387.81

SUMMARY OF INCOME & EXPENSE

J. R. Simplot Company
Ten months ended December 31, 1950

Net Sales	$5,585,362.25
Cost of Sales	4,595,029.45
Gross profit	$ 990,332.80
General & Sales expense	202,171.42
Operating Profit	$ 788,161.38
Deduct:	
Depreciation	$ 307,319.63
Interest	53,349.84
	$ 360,669.47
	$ 427,491.91
Other expenses - net	
Profit before income taxes	$ 307,520.34
Provision for taxes on income	110,000.00
Net profit	$ 197,520.34

OPTION AND LEASE AGREEMENT

THIS AGREEMENT Made and entered into this 25th day of May, 1951, by and between IDAHO MANGANESE MINING COMPANY, a corporation, hereinafter known and designated as First Party, and J. R. SIMPLOT COMPANY, a corporation, hereinafter known and designated as Second Party,

WITNESSETH:

WHEREAS, First Party is the owner of the hereinafter described rights, namely, mineral rights on the hereinafter described lands; and

WHEREAS, It is the desire of said First Party that said Second Party shall be privileged to explore and perform certain development work thereon for the purpose of ascertaining the amount and quantity of ore thereon and therein; and

WHEREAS, Said Second Party desires to have a ninety day option for the performance of such exploration and development work, and in the event the results are satisfactory to have a lease on said premises, all as hereinafter stated,

NOW, THEREFORE, In consideration of the sum of Ten Dollars ($10.00), cash in hand paid, the receipt of which is hereby acknowledged, said First Party does hereby grant, option and lease to said Second Party, and said Second Party options of and leases of said First Party the hereinafter described land and the right to remove minerals therefrom, and to explore and to develop the same, all as hereinafter stated, under the following terms and conditions:

Said First Party covenants as follows:

1. To permit said Second Party to have the exclusive possession of said hereinafter described premises for a period of ninety days, except as hereinafter stated, with the right to explore, develop and to do such work as deemed necessary in the opinion of said Second Party for the purpose of ascertaining the quality and quantity of manganese ore thereon, and such other minerals as may be found, hereby granting to said

Second Party a lease on said premises at the termination of the said ninety day period, or an extension thereof, above mentioned for the purpose of operating said premises and paying a royalty thereon as hereinafter stated; and

Said Second Party covenants as follows:

1. To enter in and upon the said premises and to do such exploratory work, such as diamond drilling and the like, as it deems advisable, and in a mining like fashion, for the ascertainment of the quality and quantity of manganese ore within said premises. That the diamond drilling shall consist of at lease twelve hundred (1200) feet.

2. To report to said First Party its findings growing out of its said exploratory work.

3. In the event said Second Party, on account of something that cannot be foreseen at this time, is unable to obtain the appropriate and necessary equipment to perform such exploration work and is proceeding in good faith, said First Party will grant an additional ninety (90) days in which to perform such exploratory work.

IT IS FURTHER AGREED By and between the parties hereto that in the event said Second Party, after the performance of said exploratory work, desires to proceed further in said matter it shall so advise the said First Party in writing, and the terms under which it shall operate shall be as follows:

1. To go into and upon the said premises, within a reasonable time, said premises to be hereinafter described, and to develop and operate the same, and to remove therefrom manganese ore and such other ore or minerals as may be ascertained that are within said premises, on the following basis:

a. 12½% royalty upon the net returns, namely, after all transportation charges have been deducted.

b. To mine said premises in a good mining like fashion and to keep reports thereof and make such reports available to said First Party.

2. To operate said premises in a mining like fashion as long as manganese ore can be removed therefrom commercially and profitably.

3. Upon the determination by said Second Party that manganese ore cannot be mined therefrom profitably said Second Party agrees to return said premises to said First Party, PROVIDED, HOWEVER, that in lieu of returning said premises and in the event that the Second Party, following the completion of the preliminary exploration program, desires to go forward and states in writing that it is its intention to further develop and mine the property as herein stated, and in the event the said Second Party finds that it is not profitable at that time, or within nine months thereafter, to carry on such mining program, or for other reasons that make such a mining program inexpedient, then the said Second Party shall have the privilege, in lieu of mining said property, to pay to said First Party $1,000.00 a year for a period of three years, and $2,000.00 per year for the next succeeding three years. In the event the property is subsequently operated by said Second Party, then the royalty payments that are to be made from the ore removed shall be retained by the said Second Party until they have been reimbursed for the sums of money so paid for any of such years as rental in lieu of royalties by reason of mining ore commercially, PROVIDED, HOWEVER, that the said sums of money aforementioned are to be paid in cash at the beginning of each of the said years for which said money may become due.

IT IS FURTHER UNDERSTOOD AND AGREED by and between the parties hereto that said Second Party shall be privileged to place on

said premises such structure, or structures, as it deems advisable, and it shall always be privileged to remove the same upon the termination of this agreement and within thirty (30) days after said termination has been had.

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that in the event other ores or other minerals or minerals of any type are found within said premises, that said Second Party will pay as royalty thereon the established royalty for such ores or minerals as has been set within this area by the U.S.G.S.

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that said Second Party will fully account for and make reports to said First Party of all shipments of manganese ore or other minerals, and at all times perform its work in a mining like fashion.

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that said books of said Second Party shall at all times be open to inspection by said First Party or its said officers, and that said rents shall be paid monthly, and that payment of all royalties shall be made monthly within five days after the first of each and every month hereafter.

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that said First Party will use all such royalties, at the rate of 2½% of the 12½%, to liquidate the claim of C. R. Baum, Trustee for the former stockholders of the Western Manganese Company.

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that in the event said First Party desires to sell said premises said Second Party shall have the first right and privilege to purchase said property at the reasonable going marketable value thereof, and at such price as may be mutually agreed upon by and between said parties, and in the event an agreement cannot be had as to the value of said premises said Second Party shall be privileged, for a period of sixty (60) days after any offer has been made by any third party to

purchase said premises, to meet the price and conditions of said proposed purchase, and upon so meeting the same said First Party shall forthwith transfer by marketable title the said premises hereinafter described to said Second Party.

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that the premises referred to herein are as follows:

All the mineral found in the lands hereinafter described reserving to first party hereto only the surface thereof, granting to second party the right of ingress and egress and the earth beneath the surface and sufficient of the surface ground upon which to erect roads, buildings, machine shops, bunk houses, shacks and buildings necessary for the operation of the mines, ditches, sluices, hoists and shafts, in fine, all the surface that is necessary for the extraction of the ores and development of the mines in and upon the following described lands located in Bannock and Franklin Counties, Idaho, to-wit:

Beginning at a point 1320 feet (¼ mile) East and 1347 feet North of Southeast corner (stone in place) of Section 31, Township 12 South, of Range 41 East of the Boise Meridian, running thence South 83°10' West 3990 feet more or less (said line being identical to and a projection of the North boundary line of the Blue Lizzard mine) to the ¼ section line; thence North 453 feet to Northwest corner of Southwest quarter, Southeast quarter of said Section 31, thence East one half mile to Northeast corner of Southeast quarter Southeast quarter of said Section 31, thence North one fourth mile to the ¼ corner common to Section 31, and 32, thence East one ¼ mile to Northeast corner of Northwest quarter Southwest quarter Section 32, thence South 1293 feet, more or less, to point of beginning, and containing approximately 60.4 acres.

Also, North half of the Southeast quarter Section 31, Township 12 South, Range 41 East of the Boise Meridian, in Idaho.

South half of Northeast quarter Section 31, Township 12 South, Range 41 East of Boise Meridian, and Southwest quarter of Northwest quarter of Section 32, Township 12 South, Range 41 East of Boise Meridian, all in Bannock County, Idaho.

Together with the right to use for mining and domestic purposes that certain spring of water known as Ed's Hollow decreed to J. D. McGregor Jr., in that certain water suit brought by Utah Power and Light Company against Last Chance Canal Company, et al, in United States District Court, and

decreed July 14, 1920 for amount of 2.6 feet
of date of June 21, 1924

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that as and when the shareholders of said First Party prove this Option and Lease Agreement, then the information referred to that is to be furnished by said Second Party as to its findings, shall be delivered over to said First Party.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands and seals this 29th day of May, 1951.

IDAHO MANGANESE MINING COMPANY, a corporation

By Howard R. Smith
President
Party of the First Part

ATTEST:

N. LeRoy Smith
Secretary

J. R. SIMPLOT COMPANY, A corporation

By E. W. Hansen
Manager

Party of the Second Part

STATE OF IDAHO)
) SS.
COUNTY OF BANNOCK)

On this 25th day of May, in the year 1951, before me, the undersigned, a Notary Public in and for said State, personally appeared HOWARD R. SMITH, known to me to be the President of the corporation that executed the foregoing instrument, and acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

Byron J. Sherman
Notary Public for Idaho
Residing at Arco, Idaho

(SEAL)

STATE OF IDAHO)
) SS.
COUNTY OF BANNOCK)

On this 29th day of May, in the year 1951, before me, the undersigned, a Notary Public in and for said State, personally appeared N. LEROY SMITH, known to me to be the Secretary of the corporation that executed the foregoing instrument, and acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

O. R. Baum
Notary Public for Idaho,
Residing at Pocatello, Idaho

(SEAL)

STATE OF IDAHO)
) SS.
COUNTY OF BANNOCK)

On this 29th day of May, in the year 1951, before me, the undersigned, a Notary Public in and for said State, personally appeared E. W. Hansen, known to me to be the Manager of J. R. Simplot Company, a corporation, and acknowledged to me that he, on behalf of said corporation, executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

O. R. BAUM
Notary Public for Idaho
Residing at Pocatello, Idaho

(SEAL)

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. DMA-1716X

Date received 6/18/51

Participation

J. R. SIMPLOT COMPANY
BOX 912
POCATELLO, IDAHO

Name and address of applicant

Date MAY 31, 1951

FILL IN THIS BLOCK

Date of application MAY 31, 1951

Estimated cost $ 42,000.00

Mineral or metal Manganese Oxides

Percentage of Government participation 75 %

Location of mine 1 Mile S.E. of CLEVLAND, IDAHO

Date of filing MF-100 No Previous or Present Operation

DMA Docket Number, if available

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation?
*2. If a partnership, state names and addresses of partners.
*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.
*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project.
*5. Are you the owner or the lessee of the property?
6. If owner, state what claims, liens, or encumbrances, if any, are against the property.
7. If lessee, attach a copy of the lease and state if it is in good standing.

NOTE.—It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the Government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.
9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?

*If you have already answered these questions on MF-100, you are not required to answer the questions for this application.

16—64067-1

THE PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

    NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any.

*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.

*13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.

*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.

15. State in detail how the ore could be shipped and how and where milled.

*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.

*17. Production:
    (*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)
    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.

19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?

21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.

22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.
    (*i*) Cost of power, water, utilities, and any other items not provided for above.

24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this form and accompanying papers is correct and complete to the best of their knowledge and belief.

J. R. SIMPLOT COMPANY
(Name of company)

By W. Grant Kilbourne
(Signature of authorized official)

MAY 31, 1951
(Date)

Vice President
(Title)

Title 18, U. S. Code (Crimes), Section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

*Same as footnote on page 1.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

APPLICATION FOR AID FOR AN EXPLORATION PROJECT
PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE
PRODUCTION ACT OF 1950

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1. Corporation

2. Not applicable

3. J. R. Simplot Company

J. R. Simplot, President, 1500 Harrison Blvd. Boise, Idaho
W. Grant Kilbourne, Vice President, 111 Crestline Drive, Boise, Idaho
Leon C. Jones, Vice President - 324 Everett St., Caldwell, Idaho
J. Dahl, Secretary-Treasurer - 3426 Meadow Drive, Boise, Idaho

Directors:
J. R. Simplot
Ruby A. Simplot
Leon C. Jones

Stockholders of J. R. Simplot Company: J. R. Simplot
Ruby A. Simplot
Scott Robert Simplot - Trust Fund
Gay Corine Simplot - " "
Don John Simplot - " "
Richard Simplot - " "

4. (a) Experience of Operators:

Operating Company is at present mining the following:

Phosphates	5,000	tons day basis
Fluorspar	100	" " "
Barite	19,000	" annual basis
Uranium (Carnotite)	300	" monthly basis

(b) Applicant is well known in the mining industry. Management is under the direction of Geo. A. McHugh, Manager of Mines, and Charles A. Lee, Geologist.

5. Lessee

6. Not applicable

7. Copy of Lease attached

8. Copy of financial statement attached

9. $10,500.00, yes.

10. Contained in attached report

11. Idaho Manganese Corporation

12. Contained in attached report

13. Adequate water available from Bear River. Adequate power available from Utah Power & Light Company lines, which are at a distance of approximately one mile.

14. None, except existing roads.

15. (a) Ore would be hauled by truck to Grace, Idaho, a distance of 14 miles over good roads, and thence by rail to destination. The quality (grade) of this ore is sufficiently high, that no milling process would be required.
(b) Production on this property began in 1926, but was suspended in 1930 due to the small demand and correspondingly low price. See attached report for additional information.
(c) Report attached, contained in U.S.G.S. Bulletin 795, pages 211 to 218 Incl.

17. Not in production at present time.

18. See attached report.

19. Possibility that this could be almost entirely an open pit mining operation.

20. Manganese Oxides.

21. We propose to do diamond drilling to the extent of approximately 5000 ft. Further development would depend on results obtained from the diamond drilling. This program could be accomplished in four months time.

22. Outcrops of exposed Manganese indicates that beds continue for extended distances and that bedded deposits of great magnitude prevail. Past production indicates continuous lenses of Manganese Oxides occurring in lake deposits or sediments. Plans are for an open pit operation and hence would require no mine openings. See attached report for assays on past shipments.

23. (a) None

(b) One Manager (part time)	$1,600.00
One Resident Engineer	1,800.00
One Junior Engineer	1,200.00
One Assayer (Part Time)	800.00
(c) None	
(d) None required	
(e) One pickup truck	1,800.00
One Jeep	1,800.00
(f) Diamond Drilling to be contracted 5000 ft. at ~~$5,000.00~~ $3.88 per ft.	25,000.00
(g) None	
(h) Approximately $2,000.00 per mo. would cover all necessary supplies and also expenses of personnel	8,000.00

(1) None. To be furnished by Contractor
Total estimated Cost $42,000.00

24. The total cost would be nearly equally distributed over the four month period.

EXCERPT FROM U. S. GEOLOGICAL

BULLETIN NO. 795

CONTRIBUTION TO ECONOMIC

GEOLOGY

BY

D. F. HEWETT

C
O
P
Y

A MANGANESE DEPOSIT OF PLEISTOCENE AGE IN

BANNOCK COUNTY, IDAHO

Field Work

Reports of the discovery and exploration of manganese deposits in southeastern Idaho within recent years having come to the Geological Survey, the writer took advantage of an opportunity to spend a day at the deposits in October, 1926. The examination was made in company with V. C. Heikes, of the Bureau of mines. The local operators, especially Mr. George L. Smith, of the Idaho Manganese Co., courteously gave assistance during the visit.

Situation and Accessibility

The deposits thus far known in the region lie along the west slope of the ridge east of Bear River, about 1 mile southeast of Cleveland, Bannock County, Idaho. The principal deposit, operated by the Idaho Manganese Co., is in the E. ½ sec. 21, T. 11 S., R. 40 E., and others lie farther south in sec. 5, T. 12 S., R. 40 E. The ore that has been shipped thus far has been hauled in motor trucks either to Grace, 14 miles north, on a branch of the Oregon Short Line, or to Oxford, 20 miles west, on the main line of the Oregon Short Line running from Ogden to Pocatello. The cost of hauling to Grace is $3.00 a ton, and the freight rate from Grace to Ironton, Utah, where most of the ore has been sold, is $2 a ton. The area lies within the Preston quadrangle, which is covered by one of the topographic maps published by the United States Geological Survey.

History

According to the local operators, float manganese minerals were found in this region in April, 1923, by Sam Ames on the property of the Cleveland Mining Co., a part of the W. C. McGregor ranch. In April, 1924, explorations showed the presence to another deposit half a mile north, and this has since been explored almost continuously by the Idaho Manganese Co., of which Nathan Smith, of Cleveland, is president. Recent explorations south of the McGregor ranch have shown the presence of sporadic manganese minerals, but no ore has yet been shipped.

General Geology

Bear River rises east of the Wasatch Mountains in Northeastern Utah, flows north into southeastern Wyoming, then northwest into southeastern Idaho, and finally south into Salt Lake in Utah. Along its course are several broad valleys separated by constricted valleys or canyons. Gentile Valley, in southeastern Idaho, is one of these broad valleys. At its south end is the settlement of Cleveland, near the point where Bear River, flowing south, enters a narrow canyon. Twelve miles south of Cleveland the canyon ends and the river enters Cache Valley, one of the large open valleys of northern Utah. East of Gentile and Cache Valleys lie the Wasatch Range and its minor ridges and spurs.

The geology of the region was studied in a reconnaissance manner as early as 1872,[1] and it is within the area of the geologic map prepared by Peale in 1877.[2] Briefly stated, Peale recognized that the higher mountains, such as the Wasatch Range, were made up of a thick section of Paleozoic and Mesozoic rocks that were greatly deformed and faulted in early Tertiary time, after which erosion and minor faulting produced ranges and ridges much as they appear today, except that the valleys were deeper and the mountains relatively higher. In late Tertiary time (Pliocene?) a few areas, several of which are exposed in upper Bear River Valley, received sand and gravel, in part of local origin and in part from remote sources. Similar beds, nearly horizontal, cover the divide between Gentile Valley and Cache Valley. During early Pleistocene time each valley contained a lake that received sediments from the bordering ridges to a maximum altitude of 5,800 feet. Terraces at lower levels were also noted--at 5,526 feet, 5,185 feet (Lake Bonneville stage), and 4,825 feet (Provo stage).[3] The terrace at 5,526 feet is well shown on both sides of the southern part of Gentile Valley, and the manganese deposits that are described herein occur in the horizontally bedded fine sand, 100 to 150 feet below this terrace.

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1. Bradley, F. H., Report on the geology of the Snake River Division: U. S. Geol. Survey Terr. Ann. Rept. for 1872, pt.1, pp. 189-271, 1873.

2. Peale, A. C., Report on the geology of the Green River district; U. S. Geol. Survey Terr. Ann. Rpt. for 1877, pp. 509-646, 1879

3. Idem, pp. 601-604, 641-643.

In 1883 Gilbert made rather exhaustive physiographic studies of the Lakr Bonneville basin, on the basis of which he threw doubt on the existence of a shore terrace at 5,800 feet, reported by Peale, and concluded that although there are terraces existing in Gentile Valley above 5,200 feet they were formed by rivers instead of lakes.[4]

Although the writer's visit in this region was brief and necessarily devoted largely to an examination of the manganese deposits, it yielded observations which indicate that the ridges on both sides of Gentile Valley are covered with a veneer of horizontally bedded fine sediment up to a uniform altitude of about 5,500 feet and that this was deposited along the borders of a lake that was in existence in early pleistocene time, before Lake Bonneville, farther south, stood at an altitude of 5,200 feet.

The Manganese Deposits

Workings: The workings on the tract of the Idaho Manganese Co. include three tunnels - the highest, 75 feet long, at an altitude of about 5,440 feet; the intermediate, 75 feet long, at an altitude of about 5,432 feet; and the lowest, 225 feet long, at an altitude of 5,375 feet. (~~See fig. 12.~~) These tunnels

4. Bilgert, G. K., Lake Bonneville: U. S. Geol. Survey Mon. 1 pp. 94-98, 1890.

explore the beds that underlie the terrace, the top of which ranges locally from 5,475 to 5,500 feet. The floor of Bear River Valley near by lies at an altitude of about 4,900 feet. On the property of the Cleveland Manganese Co., half a mile to the south, there is a tunnel 90 ft. long at an altitude of 5,250 feet.

The highest tunnel of the Idaho Manganese Co. explores a poorly defined zone of impure, earthy brown wad, 2 to 3 feet thick, which overlies thinly laminated fine sands. Unlike the zone explored in the lowest tunnel, it contains no nodules of hard pure oxides of manganese. The zone is of doubtful value as a source of manganese and is interesting largely because it shows the presence of more than a single manganiferous zone.

The intermediate tunnel extends 20 ft. to the top of a shaft, and a drift 75 ft. long to the northwest explores an irregular zone of soft wad in which there are sporadic hard nodules of manganese oxides. With the upper part of the shaft, these workings have yielded about 85 tons of ore.

The lowest tunnel (~~fig. 12~~) follows a nearly horizontal zone of earthy wad and hard manganese oxides to the point, 140 ft. from the entrance, where it is cut off by a northwestward-trending fault. The tunnel continues 80 ft. farther to the bottom of the shaft, but an irregular drift 22 ft. above the tunnel explores what appears to be the same manganese zone beyond the fault. The indicated vertical displacement of the fault is therefore 22 ft. The workings shown ~~in Figure 12~~ have yielded by sorting 13 cars or about 500 tons of ore that ranged in manganese content from 37.7 to 47.3 per cent. West of the 22 ft. fault mentioned above are four minor faults, which trend northwest but dip steeply northeast and along each of which the manganese-bearing zone on the northeast side is dropped from 1 to 4 ft. The central block, bounded on the northeast by the 22 ft. fault, appears to be a wedge that has dropped with reference to the adjacent blocks. Water stands at the face of this tunnel and in several of the drifts south.

A letter from Geo. L. Smith, dated May 4, 1927, states that since October, 1926, the drift 22 ft. above the lowest tunnel has been driven 105 feet east and from it 150 feet of crosscuts have been run.

The sediments.-- The materials exposed in these workings include sand, sandy clay, sandy marl, and manganese oxides. In part they are thinly laminated, but generally the materials occur in layers 1 to 4 ft. thick, not sharply separable. The colors commonly range from pale gray to greenish gray, but some beds are buff, chocolate-brown, or black. The presence of volcanic ash was suspected, but samples proved to lack characteristic features of ash, and it is probably absent. The most abundant material is pale greenish-gray sandy clay, showing faint traces of lamination. A fragment was disintegrated in water and washed free from clay. The remainder, about half the original specimen, was examined under the microscope. The largest grains were well-rounded quartz 0.10 millimeter in diameter, but most of the grains range from 0.02 to 0.07 millimeter. Of these, about 80% were subangular quartz and the remainder were angular orthoclase and microcline. Glass and biotite were absent. A fragment of the coarsest material slightly stained by wad was similarly examined. The largest grains were well-rounded quartz 0.15 millimeter in diameter, but most of them ranged from 0.05 to 0.10 millimeter. Of these

about 90% were angular quarts and the rest were orthoclase and microcline. Sandy marl is present but not abundant.

Manganese Minerals.-- The manganese-bearing layers are brown wad with admixed brownish sand, in which are scattered hard, cavernous nodules of mixed psilomelane and pyrolusite, some as much as 2 ft. in diameter. Some zones contain brown wad only, but the zone explored in the lowest tunnel contains more nodules than wad. The nodules are not the simple smooth rounded forms that are characteristic of manganese deposits in the eastern United States but are irregular in outline and highly cavernous. There is no simple relation between the distribution of psilomelane and that of pyrolusite. Iron oxides are inconspicuous or absent (see analysis, p. 218), but a pit near the mouth of the lowest tunnel showed a local bed in which the lumps contained 10 to 20% of iron. Some of the rather pure black nodules show thin films of calcite along shrinkage cracks. In the light of what is known of manganese nodules elsewhere, it seems clear that the hard cavernous nodules have grown where they are now found in the layers of brown wad, which was doubtless deposited as a sediment. The hard nodules have grown only in the purest layers of wad, however, so that impure layers are now found just as they were laid down. The cause of their deposition is obscure; they may be chemical precipitates in shallow water or may have been deposited by microorganisms.

The principal ore zone ranges from 1 to 4 ft. in thickness in the existing workings. It trends northeast and dips southeast at a low angle, probably at no place more than 5°.

An examination of the surface of the ridge east of the mine shows that the loosely consolidated sand and clay are limited eastward by an irregular surface cut across beds of hard limestone and quartzite, which have a complicated structure. No fossils were found in these beds, but it seems clear from what is known of the geology of the region that the beds belong to Paleozoic formations.

Fossils in the sediments.--In the course of the exploration of the deposit the owners found three well-preserved teeth and some fragments at the point marked near the end of the lowest tunnel, 100 ft. below the surface. Through their courtesy the teeth were sent to the United States National Museum, where theywhere they have been examined by J. W. Gidley. His report follows:

> The three larger specimens are parts of molars or grinding teeth of an extinct species of mammoth, known as Elephas colombi. The two smaller pieces are parts of a mastodon tooth. Both of these mammals were very numerous in North America during parts of the Pleistocene.

The presence of these teeth shows that the beds in which the manganese oxides are found were deposited during the Pleistocene epoch.

The workings of the Cleveland Mining Co. appear not to have yet found a persistent zone of manganese minerals. One and one-half carloads of material of good grade have been shipped from workings largely within a few feet of the surface, at a horizon lower than that explored by the workings of the Idaho Manganese Co. The material contains more iron than that mined by the Idaho Company.

Genesis of the deposits.--The data gathered during this examination indicate that the deposits of brown wad were laid down in a body of water present in the region during the Pleistocene epoch and were immediately covered with sandy clay and fine sand. There can be no doubt that if explored inward from

the outcrop they will be found to terminate at or near the place where the recent sediments meet the surface of older hard rocks that form the near-by ridges. Here, as in many other localities, the hard nodules of pure manganese oxides appear to have grown by accretion from manganese in solution since the wad was laid down. It is interesting to speculate whether the manganese was disseminated or locally concentrated in the Paleozoic rocks, and whether the body of water in which the sediments were laid down was relatively permanent, such as a lake, or intermittent, such as a stream, as indicated by Gilbert.

The uniform fineness of the sediments that overlie and underlie the manganese beds, considered with their locally laminated character, indicates that the body of water was relatively permanent and quiet. Consistent with this interpretation is the even height of the terrace that marks the top of the loosely consolidated sediments. In the south end of Gentile Valley the top of the terrace stands uniformly about 5,500 feet above sea level, and the topographic map shows that it extends northward on both sides of the valley for 15 miles or more at this altitude. The conclusion seems justified that in early Pleistocene time Gentile Valley was occupied by a lake, the surface of which remained constant at about 5,500 feet long enough to allow considerable sediment to accumulate along the borders of the lake if not over its entire bed. Probably the hard-rock lip at the south end of the basin stood at 5,500 feet, and the Pleistocene beds have only been dissected to their present form with its erosion. It seems entirely possible that this lake in Gentile Valley was local, and that its equivalent at this altitude was not present in the Salt Lake basin.

As horizontal beds of unconsolidated material of probable Pliocene age attain an altitude of 6,200 ft. over the broad, flat divide between Gentile Valley and Cache Valley, such beds may be present sporadically in Gentile Valley.

Accumulations of manganese minerals are not uncommon in geologically recent depressions, such as marshes and lakes, and are known though much less common in stream channels, recent or old. In very few places, however, has the source of the manganese been definitely established, and the mineral is generally assumed to have been disseminated as minute particles in the near-by rocks. In the United States geologically recent manganese bogs are known in Columbia County, N. Y.,[5] Jefferson County, Mont.,[6] and elsewhere. Such deposits appear to be more common in the Canadian provinces, as they have been reported from a number of localities in Albert County, N.B.,[7] in the Cypress Hills, Alberta, and near Kaslo, B. C.[8] Some of these deposits of bog manganese minerals have been explored, but none of record have produced more than several hundred tons of marketable ore, although some are reported to be larger.

Accumulations of manganese in river-channel deposits are recorded but are uncommon. Two deposits have been explored in Virginia[9] and another is known in California.[10]

5. Dale, N.C., Postglacial manganese in Columbia County, N.Y.: New York State Mus. Bull. 207-208, pp.85, 100, 1918.
6. Harder, E.C., Manganese deposits of the United States: U. S. Geol. Survey Bull. 427, pp. 155-157, 1910.
7. New Brunswick Crown Land Dept., Fifty-eighth Ann. Rept. p. 16, 1918.
8. Bancroft, M. F., Investigations in the Slocan district, B. C.,: Canada Geol. Survey Summary Rept. for 1917, pt. B, pp. 28-33, 1918.
9. Hewett, D. F., Some manganese deposits in Virginia and Maryland: U.S. Geol. Survey Bull. 640, pp. 54-56 61, 1917.
10. Renrose, R.A.F., Manganese, its uses, ores, and deposits: Arkansas Geol. Survey Ann. Rept. for 1890, vol. 1, p. 494, 1891.

This investigation does not indicate the source from which the manganese concentrated in certain beds near Cleveland, Idaho, has been derived. A lead deposit has been explored in the Paleozoic rocks about 2 miles to the east, but although manganese minerals occur in some lead deposits none have been observed here. It seems that the source of the manganese must be the minute quantities known to occur in many rocks, sedimentary as well as igneous.

Mining.--Thus far neither the ore nor the inclosing sand has been sufficiently coherent to require the use of much explosive, and most of the drifts have been run and the ore mined by use of pick and shovel only. After being mined, the material is trammed by hand to an open bin on one side of the dump, where the hard nodules of manganese oxides are broken and sorted. When sufficient cleaned ore has accumulated in the bin to make a shipment, it is drawn into trucks and hauled to the railroad.

Production and reserves.-- The following table presents the weight and analyses of all except one of the cars of ore that had been shipped up to May 3, 1927, by the Idaho Manganese Company.

Summary of shipments by the Idaho Manganese Co.

Date	Tons, Dry Weight	Manganese (per cent dry basis)	Insoluble (per cent)	Water Per-cent	Date	Tons, dry weight	Manganese (per Cent, dry basis)	Insoluble (per cent)	Water Per Cent
1925	1 car	(?)	(?)	(?)	Nov. 18	53.50			
					Nov. 15	38.85	46.8	7.7	15.5
1926					Nov. 29	35.28	47.6	8.9	16.7
Jan. 28	25.78	44.46	10.3	15	Nov. 29	36.72	44.8	11.0	18.4
Apr. 29	34.57	36.50	15.2	29	Dec. 2	30.94	40.8	13.7	23.7
June 8	34.41	37.7	20.6	6.5	Dec. 17	25.09	42.2	13.7	30.9
June 23	41.38	42.4	10.2	8.4	Dec. 29	33.26	45.75	9.4	18.9
July 2	37.90	44.5	6.2	5.5					
July 12	44.65	48.5	6.2	7.4	1927				
July 16	38.72	43.6	12.3	10.6	Jan. 12	34.75	43.1	7.5	14.5
July 27	42.38	42.8	9.4	18.0	Jan. 25	30.42	41.8	10.6	23.1
July 29	46.61	45.4	5.8	8.2	Feb. 3	32.45	44.6	6.6	14.9
Aug. 3	33.92	45.0	7.7	12.2	Feb. 15	39.63	49.2	6.4	12.7
Aug. 7	45.63	43.0	9.4	10.6	Feb. 17	36.34	48.9	6.4	15.8
Aug. 12	32.69	43.2	15.8	16.3	Mar. 2	21.22	40.4	9.8	19.6
Aug. 24	38.44	38.9	11.7	14.3	Apr. 5	32.42	42.3	9.5	20.0
Sept. 11	36.29	47.3	6.25	5.6	April 20	25.55	47.4	7.4	22.2
Sept. 21	43.46	46.1	8.0	7.0	Apr. 27	34.12	40.2	11.2	18.6
Oct. 11	32.25	41.4	10.4	10.6	May 3	36.00	42.4	3.4	9.9
Nov. 1	35.77	41.5	10.4	14.2					
						1,[illegible]			

A 50-pound sample of ore sent to the Montana Laboratories Co., Butte, Montana, for analysis, showed manganese 57.12% and available oxygen 15.67% equivalent to 85.12% manganese dioxide; silica 3.04%; iron 0.14%; copper 0.026%; lead 0.05%; arsenic 0.04%; water 0.5%. Such material is well adapted for t use in dry batteries, but in order to obtain large quantities it would have to be closely sorted free from the small quantities of calcite commonly present.

The yield of the part of the lowest zone that has been explored in the lowest tunnel indicates that it may be expected to yield about 3,000 tons of shipping ore to the acre. Although exploration has not yet determined the extent of the principal bed, it would be surprising if the bed were persistent over more than a few acres. If more than one bed is found, however, the reserve would be correspondingly increased.

STATEMENT OF FINANCIAL CONDITION

J. R. Simplot Company
December 31, 1950

ASSETS

Current Assets		
Cash		
Notes and accounts receivable	$ 717,291.99	
Less: Allowance for doubtful	15,384.76	701,907.23
Inventories:		
Finished goods	$ 852,253.91	
Raw materials	202,233.53	
Manufacturing supplies	194,408.60	1,248,896.04
Total Current Assets		$1,941,514.93
Due from Affiliates		248,438.88
Investments and Other Assets		124,819.60
Property, Plant & Equipment	$4,385,993.21	
Less: Allowance for depreciation	1,970,491.72	2,415,501.49
Deferred Charges		20,798.90
Total		$4,751,073.80

LIABILITIES

Current Liabilities		
Notes & contracts payable:		
To Banks	$ 659,599.53	
To Others	88,750.92	$ 748,350.45
Accounts payable		199,934.14
Accrued expenses		101,969.74
Reserve for taxes on income:		
Prior year	$ 2,258.96	
Current year - estimated	110,000.00	112,258.96
Total Current Liabilities		$1,162,513.29
Due to Affiliates		341,036.86
Other Liabilities		
Mortgages and contracts payable	$ 661,198.27	
Accounts payable	157,697.32	
Contingency reserve	26,000.00	844,895.59
Capital Stock and Surplus		
Capital Stock - authorized & issued	$ 50,000.00	
Surplus	2,449,387.81	
	$2,499,387.81	
Deduct: Cost of Treasury Stock	96,759.75	2,402,628.06
Total		$4,751,073.80

John W. Dahl
Treasurer

ANALYSIS OF SURPLUS

J. R. Simplot Company
Period of ten months ended December 31, 1950

Paid-in Surplus			$ 288,736.21
Earned Surplus			
Balance at March 1, 1950		$1,963,131.26	
Add:			
Profit for ten months ended December 31, 1950	$307,520.34		
Provision for income taxes	110,000.00		
Net Profit		197,520.34	
Earned Surplus - Balance at December 31, 1950			$2,160,651.60
Total Surplus - Balance at December 31, 1950			$2,449,387.81

SUMMARY OF INCOME & EXPENSE

J. R. Simplot Company
Ten months ended December 31, 1950

Net Sales	$5,585,362.25
Cost of Sales	4,595,029.45
Gross profit	$ 990,332.80
General & Sales expense	202,171.42
Operating Profit	$ 788,161.38
Deduct:	
Depreciation	$ 307,319.63
Interest	53,349.84
	$ 360,669.47
	$ 427,491.91
Other expenses - net	
Profit before income taxes	$ 307,520.34
Provision for taxes on income	110,000.00
Net profit	$ 197,520.34

OPTION AND LEASE AGREEMENT

THIS AGREEMENT Made and entered into this 25th day of May, 1951, by and between IDAHO MANGANESE MINING COMPANY, a corporation, hereinafter known and designated as First Party, and J. R. SIMPLOT COMPANY, a corporation, hereinafter known and designated as Second Party,

WITNESSETH:

WHEREAS, First Party is the owner of the hereinafter described rights, namely, mineral rights on the hereinafter described lands; and

WHEREAS, It is the desire of said First Party that said Second Party shall be privileged to explore and perform certain development work thereon for the purpose of ascertaining the amount and quantity of ore thereon and therein; and

WHEREAS, Said Second Party desires to have a ninety day option for the performance of such exploration and development work, and in the event the results are satisfactory to have a lease on said premises, all as hereinafter stated,

NOW, THEREFORE, In consideration of the sum of Ten Dollars ($10.00), cash in hand paid, the receipt of which is hereby acknowledged, said First Party does hereby grant, option and lease to said Second Party, and said Second Party options of and leases of said First Party the hereinafter described land and the right to remove minerals therefrom, and to explore and to develop the same, all as hereinafter stated, under the following terms and conditions:

Said First Party covenants as follows:

1. To permit said Second Party to have the exclusive possession of said hereinafter described premises for a period of ninety days, except as hereinafter stated, with the right to explore, develop and to do such work as deemed necessary in the opinion of said Second Party for the purpose of ascertaining the quality and quantity of manganese ore thereon, and such other minerals as may be found, hereby granting to said

Second Party a lease on said premises at the termination of the said ninety day period, or an extension thereof, above mentioned for the purpose of operating said premises and paying a royalty thereon as hereinafter stated; and

Said Second Party covenants as follows:

1. To enter in and upon the said premises and to do such exploratory work, such as diamond drilling and the like, as it deems advisable, and in a mining like fashion, for the ascertainment of the qualitity and quantity of manganese ore within said premises. That the diamond drilling shall consist of at lease twelve hundred (1200) feet.

2. To report to said First Party its findings growing out of its said exploratory work.

3. In the event said Second Party, on account of something that cannot be foreseen at this time, is unable to obtain the appropriate and necessary equipment to perform such exploration work and is proceeding in good faith, said First Party will grant an additional ninety (90) days in which to perform such exploratory work.

IT IS FURTHER AGREED By and between the parties hereto that in the event said Second Party, after the performance of said exploratory work, desires to proceed further in said matter it shall so advise the said First Party in writing, and the terms under which it shall operate shall be as follows:

1. To go into and upon the said premises, within a reasonable time, said premises to be hereinafter described, and to develop and operate the same, and to remove therefrom manganese ore and such other ore or minerals as may be ascertained that are within said premises, on the following basis:

a. 12½% royalty upon the net returns, namely, after all transportation charges have been deducted.

b. To mine said premises in a good mining like fashion and to keep reports thereof and make such reports available to said First Party.

2. To operate said premises in a mining like fashion as long as manganese ore can be removed therefrom commercially and profitably.

3. Upon the determination by said Second Party that manganese ore cannot be mined therefrom profitably said Second Party agrees to return said premises to said First Party, PROVIDED, HOWEVER, that in lieu of returning said premises and in the event that the Second Party, following the completion of the preliminary exploration program, desires to go forward and states in writing that it is its intention to further develop and mine the property as herein stated, and in the event the said Second Party finds that it is not profitable at that time, or within nine months thereafter, to carry on such mining program, or for other reasons that make such a mining program inexpedient, then the said Second Party shall have the privilege, in lieu of mining said property, to pay to said First Party $1,000.00 a year for a period of three years, and $2,000.00 per year for the next succeeding three years. In the event the property is subsequently operated by said Second Party, then the royalty payments that are to be made from the ore removed shall be retained by the said Second Party until they have been reimbursed for the sums of money so paid for any of such years as rental in lieu of royalties by reason of mining ore commercially, PROVIDED, HOWEVER, that the said sums of money aforementioned are to be paid in cash at the beginning of each of the said years for which said money may become due.

IT IS FURTHER UNDERSTOOD AND AGREED by and between the parties hereto that said Second Party shall be privileged to place on

said premises such structure, or structures, as it deems advisable, and it shall always be privileged to remove the same upon the termination of this agreement and within thirty (30) days after said termination has been had.

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that in the event other ores or other minerals or minerals of any type are found within said premises, that said Second Party will pay as royalty thereon the established royalty for such ores or minerals as has been set within this area by the U.S.G.S.

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that said Second Party will fully account for and make reports to said First Party of all shipments of manganese ore or other minerals, and at all times perform its work in a mining like fashion.

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that said books of said Second Party shall at all times be open to inspection by said First Party or its said officers, and that said rents shall be paid monthly, and that payment of all royalties shall be made monthly within five days after the first of each and every month hereafter.

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that said First Party will use all such royalties, at the rate of 2½% of the 12½%, to liquidate the claim of O. R. Baum, Trustee for the former stockholders of the Western Manganese Company.

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that in the event said First Party desires to sell said premises said Second Party shall have the first right and privilege to purchase said property at the reasonable going marketable value thereof, and at such price as may be mutually agreed upon by and between said parties, and in the event an agreement cannot be had as to the value of said premises said Second Party shall be privileged, for a period of sixty (60) days after any offer has been made by any third party to

purchase said premises, to meet the price and conditions of said proposed purchase, and upon so meeting the same said First Party shall forthwith transfer by marketable title the said premises hereinafter described to said Second Party.

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that the premises referred to herein are as follows:

All the mineral found in the lands hereinafter described reserving to first party hereto only the surface thereof, granting to second party the right of ingress and egress and the earth beneath the surface and sufficient of the surface ground upon which to erect roads, buildings, machine shops, bunk houses, shacks and buildings necessary for the operation of the mines, ditches, sluices, hoists and shafts, in fine, all the surface that is necessary for the extraction of the ores and development of the mines in and upon the following described lands located in Bannock and Franklin Counties, Idaho, to-wit:

Beginning at a point 1320 feet (¼ mile) East and 1347 feet North of Southeast corner (stone in place) of Section 31, Township 12 South, of Range 41 East of the Boise Meridian, running thence South 83°10' West 3990 feet more or less (said line being identical to and a projection of the North boundary line of the Blue Lizzard mine) to the ¼ section line; thence North 453 feet to Northwest corner of Southwest quarter, Southeast quarter of said Section 31, thence East one half mile to Northeast corner of Southeast quarter Southeast quarter of said Section 31, thence North one fourth mile to the ¼ corner common to Section 31, and 32, thence East one ¼ mile to Northeast corner of Northwest quarter Southwest quarter Section 32, thence South 1293 feet, more or less, to point of beginning, and containing approximately 60.4 acres.

Also, North half of the Southeast quarter Section 31, Township 12 South, Range 41 East of the Boise Meridian, in Idaho.

South half of Northeast quarter Section 31, Township 12 South, Range 41 East of Boise Meridian, and Southwest quarter of Northwest quarter of Section 32, Township 12 South, Range 41 East of Boise Meridian, all in Bannock County, Idaho.

Together with the right to use for mining and domestic purposes that certain spring of water known as Ed's Hollow decreed to J. D. McGregor Jr., in that certain water suit brought by Utah Power and Light Company against Last Chance Canal Company, et al, in United States District Court, and

decreed July 14, 1920 for amount of 2.6 feet
of date of June 21, 1924

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that as and when the shareholders of said First Party prove this Option and Lease Agreement, then the information referred to that is to be furnished by said Second Party as to its findings, shall be delivered over to said First Party.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands and seals this 25th day of May, 1951.

IDAHO MANGANESE MINING COMPANY, a corporation

By Howard R. Smith
President
Party of the First Part

ATTEST:

N. LeRoy Smith
Secretary

J. R. SIMPLOT COMPANY, A corporation

By E. W. Hansen
Manager

Party of the Second Part

STATE OF IDAHO)
) SS.
COUNTY OF BANNOCK)

On this 25th day of May, in the year 1951, before me, the undersigned, a Notary Public in and for said State, personally appeared HOWARD R. SMITH, known to me to be the President of the corporation that executed the foregoing instrument, and acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

Byron J. Sherman
Notary Public for Idaho
Residing at Arco, Idaho

(SEAL)

STATE OF IDAHO)
) SS.
COUNTY OF BANNOCK)

On this 29th day of May, in the year 1951, before me, the undersigned, a Notary Public in and for said State, personally appeared W. LEROY SMITH, known to me to be the Secretary of the corporation that executed the foregoing instrument, and acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

O. R. Baum
Notary Public for Idaho,
Residing at Pocatello, Idaho

(SEAL)

STATE OF IDAHO)
) SS.
COUNTY OF BANNOCK)

On this 29th day of May, in the year 1951, before me, the undersigned, a Notary Public in and for said State, personally appeared E. W. Hansen, known to me to be the Manager of J. R. Simplot Company, a corporation, and acknowledged to me that he, on behalf of said corporation, executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

C. R. BAUM
Notary Public for Idaho
Residing at Pocatello, Idaho

(SEAL)

Form MF-103
(April 1951)

U. S. DEPARTMENT OF THE INTERIOR
DEFENSE MINERALS ADMINISTRATION

Budget Bureau No. 42-R1035.
Approval expires 6-30-51.

APPLICATION FOR AID FOR AN EXPLORATION PROJECT PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE PRODUCTION ACT OF 1950

DO NOT FILL IN THIS BLOCK

Docket No. DMA-1716 X

Date received 6/18/51

Participation

J. R. SIMPLOT COMPANY
BOX 912
POCATELLO, IDAHO

Name and address of applicant

Date MAY 31, 1951

FILL IN THIS BLOCK

Date of application MAY 31, 1951

Estimated cost $42,000.00

Mineral or metal Manganese Oxides

Percentage of Government participation 75 %

Location of mine 1 Mile S.E. of CLEVLAND, IDAHO

Date of filing MF-100 No Previous or Present Operation

DMA Docket Number, if available

INSTRUCTIONS

Read Mineral Order 5, Regulations Governing Government Aid in Defense Projects, before completing this application. Submit four signed copies of the application to Defense Minerals Administration, Department of the Interior, Washington 25, D. C., or to the nearest field executive officer thereof, with your name and address on each sheet of the application and all accompanying papers. If any question is inapplicable, or if you cannot answer it, so state on the form. Where the space provided for answer is insufficient, answer on a separate sheet, annex it to the application form, and refer to it in space for answer. If the application is approved, you will be presented with an exploration project contract on Form MF-200, for your signature.

THE APPLICANT

*1. Is applicant an individual, partnership, or corporation?
*2. If a partnership, state names and addresses of partners.
*3. If a corporation, state names and addresses of officers, directors, and five largest stockholders.
*4. Describe the mining and general business experience of (*a*) the applicant, and (*b*) the person or persons who will manage the project.
*5. Are you the owner or the lessee of the property?
6. If owner, state what claims, liens, or encumbrances, if any, are against the property.
7. If lessee, attach a copy of the lease and state if it is in good standing.

NOTE.—It will be necessary to procure and attach to the exploration project contract agreements of claimants, lienors, encumbrances and lessors subordinating their interests in the property to the interest of the Government under the contract.

8. Furnish current financial statement, showing assets and liabilities, and a profit and loss statement.
9. How much money is applicant prepared to invest in proposed project? Is it sufficient to pay your part of the cost of the project as detailed in question 23 of this application form, in accordance with the regulations on Government participation (Section 9 of Mineral Order 5)?

*If you have already answered these questions on MF-100, you are not required to answer the questions for this application.

16—64067-1

THE PROPERTY

10. (*a*) Give a description of the real property that will be in any way involved in the exploration project, including any existing mine or operating property.
    (*b*) Give the legal description of the exact parcel, plot, or area upon which the exploration is to be conducted.

    NOTE.—If both areas are the same, so state. The only obligation to repay the Government is from the net earnings from any commercial discovery made in the area specified in (*b*) above in which the exploration is to be conducted, and the expenditure of funds which may be charged as costs of the project must be limited to that area or to work necessary to perform the exploration in that area.

*11. State the present and former names of the property, if any.
*12. State, in detail, the location of the property with reference to towns, railroads, roads, shipping points, including distances and directions and kinds and conditions of roads.
*13. State source and quantity of water available for operations and its sufficiency at all seasons.
State amount of power to be used, rate per hour or other cost, and source.
*14. Describe any existing useable facilities, equipment, buildings, or structure now on the property that will be devoted to the exploration work.
15. State in detail how the ore could be shipped and how and where milled.
*16. History:
    (*a*) Give a statement, as complete as possible, of previous exploration, development, operation, and production of property, with reasons for any past suspensions of operations.
    (*b*) State briefly the known history and production of adjoining and neighboring properties.
    (*c*) Furnish any available (private) reports that may apply to this application, including results of mine examinations, recommended exploration and development, and metallurgical investigations.
*17. Production:
    (*a*) If mine is in production, furnish the following information:

	Tons per day	*Grade or analysis*	*Cost per ton*	*Net value per ton*
(1) Mining				
(2) Milling				
(3) Shipped or sold				

*18. Ore or mineral reserves: (If property is or has been operating.)
    (*a*) Describe the ore or mineral deposits briefly.
    (*b*) Submit available maps and assay data.
    (*c*) Give estimated tonnage and grade of each class of ore reserves.
19. State any conditions or circumstances regarding the property not sufficiently brought out by the foregoing questions.

THE EXPLORATION

20. For what mineral or minerals and for what types of deposits and ores will the exploration be conducted?
21. Describe briefly, but concisely, the proposed work and the estimated time required to complete it.

    NOTE.—The Government will not participate in a project that will require more than 2 years to complete.

22. Furnish statement of the geological basis of the project with particular emphasis on factors leading the operator to expect the finding of commercial ore bodies. This statement should be accompanied by supporting maps such as geological maps, maps of the proposed openings and assay maps, sample lists, and other pertinent data.

THE REQUIREMENTS AND COSTS

23. Tabulate in the form of an itemized statement with a sum for each item the estimated requirements and costs of the project so that the total will give the estimated cost of the project in which the Government will participate, as follows:
    (*a*) Labor, by numbers and classes (miners, muckers, millmen, etc.), with wages of each.
    (*b*) Supervisors, by numbers and positions, with salaries of each.
    (*c*) Cost of necessary repairs to existing facilities, structures, and buildings.
    (*d*) Cost of necessary installation or construction of additional facilities, structures, and buildings.
    (*e*) Cost of items of equipment, not now owned by the applicant which must be purchased for operations at a cost of $50 or more each.
    (*f*) Cost of rental for equipment which the operator proposes to rent.
    (*g*) Rental value of items of equipment which the operator now owns and which will be devoted to the work.
    (*h*) Cost of materials and supplies, including items of equipment costing less than $50 each.
    (*i*) Cost of power, water, utilities, and any other items not provided for above.
24. Furnish a time schedule of the project, stated in terms of months after project is approved, showing progress expected to be accomplished and the money expected to be spent.

CERTIFICATION

The undersigned company, and the official executing this certification on its behalf, hereby certify that the information contained in this form and accompanying papers is correct and complete to the best of their knowledge and belief.

J. R. SIMPLOT COMPANY
(Name of company)

By W. Grant Kilbourne
(Signature of authorized official)

MAY 31, 1951
(Date)

Vice President
(Title)

Title 18, U. S. Code (Crimes), Section 1001, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

*Same as footnote on page 1.

16—64067-1 U. S. GOVERNMENT PRINTING OFFICE

APPLICATION FOR AID FOR AN EXPLORATION PROJECT
PURSUANT TO MINERAL ORDER 5, UNDER DEFENSE
PRODUCTION ACT OF 1950

---

1. Corporation

2. Not applicable

3. J. R. Simplot Company

J. R. Simplot, President, 1500 Harrison Blvd. Boise, Idaho
W. Grant Kilbourne, Vice President, 111 Crestline Drive, Boise, Idaho
Leon C. Jones, Vice President - 324 Everett St., Caldwell, Idaho
J. Dahl, Secretary-Treasurer - 3426 Meadow Drive, Boise, Idaho

Directors:
J. R. Simplot
Ruby A. Simplot
Leon C. Jones

Stockholders of J. R. Simplot Company: J. R. Simplot
Ruby A. Simplot
Scott Robert Simplot - Trust Fund
Gay Corine Simplot - " "
Don John Simplot - " "
Richard Simplot - " "

4. (a) Experience of Operators:

Operating Company is at present mining the following:

Phosphates	5,000	tons day basis
Fluorspar	100	" " "
Barite	10,000	" annual basis
Uranium (Carnotite)	300	" monthly basis

(b) Applicant is well known in the mining industry. Management is under the direction of Geo. A. McHugh, Manager of Mines, and Charles A. Lee, Geologist.

5. Lessee

6. Not applicable

7. Copy of Lease attached

8. Copy of financial statement attached

9. $10,500.00, yes.

10. Contained in attached report

11. Idaho Manganese Corporation

12. Contained in attached report

13. Adequate water available from Bear River. Adequate power available from Utah Power & Light Company lines, which are at a distance of approximately one mile.

14. None, except existing roads.

15. (a) Ore would be hauled by truck to Grace, Idaho, a distance of 14 miles over good roads, and thence by rail to destination. The quality (grade) of this ore is sufficiently high, that no milling process would be required.
(b) Production on this property began in 1926, but was suspended in 1930 due to the small demand and correspondingly low price. See attached report for additional information.
(c) Report attached, contained in U.S.G.S. Bulletin 795, pages 211 to 218 Incl.

17. Not in production at present time.

18. See attached report.

19. Possibility that this could be almost entirely an open pit mining operation.

20. Manganese Oxides.

21. We propose to do diamond drilling to the extent of approximately 5000 ft. Further development would depend on results obtained from the diamond drilling. This program could be accomplished in four months time.

22. Outcrops of exposed Manganese indicates that beds continue for extended distances and that bedded deposits of great magnitude prevail. Past production indicates continuous lenses of Manganese Oxides occurring in lake deposits or sediments. Plans are for an open pit operation and hence would require no mine openings. See attached report for assays on past shipments.

23. (a) None

(b) One Manager (part time)	$1,600.00
One Resident Engineer	1,600.00
One Junior Engineer	1,200.00
One Assayer (Part Time)	800.00
(c) None	
(d) None required	
(e) One pickup truck	1,800.00
One Jeep	1,800.00
(f) Diamond Drilling to be contracted ~~5000~~ ft. at ~~$6,000.00~~ $5.00 per ft.	25,000.00
(g) None	
(h) Approximately $2,000.00 per mo. would cover all necessary supplies and also expenses of personnel	8,000.00

(i) None. To be furnished by Contractor

Total estimated Cost $42,000.00

24. The total cost would be nearly equally distributed over the four month period.

EXCERPT FROM U. S. GEOLOGICAL

BULLETIN NO. 795

CONTRIBUTION TO ECONOMIC

GEOLOGY

BY

D. F. BENNETT

C
O
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Y

A MANGANESE DEPOSIT OF PLEISTOCENE AGE IN

BANNOCK COUNTY, IDAHO

Field Work

Reports of the discovery and exploration of manganese deposits in southeastern Idaho within recent years having come to the Geological Survey, the writer took advantage of an opportunity to spend a day at the deposits in October, 1924. The examination was made in company with V. C. Heikes, of the Bureau of mines. The local operators, especially Mr. George L. Smith, of the Idaho Manganese Co., courteously gave assistance during the visit.

Situation and Accessibility

The deposits thus far known in the region lie along the west slope of the ridge east of Bear River, about 1 mile southeast of Cleveland, Bannock County, Idaho. The principal deposit, operated by the Idaho Manganese Co., is in the E. ½ sec. 31, T. 11 S., R. 40 E., and others lie farther south in sec. 6, T. 12 S., R. 40 E. The ore that has been shipped thus far has been hauled in motor trucks either to Grace, 14 miles north, on a branch of the Oregon Short Line, or to Oxford, 20 miles west, on the main line of the Oregon Short Line running from Ogden to Pocatello. The cost of hauling to Grace is $3.00 a ton, and the freight rate from Grace to Ironton, Utah, where most of the ore has been sold, is $2 a ton. The area lies within the Preston quadrangle, which is covered by one of the topographic maps published by the United States Geological Survey.

History

According to the local operators, float manganese minerals were found in this region in April, 1923, by Sam Ames on the property of the Cleveland Mining Co., a part of the W. C. McGregor ranch. In April, 1924, explorations showed the presence of another deposit half a mile north, and this has since been explored almost continuously by the Idaho Manganese Co., of which Nathan Smith, of Cleveland, is president. Recent explorations south of the McGregor ranch have shown the presence of sporadic manganese minerals, but no ore has yet been shipped.

General Geology

Bear River rises east of the Wasatch Mountains in Northeastern Utah, flows north into southeastern Wyoming, then northwest into southeastern Idaho, and finally south into Salt Lake in Utah. Along its course are several broad valleys separated by constricted valleys or canyons. Gentile Valley, in southeastern Idaho, is one of these broad valleys. At its south end is the settlement of Cleveland, near the point where Bear River, flowing south, enters a narrow canyon. Twelve miles south of Cleveland the canyon ends and the river enters Cache Valley, one of the large open valleys of northern Utah. East of Gentile and Cache Valleys lie the Wasatch Range and its minor ridges and spurs.

The geology of the region was studied in a reconnaissance manner as early as 1872,[1] and it is within the area of the geologic map prepared by Peale in 1877.[2] Briefly stated, Peale recognized that the higher mountains, such as the Wasatch Range, were made up of a thick section of Paleozoic and Mesozoic rocks that were greatly deformed and faulted in early Tertiary time, after which erosion and minor faulting produced ranges and ridges much as they appear today, except that the valleys were deeper and the mountains relatively higher. In late Tertiary time (Pliocene?) a few areas, several of which are exposed in upper Bear River Valley, received sand and gravel, in part of local origin and in part from remote sources. Similar beds, nearly horizontal, cover the divide between Gentile Valley and Cache Valley. During early Pleistocene time each valley contained a lake that received sediments from the bordering ridges to a maximum altitude of 5,800 feet. Terraces at lower levels were also noted--at 5,526 feet, 5,185 feet (Lake Bonneville state), and 4,825 feet (Provo stage).[3] The terrace at 5,526 feet is well shown on both sides of the southern part of Gentile Valley, and the manganese deposits that are described herein occur in the horizontally bedded fine sand, 100 to 150 feet below this terrace.

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1. Bradley, F. H., Report on the geology of the Snake River Division: U. S. Geol. Survey Terr. Ann. Rept. for 1872, pt.1, pp. 189-271, 1873.

2. Peale, A. C., Report on the geology of the Green River district; U. S. Geol. Survey Terr. Ann. Rpt. for 1877, pp. 509-646, 1879

3. Idem, pp. 601-604, 641-643.

In 1885 Gilbert made rather exhaustive physiographic studies of the Lake Bonneville basin, on the basis of which he threw doubt on the existence of a shore terrace at 5,800 feet, reported by Peale, and concluded that although there are terraces existing in Gentile Valley above 5,200 feet they were formed by rivers instead of lakes.[4]

Although the writer's visit in this region was brief and necessarily devoted largely to an examination of the manganese deposits, it yielded observations which indicate that the ridges on both sides of Gentile Valley are covered with a veneer of horizontally bedded fine sediment up to a uniform altitude of about 5,500 feet and that this was deposited along the borders of a lake that was in existence in early pleistocene time, before Lake Bonneville, farther south, stood at an altitude of 5,200 feet.

The Manganese Deposits

Workings: The workings on the tract of the Idaho Manganese Co. include three tunnels - the highest, 35 feet long, at an altitude of about 5,440 feet; the intermediate, 75 feet long, at an altitude of about 5,452 feet; and the lowest, 225 feet long, at an altitude of 5,375 feet. ~~(See Fig. 12.)~~ These tunnels

4. Gilbert, G. K., Lake Bonneville: U. S. Geol. Survey Mon. 1 pp. 94-96, 1890.

explore the beds that underlie the terrace, the top of which ranges locally from 5,475 to 5,500 feet. The floor of Bear River Valley near by lies at an altitude of about 4,900 feet. On the property of the Cleveland Manganese Co., half a mile to the south, there is a tunnel 90 ft. long at an altitude of 5,250 feet.

The highest tunnel of the Idaho Manganese Co. explores a poorly defined zone of impure, earthy brown wad, 2 to 3 feet thick, which overlies thinly laminated fine sands. Unlike the zone explored in the lowest tunnel, it contains no nodules of hard pure oxides of manganese. The zone is of doubtful value as a source of manganese and is interesting largely because it shows the presence of more than a single manganiferous zone.

The intermediate tunnel extends 20 ft. to the top of a shaft, and a drift 75 ft. long to the northwest explores an irregular zone of soft wad in which there are sporadic hard nodules of manganese oxides. With the upper part of the shaft, those workings have yielded about 85 tons of ore.

The lowest tunnel (~~fig. 12~~) follows a nearly horizontal zone of earthy wad and hard manganese oxides to the point, 140 ft. from the entrance, where it is cut off by a northwestward-trending fault. The tunnel continues 30 ft. farther to the bottom of the shaft, but an irregular drift 22 ft. above the tunnel explores what appears to be the same manganese zone beyond the fault. The indicated vertical displacement of the fault is therefore 22 ft. The workings ~~shown in Figure 12~~ have yielded by sorting 15 cars or about 500 tons of ore that ranged in manganese content from 37.7 to 47.3 per cent. West of the 22 ft. fault mentioned above are four minor faults, which trend northwest but dip steeply northeast and along each of which the manganese-bearing zone on the northeast side is dropped from 1 to 4 ft. The central block, bounded on the northeast by the 22 ft. fault, appears to be a wedge that has dropped with reference to the adjacent blocks. Water stands at the face of this tunnel and in several of the drifts south.

A letter from Geo. L. Smith, dated May 4, 1927, states that since October, 1926, the drift 22 ft. above the lowest tunnel has been driven 105 feet east and from it 150 feet of crosscuts have been run.

The sediments.— The materials exposed in these workings include sand, sandy clay, sandy marl, and manganese oxides. In part they are thinly laminated, but generally the materials occur in layers 1 to 4 ft. thick, not sharply separable. The colors commonly range from pale gray to greenish gray, but some beds are buff, chocolate-brown, or black. The presence of volcanic ash was suspected, but samples proved to lack characteristic features of ash, and it is probably absent. The most abundant material is pale greenish-gray sandy clay, showing faint traces of lamination. A fragment was disintegrated in water and washed free from clay. The remainder, about half the original specimen, was examined under the microscope. The largest grains were well-rounded quartz 0.10 millimeter in diameter, but most of the grains range from 0.02 to 0.07 millimeter. Of these, about 80% were subangular quartz and the remainder were angular orthoclase and microcline. Glass and biotite were absent. A fragment of the coarsest material slightly stained by wad was similarly examined. The largest grains were well-rounded quartz 0.15 millimeter in diameter, but most of them ranged from 0.05 to 0.10 millimeter. Of these

about 90% were angular quartz and the rest were orthoclase and microcline. Sandy marl is present but not abundant.

Manganese Minerals.-- The manganese-bearing layers are brown wad with admixed brownish sand, in which are scattered hard, cavernous nodules of mixed psilomelane and pyrolusite, some as much as 2 ft. in diameter. Some zones contain brown wad only, but the zone explored in the lowest tunnel contains more nodules than wad. The nodules are not the simple smooth rounded forms that are characteristic of manganese deposits in the eastern United States but are irregular in outline and highly cavernous. There is no simple relation between the distribution of psilomelane and that of pyrolusite. Iron oxides are inconspicuous or absent (see analysis, p. 318), but a pit near the mouth of the lowest tunnel showed a local bed in which the lumps contained 10 to 20% of iron. Some of the rather pure black nodules show thin films of calcite along shrinkage cracks. In the light of what is known of manganese nodules elsewhere, it seems clear that the hard cavernous nodules have grown where they are now found in the layers of brown wad, which was doubtless deposited as a sediment. The hard nodules have grown only in the purest layers of wad, however, so that impure layers are now found just as they were laid down. The cause of their deposition is obscure; they may be chemical precipitates in shallow water or may have been deposited by microorganisms.

The principal ore zone ranges from 1 to 4 ft. in thickness in the existing workings. It trends northeast and dips southeast at a low angle, probably at no place more than 5°.

An examination of the surface of the ridge east of the mine shows that the loosely consolidated sand and clay are limited eastward by an irregular surface cut across beds of hard limestone and quartzite, which have a complicated structure. No fossils were found in these beds, but it seems clear from what is known of the geology of the region that the beds belong to Paleozoic formations.

Fossils in the sediments.--In the course of the exploration of the deposit the owners found three well-preserved teeth and some fragments at the point marked near the end of the lowest tunnel, 100 ft. below the surface. Through their courtesy the teeth were sent to the United States National Museum, where theywhere they have been examined by J. W. Gidley. His report follows:

> The three larger specimens are parts of molars or grinding teeth of an extinct species of mammoth, known as Elephas columbi. The two smaller pieces are parts of a mastodon tooth. Both of these mammals were very numerous in North America during parts of the Pleistocene.

The presence of these teeth shows that the beds in which the manganese oxides are found were deposited during the Pleistocene epoch.

The workings of the Cleveland Mining Co. appear not to have yet found a persistent zone of manganese minerals. One and one-half carloads of material of good grade have been shipped from workings largely within a few feet of the surface, at a horizon lower than that explored by the workings of the Idaho Manganese Co. The material contains more iron than that mined by the Idaho Company.

Genesis of the deposits.--The data gathered during this examination indicate that the deposits of brown wad were laid down in a body of water present in the region during the Pleistocene epoch and were immediately covered with sandy clay and fine sand. There can be no doubt that if explored inward from

the outcrop they will be found to terminate at or near the place where the recent sediments meet the surface of older hard rocks that form the near-by ridges. Here, as in many other localities, the hard nodules of pure manganese oxides appear to have grown by accretion from manganese in solution since the mud was laid down. It is interesting to speculate whether the manganese was disseminated or locally concentrated in the Paleozoic rocks, and whether the body of water in which the sediments were laid down was relatively permanent, such as a lake, or intermittent, such as a stream, as indicated by Gilbert.

The uniform fineness of the sediments that overlie and underlie the manganese beds, considered with their locally laminated character, indicates that the body of water was relatively permanent and quiet. Consistent with this interpretation is the even height of the terrace that marks the top of the loosely consolidated sediments. In the south end of Gentile Valley the top of the terrace stands uniformly about 5,500 feet above sea level, and the topographic map shows that it extends northward on both sides of the valley for 15 miles or more at this altitude. The conclusion seems justified that in early Pleistocene time Gentile Valley was occupied by a lake, the surface of which remained constant at about 5,500 feet long enough to allow considerable sediment to accumulate along the borders of the lake if not over its entire bed. Probably the hard-rock lip at the south end of the basin stood at 5,500 feet, and the Pleistocene beds have only been dissected to their present form with its erosion. It seems entirely possible that this lake in Gentile Valley was local, and that its equivalent at this altitude was not present in the Salt Lake basin.

As horizontal beds of unconsolidated material of probable Pliocene age attain an altitude of 6,200 ft. over the broad, flat divide between Gentile Valley and Cache Valley, such beds may be present sporadically in Gentile Valley.

Accumulations of manganese minerals are not uncommon in geologically recent depressions, such as marshes and lakes, and are known though much less common in stream channels, recent or old. In very few places, however, has the source of the manganese been definitely established, and the mineral is generally assumed to have been disseminated as minute particles in the near-by rocks. In the United States geologically recent manganese beds are known in Columbia County, N. Y.,[5] Jefferson County, Mont.,[6] and elsewhere. Such deposits appear to be more common in the Canadian provinces, as they have been reported from a number of localities in Albert County, N.B.,[7] in the Cypress Hills, Alberta, and near Keele, B. C.[8] Some of these deposits of bog manganese minerals have been explored, but none of record have produced more than several hundred tons of marketable ore, although some are reported to be larger.

Accumulations of manganese in river-channel deposits are recorded but are uncommon. Two deposits have been explored in Virginia[9] and another is known in California.[10]

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5. Dale, N.C., Postglacial manganese in Columbia County, N.Y.: New York State Mus. Bull. 207-208, pp.85, 100, 1918.
6. Harder, E.C., Manganese deposits of the United States: U. S. Geol. Survey Bull. 427, pp. 135-137, 1910.
7. New Brunswick Crown Land Dept., Fifty-eighth Ann. Rept. p. 16, 1918.
8. Bancroft, M. F., Investigations in the Slocan district, B. C.: Canada Geol. Survey Summary Rept. for 1917, pt. B, pp. 28-33, 1918.
9. Hewett, D. F., Some manganese deposits in Virginia and Maryland: U.S. Geol. Survey Bull. 640, pp. 54-56 61, 1917.
10. Renrose, R.A.F., Manganese, its uses, ores, and deposits: Arkansas Geol. Survey Ann. Rept. for 1890, vol. 1, p. 494, 1891.

This investigation does not indicate the source from which the manganese concentrated in certain beds near Cleveland, Idaho, has been derived. A lead deposit has been explored in the Paleozoic rocks about 2 miles to the east, but although manganese minerals occur in some lead deposits none have been observed here. It seems that the source of the manganese must be the minute quantities known to occur in many rocks, sedimentary as well as igneous.

Mining.--Thus far neither the ore nor the inclosing sand has been sufficiently coherent to require the use of much explosive, and most of the drifts have been run and the ore mined by use of pick and shovel only. After being mined, the material is trammed by hand to an open bin on one side of the dump, where the hard nodules of manganese oxides are broken and sorted. When sufficient cleaned ore has accumulated in the bin to make a shipment, it is drawn into trucks and hauled to the railroad.

Production and reserves.-- The following table presents the weight and analyses of all except one of the cars of ore that had been shipped up to May 3, 1927, by the Idaho Manganese Company.

Summary of shipments by the Idaho Manganese Co.

Date	Tons, Dry Weight	Manganese (per cent dry basis)	Insoluble (per cent)	Water Per-cent	Date	Tons, dry weight	Manganese (per cent, dry basis)	Insoluble (per cent)	Water Per Cent
1923	1 car	(?)	(?)	(?)	Nov. 13	33.80			
					Nov. 15	38.96	46.2	7.7	15.5
1924					Nov. 18	35.23	47.6	8.0	16.7
Jan. 28	25.78	44.68	10.3	15	Nov. 20	36.73	44.5	11.0	18.4
Apr. 29	34.87	38.80	18.2	20	Dec. 8	30.34	40.2	12.7	22.7
June 8	34.41	37.7	20.6	6.5	Dec. 17	28.69	42.2	13.7	30.9
June 23	41.38	41.4	10.2	8.4	Dec. 29	33.25	45.75	9.4	18.2
July 2	37.90	44.6	8.2	6.5					
July 12	44.65	46.5	6.6	7.4	1927				
July 16	36.73	43.6	12.3	10.5	Jan. 12	34.76	48.1	7.5	14.5
July 27	42.38	42.8	9.4	16.0	Jan. 25	30.40	41.0	18.6	23.1
July 29	46.61	45.6	5.8	6.2	Feb. 3	33.46	44.8	6.6	14.9
Aug. 3	33.92	45.0	7.7	12.2	Feb. 15	39.85	49.2	6.4	12.7
Aug. 7	43.63	48.0	9.4	10.6	Feb. 27	36.14	48.0	6.4	15.0
Aug. 13	32.89	45.8	10.8	16.3	Mar. 2	21.22	40.4	9.8	19.8
Aug. 24	36.44	38.0	11.7	14.8	Apr. 5	32.89	42.3	9.5	20.0
Sept. 11	36.29	47.3	6.95	5.8	April 20	25.55	47.4	7.4	22.2
Sept. 21	43.46	46.1	8.0	7.0	Apr. 27	35.12	40.2	11.2	18.6
Oct. 11	32.25	41.4	10.4	10.0	May 3	38.00	42.4	3.4	9.9
Nov. 1	35.37	41.5	10.4	14.2					
						1,206.18			

A 50-pound sample of ore sent to the Montana Laboratories Co., Butte, Montana, for analysis, showed manganese 57.1[illegible]% and available oxygen 15.87% equivalent to 85.12% manganese dioxide; silica 3.0[illegible]%; iron 0.14%; copper 0.0[illegible]%; lead 0.[illegible]%; arsenic 0.04%; water 0.5%. Such material is well adapted for use in dry batteries, but in order to obtain large quantities it would have to be closely sorted free from the small quantities of calcite [illegible] present.

The yield of the part of the lowest zone that has been explored in the lowest tunnel indicates that it may be expected to yield about 3,000 tons of shipping ore to the acre. Although exploration has not yet determined the extent of the principal bed, it would be surprising if the bed were persistent over more than a few acres. If more than one bed is found, however, the reserve would be correspondingly increased.

STATEMENT OF FINANCIAL CONDITION

J. R. Simplot Company
December 31, 1950

ASSETS

Current Assets		
Cash		
Notes and accounts receivable	$ 717,291.99	
Less: Allowance for doubtful	15,384.76	701,907.23
Inventories:		
Finished goods	$ 852,253.91	
Raw materials	202,233.53	
Manufacturing supplies	194,408.60	1,248,896.04
Total Current Assets		$1,941,514.93
Due from Affiliates		248,438.88
Investments and Other Assets		124,819.60
Property, Plant & Equipment	$4,385,993.21	
Less: Allowance for depreciation	1,970,491.72	2,415,501.49
Deferred Charges		20,798.90
Total		$4,751,073.80

LIABILITIES

Current Liabilities		
Notes & contracts payable:		
To Banks	$ 659,599.53	
To Others	88,750.92	$ 748,350.45
Accounts payable		199,934.14
Accrued expenses		101,969.74
Reserve for taxes on income:		
Prior year	$ 2,258.96	
Current year - estimated	110,000.00	112,258.96
Total Current Liabilities		$1,162,513.29
Due to Affiliates		341,036.86
Other Liabilities		
Mortgages and contracts payable	$ 661,198.27	
Accounts payable	157,697.32	
Contingency reserve	26,000.00	844,895.59
Capital Stock and Surplus		
Capital Stock - authorized & issued	$ 50,000.00	
Surplus	2,449,387.81	
	$2,499,387.81	
Deduct: Cost of Treasury Stock	96,759.75	2,402,628.06
Total		$4,751,073.80

John M. Dahl
Treasurer

ANALYSIS OF SURPLUS

J. R. Simplot Company
Period of ten months ended December 31, 1950

Paid-in Surplus			$ 288,736.21
Earned Surplus			
Balance at March 1, 1950		$1,963,131.26	
Add:			
Profit for ten months ended December 31, 1950	$307,520.34		
Provision for income taxes	110,000.00		
Net Profit		197,520.34	
Earned Surplus - Balance at December 31, 1950			$2,160,651.60
Total Surplus - Balance at December 31, 1950			$2,449,387.81

SUMMARY OF INCOME & EXPENSE

J. R. Simplot Company
Ten months ended December 31, 1950

Net Sales	$5,585,362.25
Cost of Sales	4,595,029.45
Gross profit	$ 990,332.80
General & Sales expense	202,171.42
Operating Profit	$ 788,161.38
Deduct:	
Depreciation	$ 307,319.63
Interest	53,349.84
	$ 360,669.47
	$ 427,491.91
Other expenses - net	
Profit before income taxes	$ 307,520.34
Provision for taxes on income	110,000.00
Net profit	$ 197,520.34

OPTION AND LEASE AGREEMENT

THIS AGREEMENT Made and entered into this 25th day of May, 1951, by and between IDAHO MANGANESE MINING COMPANY, a corporation, hereinafter known and designated as First Party, and J. R. SIMPLOT COMPANY, a corporation, hereinafter known and designated as Second Party,

WITNESSETH:

WHEREAS, First Party is the owner of the hereinafter described rights, namely, mineral rights on the hereinafter described lands; and

WHEREAS, It is the desire of said First Party that said Second Party shall be privileged to explore and perform certain development work thereon for the purpose of ascertaining the amount and quantity of ore thereon and therein; and

WHEREAS, Said Second Party desires to have a ninety day option for the performance of such exploration and development work, and in the event the results are satisfactory to have a lease on said premises, all as hereinafter stated,

NOW, THEREFORE, In consideration of the sum of Ten Dollars ($10.00), cash in hand paid, the receipt of which is hereby acknowledged, said First Party does hereby grant, option and lease to said Second Party, and said Second Party options of and leases of said First Party the hereinafter described land and the right to remove minerals therefrom, and to explore and to develop the same, all as hereinafter stated, under the following terms and conditions:

Said First Party covenants as follows:

1. To permit said Second Party to have the exclusive possession of said hereinafter described premises for a period of ninety days, except as hereinafter stated, with the right to explore, develop and to do such work as deemed necessary in the opinion of said Second Party for the purpose of ascertaining the quality and quantity of manganese ore thereon, and such other minerals as may be found, hereby granting to said

Second Party a lease on said premises at the termination of the said ninety day period, or an extension thereof, above mentioned for the purpose of operating said premises and paying a royalty thereon as hereinafter stated; and

Said Second Party covenants as follows:

1. To enter in and upon the said premises and to do such exploratory work, such as diamond drilling and the like, as it deems advisable, and in a mining like fashion, for the ascertainment of the quality and quantity of manganese ore within said premises. That the diamond drilling shall consist of at lease twelve hundred (1200) feet.

2. To report to said First Party its findings growing out of its said exploratory work.

3. In the event said Second Party, on account of something that cannot be foreseen at this time, is unable to obtain the appropriate and necessary equipment to perform such exploration work and is proceeding in good faith, said First Party will grant an additional ninety (90) days in which to perform such exploratory work.

IT IS FURTHER AGREED By and between the parties hereto that in the event said Second Party, after the performance of said exploratory work, desires to proceed further in said matter it shall so advise the said First Party in writing, and the terms under which it shall operate shall be as follows:

1. To go into and upon the said premises, within a reasonable time, said premises to be hereinafter described, and to develop and operate the same, and to remove therefrom manganese ore and such other ore or minerals as may be ascertained that are within said premises, on the following basis:

a. 12½% royalty upon the net returns, namely, after all transportation charges have been deducted.

b. To mine said premises in a good mining like fashion and to keep reports thereof and make such reports available to said First Party.

2. To operate said premises in a mining like fashion as long as manganese ore can be removed therefrom commercially and profitably.

3. Upon the determination by said Second Party that manganese ore cannot be mined therefrom profitably said Second Party agrees to return said premises to said First Party, PROVIDED, HOWEVER, that in lieu of returning said premises and in the event that the Second Party, following the completion of the preliminary exploration program, desires to go forward and states in writing that it is its intention to further develop and mine the property as herein stated, and in the event the said Second Party finds that it is not profitable at that time, or within nine months thereafter, to carry on such mining program, or for other reasons that make such a mining program inexpedient, then the said Second Party shall have the privilege, in lieu of mining said property, to pay to said First Party $1,000.00 a year for a period of three years, and $2,000.00 per year for the next succeeding three years. In the event the property is subsequently operated by said Second Party, then the royalty payments that are to be made from the ore removed shall be retained by the said Second Party until they have been reimbursed for the sums of money so paid for any of such years as rental in lieu of royalties by reason of mining ore commercially, PROVIDED, HOWEVER, that the said sums of money aforementioned are to be paid in cash at the beginning of each of the said years for which said money may become due.

IT IS FURTHER UNDERSTOOD AND AGREED by and between the parties hereto that said Second Party shall be privileged to place on

said premises such structure, or structures, as it deems advisable, and it shall always be privileged to remove the same upon the termination of this agreement and within thirty (30) days after said termination has been had.

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that in the event other ores or other minerals or minerals of any type are found within said premises, that said Second Party will pay as royalty thereon the established royalty for such ores or minerals as has been set within this area by the U.S.G.S.

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that said Second Party will fully account for and make reports to said First Party of all shipments of manganese ore or other minerals, and at all times perform its work in a mining like fashion.

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that said books of said Second Party shall at all times be open to inspection by said First Party or its said officers, and that said rents shall be paid monthly, and that payment of all royalties shall be made monthly within five days after the first of each and every month hereafter.

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that said First Party will use all such royalties, at the rate of 2½% of the 12½%, to liquidate the claim of O. R. Baum, Trustee for the former stockholders of the Western Manganese Company.

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that in the event said First Party desires to sell said premises said Second Party shall have the first right and privilege to purchase said property at the reasonable going marketable value thereof, and at such price as may be mutually agreed upon by and between said parties, and in the event an agreement cannot be had as to the value of said premises said Second Party shall be privileged, for a period of sixty (60) days after any offer has been made by any third party to

purchase said premises, to meet the price and conditions of said proposed purchase, and upon so meeting the same said First Party shall forthwith transfer by marketable title the said premises hereinafter described to said Second Party.

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that the premises referred to herein are as follows:

All the mineral found in the lands hereinafter described reserving to first party hereto only the surface thereof, granting to second party the right of ingress and egress and the earth beneath the surface and sufficient of the surface ground upon which to erect roads, buildings, machine shops, bunk houses, shacks and buildings necessary for the operation of the mines, ditches, sluices, hoists and shafts, in fine, all the surface that is necessary for the extraction of the ores and development of the mines in and upon the following described lands located in Bannock and Franklin Counties, Idaho, to-wit:

Beginning at a point 1320 feet (¼ mile) East and 1347 feet North of Southeast corner (stone in place) of Section 31, Township 12 South, of Range 41 East of the Boise Meridian, running thence South 83°10' West 3990 feet more or less (said line being identical to and a projection of the North boundary line of the Blue Lizzard mine) to the ¼ section line; thence North 453 feet to Northwest corner of Southwest quarter, Southeast quarter of said Section 31, thence East one half mile to Northeast corner of Southeast quarter Southeast quarter of said Section 31, thence North one fourth mile to the ¼ corner common to Section 31, and 32, thence East one ½ mile to Northeast corner of Northwest quarter Southwest quarter Section 32, thence South 1293 feet, more or less, to point of beginning, and containing approximately 60.4 acres.

Also, North half of the Southeast quarter Section 31, Township 12 South, Range 41 East of the Boise Meridian, in Idaho.

South half of Northeast quarter Section 31, Township 12 South, Range 41 East of Boise Meridian, and Southwest quarter of Northwest quarter of Section 32, Township 12 South, Range 41 East of Boise Meridian, all in Bannock County, Idaho.

Together with the right to use for mining and domestic purposes that certain spring of water known as Ed's Hollow decreed to J. D. McGregor Jr., in that certain water suit brought by Utah Power and Light Company against Last Chance Canal Company, et al, in United States District Court, and

decreed July 14, 1920 for amount of 2.6 feet
of date of June 21, 1924

IT IS FURTHER UNDERSTOOD AND AGREED By and between the parties hereto that as and when the shareholders of said First Party prove this Option and Lease Agreement, then the information referred to that is to be furnished by said Second Party as to its findings, shall be delivered over to said First Party.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands and seals this 25th day of May, 1951.

IDAHO MANGANESE MINING COMPANY, a corporation

By Howard R. Smith
President
Party of the First Part

ATTEST:

N. LaRoy Smith
Secretary

J. R. SIMPLOT COMPANY, A corporation

By E. W. Hansen
Manager

Party of the Second Part

STATE OF IDAHO)
) SS.
COUNTY OF BANNOCK)

On this 25th day of May, in the year 1951, before me, the undersigned, a Notary Public in and for said State, personally appeared HOWARD R. SMITH, known to me to be the President of the corporation that executed the foregoing instrument, and acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

Byron J. Sherman
Notary Public for Idaho
Residing at Arco, Idaho

(SEAL)

STATE OF IDAHO)
) SS.
COUNTY OF BANNOCK)

On this 29th day of May, in the year 1951, before me, the undersigned, a Notary Public in and for said State, personally appeared N. LEROY SMITH, known to me to be the Secretary of the corporation that executed the foregoing instrument, and acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

O. R. Baum
Notary Public for Idaho,
Residing at Pocatello, Idaho

(SEAL)

STATE OF IDAHO)
) SS.
COUNTY OF BANNOCK)

On this 29th day of May, in the year 1951, before me, the undersigned, a Notary Public in and for said State, personally appeared E. W. Hansen, known to me to be the Manager of J. R. Simplot Company, a corporation, and acknowledged to me that he, on behalf of said corporation, executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year in this certificate first above written.

O. R. BAUM
Notary Public for Idaho
Residing at Pocatello, Idaho

(SEAL)