DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

# MINE REPORT

Name of MG Team near Mine: Tottori Mil Govt Team Date: 17/9/47

Name of Mine: Dainichi Mine

Location: Aso Kamikisaichi, Yazu-gun, Tottori-ken

Owners: (Present): Toramichi Okabayshi

Former Owner: Yoshitaro Yamada

Capitol: (Yen) 200,000.00

Mine Lot Number: Unknown. Manager lives at Osaka

Date mine was opened: 1944

Mine Yield (Type of Ore): Cu-pyrite Ag

Geology: (by%): Contact deposit, Hoist rock, Andesite, Serpentine

Grade of Ore Sample: -

Type of Mine: Cu-pyrite Mine

PProduction of Mine by Weight for Year:

| 1938 to 1946. | Good ORE | Poor ORE |
|---|---|---|
| | 4 tons | (4%) quality |

Production 66 Mine for each month of 1947: -

Method of Processing ORE: Hand picking

Method of Distribution: Shipped for Tsuyama Dressing Plant

Transportation used: Horse-car train

Names of Principle Buyers: Tsuyama Dressing Plant

Do they process their own ores: Only hand picking

Method used: -

Chemicals used: -

Coal used: -

Gasoline - Diesel - Motor oils --- Other -

Are Materials easily purchased: -

Not Working
Price
below.

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| er of Employees: | Male | Female |
|---|---|---|
| Before War: | - | - |
| During War: | 8 | 4 |
| Present Time: | - | - |

Wage Scale: -

Is Mine running at full capacity: -

Future plans of working mines: Unknown as mine manager was absent.

How are working conditions for miners: Not operating.

Do they have any labor or other troubles: -

Rough sketch of mine: As sketched below

Kind of equipment used and condition of equipment and mine props and timbers.

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# MINE REPORT

Name of MG Team near Mine: Tottori Mil Govt Team Date: 19/9/47

Name of Mine: Sekigane Mine

Location: Yamaguchi, Yaokuri-mura, Tohaku-gun, Tottori-ken

Owners: (Present): Kiyofuku Ishisaka

Former Owner: " "

Capitol: (Yen) 400,000.00

Mine Lot Number: Mining right of Tottori-ken No 24
Prospecting right 1.134, 1.139, 1.01, 914, 1.016, 870, 910

Date mine was opened: 1934

Mine Yield (Type of Ore): Molybdenite, Wolframite, Pyrite

Geology: (by %): Pneumatolytic impregnation denite, Molybenite & Wolframite occurred for granite dyke, gangue mineral: Quartz chlorite dolomite

Grade of Ore Sample:
Wolframite - average 0.3 %
Molybdenite - 0.5 %

Production of Mine by Weight for Year:

| 1938 to 1946. | Good ORE | Poor ORE |
|---|---|---|
| Quality 50% | Wolframite 300 kg. | 10 tons (0.5%) |
| Quality 50% | Molybdenite 1000kg | 20 tons |

Production of Mine for Each Month of 1947:

Prospecting

Method of Processing ORE: Crushed by roll crusher and sizing

Method of Distribution: According to instructions by Wolframite and Molybdenite distributing association

Transportation used: Truck-train

Names of Principle Buyers: Kitanihon Mining Co, Toyama City
Awamura Mining Co, Kyoto

Do they process their own ores: Only curshed and sizing

Method used: Separation method

Chemicals used: -

Coal used: -

Gasoline 80ls per month Diesel - Motor oils - Other -

Are Materials easily purchased: None

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# CORRECTION

THIS DOCUMENT

HAS BEEN REPHOTOGRAPHED

TO ASSURE LEGIBILITY

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

# MINE REPORT

Name of MG Team near Mine: Tottori Mil Govt Team Date: 19/9/47

Name of Mine: Sekigane Mine

Location: Yamaguchi, Yaokuri-mura, Tohaku-gun, Tottori-ken

Owners: (Present): Kiyofuku Ishisaka

Former Owner: " "

Capitol: (Yen) 400,000.00

Mine Lot Number: Mining right of Tottori-ken No 24
Prospecting right 1.134, 1.139, 1.01, 914, 1.016, 870, 910

Date mine was opened: 1934

Mine Yield (Type of Ore): Molybdenite, Wolframite, Pyrite

Geology: (by %): Pneumatolytic impregnation denite, Molybenite & Wolframite occurred for granite dyke, gangue mineral: Quartz chlorite dolomite

Grade of Ore Sample:
Wolframite - average 0.3 %
Molybdenite - 0.5 %

Production of Mine by Weight for Year:

1938 to 1946.

| | Good ORE | Poor ORE |
|---|---|---|
| Quality 50% | Wolframite 300 kg. | 10 tons (0.5%) |
| Quality 50% | Molybdenite 1000kg | 20 tons |

Production of Mine for Each Month of 1947:

Prospecting

Method of Processing ORE: Crushed by roll crusher and sizing

Method of Distribution: According to instructions by Wolframite and Molybdenite distributing association

Transportation used: Truck-train

Names of Principle Buyers: Kitanihon Mining Co, Toyama City
Awamura Mining Co, Kyoto

Do they process their own ores: Only curshed and sizing

Method used: Separation method

Chemicals used: -

Coal used: -

Gasoline 80ls per month Diesel - Motor oils - Other -

Are Materials easily purchased: None

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| Number of Employees: | Male | Female |
|---|---|---|
| Before War: | 50 | 15 |
| During War: | 34 | 12 |
| Present Time: | 14 | 3 |

Wage Scale: Piece work wage Average 1000.00 per 10 days
Fixed wage 50 yen per day (clerk)

Is Mine running at full capacity: Yes. This mine is laying stress on prospecting.

Future plans of working mines:

Pits working. Goal: 144 tons/year poor Ore
0.288 tons/year 80% good ore

How are working conditions for miners: Very good.

Do they have any labor or other troubles: No.

Rough sketch of mine: Aim of this mine is laying stress on prospecting but owing to insufficient funs, prospecting is going slow motion. But now the head of the mine has come to recognize as the result of his 15 years inspection of the mine the fact that the mine reserves abundent reliable ores. I think, the reason why the head does not excavate the ores is the official price of Molybdenite and Wolframite is so cheap that the excavation itself does not pay for him.

Good Mine

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

# MINE REPORT

Name of MG Team near Mine: Tottori Mil Govt Team Date: 16/9/47

Name of Mine: Wakasa Mine

Location: Akamatsu, Wakasa-machi, Yazu-gun, Tottori

Owners: (Present): Kametaro Myoga

Former Owner: Kenji Kato

Capitol: (Yen) 200,000.00

Mine Lot Number: Unknown

Date mine was opened: 1934

Mine Yield (Type of Ore): Limestone

Geology: (by%): Tertiary era

Grade of Ore Sample: Ca O 99% Fe, Al - Trace

Type of Mine: Lime mine

Production of Mine by Weight for Year:

| 1938 to 1946 | Good Ore | Poor Ore |
|---|---|---|
| 1943 - 1946 | 2100 tons (Lime) | 3500 tons (Limestone) |

Production of Mine for Each Month of 1947:

| January - June | July - December |
|---|---|
| Not operating | 200,000 kan each month (Lime) |

Method of Processing ORE: Crushed by hand and burned by furnace.

Method of Distribution: Agriculture Association in Tottori-ken

Trasnportation used:

(Truck - Train - Boat - All others) Horse-Truck

Names of Principle Buyers: Agriculture Association in Tottori-ken

Do they process their own ores: Yes

Method used: Crushed and Burned

Chemicals used: None

Coal used: 50 tons per month

Gasoline 200 ls. Diesel - AMotor Oils - Other - Tub oil 18 ls Mobile 14 ls

Are Materials easily pruchased: No

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Number of Employees:

| | Male | Female |
|---|---|---|
| Before War: | - | - |
| During War: | 22 | - |
| Present Time: | 27 | - |

Wage Scale: Fixed wage 75 yen per day

Is Mine running at full capacity:

No, not at present. It will be running at full capacity after the future plans of working mines are completed.

Future plans of working mines:

1. To make motor track road till ore bin (2 km.)
2. To make one ore bin
3. Mine is stalling blower with furnace (in the making)

How are working conditions for miners:

Good, net working time - 6 hours

Do they have any labor or other troubles:

On account of financial condition the mine does not operate smoothly even if the head of the mine does know of a good way.

Rough sketch of mine:

It is 4 km northeast from Wakasa station and near Fujihara Lime Mine.

As stated below figure.

Kind of equipment used and condition of equipment and mine props and timbers.

| | | |
|---|---|---|
| Furnace | | 1 |
| Motor | 3Hp | 1 |
| Cable | | 4 (Total length 850 me) |
| Horse-car | | 1 |

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File Pc.
M-7-T

H E A D Q U A R T E R S
Tottori Mil Govt Team
APO 317

File No 48

2 September 1947

SUBJECT: Letter of Transmittal

TO: Commanding Officer
Chugoku Mil Govt Region
(ATTN: Resources, Commerce & Industry Officer)
APO 317

Attached as inclosures hereto are reports of inspection on three mines in Iwami-gun, Tottori Prefecture which were accomplished by one Gouji Kurabashi of your headquarters.

PHILLIP J. VANDER ZWIEP
Lt. Col., F. A.
Commanding

3 Incls:
As stated above.

(2)

(2)

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

# MINE REPORT

Name of MG Team near Mine: Tottori M.G.Team. Date: 25 Aug., 1947

Name of Mine: Suzugane Mine

Location: Ginzan of Gamo-mura, Iwami-gun, Tottori Pref.

Owners: (Present): Usaburo Kondo in Osaka City.

Former Owner: Yorisuke Yoshida in Kobe City.

Capital: (Yen) (Couldn't find, because there were no bodies who are experienced in office work)

Mine Lot Number: Prospecting right, Tottori Pref. No. 1189

Date mine was opened: 1943.

Mine Yield (Type of ORe): Cu Au Ag.

Geology: (by %): Contact Ore Deposit.
Country Rock: Black shale, Andesite.

Grade of OreSample: Cu 0.7 % (Crude ore)

Type of Mine: Copper Mine.

Production of Mine by Weight for Year:

| 1938 to 1946. | Good ORE | Poor ORE |
|---|---|---|
| | None (Prospecting) | |

Production of Mine for Each Month of 1947:

None.

Method of Processing ORE: None.

Method of Distribution: None.

Transportation used:
(Truck - Train - Boat - All others) None.

Names of Principle Buyers: None.

Do they process their own ores: None.

Method used: None.

Chemicals used: None.

Coal used: None.

Gasoline____ Diesel____ Motor Oils____ Other 0.4 gallon

Are Materials easily purchased:

(X (15)

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| Number of Employee: | Male | Female |
|---|---|---|
| Before War: | -- | -- |
| During War: | 5 | 3 |
| Present Time: | 5 | 3 |

Wage Scale: Piece work 60 yen per day.

Is Mine running at full capacity:
No, Damaged seriously by the earthquake in 1943. And owing to shortage of mine timbers they cannot fix the mine well.

Future plans of working mines: Country rock of veins that strike from south to north is not hard and apt to be destroyed. So as soon as the mine get the raw materials, mine props, it starts mining. They will cut the vein that strikes from north to south to make main level, and gather ores by over hand stopping. Main level is 10 metres long now.

How are working conditions for miners:
Fair. New working time 7 hours.

Do they have any labor or other troubles:
No. As the laborers are semi-farmers, their characters are not bad.

Rough sketch of mine:
Located 15 kilo metres away to the south eastern of Iwami Station. It has the same tipe as Iwami Mine that adjoin it. We don't expect much, because troubles are going with carriage of ores. Shape of deposit is of net-work. The width of vein is from 0.6 metres to 20 metres. Both fault and vein strike from north to south.

Kind of equipment used & condition of equipment & mine props & timbers.

Condition of mine props & timbers isn't good.

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# MINE REPORT

Name of MG Team near Mine: Tottori M.G. Team. Date: 24 Aug., 1947

Name of Mine: Toho Mine.

Location: Arakane of Oda-mura, Iwami-gun, Tottori Pref.

Owners: (Present): Showa Mining Co. Ltd.

Former Owner: Kyuichiro Morita at Himeji City.

Capital: (Yen) 60,000,000 yen
Investment 500,000 yen

Mine Lot Number: Mining right of Tottori Pref. No. 17
prospecting right No. 934

Date mine was opened: 1918

Mine Yield (Type of Ore): Cu Ag Au Zn

Geology: (by %): Fissure Filling Deposit: regular vein
Country rock: Liperite, Andesite (Dyke) Shale.

Grade of Ore Sample: 0.7 % in average (copper without processing)

Type of Mine: Copper Mine.

Production of Mine by Weight for Year:

| 1938 to 1946. | Good ORE | Poor ORE |
|---|---|---|
| Total | 282.57 ton | 21,350.8 ton |

Production of Mine for Each Month of 1947:

| | | | |
|---|---|---|---|
| Jan. | 1.040 | 13 | |
| Feb. | 0.400 | 5 | Present Stock |
| Mar. | 1.200 | 15 | cement copper 4.5 tons. |
| Apr. | -- | -- | |
| May | -- | -- | |
| June | 0.280 | 3.5 | |
| July | 1.040 | 13 | |
| Total | 3.960 | 49.5 | |

Method of Processing ORE: Hand Picking, and taking cement copper with under-ground water.

Method of Distribution: Shipped for Hibi Refinery Plant.

Transportation used:
(Truck - Train - Boat - All others) Truck - Train.

Name of Principle Buyers: Hibi Refinery Plant in Okayama Pref.

Do they process their own ores: Yes.

Method used: Hand Picking only. Precipitation Method (by settling pond)

Chemicals used: Lime, iron scrap.

Coal used: None.

Gasoline 50 ls Diesel _____ Motor Oils_____Other Mobil 3 ls/m

Are Materials easily purchased: No.

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Number of Employees:

| | Male | Female |
|---|---|---|
| Before War: | 50 | 5 |
| During War: | 50 | 5 |
| Present Time: | 8 | 1 |

Wage Scale: 60 yen per day in average:
Base pay + under ground allowance + family allowance.

Is Mine running at full capacity: No, because this mine hasn't enough capital. And this mine had been owned and managed by a Company Ltd., but is going to be private mine.

Future plans of working mines: Cement copper shall be taken in large scale after the increasement of wooden conduits. They will gather ores from layers above the present level.

How are working conditions for miners:
Very good. The mine is being managed in accordance with opinions of all labors and clerks.

Do they have any labor or other troubles:
1) This mine confronts with the troubles about copper poisining.
2) Comparing with cost, price of copper is rather cheap, and so this mine is suffering from shortage of capital.

Rough sketch of mine:
Situated 9 ~~ix~~ kilo metres away to the south of Iwami Railway Station. Shape of deposit is a regular system vein. And this mine has been hardly damaged by the earthquake in 1943.

Kind of equipment used & condition of equipment & mine props & timbers.

| | | |
|---|---|---|
| Pump | 2 | 5 house powers |
| Winch | 1 ton | |
| Motor | 1 | 3 house powers |
| | 1 | 5 house powers |

Mechanical Control Laboratory Control Section

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# MINE REPORT

Name of MG Team near Mine: Tottori M.G. Team. Date: 23 Aug., 1947

Name of Mine: Iwami Mine: Manager, Moriji Yamaguchi

Location: Aragane of Oda-mura, Iwami-gun, Tottori Pref.

Owners: (Present): Nippon Mining Co. Ltd.: President, Kusuo Okabe

Former Owner: Hori Mining Co. Ltd.

Capital: (Yen) 470,000,000 yen
Investment (loarn) 5,950,000 yen

Mine Lot Number: Mining right of Tottori Pref. No 1, 10, 15.

Date mine was opened: 1912

Mine Yield (Type of Ore): Cu Ag Zn

Grade of Ore Sample:

| Cu | Fe | Zn | $S_2O_2$ | $Al_2O_3$ | $BaSO_4$ | CaO | S | MgO | Mn | Pb | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.95 | 13.69 | 0 | 59.61 | 84.4 | 0 | 0.16 | 13.61 | 1.33 | 0.09 | 0 | 97.82 |

Geology: (by %): Liperite, Andesite, and Basult erupt through shale and taff of Tertiary Period. And Liperite is much distributed.

Type of Mine: Copper Mine

Production of Mine by Weight for Year:

| 1938 to 1946 | Good ORE | Poor ORE |
|---|---|---|
| Total | 29,241 tons | 298,512 tons |

Production of Mine for Each Month of 1947:

| | Jan. | Feb. | Mar. | Apr. | May | June | July |
|---|---|---|---|---|---|---|---|
| cement copper | 20.5032 | 13.6713 | 20.2217 | 12.719 | 10.873 | 9.830 | 9.441 |
| | 76.13 % | 76.11 % | 74 % | 74.35% | 72.73% | 70.79% | 66.02 % |

Method of Processing ORE: Floatation till 1943: At present taking cement copper.

Method of Distribution: Shipped for Saganoseki Refinery Plant.

Transportation used:
(Truck - Train - Boat - All others) Truck - Train.

Name of Principle Buyers: Saganoseki Refinery Plant.

Do they process their own ores: Yes.

Method used: Precipitation Method (by setting pond)

Chemicals used: Lime

Coal used: None.

Considerable damage by earthquake

(15)

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Gasoline 600 ls Diesel 600 ls Motor Oils 72 ls.

Other
light oil 36 ls.
cylinder oil 9 ls.
mobil oil 120 ls.
cup grease 18 ls.
other 72 ls.
(per month)

Are Materials easily purchased:

| Number of Employee: | Male | Female |
|---|---|---|
| Before War: | 454 | 16 |
| During War: | 316 | 49 |
| Present Time: | 87 | 22 |

Wage Scale: Fixed wage (¥ 74.60) + family allowance + other allowance, Total ¥ 97.25 per day (female ¥ 49.00)

Is Mine running at full capacity: Yes.

Future plans of working mines: Owing to the earthquake in 1943, the levels of the mine were buried. So they cannot work inside of the mine. And it will continue the business by taking cement copper.

How are working conditions for miners: Fair.
20 houses for clerks and miners: 60 % of laborers are a semi-farmer, and the rest as a true miner. Percentage of attendance is 85 %.

Do they have any labor or other troubles:
No labor trouble. Net working time 7 hours.
Troubles are going with the problem about mineral pollution.

Rough sketch of mine: Situated about 8 kilo metres away to the south of Iwami Railway Station. This is an old mine, and After taking cement copper, this mine is destined to be abondoned, I guess. Collection of cement copper is being carried in rather large scale. The most famous mine in the Pref.

Kind of equipment used & condition of equipment & mine props & timbers.

| | | | |
|---|---|---|---|
| Doll sickner | 1 | | |
| Filter Press | 5 | 20 H.P. | |
| Pump | 1 | 7.5 H.P. | |
| | 1 | 10 H.P. | )- Condition Medium. |
| | 1 | 50 H.P. | |
| | 1 | 85 H.P. | |
| Winch | 2 | 10 H.P. | |
| | 1 | 20 H.P. | |
| Agitator | 2 | 5 H.P. | |
| Setting pond | 12 | | |
| Lathe | 1 | 4 feet | |
| do. | 1 | 12 ft. | |
| Horizontal Lathe | 1 | 18 inches | |
| do. | 1 | 5 inches | |
| Mechanical saw | 1 | 5 inches | |
| Truck | 2 | | |

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M-7-T

# MINE REPORT

Name of MG Team near Mine: Tottori M. G. Team. Date: 28 Aug., 1947

Name of Mine: Fujihara Lime Mine.

Location: Yasuishuku, Abe-mura, Yazu-gun.

Owners: (Present): Fujihara Lime Mining Co. Ltd.

Former Owner: Sanin Marble Industry Co. Ltd.
(President: Kenjiro Irie)

Capital: (Yen) 8,000,000 yen.
(5,000,000 yen invested)

Mine Lot Number: No. 455 of enterprise permission decree.

Date mine was opened: June, 1946.

Mine Yield (Type of Ore): Lime Stone.

Geology: (by %): Lime stone into which surpenchin[illegible] Tertially is metamorphosed by hydrothermal liquid.

Grade of Ore Sample: Lime: 95 % Others (Mg.....)

Type of Mine: Lime Mine.

Production of Mine by Weight for Years:

1938 to 1946. Good Ore

from July to Dec., 1946 ------ 1,875 tons.

Production of Mine for Each Month of 1947:

| Jan. | Feb. | Mar. | Apr. | May | June | July |
|---|---|---|---|---|---|---|
| 50 tons | 40 | 40 | 40 | 60 | 60 | 60 |

Method of Processing ORE: Burning Lime Stone in 5 roasting pots.

Method of Distribution: By Prefectural Govt's instruction.

Transportation used:
(Truck - Train- Boat- All others) Truck - Train.

Names of Principle Buyers: Agricultural Assoc. of Tottori Pref.

Do they process their own ores: Yes.

Method used: Burning lime stone in 5 roasting pots.

Chemicals used: None.

Coal used: Yes. (to burn a ore)

Gasoline 500 ls/a month Diesel _____ Motor Oils____ Other Lamp oil 50 ls. Grease 20 kgs.

Are Materials easily purchased: No.

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| Number of Employee: | Male | Female |
|---|---|---|
| Before War: | -- | -- |
| During War: | -- | -- |
| Present Time: | 80 | 6 |

Wage Scale: Fixed wage : ¥ 100 per day (in average)

IsMine running at full capacity: Yes. After realizing future plan, the mine is beyond criticizm.

Future plans of working mines: (1) Electrification of plants
(2) Strengthening foundations of roasting plants by cements against big floods.

How are working conditions for miners: Very good. For example, the president established houses to accomodate 80 laborers, and so employes like and cooperate with him as if he were ● their dad.

Do they have any labor or ⁄other troubles:

(1) a trouble about borrowing land for plants.

(2) a trouble to buy cement.

Rough sketch of mine:

The mine is near a railway station, and under ground ore reserves are very rich. And so we can expect increasement of production.

Kind of equipment used & condition of equipment & mine props & timbers.

| | | |
|---|---|---|
| Jaw - Crusher - - - | 15 H.P. | 1 |
| Ball Mill - - - | | 1 |
| Winch - - - | 7.5 H.P. | 1 |
| Rope Way - - - | 600 m | |
| Roasting Pot - - - | | 5 |
| Truck - - - | | 1 |
| Rail (to carry ore) (weight 18 lbs.) | 150 m. in total. | |



need cement
land for Roads

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# MINE REPORT

Name of MG Team near Mine: Tottori M. G. Team. Date: 30 Aug., 1947

Name of Mine: Suzuka Mine

Location: Yamasato-mura, Yazu-gun, Tottori Pref.

Owners: (Present): Manjiro Okazaki.

Former Owner: Shoji Takei at Akashi City.

Capital: (Yen) 100,000 yen.

Mine Lot Number: Prospecting right of Tottori Pref. 979.

Date mine was opened: 19o7.

Mine Yield (Type of Ore): Mo, Copper, W.

Geology: (by %): Wolframite occured from the quartz vein.

Grade of Ore Sample:

Type of Mine: Wolframite Mine.

Production of Mine by Weight for Year:

1938 to 1946. Good Ore.

| | | |
|---|---|---|
| Prospecting | Copper | 32 tons. |
| | W | 20 tons. |

Production of Mine for Each Month of 1947:

Prospecting.

Method of Processing ORE: Crushing ores through burning course.

Method of Distribution: By instruction of Wolframite Association in Osaka.

Transportation used:
(Truck - Train - Boat - All others) Truck - Train.

Names of Principle Buyers: Kawanishi Machine Co. Ltd.

Do they prosess their own ores: Yes.

Method used: Specific gravity seperation method by wooden table.

Chemicals used: None.

Coal used: None.

Gasoline____Diesel____Motor Oils____Other Grease 2 kg/a month
Machine Oil 10l/a month
Axial Oil 36 ls/a month.

Are Materials easily purchased: No.

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| Number of Employee: | Male | Female |
|---|---|---|
| Before War: | 20 | 10 |
| During War: | 7 | 8 |
| Present Time: | 7 | 8 |

Wage Scale: Fixed Wage. Male 70 yen Female 45 yen.

Is Mine running at full capacity: No.

Future plans of working mines: Prospecting.

How are working conditions for miners: Very good.

Though number of laborers is little, but they cooperate their head, prospecting Wolframite vein.

Do they have any labor or othertroubles: None.

Rough sketch of mine:

This mine is very far from the station, 16 kilo metres. Though its an old mine and they work hard, but we cannot expect much, I guess. I'll inspect very well again because the mine is too rough to be inspected onee.

Kind of equipment used & condition of equipment & mine props & timbers.

Wooden table 1

(by water current, not by electricity)

DECLASSIFIED E.O. 12065 SECTION 3-402/NNDG NO. 775013

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# MINE REPORT

Name of MG Team near Mine: Tottori M. G. Team. Date: 29 Aug., 1947

Name of Mine: Itoshiromi 3rd Mine.

Location: Nakamura, Saji-mura, Yazu-gun, Tottori Pref.

Owners: (Present): Fujihara Lime Mining Co. Ltd.

Former Owner: Masao Ueda at Fuse city of Osake Pref.

Capital: (Yen) 8,000,000 yen
(3,000,000 yen invested)

Mine Lot Number:

Date mine was opened: 1943.

Mine Yield (Type of Ore): ~~MMX~~ Mn.

Geology: (by %): Hoist Rock is an sedimentary rock of Paleozonic.
Vein is 4 m in width and 300 m in length.

Grade of Ore Sample: Mn. 40 % in average Sio 15 % Others.?

Type of Mine: Mn Mine.

Production of Mine by Weight for Years:

1938 to 1946. Good Ore

from 1943 to 1946 --- 2,000 tons (40 % in average)

Production of Mine for Each Month of 1947:

| Jan. | Feb. | Mar. | Apr. | May | June | July |
|---|---|---|---|---|---|---|
| -- | -- | -- | -- | 20 tons | 30 tons | 30 tons |

In the above four months they could not produce lime on account of heavy snow.

Method of Processing ORE: Hand Picking.

Method of Distribution: Yahata Plant of Nippon Seitetsu Co. Ltd.

Transportation used:
(Truck - Train - Boat - All others) Truck - Train

Names of Principle Buyers: Yahata Plant of Nippon Seitetsu Co. Ltd.

Do they process their own ores: Yes.

Method used: Hand picking only.

Chemicals used: None.

Coal used: None.

Gasoline 500 ls/a month Diesel ____ Motbr Oils ____ Other Lamp Oil 50 ls. Grease 20 kgs.

Are Materials easily purchased: No.

(27) (28) (1)

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| Number of Employee: | Male | Female |
|---|---|---|
| Before War: | -- | -- |
| During War: | 40 | 25 |
| Present Time: | 40 | 25 |

Wage Scale: Fixed wage 100 yen in average.

Is Mine running at full capacity: No. Because official price of Mn is very cheap in Mn Cercle, and they are not paid for expenditure.

Future plans of working mines:
(1) Electrification of plants.

(2) Establishment of roads to carry ores.

How are working conditions for miners:

Medium

Do they have any labor or other troubles:

None.

Rough sketch of mine:

This mine is located 26 kilo metres away from the station. Comparing with Mn Mine in Shimane, we can find that Silica held in Mn is less.

Kind of equipment used & condition of equipment & mine props & timbers.

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# MINE REHABILITATION (ORES)

| | DATE | SUBJECT | ISSUING HEADQUARTERS & INDORSEMENTS |
|---|---|---|---|
| 1. | | Description of Kawayama Mine | |

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(1)

# DESCRIPTION OF KAWAYAMA MINE

NO. 1

1. Name of company: Nippon Mining Co. Ltd.
2. Address of company: 7 Nihombashi Muromachi 1-chome, Chuo-ku, Tokyo.
3. Name of mine: Kawayama Mine
4. Location of mine: Ken ..... Yamaguchi Gun .... Kuga Mura .... Kawayama.
5. Mineral produced: Cu. $Fe_7S_8$, Ag.
6. History of mine:

It is said that the mine was discovered about 300 years ago. Until it became the property of the Meiji Mining Co. Ltd. in 1918, copper had been produced under the management of private enterpriser. The Meiji Mining Co. produced indian red ochre. In 1936 it was purchased by the Nippon Mining Co., which explored over the mine-lot while producing about 2,000 tons of hand-picked copper concentrates of low-grade. In October 1943, the construction of mill plant with capacity for Treating 5000 tons was commenced. In July 1945, the major parts of mechanical equipment were installed and experimental operations commenced but due to post-war confusion and lack of machinery devices, the planned operations of the plant has not been accomplished.

7. Annual production of ore: See schedule 1

yama.

5. Mineral produced: Cu. $Fe_7S_8$, Ag.

6. History of mine:

It is said that the mine was discovered about 300 years ago. Until it became the property of the Meiji Mining Co. Ltd. in 1918, copper had been produced under the management of private enterpriser. The Meiji Mining Co. produced indian red ochre. In 1936 it was purchased by the Nippon Mining Co., which explored over the mine-lot while producing about 2,000 tons of hand-picked copper concentrates of low-grade. In October 1943, the construction of mill plant with capacity for Treating 5000 tons was commenced. In July 1945, the major parts of mechanical equipment were installed and experimental operations commenced but due to post-war confusion and lack of machinery devices, the planned operations of the plant has not been accomplished.

7. Annual production of ore: See schedule 1.

8. Brief description of geology and ore deposit:

a. Type of ore body

pyrrhotite bedded deposit of infilling and replacements formed by high temperature solution of magmatic origin.

b. Ore minerals

cupriferous pyrrholite with small contents of Zincblende (stibnite), arsenopyrite, cobalt. etc.

c. Ganzue minerals

a small percentage of quartz, calcite and skarn minerals (Actinolite diopside, wollastonite, etc.)

d. Host rock

phyllite of paleozoic era.

e. Size of ore body known at present

Elongation of strike side; about 550 meters

" dip side; " 800 meters

9. Complete analysis of average crude ore and concentrates.

| | Crude Ore | Copper Concentrate | Pyrrhotite Concentrate |
|---|---|---|---|
| Au(g/t) | tr | tr | tr |
| Ag | 18 | 124 | 10 |

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ces, the planned operations of the plant has not been accomplished.

7. Annual production of ore: See schedule 1.

8. Brief description of geology and ore deposit:

a. Type of ore body

pyrrhotite bedded deposit of infilling and replacements formed by high temperature solution of magmatic origin.

b. Ore minerals

cupriferous pyrrholite with small contents of Zincblende (stibnite), arsenopyrite, cobalt. etc.

c. Ganzue minerals

a small percentage of quartz, calcite and skarn minerals (Actinolite diopside, wollastonite, etc.)

d. Host rock

phyllite of paleozoic era.

e. Size of ore body known at present

Elongation of strike side; about 550 meters

" dip side; " 800 meters

9. Complete analysis of average crude ore and concentrates.

| | Crude Ore | Copper Concentrate | Pyrrhotite Concentrate |
|---|---|---|---|
| i. Au(g/t) | tr | tr | tr |
| ii. Ag( " ) | 18 | 121 | 10 |
| iii. Cu(%) | 0.87 | 10.28 | 0.23 |
| iv. S (%) | 29.51 | 34.45 | 35.86 |
| v. Fe (%) | 44.44 | 41.53 | 54.78 |

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| | C. O. | C. C. | P. C. |
|---|---|---|---|
| (vi) $SiO_2$ (%) | 11.38 | 3.97 | 4.33 |
| (vii) $Al_2O_3$ ( " ) | 1.66 | 0.74 | 0.81 |
| (viii) CaO ( " ) | 1.12 | 0.36 | 0.60 |
| (ix) MgO ( " ) | 0.77 | 0.79 | 0.52 |
| (x) Zn ( " ) | 2.88 | 3.44 | 2.39 |
| (xi) Pb ( " ) | tr | tr | tr |
| (xii) As ( " ) | 0.29 | 0.52 | 0.26 |
| (xiii) Sb ( " ) | 0.69 | 0.55 | 0.57 |
| (xiv) Mn ( " ) | 0.11 | 0.15 | 0.14 |
| Total (%) | 93.73 | 95.78 | 96.50 |

Percentage of minerals contained.

| | Crude ore | Copper Concentrate | Pyrrhotite Concentrate |
|---|---|---|---|
| Chalcopyrite | 2.52% | 29.75% | 0.66% |
| Arsenopyrite | 0.63 | 1.13 | 0.56% |
| Stibnite | 0.97 | 0.77 | 0.80 |
| Zincblende | 4.30 | 5.13 | 3.57 |
| Pyrrhotite | 67.99 | 46.22 | 81.31 |
| Others | 23.59 | 17.00 | 13.13 |
| | 100.00% | 100.00% | 100.00% |

10. Prospecting

Formerly drifts and crosscuts were made out in prospecting for ore deposit, and recently we have searched into the outcrops and geological structure of them found over the mine-lot. On the basis of data mapped up from the results of research above mentioned, boring and prospect-

| | | | |
|---|---|---|---|
| | | | 0.56% |
| Stibnite | 0.97 | 0.77 | 0.80 |
| Zincblende | 4.30 | 5.13 | 3.57 |
| Pyrrhotite | 67.99 | 46.22 | 81.31 |
| Others | 23.59 | 17.00 | 13.13 |
| | 100.00% | 100.00 % | 100.00 % |

10. Prospecting

Formerly drifts and crosscuts were made out in prospecting for ore deposit, and recently we have searched into the outcrops and geological structure of them found over the mine-lot. On the basis of data mapped up from the results of research above mentioned, boring and prospecting were continued by the methods both magnetic and electrical (equipotential method) from Jan. to April 1947. The results are shown on the map 6 and 7. Boring was carried on from 1939 to 1940.

To ascertain the accuracy of geo-physical surveys is the object of boring.

11. Brief description of mining method applied.

As both walls of the deposit are firm, the open stope method (stope and pillar method) is applied. But, the working way is still imperfect, because no systematic progress has actually been made.

The Ore body is opened up by main drifts at vertical intervals of 30 meters, but due to the gentle slope, the ore extracted does not drop of itself, hence to minimize stope haulage, subdrifts at vertical distances of 15 meters apart are made as preparatory work for ore extraction and by connecting these by raises driven from the haulage levels in the main levels to the foot walls of the ore, mill holes are formed.

At present stope haulage is being carried on by physical power, but in the future, it is expected, the stope will be developed to the width of 30 metres and the stope haulage achieved by mechanical devices.

Mining equipment

| | |
|---|---|
| Air compressor | (1) 200 HP (Reciprocating type) |
| | (1) 100 HP ( do. ) |
| Sharpner | (1) Ashio type No.510 & No.15 |

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NO. 3

Turbine pump (3) 23 HP (Installed on 60, 90 & 120 meters level)
Winding machine (1) 7½ HP (Installed on 90 meters level)
(1) 60 HP Double-drum type
(Installed on No. 1 shaft)

Cableway for transportation of crude ore to mill plant.
(1) 20 HP Tamamura type (Single cable)
700 meters (between both stations)

12. Mining costs and wage of common labors.

Direct mining costs: (Yen per ton)

| | | |
|---|---|---|
| 1940 ..... 1.66 | 1943 ..... 21.94 | 1947 ..... 263.87 |

Wage of common labor: (Yen per day)

| | | |
|---|---|---|
| 1936 ..... 2.43 | 1940 ..... 3.12 | 1945 ..... 3.47 |
| 1947 ..... 125.78 | 1948 ..... (Jan.) 138.23 | |

13. Statement of ore reserves.

The ore reserves of the mine are estimated as follows, now.

| | |
|---|---|
| Proved ore ..... | 589,528 t |
| Probable ore ..... | 564.856 |
| Possible ore ..... | 973,344 |
| Total ..... | 2,127,728 t |

Sampling is done by channelling and samples are recovered from blocks at one meter intervals and alternately from left to right. The ore bodies are generally wider than the drifts thus not permitting the measurement of the total thickness. For this reason a factor (called increasing factor of thickness) for the computed block is decided based on data acquired from other worked areas. This factor is multiplied to the average thickness computed by the measurements of the drift sampling. This gives the average thickness of the block.

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Possible ore ..... 973,344
Total ..... 2,127,728 t

Sampling is done by channelling and samples are recovered from blocks at one meter intervals and alternately from left to right.
The ore bodies are generally wider than the drifts thus not permitting the measurement of the total thickness. For this reason a factor (called increasing factor of thickness) for the computed block is decided based on data acquired from other worked areas. This factor is multiplied to the average thickness computed by the measurements of the drift sampling. This gives the average thickness of the block.
The slope of the lode is very gentle in the upper levels, but they are 25-40 degrees in the middle levels. therefore it is necessary to consider the factor (called "Factor of Inclination") which is multiplied to the plane area of the block to be estimated.

We calculate the ore reserves on these data, namely, the grade of the ore, the thickness and plane area of the block and the weight of the ore (4 tons per cub. meters) which are obtained by the methods mentioned above.

Again in the classification of proved, probable and possible ore, the first designation is used where two or more faces in a block of ore sampled, while the second one is for a block sampled on one side and the third one is for a block which is known only by the boring data.

14 Brief description of milling method.
Prior to June 1945 a very simple process of hand picking was adopted, but in July the same year, as indicated in the flow sheet, a mechanical concentrator, of capacity 200 tons per day, for treating copper by straight flotation and the recovery of pyrrhotite from the tailings by gravitation (operating the vibrating tables), was completed in part but because of the post-war confusion and the imperfectness of the plant, it has not been able to function normally until recently.

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Since August 1946, the mill plant has been operated under comparatively normal condition and treated 2,000-2500 tons per month.

## Equipments of the mill plant

| | | | |
|---|---|---|---|
| Ore bins | (2) | for crude ore ····· | 150 t. capacity |
| | (2) | " mill feed ore ···· | 350 " |
| | (1) | " copper concentrate ··· | 300 " |
| | (2) | " pyrrhotite concentrate · | 400 " |
| | (2) | " Tailing ····· | 160 " |
| Brake crusher | (1) | 24"×10' 20 HP | capacity: 25 t/hr |
| Cone crusher | (1) | 3' 50 HP | capacity: 35 t/hr |
| | (1) | 4' 100 HP | capacity: 40 t/hr |
| Picking conveyor | (1) | 24" 3 HP | belt speed: 7 m/min |
| Conical ball mill | (1) | 8'×4' 175 HP | capacity: 10 t/hr |
| Quadruplex classifier | (1) | 30% solid 15 HP | |
| F.W.-flotator | (12) | No. 21 | |
| | (14) | No. 24 | |
| Wilfley Table | (9) | No. 10 20% solid | capacity: 1 t/hr |
| Bowl classifier | (1) | 10 HP | |
| Dorr thickner | (1) | 8m×3m | for copper concentrate |
| | (1) | 18m×3.5 | for pyrrhotite concentrate |
| | (1) | do | Tailing |
| Oliver filter | (4) | 8'×12" 15 HP | for Cu-Cone, pyrr- concentrate and Tailing |
| Compressor | (1) | 50 HP 1.75 Kg/m² | 15.5 m³/min |

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Conical ball mill (1) 3 × 4 175 HP capacity : 10 t/hr

Quadruplex classifier (1) 30% solid 15 HP

F.W.-flotater (12) No. 21
(14) No. 24

Wilfley table (9) No. 10 20% solid capacity : 1t/hr

Bowl classifier (1) 10 HP

Dorr thickner (1) 8m × 3m for copper concentrate
(1) 18m × 3.5 for pyrrhotite concentrate
(1) do Tailing

Oliver filter (4) 8'×12" 15 HP for Cu-cone, pyrr- concentrate and Tailing

Compressor (1) 50 HP 1.75 Kg/m² 15.5 m³/min

Vacuum pump (2) 50 HP Hg 20 Kg/m² 18.0 m³/min

Aerial ropeway (1) for transportation of tailing
50 HP "Tamamura" Type
673 meters (distance between both stations)
200 Kg/bucket capacity 4t/hr
Rope speed : 100 m/min.

Mill records. See schedule 4

15. Milling costs and wage of common labors.

1940 ····· unknown 1945 ····· 10.42
1947 ··· ~~84.65~~ 216.78

Wage of common labor:

1936 ····· 2.43 1940 ····· 3.12 1943 ····· 3.47
1947 ····· 87.65 1948 (Jan.) ···· 97.18

16. Transaction of the concentrates

The copper concentrates which were separated by flotation, are sent to the Saganoseki Smelter owned by our company for the extraction of

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silver and copper through the dry process of smelting. The ~~oxide~~ concentrates of pyrrhotites are sent to sulphuric acid plants, such as the Kurosaki plant of the Mitsubishi Kasei Co. Ltd, the Ube Kozan Co. Ltd. the Hikoshima Smelter belonging to the Mitsui Kozan Co. Ltd. and the Shimonoseki plant of the Nitto Ryuso Co. Ltd.
While the iron ore derived from the roasting in these ptants is sent as raw material for iron smelting.
These concentrates are transported to the Iwakuni railway station by truck, and finally to each manufactory.

17. Labors employed and their houses.

Labors at the end of October 1949

| | |
|---|---|
| 171 | in-shaft workers |
| 413 | out |
| 584 | total |

Labors' houses and other builaings as property of our company

| | |
|---|---|
| Labors' houses | 296 |
| Dormitories for bachelors | 3 |
| Offices | 4 |
| Dressing plant | 1 |
| Work shops | 3 |
| Saw Mill | 1 |
| Hospital (at Kokabe & Motoyama) | 2 |
| Shops - sales for workers & their families | 2 |
| Bath houses | 3 |
| Barber's shops | 2 |

18 Annual production planned.

Influenced by the lack of labor power and the imperfectness of equipments, etc., ~~Pro~~ production was depressed till now. But in the near future, it is expected, the output of the mine, by increasing labourers and

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Dormitories for bachelors ---- 3
Offices ---------- 4
Dressing plant ---------- 1
Work shops ---------- 3
Saw Mill ---------- 1
Hospital (at Kokabe & Motoyama) --- 2
Shops ---- sales for workers & their families ---- 2
Bath houses ---------- 3
Barber's shops ---------- 2

18 Annual production planned.

Influenced by the lack of labor power and the imperfectness of equipments, etc., ~~Prod~~ production was depressed till now. But in the near future, it is expected, the output of the mine, by increasing labourers and the completion of the requisite equipment, will be increased to the ~~figur~~ figures which are shown as follows.

| Year | Crude ore (T) | Copper Concentrate (T) | Pyrrhotite Concentrate (T) | Prospecting (metre) | Boring (metre) |
|---|---|---|---|---|---|
| 1948 | 34,949 | 1,647 | 18,163 | | |
| (average per month) | 2,912 | 137 | 1,514 | | |
| 1949 | 60,000 | 4,680 | 39,000 | 1,200 | 720 |
| (average per month) | 5,000 | 390 | 3,250 | 100 | 60 |
| 1950 | 84,000 | 6,540 | 54,600 | 2,400 | 720 |
| (average per month) | 7,000 | 550 | 4,550 | 200 | 60 |
| 1951 | 120,000 | 9,360 | 78,000 | 2,400 | 720 |
| (average per month) | 10,000 | 780 | 6,500 | 200 | 60 |

(1) Note: Only the underlined figures are not the planned but actual results.

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No.6

(2) Note: Grade of the above ore is shown as follows.

Crude ore ---------- Cu 0.95% S 30% Ag 10g/t
Copper concentrates ---------- Cu 10% Ag 50g/t
Pyrrhotite concentrates ---------- S 36%

## Annual records of ore production
(1936 ~ 1948)

| Year | 1936 | 1937 | 1938 | 1939 | 1940 | 1941 | 1942 | 1943 | 1944 | 1945 | 1946 | 1947 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Crude ore (Ton) | | | | | | | | | | | 4,616 | 15,643 |
| Copper concentrate | 350 | 19,746 | 36,355 | 43,366 | 29,751 | 17,783 | 32,083 | 25,592 | 13,639 | 131 | 480 | 1,071 |
| (1) Ag (g/t) | 28.0 | 22.9 | 23.4 | 22.4 | 27.6 | 28.2 | 20.0 | 18.6 | 18.3 | irregular | 108 | 79 |
| (1) Cu (%) | 1.0 | 0.99 | 1.08 | 1.12 | 1.11 | 1.22 | 1.06 | 1.14 | 1.10 | " | 8.5 | 8.4 |
| (2) Ag (Kg) | 9.8 | 451.6 | 849.6 | 971.9 | 821.6 | 501.5 | 641.9 | 475.5 | 249.0 | 14.0 | 51.9 | 84.8 |
| (2) Cu (Ton) | 3.5 | 195.5 | 393.0 | 483.8 | 330.7 | 217.2 | 339.5 | 292.0 | 149.5 | 9.4 | 40.9 | 90.2 |
| Pyrrhotite concentrate | | | | | | | | | | | 1,830 | 8,[illegible] |
| (1) S (%) | | | | | | | | | | | 36.4 | 35.4 |
| (1) Fe (%) | | | | | | | | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Crude ore (Ton) | | | | | | | | 1943 | 1944 | 1945 | 1946 | 1947 |
| Copper Concentrate | 350 | 19,746 | 36,355 | 43,366 | 29.751 | 17,783 | 32,083 | 25.592 | 13,639 | 131 | 4,616 | 15,643 |
| (1) Ag (g/t) | 28.0 | 22.9 | 23.4 | 22.4 | 27.6 | 28.2 | 20.0 | 18.6 | 18.3 | unregular | 480 | 1,071 |
| (1) Cu (%) | 1.0 | 0.99 | 1.08 | 1.12 | 1.11 | 1.22 | 1.06 | 1.14 | 1.10 | " | 108 | 79 |
| (2) Ag (Kg) | 9.8 | 451.6 | 849.6 | 971.9 | 821.6 | 501.5 | 641.9 | 475.5 | 243.0 | 14.0 | 8.5 | 8.4 |
| (2) Cu (Ton) | 3.5 | 195.5 | 393.0 | 483.8 | 330.7 | 217.2 | 339.5 | 292.0 | 149.5 | 3.4 | 51.9 | 84.8 |
| Pyrrhotite concentrate | | | | | | | | | | | 40.9 | 90.2 |
| (1) S (%) | | | | | | | | | | | 1.830 | 8,0 |
| (1) Fe (%) | | | | | | | | | | | 36.4 | 35.4 |
| (2) S (ton) | | | | | | | | | | | 56.2 | 53.7 |
| (2) Fe (") | | | | | | | | | | | 665.4 | 2,864 |
| | | | | | | | | | | | 1,027 | 434 |

Note: Mark "1" indicates grade of each concentrate, whereas "2" indicates the a
contained in concentrates

Monthly records of 1949

| Month | Jan. | Feb. | March | April | May | June | July | August | September |
|---|---|---|---|---|---|---|---|---|---|
| Crude ore (ton) | 4,605 | 4,803 | 3,985 | 1.106 | 1,896 | 2,888 | 3873 | 4563 | 5,230 |
| Copper Concentrate | 170 | 190 | 179 | 84 | 143 | 147 | 240 | 214 | 272 |
| (1) Ag (g/t) | 148 | 183 | 119 | 110 | 146 | 179 | 141 | 180 | 204 |
| (1) Cu (%) | 11.2 | 7.9 | 10.4 | 6.8 | 9.6 | 11.2 | 10.5 | 12.2 | 11.9 |
| (2) Ag (kg) | 25.3 | 24.0 | 21.3 | 9.3 | 20.9 | 26.5 | 33.8 | 38.6 | 55.5 |
| (2) Cu (ton) | 19 | 22.9 | 18.7 | 5.8 | 13.7 | 16.5 | 25.2 | 26.2 | 32.5 |
| Pyrhotite concentrate | 2,647 | 2,682 | 2,558 | 674 | 1,073 | 1,628 | 2,163 | 2,362 | 3,062 |
| (1) S (%) | 35.4 | 35.3 | 35.3 | 36.3 | 35.6 | 34.3 | 34.7 | 35.2 | 35.2 |
| (1) Fe (%) | 52.4 | 52.4 | 52.5 | 54.1 | 53.0 | 52.1 | 51.5 | 52.0 | 52.1 |
| (2) S (ton) | 937 | 947 | 903 | 244 | 382 | 559 | 751 | 831 | 1,077 |
| (2) Fe (") | 1,387 | 1,406 | 1,344 | 365 | 569 | 832 | 1,114 | 1,228 | 1,595 |

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| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| (2) | S (ton) | | | | | | | | | 56.2 | 53.7 |
| | Fe ( " ) | | | | | | | | | 665.4 | 2,864 |
| | | | | | | | | | | 1,027 | 4,348 |

Note: Mark "1" indicates grade of each concentrate, whereas "(2)" indicates the a
contained in concentrates

Monthly records of 1949

| Month | | Jan. | Feb. | March | April | May | June | July | August | September |
|---|---|---|---|---|---|---|---|---|---|---|
| Crude ore (ton) | | 4,605 | 4,803 | 3,985 | 1.106 | 1.896 | 2,888 | 3873 | 4563 | 5,230 |
| Copper Concentrate | | 170 | 190 | 179 | 84 | 143 | 147 | 240 | 214 | 272 |
| (1) | Ag (g/t) | 148 | 183 | 119 | 110 | 146 | 173 | 141 | 180 | 204 |
| | Cu (%) | 11.2 | 7.9 | 10.4 | 6.8 | 9.6 | 11.2 | 10.5 | 12.2 | 11.9 |
| (2) | Ag (kg) | 25.3 | 24.0 | 21.3 | 9.3 | 20.9 | 26.5 | 33.8 | 38.6 | 55.5 |
| | Cu (ton) | 19 | 22.9 | 18.7 | 5.8 | 13.7 | 16.5 | 25.2 | 26.2 | 32.5 |
| Pyrhotite concentrate | | 2,647 | 2,682 | 2,558 | 674 | 1,073 | 1,628 | 2,163 | 2,362 | 3,062 |
| (1) | S (%) | 35.4 | 35.3 | 35.3 | 36.3 | 35.6 | 343 | 34.7 | 35.2 | 35.2 |
| | Fe (%) | 52.4 | 52.4 | 52.5 | 54.1 | 53.0 | 52.1 | 51.5 | 52.0 | 52.1 |
| (2) | S (ton) | 937 | 947 | 903 | 244 | 382 | 559 | 751 | 831 | 1,077 |
| | Fe ( " ) | 1.387 | 1,406 | 1,344 | 365 | 569 | 832 | 1,114 | 1.228 | 1,595 |

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