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GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

NR 631 (22 Mar 51)MG

HGS/RYG/CFP/tk
22 March 1951

MEMORANDUM FOR: Record

SUBJECT: Examination of Kawayama Mine and Manganese Mines near Iwakuni, Yamaguchi Prefecture, and Gifu, Gifu Prefecture

1. Authorization: GHQ, FEC LO 56-11, 25 Feb 51

2. Mission: To examine exploration methods and mining practices at the Kawayama mine and the small manganese mines near Iwakuni, Yamaguchi Prefecture, and near Gifu, Gifu Prefecture.

3. Personnel: Dr C. F. Park, Jr, Visiting Expert Consultant, NR.

4. Summary of results:

a. Kawayama mine

(1) Production and Reserves

(a) The Kawayama mine produces 8,000 tons of ore per month. After April 1 the output is to be raised to 10,000 tons per month. A new truck road to the mine is nearly completed and will be used to supplement the aerial tramway for hauling ore to the mill.

(b) Mine reserves are conservatively estimated at 10 million tons but are probably much greater. Most of the ore is pyrrhotite with small amounts of chalcopyrite and sphalerite. Locally the ore contains sufficient copper to

permit direct shipment to the copper smelter. The average mill feed contains 43.40 percent iron, 27.84 percent sulfur, 0.73 percent copper, 1.25 percent zinc, 16.95 percent silica and 3.13 percent alumina.

(c) Ore and concentrates are sold to many small plants and are used in the manufacture of sulfuric acid and fertilizers. Part of the iron-rich residue is used in the iron and steel industry, though residual copper and sulfur are ordinarily detrimental. Improved extraction of these constituents would increase the value of the iron.

(2) Geology

(a) Pyrrhotite with some pyrite, chalcopyrite, and sphalerite are in gently dipping (less than 15°) layers that are thought to be related to a thrust fault. Most of the ore comes from one layer though other ores are known, both above and below the developed layer. High-grade copper ores, containing up to 11 percent copper, are near the top of the mined layer.

(b) The country rock is principally graphitic schist, hornfels, and slate, which contain beds of sandstone and limestone. Other rocks are known in the area, but their relationship to the ore is obscure. The rocks are highly faulted and locally folded. The ore bodies are in the form of a gently plunging syncline.

(c) The company geologist and his staff have prepared a surface geologic map, level maps of the mine, and cross-sections. These maps appear to be generalized, but may be adequate. Diamond drilling under the direction of the geological section has been successful in finding additional ore.

(3) Mining

(a) Within the past few months two heavy scrapers have been installed, and one shaker conveyor is being put in use. Mining methods are fairly efficient and are being modernized. The country rock stands well and stopes are left open. Underhand stoping is used, and pillars are left for support. Stopes range from a minimum thickness of 50 cm to a maximum of 15 meters.

(4) Milling

(a) The mill is an antiquated, poorly organized one, designed to handle about 7,500 - 8,000 tons per month. Magnetic separators are being installed and it is claimed that they permit better separation of chalcopyrite from pyrrhotite than do other methods. Flotation cells are used to recover sphalerite, and to raise the grade of both chalcopyrite and pyrrhotite concentrates.

b. Manganese Mines

(1) Production and Reserves

(a) Properties visited and the monthly production are: the Kusugi mine,

40 tons per month; Renge mine, 60 tons per month; Kinko mine, 35 tons per month, (all near Iwakuni), and Nagashima mine, 260 tons per month; Fukutomi mine, 20-30 tons per month; and the Senju mine, 5-15 tons per month, (all near Gifu).

(b) All of the mines except the Senju produce complex manganese silicate, oxide, and carbonate ores which average from about 25 percent manganese to 40 percent manganese. The Senju produces high-grade oxide battery ore, though it is siliceous in depth, and will probably become similar to the other deposits. Reserves are small as the operators have little capital, and ore is removed as rapidly as it is discovered. It is likely that these mines will be able to operate on the present basis for many years, providing they are able to sell their product. With higher prices, production could be increased.

(2) Mining

(a) All of the mines, except Senju, are just above marginal. The operators do very well by staying with the ore and they waste no money doing unnecessary dead work. Openings are small and ore is carried out by hand or in small cars. The Japanese are good at this type of mining.

(3) Geology

(a) The deposits are replacement in

chert and other rocks some of which appear to be altered basic volcanics. Locally, as at the Kinko mine, the ore seems to be limited to individual beds and to follow the folds of these beds. Elsewhere the deposits resemble replacement veins and may be along faults.

(b) No geologic study has ever been made of these deposits. Studies of the complex mineralogy have been made.

(4) A small custom mill, the Ogawa concentrating plant, is operated at Gifu City. Ten stamps, hand-fed, and two Wilfley tables, have a capacity of five tons of oxidized ore per day. Two products are obtained from the tables, one averages above 60 percent manganese and the other, above 37 percent. A small batch furnace of one and one-half tons per day capacity is used to burn the siliceous ores, and is said to raise the grade 5-6 percent. This is probably done by driving off water and carbon dioxide. The ore is handled and re-handled unnecessarily. Costs are higher than they should be.

5. Recommendations made:

a. To the mine manager and the technical personnel at the Kawayama mine:

(1) Large cars should be used in the main haulage level.

(2) Use of shaped charges to help in breaking large boulders should be tried.

(3) Flotation should be investigated for

use in the mill in place of magnetic separators. Mining companies in the U.S. have found flotation better and cheaper on similar ores.

b. To the mine and mill operators of the manganese properties:

(1) Better direction of blast holes should be practiced to increase rock breakage. A few suggestions were made to help in prospecting.

(2) A bin and automatic feed should be constructed at the mill in order to avoid excessive handling.

c. A study should be undertaken by the Japanese Geological Survey of the manganese deposits near Iwakuni and Gifu. It would be of great value to the mines.

C. F. Park Jr.

1 Incl
Itinerary and
Personnel Interviewed

C. F. PARK, Jr.
Visiting Expert Consultant
Mining and Geology Division

Copies furnished:
Chugoku CAR
Tokai-Hokuriku CAR
CAS

ITINERARY

1 Mar	2015	Lv Tokyo
2 Mar	1553	Ar Iwakuni
3-4-5 Mar		Examine Kawayama Mine and small manganese properties, Yamaguchi Prefecture.
5 Mar	2200	Lv Iwakuni
6 Mar	2334	Ar Nagoya
7-8-9 Mar		Examine small manganese properties, Gifu Prefecture
9 Mar	1310	Lv Nagoya
	1910	Ar Tokyo

PERSONNEL INTERVIEWED

Chugoku Civil Affairs Region: Mr Barratt, Economics Section

Mr Atsumo Yaji, Managing Director, Nippon Mining Co
Mr Eiichi Nomura, Manager, Kawayama Mine
Mr Tomoyuki Honda, Chief Geologist, Kawayama Mine
Mr Masatoshi Yonemura, Chief, Mining Section, Kawayama Mine
Mr Hidemasa Kubo, " Milling " " "
Mr Yasushi Asao, " Supply and Transportation Section
Managers of Kusugi, Renge, Kinko, Nagashima, Fukutomi and Senji mines;
Miss Matsue Abe, Owner, Senji Mine
Manager, Ogawa Concentrating Plant

SCAP INSPECTION REPORTS

M-10-Y

	DATE	SUBJECT	ISSUING HEADQUARTERS & INDORSEMENT
1.	10 June 1948	Transmittal of Memorandum for Record ("Examination of Chosei Coal Mine, Ube City, Yamaguchi Prefecture, on 10 June 1948")	8th Army Basic & 1st Ind.
2.	23 July 1948	Transmittal of Memorandum for Record (Land Damage from Coal Mining in Yamaguchi Prefecture")	8th Army Basic & 1st Ind.
3.	3 Sept 1948	Inspectiob of Anthracite Coal Mines, Omine Coal Field, Yamaguchi Prefecture, West Honshu	SCAP/NRS
4.	7 Dec 1948	Inspection of Anthracite Coal Mines, Omine Coal Field, Yamaguchi Prefecture, West Honshu	SCAP/NRS
5.	18 Dec 1948	Transmittal of Memorandum for Record ("Inspection of Anthracite Coal Mines, Omine Coal Field, Yamaguchi, West Honshu)	SCAP/NRS - Basic CCAR - 1st Ind
6.	14 Jan 1950	Transmittal of Memorandum for Record (Technical Examination of Coal Mines)	SCAP/NRS
7.	8 Mar 1950	Transmittal of Field Trip Report Kawayama (Technical Examination of Mining Practices)	SCAP/NRS
8.	5 May 1950	Technical Examination of Coal Preparation Facilities and Mining Methods in Western Honshu and Kyushu Coal Mines	SCAP/NRS
9.	14 June 1950	Examination of Coal Reserves Survey Program, Progress of "Coal Planer Machine", and Technical Examination of New Meiji Saga Coal Mine	SCAP/NRS
10.	4 Aug 1950	Suggested Flotation Experiments on Kawayama Ore	SCAP/NRS
11.	3 Nov 1950	Technical Examination of Mining and Mine Safety in Ube Coal Mines	SCAP/NRS
12.	30 Jan 1951	Examination of Coal Mine Damage Areas	SCAP/NRS

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

NR 641 (30 Jan 51)HG

HES/HG/AHS/ts
30 January 1951

MEMORANDUM FOR: Record

SUBJECT: Examination of Coal Mine Damage Areas

1. Authorization: GHQ, FEC LO 347-11, 28 Dec 50.

2. Mission: To make an examination of agricultural lands damaged by coal mining operations in Yamaguchi and Fukuoka Prefectures, in the latter area with Dr V. Webster Johnson, visiting land economics expert consultant, assigned to NR, with a view to making recommendations as to rehabilitation of subsided lands having agricultural value.

3. Personnel:

a. Albert H. Solomon, Mining and Geology Division, NR, and Mr Seiichi Kosaka, Chief, Coal Mine Damage Division, Fukuoka District Bureau, Ministry of International Trade and Industry.

b. Mr H. Kawamoto, Chugoku CA Region, acted as interpreter in Yamaguchi Prefecture.

c. Dr V. Webster Johnson, visiting expert consultant, and Miss Dorothy Goodwin, Scientific Consultant, NR/A, were joined at Fukuoka during the period 11-12 January for examination of lands in the Fukuoka area. A separate report is being prepared on the field trip of Dr Johnson and Miss Goodwin, which involved other subjects as well as mine damage.

4. Summary of Results:

a. During 8-12 January, examination was made of subsided lands, caused by damage from coal mining operations, at six mines in Yamaguchi Prefecture and at five mines in the Chikuho Coal Field, Fukuoka Prefecture.

b. Mine operators, and representatives from government coal offices and agricultural land offices and coal and agriculture associations were interviewed, and factual data obtained on causes of subsidence, cost of crop loss and other damage to surface, private and public plans for rehabilitation of the lands.

c. It was ascertained at typical mines around Ube and Onoda, Yamaguchi Prefecture that the damages paid for crops not raised on lands wholly or partially subsided, amounted to an average of ¥140 per ton of

coal mined in the Yamaguchi coal area during the period April 1948-August 1950.

d. Data furnished by the Ube Coal Office, Yamaguchi Prefecture, indicates that damage through subsidence during the Pacific War comprises about 70 percent of total damage. This damage is subject to rehabilitation under the Special Coal Mine Damage Rehabilitation Law, passed by the Diet as amended on December 1950, so that only problem is the further rehabilitation of the remaining 30 percent.

PP 1
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is 50%
70% more
accurate

e. In Fukuoka Prefecture, which suffered about 90 percent of the total Kyushu Island subsidence due to coal mining operations data obtained from the Kumamoto Land Office, Ministry of Agriculture and Forestry, shows that total damage from subsidence in Kyushu (where 98 percent of all Japan's subsidence is located) amounts to about ¥22.5 billion, based on estimated cost of rehabilitation. About 50 percent of this sum involves farmland, and about 50 percent of the total or some ¥12 billion is claimed to have occurred during the Pacific War, which would be covered by the Special Coal Mine Damage Rehabilitation Law.

f. From interviews and basic information obtained from the mine operators, it is clear that payment of damages annually for crops which the farmers are unable to raise as a result of subsidence of the land under water, is a heavy drain on coal operations; that after paying such losses for several years, an amount equal to the value of the land on a free market would have been paid, but the cost of rehabilitation of the land so that crops could be again raised on it, was still remaining as an obligation of the mine operator. In most instances the operators appeared willing to purchase the lands at a fair market price, but the general policy of the Agricultural Reform Law discouraged such purchases.

g. A proposed reclamation project was examined in the vicinity of the Onga River, Fukuoka Prefecture. This area involves some 946 cho of subsided lands due to operations of the Takamatsu, Shinnyu, Taisho and other mines, substantial producers of coal. This calls for large-scale drainage by pumping water covering the lands into the river. Dr V. Webster Johnson visiting expert on land economics, MR, held a conference with the Governor of Fukuoka Prefecture, on 12 January and during the discussion indicated that, if as the Prefectural officials contended the average market value per tan of subsided land was ¥50 thousand and the cost to reclaim was about ¥100 thousand per tan, it would be unfair to the coal operators to ask them to pay more than actual damages, and that the public interest in rehabilitation of the land to regain the crop yield would justify the government in contributing to pay the difference between the reclamation cost and the market value of the land subsided.

NR 641 (30 Jan 51)MG

5. Recommendations and Action Taken:

a. In view of the principal purpose of the field trip, which was to orient Dr Johnson, visiting expert, NR/A, on the problem of coal mine damage to agricultural lands, no recommendations were made on the long-range handling of the problem. However, as the rehabilitation of the lands was so clearly indicated from all conditions observed, the advisability of further study by the Mine Damage Section, Coal Administration Bureau, Resources Agency, Ministry of International Trade and Industry, was strongly urged, with a view to obtaining early action by legislation to provide for rehabilitation of subsided lands damaged both before and after the Pacific War. A committee selected by the Japanese Cabinet has since been established to collect data on estimated crop losses and costs of rehabilitation of lands subsided owing to coal operations.

6. Detailed discussion is contained in Incl 2-3.

Albert H. Solomon
Albert H. Solomon
Deputy Chief,
Mining and Geology Division

3 Inclosures:

1-Itineraxy and List of Peysonnel Interviewed
2-3 As indic par 6.

CAS
Kyushu CAR
Chugoku CAR
NR/A
Dr Johnson, NR/A

Itinerary

Jan			
7	Lv	Tokyo	2015
8	Ar	Ogori	1810
	Lv	Ogori	1815
	Ar	Ube	1900
10	Lv	Ube	1700
	Ar	Fukuoka	2150
12	Lv	Fukuoka	1855
13	Ar	Tokyo	1910

Personnel Interviewed

1. Civil Affairs Personnel

a. Col B. Papen, Chief, Economics Division, CAS.

b. Messrs S. Tokuno, Chief and H. Kawamoto, NR Div., Chugoku CAR.

c. Messrs Mosman, Chief; Reiniger, Barry and McGimpsey, NR Division, Economics Section, Kyushu CAR.

2. Japanese Personnel

a. At Ube, Yamaguchi Prefecture:

Messrs T. Nagamatsu, Chief, Y. Miyamori, Mine Damage Section, H. Nara, Coal Mine Safety Division, Ube Coal Office, Hiroshima District Bureau, MITI; A. Iwasaki, Agricultural Land Section, Yamaguchi Prefecture.

Messrs S. Yoshida, Pres, Onoda Mine Co; I. Matsuura, mgr, Sakurayama Mine; K. Kataoka, vice-pres, Nakayama Coal Mine Co; H. Furutani, Pres, H. Fujino, Chief Engr, Susumeda No 2 Mine, Furutani Mining Co; H. Tawarada, Director; N. Nakayama, Chief Engr, Ube Kosan; S. Yamada, Pres, S. Kikuchi, Chief Engr, Choshin Mine Co; S. Yanagi, Pres, Kojima Mine Co; and T. Yamada, Pres, Western Coal Assn.

b. At Fukuoka

S. Kosaka, Chief, Narayama, Mine Damage Division, Fukuoka District Bureau, MITI; Gov. K. Sugimoto and Vice Gov. K. Tsutiya, Fukuoka Prefecture; Messrs. Koyama, Chief, and S. Oya, Land Reclamation Dept. and E. Wada, Chief, Planning Div., Kumamoto Land Office, MAF;

Inoue, Chief, Fukuoka Prefecture Land Dept.

Messrs T. Nakai, Mitsui Mining Co, T. Fujimoto, Mitsubishi Mining Co, Nakamura, Nippon Kogyo Co, H. Sakamoto, pres, S. Tamura, mgr, Sawara Mine Co, Fujita, asst mgr, Takada Mine, Meiji Mining Co, S. Konishi, pres, and H. Horikubo, director, Kyushu Mining Assn.

Ube Coal Office, Yamaguchi Prefecture

While Yamaguchi Prefecture has suffered only about two percent of the total subsidence damage from coal operations for all Japan, data furnished by the Ube Coal Office shows that the damage for five mining areas in the prefecture, as of 1 October 1949, amounted to a total estimated rehabilitation cost of ¥579,343,000, of which nearly one-half was in the Ube District; the other half largely in the Onoda District. Because most coal producers in these districts are small or medium-sized, the problem loomslarge for them. About 50 percent of the damage is attributed to operations during the Pacific War, for which rehabilitation is provided in the Special Coal Mine Damage Rehabilitation Law, as amended and passed by the December 1950 Diet session. (This law provides for rehabilitation over a five-year period, the Japanese Government putting up the cost of rehabilitating public works, while the damage of a private nature is to be financed by a Special Account Fund, contributed to by mines in the damaged area by a tax on coal output).

In addition to the estimated cost of rehabilitation of farm lands subsided in this area, which amounts to about ¥280 million, the coal operators have paid for crop losses and other damage either directly or through contributions made on an output basis to the former Coal Kodan (Public Corporation), a total during the period April 1948-August 1950, of ¥502,293,026 or an average of ¥139.63 per ton of output by the mines directly affected.

Under the new Mining Law providing for a Mine Damage Fund, annual cost of rehabilitation in the Yamaguchi Prefecture coal areas, was estimated as ¥23 million which, with a minimum tax as stipulated in the law of ¥10 per ton on 2,500,000 metric tons produced annually, should make rehabilitation of current damage self-sustaining.

The total of damaged farm land in Yamaguchi Prefecture is 397 cho, 1 tan. Up to 31 March 1950, 50 cho had been rehabilitated. The Special Mine Damage Rehabilitation Law appropriated ¥288,357,000 for restoration of lands subsiding from operations during the Pacific War. This is about 70 percent of the damage claimed to have been suffered during the War, and only about 50 percent of total damage claimed.

It was estimated by the Ube Coal Office officials that the coal operators generally had to pay twice for the damage: paying for loss of the crops annually and later for the delayed rehabilitation. Failure to earlier rehabilitate was blamed on the low price of the lower grade coal produced in the district.

Incl 2

The following is a brief discussion of the installations visited in Yamaguchi Prefecture:

Onoda Coal Mine. This mine produces an average of 4,500-5,000 metric tons of coal monthly. Subsidence is on 80 cho (2.5 acres per cho). Damage commenced in 1941 or 1942 and while one-half occurred during 1943-44, the subsidence has been gradual.

The lands were under about four feet of water at time of examination, rainfall having accumulated and failed to drain off because of sea-level. The land damaged had previously been reclaimed by constructing a sea-wall and draining the area, and was all in rice when the subsidence occurred. Coal mining was conducted 60 meters under the lands at the time, but more recently has moved out under the sea-wall and under the sea. Subsidence will probably continue to some extent.

According to the operators, Mr S. Yoshida and associates, during the War they used the longwall method of mining coal, not back filling. They expect to change to the room-and-pillar system.

Rehabilitation is planned by pumping water and bringing in sand from the ocean at a cost of ¥50,000 per tan to fill in the lower half, using waste material from the mine for the upper half at a cost of ¥100,000 to ¥150,000 per tan, the latter figure to include replacement of soil cover.

Cost of crop losses for the year 1950 amount to ¥5.5 million for rice and ¥300,000 for wheat. Crop losses have been paid for the past ten years.

Sakurayama Coal Mine. This mine produces an average of 6,000 tons of coal monthly; has 45 cho of subsided lands, of which 19 cho resulted from wartime operations. Damage commenced in 1939, the greatest subsidence having occurred during 1943-45. Annual crop losses paid for by the mine amount to ¥1 million. Average subsidence is about 1 meter, and because of the sea-level, the land is largely under water.

Cost of reclaiming the wartime subsided land by filling in with waste from the mine and surface soil from the neighboring hills was estimated at ¥100,000 per tan, while other lands would cost about ¥80,000 per tan. It is expected that a part of the land, other than wartime damage which is wholly subsided, will continue to subside to some extent.

As to the lands not covered by the Special Coal Mine Damage Rehabilitation Law, the operator believes he can purchase it for ¥100,000 per tan from the farmers, if permitted by law to do so.

Wakayama Coal Mine. This mine, which produces about 2,500 metric tons of coal monthly, has subsided lands amounting to 20 cho, of which 11 cho are wartime damage resulting from 1943-45 operations. Average subsidence is 1 meter. The land included in wartime damage was non-cultivable land and represents total subsidence.

Damage to Houses in Onoda City. Inspection was made of houses on the main street of Onoda City, represented as having suffered damage from subsidence due to coal operations below. Subsidence was noted to be about two feet, but damage was not apparent. It was claimed by local offfcials that in summer, owing to the subsidence, the sewage canal does not properly drain and overflow is the result.

One house on the road in Onoda City showed some evidence of listing in a corner, resulting in one room slightly sloping and a corner timber standing at a slight angle outwardly. Damage was estimated at ¥250,000, and claimed as due to operations during the war period (1943-44).

Kojima Coal Mine. Monthly production at this mine averages 2,000 tons; subsidence amounts to 18.4 cho, of which 9.1 cho is "special damage" or wartime damage covered by Special Coal Mine Damage Rehabilitation law. Average is one meter under water, although some areas are three meters under and others 5-6 inches below. Damage is now fairly stabilized, and annual cost of crop losses is ¥1 million.

Work of restoration has been slow, and only nine tan have been filled in to date (10 tan per cho). Mine waste is used for filler. Average cost is about ¥40,000 per tan, and cost of such rehabilitation to date totals over ¥36 million. The operators stated they would like to purchase the land, but cannot do so under the Agricultural Reform Act.

Suzumeda No 2 Coal Mine. This mine produces 5,000 tons of coal monthly, has 69 cho of totally subsided land, of which 47 cho are included in the "special damage" classification. Average depth of "ordinary" subsided land is about two feet, while that incurred during the war period is over one meter.

Crop losses amount to ¥6 million annually paid by the operator for the past nine years. Basis of payment is 2.4 koku of rice per tan and 1.2 koku of wheat per tan, and the going market price is the varying factor.

Rehabilitation by the mine of about 2.3 cho, damaged after the war, was effected using waste from the mine and surface soil from other adjoining areas. Payment for crop losses cease upon restoring of the land.

Kyushu Coal Office, Fukuoka

Kyushu has suffered some 98 percent of the total damage from subsidence due to coal mine operations. The island produces more than one-half of the coal of the nation. The bulk of this damage, however, is concentrated in Fukuoka Prefecture, 1569.9 cho out of a total of 1645.3 cho for all Kyushu. According to the Agricultural Land Office at Kumamoto over 99 percent of the damage is subsidence of paddy lands.

Data furnished by Kyushu Civil Affairs Region further disclosed that claimed damage from subsidence amounted to ¥22,540,405,000., of which ¥12,236,601,000 occurred during the Pacific War. The Special Coal Mine Damage Rehabilitation Law appropriated ¥7.5 billion on the basis of Japanese Government investigations of damage properly attributed to special wartime conditions. Of the total damage claimed about one-half is to farmland, the rest largely to houses and public works.

On 11 January commencing at 1500 hours, conference was held between Vice-Governor K. Tsutiya and his staff of Fukuoka Prefecture agriculture officials, and Dr Johnson: Miss Goodwin, NR/A, and Messrs. Solomon, NR/MG, and McGimpsey, Kyushu CAR, also attended. The Japanese outlined the situation as follows: Taking into consideration the Special Coal Mine Damage Rehabilitation Law benefits, there is a balance of damage due to coal operations amounting to some ¥15.6 billion not provided for, of which ¥15.3 billion is in Fukuoka Prefecture. The average cost per tan of rehabilitation is estimated at ¥100,000. The market value (not legal price under the Agricultural Reform Act) is estimated at ¥50,000 per tan for paddy land in Fukuoka Prefecture. In 1949 coal operators in Fukuoka paid ¥295 million to farmers for crop damage, and in 1950, due to rise in prices, they paid the farmers ¥370 million. The farmers, however, seek restoration of the land rather than cash payment for crop loss either because of (1) Uncertainty of payment continuing since it depends on solvency of the mine; or (2) The farmer must buy at consumer's price but gets damage on the basis of producer's price of his crop.

During the discussion Dr Johnson stated his opinion that industry should stand the expense of damage due to subsidence only to the extent of the value of the land; the government should bear the additional cost of reclamation of the land for agricultural purposes. As to how much should be allocated to this project of reclamation as opposed to another project, is a matter of policy for the Japanese Government to decide in terms of relative value of the projects to the people. The additional loss to the companies in payment for crops, he stated is also a factor to be considered.

Incl 3

The following is a discussion of the installations visited in Fukuoka Prefecture:

Sawara Coal Mine. This mine produces 12,000 tons of coal monthly on the average. It has 240 cho of subsided lands, of which 50 cho are "special damage." Average depth is five feet for subsided lands. While subsidence started in 1919, the bulk of it occurred in 1946. The conditions are now stabilized as no mining is going on under the lands.

The longwall method of coal mining was used under the subsided area. Present operations are partly longwall and partly room-and-pillar methods.

The company paid ¥12 million for crop losses on these lands during 1950; payments for such losses have been made for many years, in 1947, ¥4.5 million; 1948, ¥9 million, and in 1949, ¥10 million.

Cost of rehabilitating one tan in 1950 was stated as ¥90,000. At present some 238 cho remain to be rehabilitated, only two cho having been restored by the mine. Costwas between ¥80-90,000 per tan. The method of reclaiming was to put the top soil of half of the subsided land atop the other half, bringing up to previous level the half reclaimed. Then other lands of the company are used to fill in.

Operations under the subsided area are some 200 meters down. Room-and-pillar method is now used to prevent further subsidence, but recovery is only 40 percent in the top seam, and 60 percent in the lower seam. Present operations use a partial fill with packing.

Takada Coal Mine. Production averages 10,000 tons monthly. 150 cho are subsided, of which 68.6 are "special damage". The coal is 6,350 calories after washing and is used chiefly for boiler and by gas producers. At this mine 25 cho have been restored. Average subsidence is one meter, and operations are still continuing under one-third of the subsided lands. The longwall method is still being used.

Damage started in 1926, with the greatest subsidence in 1944.

Mountain land and waste from the mine are used by the mine company to rehabilitate subsided lands. Cost of removing the soil, and filling in with the material mentioned, was stated to be ¥10,000 per tan, with the price now at about ¥20,000 per tan.

Annual payment made in 1950 was ¥4 million to farmers, while in 1949, it was ¥3 million.

As the room-and-pillar method of coal mining would result in only a fifty percent recovery, the operators do not intend to change present methods. About 25 percent of the land subsided is still sinking according to their estimate. However, if the room-and-pillar method is used production would be cut by about 30 percent.

Onga River Reclamation Projects. The area where the Takamatsu Coal Mine of the Nippon Mining Co, the Shinnyu Mine of Mitsubishi Mining Co, and the Taisho Mine of the Taisho Mining Co, operate was visited by Dr Johnson, Miss Dorothy Goodwin, NR/A, and Mr Solomon, NR/MG, on 12 January 1951, under the guidance of the Fukuoka Agricultural Land Office. Examination was made of a substantial portion of the 900 odd cho of lands affected along the Onga River. It was learned that the Takamatsu Mine paid ¥16 million during 1950 to farmer, while the Taisho Co paid ¥9 million for crop losses. Cost of the damage was estimated by the company officials at ¥120 per ton of coal mined. Reclamation projects involving the pumping of water from the subsided lands into the Onga River were explained in detail to Dr Johnson and other SCAP personnel.

Dr Johnson inquired as to benefits derived from subsidence of farm lands, but the agricultural officials indicated that there were no such benefits.

N.R
Attn: Mr. Barratt
HLK

5903

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

NR 641(3 Nov 50)MG

HGS/RYG/CSM/tk
3 November 1950

MEMORANDUM FOR: Record

SUBJECT: Technical Examination of Mining and Mine Safety in Ube Coal Mines

1. Authorization: LO 260-8, GHQ-FEC 2 Oct 1950.

2. Personnel: Major Charles S. Merriam, 0301344 Inf, and Messrs Toshiaki Sakamoto, GS-9, DAC, and Lajos Szeszich, Technical Adviser.

3. Mission: To observe mining and safety conditions at coal mines in Yamaguchi Prefecture, and to make a technical examination of briquette manufacturing plants in the Chugoku region.

4. Summary of Results:

a. Although the coal mines in the Ube coal field, Yamaguchi Prefecture, have an exceptionally low accident-rate, minor accidents are increasing. The Civil Affairs Region representative has pointed out the coincidence in low wages and the increase in such accidents, which brings out the necessity of reviewing the Workmen's Compensation Law with a view to providing penalties, and offering incentives to the operators of coal mines to reduce the accident rate.

b. Discussions with the mine safety committees at the mines visited, and the Ube Branch of the Hiroshima Coal Mine Safety and Inspection Division, MITI, revealed that adequate safety education programs are under way, and that the safety committees are functioning properly. Support, advice, and guidance furnished by the Chugoku Civil Affairs Region have done much to add impetus to the safety program in that region.

c. The Hiroshima Nenryo KK, Hiroshima, the Nippon Nenryo KK, Iwakuni, Yamaguchi Prefecture, and the Sumufuku Nenryo KK, Tokuyama, Yamaguchi Prefecture, were examined by Mr Szeszich for purposes of a report on the briquette manufacturing industry in Japan. Details of operation of

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these plants will be contained in a separate memorandum for record to be prepared by Mr Szeszich.

5. Recommendations and Action Taken:

a. Management of each mine visited was advised it should start a general house-cleaning and repair program, paying particular attention to loose and broken steps, handrails, and guards around driving belts. The Chugoku Civil Affairs representative agreed to call the attention of mines other than those visited to similar deficiencies.

b. Management was informed that additional lights should be placed around the cage landing on the man-shaft at Higashi-Misome.

c. ESS was advised that a review should be made of the Workmens' Compensation Law with a view to changing the methods of paying premiums into the fund in order to provide incentive to operators to reduce accident rates. Revisions are now contemplated.

6. Detailed Discussion:

a. <u>Okinoyama Mine, Ube Kosan KK, Ube, Yamaguchi Prefecture</u>.

(1) This mine, opened in 1898, now consists of three groups of openings, working four out of the five seams of coal on the property. Workings extend about seven kilometers under the sea from the 300-meter, 15° slope entrance. Production is currently 35,000 - 40,000 metric tons per month. The miners walk into and out of the mine, and the manager reports that the men at the furthest working places put in about four hours at the faces. The mine employs about 3,300 laborers and 400 staff.

(2) The mine is reported to be non-gassy, although the ventilation map, which was posted to

the first of October 1950, indicated that small amounts of methane are found from time to time. The mine is ventilated by a 300-horsepower turbo fan having a rated capacity of 5,650 cubic meters of air per minute; actual quantity was reported as 4,100 cubic meters per minute under a 232 millimeter water gauge.

(3) Coal from the various seams is separated at the tipple, and all except that from the Oha seam, an inferior grade of coal, is washed. The coal to be washed is screened to produce -22 mm slack, 22 - 75 mm egg, and + 75 mm lump. The latter size is hand-picked and not washed. The egg and slack sizes are washed in four 50-ton-per-hour Baum jigs, recovering an estimated 83 percent of the washery feed as washed coal.

(4) The mine safety committee is apparently well organized and functioning properly. Of the seven mines in the area which employ more than 1,000 workers, Okinoyama had the lowest accident rate per million tons of coal produced during June and July 1950, and the third lowest rate in August 1950. Assistance rendered by the Chugoku Civil Affairs Region personnel has played a great part in the reduction of fatal and serious accidents. At this mine, as at others in the region, there are far too many minor accidents. It was pointed out that most of these are attributed to poor housekeeping and lack of attention to details. Inspection of the surface installations at the mine revealed many worn and broken steps on stairways, lack of hand rails, and quantities of scrap material lying around the property where men could easily stumble over it and injure themselves. Several unguarded driving belts were also noted.

b. Higashi-Misome Mine, Ube Kosan KK, Ube, Yamaguchi Prefecture.

(1) This mine was opened in 1908 and is now working about eight kilometers under the sea from the bottom of the shaft at the main pit. There are two pits, the Honko, or Main pit, and the Second Pit. At the Honko pit there are two vertical shafts, one for hauling materials the other for raising and lowering men. As there are no man-trip facilities, the men walk to their working places from the bottom of the shaft. Coal is brought out of the mine through an inclined shaft, using an over-chain endless rope. Pre-war production ranged from 800,000 - 1,000,000 metric tons per year, and is now about 500,000 metric tons annually. There are five seams on the property, the uppermost of which is 96 meters below the floor of the sea. All seams are worked except the fourth. A large fault separates the Honko pit from the Second pit, and the three uppermost seams are not found in the Second Pit. The mine employs about 3,500 workers, 2,400 of whom are under-ground workers; of these, 1,700 work at the face. There are 450 staff employees.

(2) Coal from the various seams is separated at the surface; all coal from the upper-most seam, and 30 percent from the lower seam, is washed, using two 35-ton-per-hour Baum jigs. About 8,000 metric tons are washed per month, recovering from 63 - 65 percent. Coal from the upper seam is re-ported to contain 28 percent ash before washing, and 15 - 16 percent after washing. There is very little sludge, and it is not used.

(3) This mine has been second only to the Okinoyama mine in accomplishing a low accident rate in recent months. Following

the pattern previously mentioned, the number of slight, or minor accidents has been increasing, and this mine leads the rest in the such accidents. The Civil Affairs representative reported that some improvement had been made in general housekeeping in recent months, but there is still much room for improvement. Many broken steps were seen, several unguarded driving belts, and much loose material lying around the property. The landing for the cage on which men are hoisted and lowered into the mine was very poorly lighted. The shaft attendant on duty did not have the signals for operating the cage posted at his duty station.

c. Chama Mine, Ohama Mining Co Ltd, Onoda, Yamaguchi Prefecture.

(1) This mine was visited primarily to hold discussions with the mine safety committee. The accident rate has been consistently the highest in the region, owing primarily to the great number of minor accidents. Recent changes in management are expected to improve this situation. A new mine safety committee will be organized in the near future, and suggestions were made to the new chairman of the committee which should prove valuable in getting the new members to work together. It was reported that plans are under way for an intensified safety education program, and other activities have already been started to improve the underground safety conditions.

d. Ube Branch, Hiroshima Coal Mine Safety and Inspection Division.

(1) Discussions were held with the chief of the branch and two mine inspectors who happened to be available. The chief, Mr Nara, brought out several points with regard to the mine inspection report booklets, and a point of the Mine Safety Law, and the

NR 641(3 Nov 50)MG

inspectors discussed difficulties they are having in the enforcement of the law.

(2) Mr Nara called attention to the fact that the mine inspector's report book does not have a space to indicate the exact location of hazards or dangerous conditions. He also stated that the undersea mines in the Ube field generate carbon dioxide in quantities which make it difficult to comply with the law of maintaining less than 1.0 percent in the mine air. He asked if anything could be done to raise the limit to 1.5 percent, and was advised that 1.0 percent is considered the maximum permissible. The mine inspectors reported that they are having difficulty enforcing the law in cases where the operators insist that they do not have financial means to correct dangerous condition, even though the inspectors believe that much money is not required.

Charles S. Merriam

CHARLES S. MERRIAM
Major Infantry
Head, Fuels Resources Branch
Mining and Geology Division

Copies furnished:
CAS
ESS/UF
Chugoku CA Region

Itinerary

			October 1950
Depart	Tokyo	2015	17
Arrive	Hiroshima	1500	18
Depart	Hiroshima	0940	19
Arrive	Iwakuni	1040	19
Depart	Iwakuni	1010	20
Arrive	Nishi-Ube	1545	20
Depart	Ogori	0810	24
Arrive	Tokyo	0730	25

Personnel Interviewed

a. Chugoku Civil Affairs Region:

Mr Charles Barratt, Economics Section.

b. Japanese Personnel:

Mr M. Matsudaira, Chief Secty, Hiroshima Nenryo KK
Mr S. Kiyama, President, Nippon Nenryo KK
Mr Y. Ishimaru, President, Sumufuku Nenryo KK
Mr H. Tawarada, Manager, Coal Dept, Ube Kosan KK
Mr K. Okada, Managing Director, Ube Kosan KK
Mr A. Fujita, Manager Nitrogen Factory, Ube Kosan KK
Mr G. Ohyama, Chief Research Dept, Ube Kosan KK
Mr I. Morimoto, Chief Fuel Section, Hiroshima IT&I Bureau
Mr K. Asada, Mine Inspector, Ube Mine Safety Bureau
Mr S. Nara, Chief, Ube Branch, Hiroshima Coal Mine Safety and Inspection Div
Mr A. Maeda, Manager, Okinoyama coal mine, Ube Kosan KK
Mr K. Nitta, Manager, Higashi-Misome mine, Ube Kosan KK
Mr T. Fujii, Manager, Ohama coal mine, Ohama Mining Co Ltd

Barratt

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

NR 630 (4 Aug 50)MG

HGS/RYG/JFH/jm
4 August 1950

CT

MEMORANDUM FOR: Record

SUBJECT: Suggested Flotation Experiments on Kawayama Ore

1. The Kawayama copper and pyrite mine is of great national importance because it has a large ore reserve (estimated at 10 million tons of massive sulfide ore). The present production of 6,000 tons of crude ore per month will be increased when the mill is enlarged. Experiments on magnetic separation are now under way.

2. Probably the pyrrhotite can be separated and recovered either by magnetic separation, or differential flotation. The problem is to select the most efficient and economical method. It may be desirable to investigate differential flotation as well as magnetic separation before a final decision is made on a choice of a method of treatment for Kawayama mine ore. After extensive and thorough laboratory experiments in differential flotation, results may be compared with magnetic experimental results to decide on the most favorable method of treatment.

3. The Kawayama ore is very similar to the ore of the Tennessee Copper Company in the United States.

Kawayama Ore		Tennessee Copper	
Copper	0.83 percent	Copper	.80 percent
Iron	38.52	Iron	36.0
Sulfur	27.34	Sulfur	27.6
Zinc	1.32	Zinc	0.7
Chalcopyrite	2.4	Chalcopyrite	2.76
Pyrrhotite	58.5	Pyrrhotite	39.2
Pyrite	4.5	Pyrite	20.0
Sphalerite	2.5	Sphalerite	0.8

4. At Tennessee Copper Company the metallurgists found that differential flotation was the most economical method of separation for their ore. After many years of experimentation they succeeded in obtaining clean concentrates and very low tailings for a copper concentrate, a zinc concentrate, and a clean pyrrhotite and pyrite concentrate.

a. About 1,400 tons of ore per day are treated; 92 percent of the copper is recovered in a concentrate assaying 20 percent copper. Tailings contain less than 0.10 percent copper.

b. The pyrrhotite and pyrite concentrates contain less than two percent insoluble, 0.10 percent copper and 0.22 percent zinc. This makes a concentrate desirable for making sulfuric acid. The iron cinder product is used as a source of iron in the Alabama blast furnaces.

c. The zinc concentrate contains 50 percent zinc. Thus the zinc is recovered from the pyrrhotite and pyrite so that the iron cinder product is clean enough to meet rigid U.S. specifications for making iron.

d. Details of flotation practice are described in the American Institute of Mining and Metallurgical Engineers Technical Publication No 1680. A copy has been given to Nippon Mining Co.

5. Laboratory differential flotation experiments on Kawayama ore should be of value in determining if the similarity in appearance and analysis to Tennessee copper ore would be followed by the same response to separation and recovery by flotation.

a. A start could be made by using samples of the present mill tailings, adding sulfuric acid to bring the PH down to about 5.5, then floating to determine how much additional pyrrhotite and pyrite could be recovered from the tailings.

b. In connection with this suggestion it should be noted that it is common practice for American mills, in the separation of pyrite or pyrrhotite from chalcopyrite, to use a high PH for the flotation of chalcopyrite and a low PH to float the pyrite and pyrrhotite. Some Japanese engineers object to using a PH below 7 in their flotation circuits because of excessive wear on flotation impellers. An air machine without impellers (such as the Southwestern Hunt-type machine) avoids this difficulty and also provides the capacity for the short time reaction and instantaneous flotation of the pyrrhotite and pyrite when the PH ranges between 5.5 and 6.5. However, the wear due to acid corrosion at PH above 6.0 is negligible.

s/ Joseph F. Harrington
t/ JOSEPH F. HARRINGTON
Scientific Consultant
Mining and Geology Division

file 9-10-Y

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GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

HGS/RYG/CSM/JBL/ib
14 June 1950

NR 641 (14 Jun 50)MG

MEMORANDUM FOR: Record

SUBJECT: Examination of Coal Reserves Survey Program, Progress of "Coal Planer Machine", and Technical Examination of New Meiji Saga Coal Mine

1. Authorization: LO 106-81, GHQ-FEC, 28 April 1950.

2. Personnel: Mr John B. Lewis, coal mining engineer, NR.

3. Mission: To determine the extent to which individual coal mines have received and understand the Coal Field Exploration Council instructions concerning the national coal reserves survey; to examine improvements in design of the "coal planer"; and to examine new mining property in Kyushu.

4. Summary of Results

a. Reappraisal of coal reserves under the Coal Field Exploration Council is fairly well publicized and disseminated in the coal mining centers under the jurisdiction of the Ube and Fukuoka Coal Bureaus. However, many prospecting and mining claim owners are not readily available and much correspondence is required to obtain the desired information. Regional Japanese Government coal officials believe that, however earnest intentions may be, it will probably be physically impossible to secure more than 80 percent coverage during this fiscal year. Data from the non-active and absentee claim owners should not appreciably lessen the 1950 fiscal year preliminary reserve report totals.

b. All exploration in the Ube field is offshore marine work which is necessarily expensive. The most recently completed core drilling, which was done nine kilometers offshore to a depth of 190 meters by the Ube Kosan Co, cost approximately ¥3,000,000. It was subsidized to the extent of 50 percent by the Coal Bureau in Ube; at such high cost this company states it can afford no more than one offshore boring per year.

c. Geophysical exploration, also partially subsidized by the Japanese Government and conducted by the Japanese Geological Survey, will be continued indefinitely in connection with boring operations on offshore mining claims of the Ube Kosan Co.

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d. The classification of coal reserves in the Ube field is simple for the proved category. The handling of probable and possible categories is arbitrary, and the economic limits of the coal seams extension southward under the sea are not yet defined.

e. The coal planer at the Shikamachi coal mine, Nagasaki Prefecture, was observed to be satisfactorily standardized after numerous experimental improvements. The supplementary conveyor, manufactured by the Komatsu Washery Co, has been installed, but further improvement is considered necessary. The success of the coal planer thus far has caused the management to plan to purchase and install three more of the planers during 1950.

f. Extensive work has been done on the development of the new Meiji Saga coal mine in Saga Prefecture. Present mining plans call for development in the thickest of the seams in the area, 1.48 meters, containing an estimated total reserve of over 50,000,000 tons of high quality bituminous coal. Production of 20,000 metric tons of commercial coal per month in and after 1952 is scheduled by the Meiji Mining Co..

5. Recommendations.

a. In publicity connected with the coal survey, Coal Bureau officials should place emphasis on its value in industrial and economic planning.

b. Shikamachi mine officials were encouraged in plans for redesigning the Komatsu conveyor into a suitable belt conveyor for use with the coal planer. The conveyor should be kept in line to act as a running edge for the planer, thereby permitting smooth passage of the belt.

c. Meiji mine officials should investigate the advantages offered by shaker conveyors for development work in thin and dipping coal seams.

6. Detailed discussion are contained in Incl 2-4.

John B. Lewis

JOHN B. LEWIS
Scientific Consultant
Mining and Geology Division

4 Incls
1- Itinerary and Personnel Interviewed
2-4 as indic par 6

Copies furnished:
KSS/UP
CAS
Kyushu CA
Chugoku CA

Itinerary

Depart			Arrive		
Place	Date	Time	Place	Date	Time
Tokyo	21 May 1950	1940	Ogori	22 May 1950	1846
Ogori	24	1855	Fukuoka	24	2230
Fukuoka	25	0130	Sasebo	25	0600
Sasebo	25	0830	Shikamachi	25	1000
Shikamachi	26	0815	Sasebo	26	1020
Sasebo	26	1035	Takeo	26	1235
Takeo	26	1400	Ushizu	26	1440
Ushizu	26	1800	Fukuoka	26	2005
Fukuoka	27	1605	Tokyo	28	1830

CA Region Personnel Interviewed

Mr Barrett, Economics Officer, Chugoku CA Region
Messrs Mossman, chief, and Reininger, Economics Section, Kyushu CA Region

Japanese Interviewed:

Ube Kosan Co:

Mr Tawarada, managing director, Mr Kano, chief, Mining Division

Ube Coal Bureau

Mr Yamada, director, Mr Matsumoto, chief, Production Division.

Shikamachi Mine

Mr Yoshida, general manager, Mr Ishikawa, superintendent, Mr Takano, chief engineer.

Fukuoka Coal Bureau

Mr Tanaka, director, Mr Yatagaya, chief, Production Section, Mr Kita, liaison officer.

Encl 1

Ube Kosan Coal Mines, Yamaguchi Prefecture

Officials of the Ube Kosan K.K., largest producers in the Ube coal field, stated that sale of Ube coal is still severely handicapped by the old solid fuel Kodan classification, which was based primarily on calorific value and ash content. Operators state that their coal was formerly popular as a domestic fuel for its quick-igniting and free-burning characterisitics. The Ube Kosan has a 120,000 ton storage yard in the Tokyo-Yokohama area, and with normal water shipping, Ube coal can be delivered to the Kanto area at a competitive cost with Joban coal, which is transported by rail. Coal loading facilities at Ube will be rebuilt for water shipping as bottoms become available.

The Ube Kozan mines plan to ship a cleaner and higher grade commercial product, and are studying the use of very high ash washery middlings which will result from such cleaning. Plans are also being made to generate electric power in new steam plants utilizing 2,000 calorie, 50-percent-plus ash coal. Gravity water flushing of grate ashes into an extensive land reclamation project between dikes and tide-flats will complete the program.

Encl 2

Development of the "Coal Planer", Shikamachi Mine

The coal planer designed for Shikamachi coal mining conditions was observed to be satisfactorily standardized, after many experimental improvements. The supplementary conveyor, built by the Komatsu Washery Co, has been installed, but additional work must be done on it. The dual chains are not satisfactory as they elongate unevenly, causing binding. The conveyor may be modified as a belt conveyor which, if satisfactory, will give maximum haulage speed from the face.

The Shikamachi mine is completing a locally designed slope conveyor, made at the mine shop, containing a single endless large-link travelling unit. The heavily reinforced conveyor incorporates a high outby side to prevent coal spillage. The slow speed and subsequent low capacity of this conveyor will probably necessitate further changes in design.

The engineers of the main office of the Nittetsu Mining Co, which operates the Shikamachi mine, have also designed a specialized double-drum hoist to operate the coal planer. The first hoist will be manufactured at a mining machinery company in the Chikuho coal field, Kyushu.

Encl 3

Development of the Meiji Saga Coal Mine, Saga Prefecture

One of the 18 new coal mine developments selected some years ago for priority consideration by the government agencies is the new Meiji Mining Co slope development in Saga Prefecture, Kyushu. Initial work at this mine was started in 1948, and extensive developments were made in 1949. Two parallel 13-degree slopes have been driven nearly 1,000 meters, and are expected to intersect the coal seams at 1,450 meters before December 1950. Present plans call for mining only the thickest of several seams on the property; this seam is 1.48 meters thick, and the area is said to contain reserves of 50,490,000 metric tons of high quality bituminous coal.

The Meiji Mining Co has been working with a long-range economic view and has made necessary capital installations in permanent locations. These consist of offices, shops, a brick electrical substation, powder magazines, and dormitories. When development plans are completed there will be a modern, efficient, mechanized, well-ventilated mine at Saga. A three stage, 36-inch belt conveyor is planned for main slope haulage, and 30-inch belt conveyors will be used for entry haulage in retreat mining.

A total of ¥154,319,000 has been invested in this property during JFY 1948-49. The company desires to invest a further amount of ¥348,000,000 to complete all major installations, including a one-kilometer railroad spur and tipple siding, during the JFY 1950 and is applying for a loan of ¥146,000,000 from U.S. Counterpart Aid funds for these purposes. Company officials state that if this is received, the balance can be obtained from private banks and other sources.

Encl 4

WFJ

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

INFORMATION: WFJ
O.D. 15

NR 641 (5 May 50)MG

HQS/RYG/RDMacA/kb 2 2 1950
5 May 1950

MEMORANDUM FOR: Record

SUBJECT: Technical Examination of Coal Preparation Facilities and Mining Methods in Western Honshu and Kyushu Coal Mines

1. Authorization: CP Order 66-11, 7 March 1950

2. Mission: To make a technical examination of new heavy media coal preparation projects and to advise on construction and application of scrapers using slusher hoists in coal mines in western Honshu and Kyushu.

3. Personnel: Mr Robert D. MacAfee, coal mining engineer, NR.

4. Summary of Results:

a. Examination was made of repairs to the sea-wall section of Nishiokinoyama mine which recently gave way due to fault line movement in one section.

b. Conferences were held with the engineering staff of the Ube Industrial Co, operators of the four largest Ube area coal mines, Yamaguchi Prefecture, on application and construction of scrapers for face loading of coal, and for use in mucking operations for new slope sinking and entry advancing. Application of roof suspension by bolting was discussed and a section of Okinoyama coal mine will be tested using this method.

c. Conferences were held with the Ube Coal Bureau and West Honshu Coal Association officials on progress of mine safety program, effect of new power rates on Ube coal costs, and production and labor used in January and February. Data on labor situation and unions and advancing by mining companies of delayed government compensation payments were detailed.

d. Examination was made of the washing facilities of the Sanyo Muen Co, Yamaguchi Prefecture, which operates the largest anthracite coal mine in Japan. A program was outlined for testing anthracite coal by heavy media and flotation to try to reduce ash content sufficiently so that part of the tonnage mined can be used for blending in metallurgical coke production, as recommended by Mr Davies, former NR visiting expert on coke production.

e. A conference was held with the designing engineers of Miike Machinery Works, Mitsui Mining Co, at Omuta, Fukuoka Prefecture, Kyushu, on the heavy media unit pilot plant now being tested.

f. Examination was made of the new heavy media unit at Ogi mine, Saga Prefecture, Kyushu, which is just being finished.

g. A conference was held with the engineering staff of Beffu and Ogi coal mines, operated by Yamaguchi Mining Co, Saga Prefecture, Kyushu, on application of scrapers for coal loading, mucking in new development drifts, and for removal of waste dump material. The company is now building scrapers on designs recommended by NR engineers. Examination was made of the new furnace for low temperature carbonization which will double the capacity of coal from 300 to 600 tons per month. This coal will be treated to make "coalite" as well as refined coal tar oils.

h. Conferences were held with engineers of Fukuoka Coal Bureau, Fukuoka Prefecture, Kyushu, and data furnished them on the projects examined during the trip by NR personnel.

5. Recommendations:

a. Sanyo Muen Co should conduct tests on using flotation and closer sizing of the fine coal to reduce ash content. This might be accomplished at Yamaguchi University, in addition to present work being done by the Fuels Research Institute in Tokyo.

b. Ogi mine operators should improve the drag conveyor for waste reject material on the new heavy media unit at Ogi coal mine.

c. At the heavy media pilot plant now being tested by engineers of Miike Machinery Works, Omuta, Fukuoka Prefecture, suggestions were made as to media used, change in design, and method of media recovery. The Miike coal mine, it was further suggested, can reduce picking-belt costs by 80 percent by using heavy media for cleaning of lump coals to replace handpicking.

d. The Fukuoka Coal Bureau engineers were advised of the programs and work being conducted in the mines in Kyushu for the use of scrapers and heavy media coal preparation units, detailed data being given to them so that they can advise various other coal mines interested. The Coal Bureau will translate and distribute the data supplied as to the construction and use of scrapers as applied to coal mining, and the flow sheets and equipment suggested for heavy media separation by NR personnel.

NR 641 (5 May 50)MG

6. Detailed discussions are contained in Inclosures 2-7.

Robt D MacAfee

ROBERT D. MacAFEE
Scientific Consultant
Mining and Geology Division

Inclosures:

1. Itinerary and personnel interviewed
2-7 As indic par 6

Copies furnished:
ESS/UF
Kyushu CA Region
Chugoku CA Region
CAS

ITINERARY

13 March 1950	Lv Tokyo	0930
14 March	Ar Ogori (Ube and Omine coal) (fields, 14-17 Mar)	0750 "
18 March	Lv Ogori	0800
	Ar Hakata	1130
	Lv Hakata	1430
	Ar Takeo	1630
20 March	Lv Takeo	0830
	Ar Omuta	1100
22 March	Lv Omuta	0930
	Ar Hakata	1100
23 March	Lv Hakata	1609
24 March	Ar Tokyo	1830

Inclosure 1

PRINCIPAL PERSONNEL INTERVIEWED

Kyushu CA Region: Col Berkheim, C.O.; Lt Col Sargent, executive officer; Mr Mossman, economics officer

Chugoku CA Region: Mr Barrett, economics officer (Mining)

Ube Coal Bureau: Messrs Yamada, director; Matsumoto, chief, Production Division; Nara, chief, Safety Division; Aoyama, engineer

West Honshu Coal Association: Mr Motoki, assistant manager

Ube Industrial Mines: Messrs Tawarada, managing director; Kano, chief, Mining Division; Azuma, chief, Safety Section

Okinoyama Coal Mine: Messrs Maida, supt; Iwasawa, chief, Mining Division

Sanyomuen Coal Mine: Messrs Otsuka, general manager; Okuno, chief, Mining Division

Fukuoka Coal Bureau: Messrs Yatagaya, chief, Production Section; Egashira and Takaki, Mechanical Section

Inclosure 1

NISHIOKINOYAMA COAL MINE, UBE, YAMAGUCHI PREFECTURE

The Ube Industrial Co owns and operates the four principal coal mines in the Ube coal field and is now opening a new property, the Nishiokinoyama, in an area reclaimed from the sea by construction of a seawall enclosing 10 square kilometers. This seawall is about two kilometers long and will make possible one of the very large land reclamation projects for coal mining in Japan. It was started in 1938; work was stopped during the war years then recommenced in 1946, and completed late in 1949.

On 3 March 1950 a section of this wall 40 meters long, shifted seaward several feet and by 6 March had tipped over. Sections covering a length of 150 meters also cracked, flooding the reclaimed area and one slope of the new mine development workings.

The company immediately used all transport facilities available in the task of bringing in rock, sand, and cement. The shifted and broken section was repaired by 12 May so that flooding was greatly reduced. The new fill is being cemented on the faces to stop leakage and the area will again be drained and filling continued using a sand dredge on seaside.

The break was apparently caused by ground movement, as this section is cut by a fault line. Expenses of repairing the break will be over ¥20,000,000.

Inclosure 2

OKINOYAMA COAL MINE, UBE CITY, YAMAGUCHI PREFECTURE

A meeting was held at the Okinoyama mine with the engineering staff of all the Ube mines of the Ube Industrial Co.

Explanations and details of the Nishiokinoyama seawall break were discussed and plans for further reinforcement of the section in the fault zone were outlined.

The use of scrapers using slusher hoists for loading coal from long-wall faces were detailed. Specifications of scrapers were given and details of construction at mine shops outlined. The savings in costs using scrapers to replace present hand shoveling would amount to about 200 yen per ton. A saving in labor costs would also be achieved by using scrapers for loading rock in new drifts and slopes underground replacing manual labor now used.

Roof suspension support using bolts in the hanging wall were outlined and application described to fit local conditions, especially as applied in the undersea areas being worked in the larger mines. The method will be tested in conjunction with standard timbering in the Okinoyama mine this year.

Inclosure 3

UBE COAL BUREAU

The following data was presented by officials of the Ube Coal Bureau and representatives of the operators at a conference:

(a) The labor situation in Ube is quiet in spite of the wave strikes called by the National Tanro Union during this period. The miners took only one day off as a token strike and that only because of pressure from Tokyo headquarters.

(b) A union especially for the unemployed has been formed with communistic elements in leadership. Due to decontrol of coal mines many of the smaller mines had to close as they were marginal. The total number of unemployed in Yamaguchi Prefecture as of 1 March 1950 was said to be 73,000. In Ube city this so-called union has a membership of 1,383 with branches at five coal mines. Agitation is being carried on by these leaders.

(c) There has been a delay of three months in payments of the workers' accident compensation insurance and in the Yamaguchi coal field this amounted to ¥45,000,000 as of 3 Jan 1950. This delay has caused extreme hardship to the workers entitled to compensation. Requests of advances from operators which have been granted have aggregated ¥213,000,000 to 31 Jan 1950. The operators cannot continue these advances due to stringent financial conditions, and the communists are using this situation as propaganda to create unrest.

(d) Mine safety is being pushed by the operators as rapidly as it is possible to obtain additional replacement equipment underground to assure better conditions. The Safety Affairs Section of the Ube Coal Bureau assembled the operators on 9 Jan 1950 and explained the new Mine Safety Law and penalties of violation of its provisions. Safety posters of the Roof Falls Series No 1 were distributed, and explanations of the Safety Law made by inspectors on inspection trips. Twenty-seven mines were inspected for safety in the field in March. The labor unions were also instructed on the provisions of the Mine Safety Law at a general meeting held 26 Jan 1950.

(e) The number of mine accidents for month of January in 69 operating mines in the Yamaguchi coal fields totaled 910 of which 790 were underground and 120 on surface. This number was a little less than December and is expected to improve steadily as better practices are put into effect.

(f) The power situation at the coal mines is offering a very serious problem owing to the increase in rates instituted in December. While the new basic rate paid for power was conceded to be very low, allocations were set at a level that was about 20 percent below the minimum power necessary for safety, especially for undersea mines. The penalty of 7 times the basic rate for power used over this arbitary allocation made the rates over 100 percent higher in December and January. The factors involved in Ube

seem to warrant some revision of these rates for the following reasons: The industries at Ube city were established because of the proximity of the mines and because the lower quality of the coal did not warrant shipping it long distances; therral power plants were established at Ube and adjoining towns to furnish cheaper power from the local coals. Under the post-war adjustment program these power plants were taken from the mining companies and placed in the large Haiden Electric Power Distribution Co system from which the mines now buy power. The recent power rate scale was established to cover Japan in three sections, Hokkaido, Honshu, and Kyushu with established rates in each area. Thus, a plant may be many kilometers from a distribution point and pay the same rate as one right at the source of the power. This factor, with the allocations set below the amount that must be used by mines, has caused the Ube mines to pay greatly increased rates with a penalty for any increased production and expansion. (This system is opposite to that used in the United States where power rate decreases as greater volume is used and an incentive is given for mechanization and greater power uses.) This situation has resulted in an average cost for power of about ¥150 per ton of coal for January as against ¥66 for November. The following table shows this comparison:

COMPARISON OF POWER COSTS AT UBE COAL MINES IN NOVEMBER 1949 AND JANUARY 1950

	November a/			January		
	Power Used (KWH)	Cost of Power (Yen)	Coal Produced (Tons)	Power Used (KWH)	Cost of Power in Yen	Tons Produced of Coal
Mines using over 500KWH	7,608,176	9,378,611	136,616	7,668,790	21,133,818	137,426
Mines using less than 500 KWH	2,343,022	4,082,821	67,258	2,421,662	7,381,663	58,377
Total	9,951,198	13,461,432	203,874	10,090,453	30,515,561	195,803

a/ Allocation and consumption in November was the same amount

POWER ALLOCATION AND CONSUMPTION BY UBE COAL MINES FOR JANUARY 1950

	Allocation (KWH) A	Consumption (KWH) B	Amount Used Above Allocation (KWH) C	A/B (per cent)	C/B (per cent)	C/A (per cent)
Mines Using over 500 KW	6,371,000	7,668,790	1,397,790	83.3	16.7	20.4
Mines using under 500KW	1,868,000	2,421,662	533,662	77.7	22.8	29.1
Total	8,239,000	10,090,452	1,851,452	81.5	18.5	22.5

(g) Data on general coal production and stockpiles was given by Coal Bureau for January and February 1950. The following shows January 1950 statistics of Ube coal mines:

January Production (tons)	Coal Marketed		Accumulated Stockpile			No of Laborers	Tons per man/ month	Attend-ance (percent)
	Mine Use	Shipments	Mine	Port	Total			
179,536	4,700	167,012	9,434	42,452	51,886	17,206	10.43	89.1

SANYO MUEN MINE, YAMAGUCHI PREFECTURE

This mine is the largest anthracite producer in Japan. The mine is exceptionally well laid out for increased production and further mechanization. The coal is mined from three steeply dipping beds that average in thickness from one meter to three meters or more. The coal is of good quality except for its high ash content. This has precluded its use to any extent in blending for making metallurgical coke. If the ash can be reduced by washing from 25-45 percent to 15-20 percent economically, the coal could be used in chemical and other industrial plants, as the sulfur content is under 0.5 percent. The coal is now principally used for briquettes and is distributed all over Japan.

About 65 percent of the coal, as mined, is fine in size; the balance is sold as nut and egg sizes after washing by Baum jigs, the fines being collected by settling tanks and air dried.

At the request of Mr Davies, visiting coke expert with Natural Resources Section, samples of the coal have been sent to the Coal Research Institute at Tokyo for testing to determine percentage of ash reduction possible.

Mine tests show a very steep washability curve which renders the problem of ash reduction without flotation difficult. After discussion by NR engineers with the mine chemists, it was decided that samples would be taken of the various screened sizes and further experimental work would be done by Yamaguchi University at Yamaguchi, in their laboratories in cooperation with the mine laboratory. Tests will be conducted using the principle of separation by specific gravity with a Humphrey spiral-type machine such as being used in the United States on anthracite fines. Flotation using the kerosene agglomeration process as well as froth methods will be tried. For the coarser sizes heavy media tests may prove advantageous. The following table shows results of float-and-sink tests and indicates that with fines having a specific gravity up to 1.5, an ash content of between 10-20 percen can possibly be achieved on about 40 percent yield of fines. With more selective tests, as planned, the amount of coal should be increased to about 50 percent, with an ash content well under 20 percent. The reject balance would go into the category of coal for briquetting. Average results of tests on the fine coal are as follows:

RESULTS OF SAMPLE TESTS OF SANYO ANTHRACITE FINES

Size	Percent Weight	Percent Ash	Calories
-3 mm	28.89	32.50	5,374
3 mm-48 mesh	49.41	29.96	6,082
-48 mesh	21.70	20.36	6,506
Total Average	100.00	26.14	5,969

Inclosure 5

RESULTS OF FLOAT AND SINK TESTS OF SANYO ANTHRACITE (48 mesh discarded)
(in percent)

Size 3 mm			3 mm-48 mesh		Average 3 mm-48 mesh	
Specific Gravity	Weight	Ash	Weight	Ash	Weight	Ash
-1.4	1.68	10.33	5.7	7.47	6.85	8.17
1.4-1.5	11.20	15.80	21.67	12.08	32.87	13.35
1.5-1.6	8.05	24.46	20.83	22.13	28.88	22.78
1.6-1.7	4.91	34.07	4.33	32.04	9.24	33.12
1.7-1.8	2.50	43.95	2.80	38.77	5.30	41.21
1.8	8.62	69.12	8.24	60.45	16.86	64.88
Average Total	36.96	33.93	63.04	23.90	100.00	27.71

OGI COAL MINE, SAGA PREFECTURE, KYUSHU

The Ogi coal mine has installed a new heavy media unit of Japanese design and manufacture using sintered iron pyrite as a medium. (Memorandum for Record, NR 641 (6 Mar 50)MG, "Technical Examination of Coal Preparation by Heavy Media, Flotation, and Boring Projects in Kyushu Coal Mines" describes this installation.)

The unit was not operating satisfactorily when visited in March because the chain drag conveyor used for removal of the sink product (having been made of poor quality material) stretched so that belt links on drag would not mesh properly with drive gears. A new chain will have to be installed. The trial runs showed a clean coal product was scalped out of the rejects from the Baum jigs used as feed.

The company will have a scraper and slusher hoist unit now being fabricated in their shops, operating by 15 May and will use the first unit to load rock from the new development tunnel being driven. It is estimated that use of the scraper will allow release of 10 men per shift in this tunnel from mucking.

A second scraper unit will be tried for loading coal at one of the longwall faces after breaking it down. At present 45 men are loading this coal onto chain conveyors. The scraper which will be three feet wide should do the same work using five men and effect a saving of the wages of 40 men per shift. The footwall is not very hard, and the present unknown factor in the use of the scraper is the amount of contamination that will occur. If this contamination is more than formerly, three old lengths of 1¼ inch cable can be stretched along the face and held on ends with buried deadmen (logs) for the scraper to ride on when loaded. This will avoid the scraper digging into the footwall after being loaded.

A third installation of the use of scrapers for refuse disposal will be of the high movable tower type Sauerman system, in order to flatten and move the high waste dump now requiring a special hoist. Two objectives will thus be accomplished, removal of dump as well as elimination of hoisting power costs, and completing a fill to give additional yard space for timber storage. Removal of this dump will also eliminate a fire hazard.

The company is building a new vertical oven for low temperature carbonization which will be completed in May. The new oven will increase the plant capacity from 300 tons to 600 tons per month. The planned program is to increase the tonnage of coal treated as rapidly as possible and in 1951 to treat 10,000 tons per year. The char has a ready sale both as "coalite" and for domestic use. The tar products are being refined into various light and heavy oils.

The new development tunnel being driven is being advanced eight meters per day and will cut the superior upper coal seam after advancing 500 meters. This coal seam is of the same quality as at the Beffu coal mine adjoining, operated by the same management. Production will be increased to about 25,000 tons per month when this seam is opened and developed.

Inclosure 6

MIIKE COAL MINE, FUKUOKA PREFECTURE

At the Miike mine, company engineers were advised as to use of bolts for roof support underground as described in Memorandum for Record, NR 641 (6 Mar 50)MG, "Technical Examination of Coal Preparation on Heavy Medium, Flotation, and Boring Projects in Kyushu."

Acting on advice of Natural Resources Section engineers the heavy media pilot unit was redesigned in March 1950 to allow a larger cleaning area in the separation tank, and construction of settling tanks for media recovery are contemplated. More test work will be conducted using rubber nodules and salt water because some success has been achieved on previous tests. It is probable that the best cleaning results will finally be achieved by use of finely ground magnetite due to the ease of getting proper specific gravities and to aid in recovering the media. Whatever media is used when the heavy media process is applied to the present coarse coal cleaning, the labor now used on picking belts will be reduced by 80 percent.

Discussions were held on application of scrapers and comparison of costs using scrapers underground to replace hand mucking. Operation of scrapers to be installed in the Ogi mine will be studied for possible adoption in the Miike mine.

Inclosure 7

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Civil Affairs Section
APO 500

230.42 (6 Mar 1950)CAS-EN

SUBJECT: Transmittal of Field Trip Report

TO: Chief, Chugoku Civil Affairs Region, APO 248
Chief, Shikoku Civil Affairs Region, APO 1050

1. Forwarded herewith for your information is a copy of a report of a field trip within your zone of responsibility made by Messrs Joseph F. Harrington and Ben M. Page, Natural Resources Section, General Headquarters, Supreme Commander for the Allied Powers.

2. The material forwarded is not to be construed as directive nor as granting additional authority.

FOR THE CHIEF, CIVIL AFFAIRS SECTION:

J. O'BRIEN
USA
Actg

1 Incl:
Report of Visit to
Chugoku & Shikoku
CARs

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

HGS/RYG/JFH/BMP/jm
20 February 1950

NR 631 (20 Feb 50)MG

MEMORANDUM FOR: Record

SUBJECT: Technical Examination of Mining Practices at Kotsu Mine, Tokushima Prefecture; Besshi Mine, Ehime Prefecture; and Kawayama Mine, Yamaguchi Prefecture

1. Authority: CP Order 3-12, 3 January 1950

2. Mission: To examine mining and geological practices at Kotsu, Besshi, and Kawayama mines.

3. Personnel: Messrs Harrington, Page, Shiboi and Otagawa.

4. Summary of Results:

a. The Kotsu mine output of about 100 tons of crude ore per day is obtained from a narrow, one-meter vein, or bed, of low-grade copper pyrite ore. Mining and milling equipment is crude and obsolete. Many sorters are employed to raise the grade of the mill heads from 0.86 percent copper to 1.5 percent copper.

b. Besshi mine management is pushing development work on the lower levels below the bottom main haulage levels, but is handicapped by high temperatures and heavy ground. Ore now mined from the footwall and hanging wall of old filled workings is recovered at a high mining cost. A two-machine jumbo has been made at the mine and is working satisfactorily. The mill has installed a small "sink-float" unit for experiment on separation after fine crushing. Preliminary work indicates "sink-float" can eliminate much of the load on the fine grinding circuit.

c. The Kawayama mine has ore reserves of massive pyrrhotite containing chalcopyrite which are estimated by the mine geologist at 10,000,000 tons. Management is aggressive and plans mechanization of the mine and enlargement of the mill to double the present crude ore production of 6,000 tons monthly. Cheap mining methods, requiring little timbering, are applicable in the thick flat ore bodies. Geological work, although not yet completed, has been well done, and the results have been very useful.

NR 631 (20 Feb 50)MG

5. Recommendations:

a. The Kotsu mine foremen should instruct miners in drilling shorter holes in order to break less waste in the narrow working faces. Management should replace obsolete small jackhammer-type drills with adequate stopers and drifters. The mill should be replaced as soon as possible, as the present screening and jigging plant is beyond repair. Sink-float experiments were suggested. A resident geologist should be stationed at the mine.

b. The Besshi mine timbers in important haulage ways and stations should be replaced by creosoted timbers for longer life. Use of slushers in larger stopes where wall rocks permit, was recommended. The application of geological work is still in an elementary stage. The resident geologist should either receive the backing of his company, or be replaced by a more forceful person.

c. At the Kawayama mine heavy V-type scrapers in the stopes with heavy duty motors should be used. Jumbo-mounted drifters should be used in the center cut. Advisability of using continuous pillars as in longwall coal mining, instead of small pillars, should be investigated. Mine and mill should be patrolled for fire detection on off-shifts. In the mill, secondary crushers should be set for finer discharge, and vibrating screens installed in a closed circuit with the crusher. A more detailed geologic map of the surface above the mine workings should be prepared.

6. Detailed discussions are contained in inclosures 2-4.

J. F. Harrington

JOSEPH F. HARRINGTON
Ben M. Page
BEN M. PAGE
Scientific Consultants
Mining and Geology Division

4 Incls
1. Itinerary and personnel interviewed
2-4 As indic par 6

Copies furnished:
Shikoku CA Region
Chugoku CA Region
CA Section

Itinerary:

Date	Time	Leave	Arrive
Jan 16	1940	Tokyo	
17	1034		Okayama
	1117	Okayama	
	1216		Uno
	1230	Uno	
	1330		Takamatsu
	1341	Takamatsu	
	1621		Tokushima
	1623	Tokushima	
	1731		Yudate
	1830		Kotsu mine
19	0842	Yudate	
	1008		Awa-Ikeda
	1101	Awa-Ikeda	
	1228		Tadotsu
	1237	Tadotsu	
	1442		Niihama
	1500		Besshi mine
22	0800	Niihama	
	1130		Onomichi
	1230	Onomichi	
	1541		Iwakuni
	1730		Kawayama mine
23	1600	Kawayama mine	
	1800		Iwakuni
24	0800	Iwakuni	
	0930		Hiroshima
	1046	Hiroshima	
25	0626		Tokyo

Personnel Interviewed:

Kotsu mine: Messrs N. Okamura, manager; S. Minagawa, chief, General Affairs; I. Nara, chief, Mining and Milling; S. Kitajima, chief, Prospecting Division; S. Yamazaki, chief, Engineering Division

Besshi mine:

a. Officials of Seika Mining Co, Ltd: Messrs K. Saruya, managing director, Seika Mining Co, and general manager, Besshi mine; K. Murakami, counsellor; S. Nakabe, chief engineer; S. Noda, chief geologist.

b. Officials of Besshi mine: Messrs I. Bada, assistant manager; S. Imai, chief, General Affairs; S. Nomura, chief, Mining Section; G. Okita, deputy chief, Mining Section; K. Ito, Flotation Plant; Amemori, resident geologist.

Encl 1

Kawayama mine: Messrs E. Nomura, manager; M. Yonemura, chief, Mining Section; T. Honda, chief, Geology Section; H. Kobu, chief, Milling Section; S. Honda, chief, Machinery Section; Y. Asao, chief, Supply and Transportation Section; I. Matsui, chief, Accounts Section; T. Umebayashi, chief; M. Ijichi, vice chief, and S. Sobatani, vice chief, Labor and General Affairs Section.

Kotsu Mine, Nippon Mining Co, Tokushima Prefecture

Proved ore reserves at the Kotsu mine are now estimated as about 470,000 metric tons of pyritic copper ore, assaying 0.7% percent copper and 12 percent sulfur. Production is from ore bodies averaging less than one meter in thickness. In some of the over-hand open stopes a wide width of waste is unnecessarily broken with the ore. Drilling equipment is more suitable for sampling than production mining.

Losses in the Kotsu primitive jigging mill are so high it is doubted that the mill should operate. Crude jigs are overloaded and ore is kept moving through the circuit only with much hand labor.

A total of 354 employees on the payroll produce only 100 tons of low-grade ore per day. It is doubted whether the mine can economically continue operation under present conditions unless it is heavily subsidized by the Nippon Mining Co.

Geology

Two parallel, stratiform bodies of cupriferous pyrite have been extensively mined. These ore bodies are more or less concordantly enclosed in schist, and are folded in a locally crumpled synclinal structure. There is opportunity for practical geological work to guide drilling and development, particularly since the Nippon Mining Co has acquired the idle Hisamune mine about one kilometer north of the Kotsu mine. The Hisamune deposit is said to be similar to, and perhaps a continuation of, the Kotsu deposit.

Until recently there were no detailed geological maps of the Kotsu mine. There is no resident geologist at present. However, the mine has lately been mapped by Mr Honda, a capable geologist of the Nippon Mining Co. Neither Mr Honda nor his maps were available at the time of the staff visit to the mine, but mine officials promised to send the maps to the Mining and Geology Division for inspection.

A magnetic geophysical survey, carried out by the Japanese Geological Survey has shown a linear belt of "highs" which may indicate a concealed orebody beneath the presently worked deposits.

Recommendations

A resident geologist should be stationed at the Kotsu and Hisamune mines. The surface geology should be carefully mapped, if this has not already been done by Mr Honda.

Besshi Mine, Seika Mining Co, Ehime Prefecture

Damage caused by the fire of 1947 has been repaired. The "jacket sets" suggested by NR engineers for the lower vertical shaft are working satisfactorily to keep the shaft open and operating.

In the lower levels, below the 16th level, high temperatures and poor ventilation are hampering work. Ventilation fan capacity will have to be increased, until the vertical shaft can be deepened to provide cross ventilation with the inclined shaft.

A jumbo mount for two automatic drifters is working satisfactorily. The frame and mobile truck are heavier than the average American jumbo mount because the drills are oriented by a heavy screw and wheel mechanism. Constructed at a cost of only ¥ 70,000, through the time saved in mounting drifters the jumbo will soon pay for itself.

Most of the ore recovered from the footwall and hanging wall of the old stopes is very high cost ore as the old fill must be removed and the ground is very heavy. No detailed cost figures were available, but it is doubtful if the ore recovered in these operations pays for the cost of recovery.

The Niihama mill differs from the flowsheet described in previous reports of the Seika Mining Co. A brief description of the circuit is given:

Niihama Ore Dressing Mill

Mill feed consists of Besshi mine ore, Higashidani dump ore, and other sources totaling 255,372 metric tons in 1949, to produce a copper concentrate for the Shisakajima smelter, containing 13 percent copper and 40 percent sulfur and an iron concentrate containing 45 percent sulfur and 0.3 percent copper, which goes to the Nissen Chemical Co, Ltd., for sulfuric acid manufacture. Crude ore from the Besshi mine is hand-picked and stored in a 700-ton coarse ore bin. Crushing is done by an old Syman's disc crusher, set at 40 mm, followed by a closed-circuit (trommel) Syman's cone crusher set at 20 mm. Minus 20 mm ore goes to a 1,400 ton ore bin to be fed to Marcy ball mills. Custom ore is ground in closed circuit with Akins classifier, while mine ore is ground in closed circuit with Dorr D type classifiers. Overflow at 80 percent 200 mesh is bulk floated in Southwestern type shallow pneumatic flat cell, to produce a bulk sulfide concentrate and tailings that goes to reclaiming land at sea edge. Bulk sulfide concentrate is re-ground in a Hardinge conical mill closed-circuited with a Dorr F type classifier, overflow thickened and a differential float made in Munro-Pearce type deep air lift cells to give a copper concentrate and an iron concentrate. Usual thickening and filtering of these concentrates follow to give a copper concentrate containing 16 percent moisture and an iron concentrate containing 13 percent moisture.

Discussion with the mill staff followed, and the following recommendations were made:

1. The present mill is poorly lighted. Fluorescent lighting should be installed.

2. Better reagent control can be secured by more efficient reagent feeders.

3. The filtration system should be overhauled to give lower moisture content.

4. Continuous pH control should be installed for better recovery.

The Niihama mill shows the results of development work done by a progressive staff. A sink-float pilot plant (capacity: one ton an hour) is being operated, and data gathered before building a unit for the mill.

Geology

The famous Besshi deposit is a large, tabular cupriferous pyrite body, almost concordantly enclosed in schist. The ore-body is relatively simple and is largely mined out, but there is still opportunity for profitable geological work.

Mr Noda, chief geologist of the home office of the Seika Mining Co, mapped the surface geology before the war, on a scale of 1:6000. The map is a good reconnaissance, but admittedly needs some revision. Mr Noda is sufficiently influential in his company to accomplish modern exploration. Apparently, he suggested the driving of the 5,000 meter Tanko crosscut connecting the Besshi and Ikadazu mines, and has helped introduce a reasonable diamond drilling program.

On the other hand, the resident geologist, Mr Amamori, is a submerged, ignored individual with no high level influence. He was ridiculed in our presence, although his understanding of Besshi geology is quite sound. He has two or three inexperienced assistants, but he himself is assigned diverse duties and can spend only one day a week underground. He has made a good rudimentary detailed map of a few hundred feet of workings on the 17th level, scale 1:200.

A conference was held with Messrs Noda and Amamori, and they were encouraged by us in the presence of the mine manager.

The company staff is currently puzzled over a drill hole which penetrated ore in three places. Probably adequate geological observation in existing workings would provide a plausible interpretation.

Recommendations

1. The company should be advised either to place confidence in Mr Amamori's work or replace him with a more forceful man.

2. If the present geological program "proves out", the Geological Department should be given authority to guide exploration.

3. The company should be advised to make improved local geologic maps of parts of the surface, covering the principal ore deposit and outlying deposits or drilling sites, on a scale of 1:200.

4. The present proposal for reconnaissance geologic mapping underground on a scale of 1:1200 seems logical.

5. The additional proposals for underground mapping on three larger scales are too ambitious and impractical. It would be far better to select a single large scale (1:200 or 1:300) and immediately begin mapping all active workings and key portions of old workings. Some fault details are being missed because mapping lags behind timbering operations.

6. The proposed drilling program should be carried out. There are many suitable places for drilling, but the present plan may suffice for the time being. This plan involved several outlying localities.

7. Little importance should be attached to the amphibolite (formerly regarded as the source of mineralization), as prospecting would be restricted by unfounded theory.

8. The piedmontite schist, considered by some to be genetically related to the ore, is probably only important because its physical competence induced shearing (followed by mineralization) in the adjacent weak rocks. Other competent rock units are probably just as favorable indicators of possible ore-bearing zones. Therefore, the zones bordering all competent rock units should be closely examined for indications of mineralization.

9. It is unwarranted and fatalistic to assume there is only one ore body in the Besshi area proper.

10. Observation of the small-scale folds and faults in present workings will give some basis for recognizing larger structures suggested by drill hole data.

11. The company should intensively train its inexperienced young geologists. Evidently these young men were seeing some of the geological features for the first time during the visit of NR personnel.

12. Neophyte geologists might be started as samplers during part of their training.

13. The company should employ university students during summer vacations to give them practical experience.

Kawayama Mine, Nippon Mining Co, Yamaguchi Prefecture

At the present time this mine produces about 6,000 tons of ore per month that averages about 0.8 percent copper and 26 percent sulfur. Development and diamond drilling have outlined a flat-lying orebody of massive sulfides of pyrrhotite and chalcopyrite containing large ore reserves. Mine management estimates these reserves as probable ore, to amount to 10,000,000 tons. These estimates have not yet been checked, but reserves are doubtless very large.

The ore is amenable to a cheap room-and-pillar system of mining requiring very little timber. Jumbo-mounted drifters for the center cut were recommended, but the present stopers and jackhammers may be retained for the top and bottom cuts. If scraper equipment can be obtained, it should be heavy enough to move the massive sulfide ore. The present system of mining and mucking is inefficient, but management realizes the shortcomings and is actively planning on mechanization. A new automatic wet stoper was in operation and working satisfactorily. This is the first machine of this type seen in Japan by NR engineers. It represents a big step forward in safety and more efficient drilling.

The Kawayama flotation mill is a comparatively modern mill. Present plans call for doubling the present capacity when equipment is available. Tail losses could probably be reduced gy the use of slime tables in the tailings circuit. Experiments with magnetic methods of recovery may be applicable, if it is not necessary to roast all the head ore in order to increase magnetic properties of the pyrrhotite.

Geology

The two principal ore bodies are parallel stratiform deposits (up to 12 meters thick) of massive pyrrhotite with some chalcopyrite and sphalerite. These bodies are enclosed in slate or phyllite, and may be replacements of carbonate members, as limestone beds are known at the approximate horizon of the ore. The ore deposits and country rock are involved in a wrinkled, gently plunging syncline cut by several normal faults, which displace the ore.

There is every opportunity for practical results of applied geology, and fortunately the geological work is being done well. Mr Honda, Nippon Mining Co geologist, has made a very good surface geological map on a scale of 1:10,000. He has contoured the ore bodies on a large scale map, and has made accurate cross sections. His work permitted logical interpretation of diamond drilling, which has revealed extensive continuation of the ore, and his representation of the ore bodies facilitated the planning of mining methods and further exploration. He has two young geological assistants at the Kawayama mine. Mr Honda's judgment is apparently respected and acted upon by the mine management.

Sudy.

Recommendations

1. The immediate vicinity of the ore bodies should be covered by a more detailed surface geologic map, on a scale of about 1:1200.

2. Mr Honda was asked if he would consider preparing a paper on the geology of the Kawayama mine, for presentation at some appropriate mining meeting in Tokyo. Such a presentation would demonstrate the benefits of applied geology, and encourage other mining companies to make the most of such work.

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Civil Affairs Section
APO 500

AG 230.42 (22 Dec 1949)CAS-EN

JAN 14 1950

SUBJECT: Transmittal of Memorandum for Record

TO: Chief, Kyushu Civil Affairs Region, APO 24-5
Chief, Chugoku Civil Affairs Region, APO 248

1. Transmitted herewith is copy of a report of a field trip made by Mr. Robert D. MacAfee, Scientific Consultant, Natural Resources Section, General Headquarters, Supreme Commander for the Allied Powers.

2. The material forwarded is not to be construed as directive nor as granting any additional authority.

FOR THE CHIEF, CIVIL AFFAIRS SECTION:

1 Incl:
Report of Visit to
Kyushu & Chugoku

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

NR (12 Dec 49)MG

HGS/RYG/RDM/lck
12 December 1949

MEMORANDUM FOR: Record

SUBJECT: Technical Examination of Coal Mines on Amakusa Island and Saga Prefecture, Kyushu and Yamaguchi Prefecture, Honshu

1. Authorization: GHQ, FEC, CP 304-11, 31 October 1949

2. Mission: To make technical examinations of coal mines on Amakusa Island, and in Karatsu coal field, Saga Prefecture, Kyushu, and Ube coal field in Yamaguchi Prefecture, Honshu.

3. Personnel: Robert D. MacAfee, coal mining engineer, and K. Sawa, Japanese technical consultant, NR.

4. Summary of Results:

a. All of the mines on Amakusa Island produce anthracite coal and are located in a belt composed of three sections in the northern, central, and southern parts of the island, the largest tonnage being produced in the south. This coal is the best quality anthracite in Japan and is used for manufacture of carbide, chemicals, and coke blending. The mines are small but could be enlarged and production increased to meet Japan's industrial needs for anthracite, much of which is now being imported, if electric power allocations and allocations of gasoline for trucks to transport the coal from mine to port, were increased, and simple washing plants installed to clean the coal and reduce the ash content.

b. The bituminous mines visited in the Karatsu coal field, Saga Prefecture, included one in the northwestern section which produces strong coking coal for use in blending for metallurgical coke, and three other mines. These are centrally located and furnish coal for industrial use in Fukuoka Prefecture.

c. The mines in the Ube coal field, Yamaguchi Prefecture, produce subbituminous coal, which is used for local industrial plants and for railroads and thermal power plants. The calorific content of Ube coal is low; therefore, improved washing facilities are being installed to meet open market competition by increasing the calorific value.

NR (12 Dec 49)MG

The higher grade lump coal seems to have a ready market but the fines must be upgraded by proper preparation treatment.

5. Recommendations:

a. Amakusa Island anthracite mines

(1) It is recommended that ESB give consideration to increasing the power allocations to the amount used in August 1949 by the individual mines. Owing to length and size of present power transmission lines from the mainland to the island, a large voltage drop occurs which should be remedied by the installation of a new line. Plans have been made for this project at an estimated, cost of ¥ 70,000,000. The mines must have additional allocation of electric power to maintain the present production. Under the present system, a penalty charge of 15 times the normal cost per K.W.H. is made if the allocation is exceeded, and the excess power used is deducted from the following month's allocation.

(2) The gasoline allocation for mine trucks to move coal from mine to port has been drastically cut. The allocation of gasoline for this use should be increased as the small operator cannot afford to maintain stock-piles. They do not have the facilities of funds to do so.

(3) Application for loans from U.S. Counterpart Aid Funds, needed to build washing plants and purchase and install in the Amakusa Island mines surface machinery, such as compressors and stand by auxiliary power units, should be given special consideration.

(4) It is recommended that ESB be urged to take steps to increase production of Amakusa anthracite to help meet the anthracite deficit, minimizing the necessity for import anthracite from Indo-China for domestic use.

b. Nishiki coal mine, Karatsu field

(1) It was recommended to the management of the Nishiki coal mine, operated by Meiji Coal Co, that they carry on experimental work on possible use of sintered pyrite for the heavy media coal cleaning unit at the mine, which has not been used since the end of hostilities. Tests have shown that sintered pyrite is satisfactory as a media.

NR (12 Dec 49)MG

c. Ube coal field

(1) It was recommended to the Ube operators that they concentrate on mining the better quality Itsudan, Futaeishi, and Nanako coal seems. The mines having small coal tar distilling units should utilize them in processing of the secondary coals, and study should be made as to the possible construction of simple heavy-media washing units.

6. Detailed discussion of mines inspected are given in inclosures 2-17.

17 Incls
1. Itinerary and Personnel Interviewed
2-17 as indic par 6

ROBERT D. MacAFEE
Scientific Consultant
Mining and Geology Division

Copies furnished:
Eighth Army, CA Section
Kyushu CA Region
ESS/UF

Personnel interviewed

Kyushu CA Region:

Lt. Col. Sargent, Ex. O.
Mr Mossman, Economics O.

Japanese Personnel

Mitsui Mining Co. (Fukuoka Coal Br.)

S. Hatano, Chief, Equipment Section
T. Taneda, Chief, Y. Nonaka, engineer, and T. Yoshida, engineer, Development Division

Otsuru Mine

T. Takechi, director
M. Tsuruta, assistant director
M. Horikawa, chief, Mining Section

Miike Mine

G. Hayashi, and H. Uryu assistant directors, Miike coal mine

F. Arakawa, owner, Arakawa concession, Miike
K. Katsuki, president, Kyushu Anthracite Mining Co
M. Otsuka, director, Sakasegawa mine
K. Kimura, owner, Suzumatsu mine
K. Takahata, S. Kitahara, directors, S. Misaki, Gongenyama Coal Mining Co
Y. Fujii, director, Oniki Coal Mining Co
M. Uyama, president, Ushibuka Coal Mining Co
Y. Tsutsumi, director, Imatomi mine
S. Okumura, chief, General Affairs Section, Asahi mine
S. Inemasu, director, Oniki coal mine
T. Goto, director, Y. Fukunari, and K. Hirose, chief, Mining Section Nishiki mine
Y. Iwanaga, director, Saga coal mine
Y. Komatsu, director, Kitagata coal mine
K. Yamaguchi, president, and S. Yamazaki, director, Yamaguchi Mining Co
K. Niida, director, Y. Ishida, chief engineer, A. Tsutsumi, chief, Mining Section, Higashimizome mine
H. Kawamoto, director, K. Motoishi, chief, Mining Section, Shinmizome mine
S. Tanaka, president, S. Matsumoto, director Matsuhama Coal Mining Co

ad 1

T. Oiwa, president, S. Yoshida, director, N. Oka, chief engineer, Onoda Coal Mining Co
I. Matsuura, chief, General Office, I. Chiba, chief Engineering Section, Sakurayama coal mine
J. Ishikawa, president, Y. Yoshioka, director, Hagimori Coal Mining Co
K. Kikuchi, director, Choshin Coal Mining Co
T. Yamada, director, Ube Coal Bureau
W. Fujii, chief, Mining Section, Western Coal Association

COPY

Itinerary

Date		Place	Time
Nov 7	Lv	Tokyo	0930
8	Ar	Hakata	1200
9	Lv	Hakata	1022
9	Ar	Higashi-Karatsu	1238
10	Lv	Higashi Karatsu	1033
10	Ar	Omuta	1420
11	Lv	Omuta	0840
11	Ar	Amakusa Island	1235
16	Lv	Amakusa Island	0700
16	Ar	Takeo	1439
18	Lv	Takeo	0955
18	Ar	Nishi Ube	1751
23	Lv	Ogori	0900
24	Ar	Tokyo	0730

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Sakasagawa mine, Amakusa Island

1. This property is the northernmost mine in the north section of the Amakusa coal field. The mining concession covers 913,840 tsubo and present mine workings are located at the head of a canyon. The coal is taken by bucket tram to loading bins at the end of the truck road, then transported by trucks to Futae-mura port, where the coal is screened for lump and fines at their storage yard. It is then loaded on small freight boats to be taken to mainland ports, generally Misumo.

2. The coal seams are relatively flat, with dips up to 8°. The No 2 bed now being mined averages two feet in thickness; the No 3 bed is overlain by basalt and thickens to four feet in sections. Natural ventilation is used. The mine is opened with level adits, and entry roads into the coal seams on 6° slopes. Water is drained by gravity. The coal is very high in carbon content and can be satisfactorily used in the carbide industry. Present production is about 1,000 tons per month attained by using 121 employees underground and 52 on surface, with an average of 4.2 tons per man per month. Total reserves for this mine are estimated to be 1,300,000 metric tons. In the present pits workable reserves are 136,000 tons.

3. This mine, has been severely cut on electricity allocation since October, resulting in curtailed production. Coal has to be mined with air picks, and compressers can only run part time with the present allocation. Use beyond allocation costs 15 times normal per KWH rate, and is deducted from the mine's allocation for the following month.

4. This mine should be able to double its tonnage if more electricity is allocated and sufficient gasoline is allowed for coal transportation from mine to port. A ready market exists for this coal.

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Otake mine, Amakusa Island

1. This property adjoining the Sakasagawa mine has reserves of 460,000 metric tons. Production for 1949 will be about 3,950 metric tons. The mine will be expanded in 1950 as underground workings had to be changed and developed in 1949 owing to change of stike of coal seam by 90°. This work is now completed and drainage pumps installed to handle water which amounts to 10 cubic feet per minute. Planned production for 1950 is 8,000 tons.

2. Natural ventilation is used in the workings. The two-foot seam is now hand-mined owing to power shortage. Waste coal is hand-picked at the face and screened for size at the pit mouth, then transported by truck to stockpile yard adjoining Sakasagawa yard at the port. Here the coal is again hand-picked as it is loaded on ships. This coal is sold to Nippon Nitrogen Co, Nagasaki; Nagasaki Briquette Manufacturing Co, Nagasaki; and Yatsutane Briquette Manufacturing Co, Sasebo, Kyushu.

3. Owing to the drastic cut in electric power allocations, the company has purchased and is installing a 60 KW diesel electric generating plant to supplement the transmitted power. This plant is expected to be in operation by March 1950, and will allow the use of rock drills and air picks and as well as furnish power adequate for drainage.

4. This mine, while small, is in a position to double its production. The coal is very high in carbon and is in demand by chemical and domestic briquette industries, as well as for blending.

5. About ¥2,700,000 is needed for capital improvements which they may seek to borrow from Counterpart Funds.

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1 of 3

Wakudo coal mine, Amakusa Island

1. This property lies in the northern section of the island a few miles south of the Sakasagawa mine and has the same type coal beds as Sakasagawa. The mining concession comprises 265,000 tsubos with proved coal reserves of 90,000 tons. The mine produces about 650 tons per month.

2. In present workings the coal seam is thin and distorted and is proving to be un-profitable. An adjoining concession is expected to be worked by extending entry tunnels, using present equipment. The coal in the new area has been prospected and is of much better grade than that now mined. Natural ventilation is used and pumping is done by six small turbine pumps in series. There is adequate labor available; the present force is 45 men underground and 44 on the surface with 18 on the staff, a total of 107.

3. Transportation is by aerial tram six kilometers to truck-loading bins, then by truck four kilometers to loading yard at the port. The coal is hand-screened at the port to select lump and fine sizes. The quality of the coal is 6,500-7,000 calories with 13-16 percent ash and 1.2 percent sulfur for the lump; 6,000-6,500 calories with 15-20 percent ash and 1.2 percent sulfur for fines. It is sold to Japan Nitrogen Co, Minamata; Omuta Electrical Chemical Co, Omuta; Nissan Chemical Co, Nagami; Amakusa Lime Co; and Nippon Carbide Co.

4. The outlook for increased production at this mine is not good since it has been cut on electric power allocation to one-half the amount used in first half of the year, and has been allocated 20 percent less in November than in October.

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Asahi coal mine, Amakusa Island

1. This mine is located in the central coal field area of Amakusa near the town of Ichoda. The coal bearing concession has an area of 495,000 tsubo, with total reserves of over 750,000 metric tons of which 500,000 tons are considered mineable. Coal has been mined in six small pits.

2. There are two seams, the upper being very thin and low-grade. The lower which is being worked is 1.3 feet thick and dips about 26°E. Work was started on the No 1 Asahi pit in October and two new slopes put down. The present production of about 150 tons per month from this pit can be increased as soon as power is available. The power line is not extended to this pit and a gasoline engine is used to run the compressor. Application was approved by power company for a transmission line but owing to drastic allocation cuts work is now at a standstill. Total production of the mine is about 300 tons monthly; planned production for 1950 is 650 tons.

3. This is strong coking coal but has a high sulfur content; however, some of it is used by Yawata Steel Works as a blend in making coke. It is also used by gas companies. Proximate analyses is as follows:

Moisture (percent)	Volatile Matter (percent)	Fixed Carbon (Percent)	Ash (Percent)	Sulfur (percent)	Calories
1.15	16.74	15.07	7.04	3.5	8,100

4. This mine plans to spend ¥5,095,000 on an improvement and development program; of this amount they plan to provide ¥3,000,000 and will attempt to borrow ¥2,000,000.

5. The coal is hand-picked and screened for shipment and transported by trucks to ports. The mine can be enlarged and production increased with new surface equipment and provided sufficient power is allocated.

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Inatomi coal mine, Amakusa Island

1. This mine is located in the central coal field of Amakusa Island south of the town of Ichoda. The mine lot covers 1,959,787 tsubo and contains four pits. Coal is transported from loading bins 2½ kilometers by aerial tram, then by truck 10 kilometers to a storage yard at the port where it is screened. There are three coal seams, two of which are being worked. They dip 6-23°E and are in a synclinal structure which dips 12°S in the northern part. The average thickness of the seams is two feet. Walls are hard and very little timbering is needed.

2. Production in the first half of 1949 was about 1,500 tons per month which was reduced in October to 500 tons when the Kodan was discontinued and the power allocations were drastically reduced. This mine can produce 1,800 tons per month if it receives power and gas for trucks. Lump coal is washed in a five ton per hour Baum jig at the port stockyard. The fines are shipped for use in gas plants and for making nitrogen. As a result of extensive tests on it in 1949, the Yawata Iron Works will take a large percentage of this coal for metallurgical coke blending. The ash content is high, with about 20 percent in fines and an average calorific value of about 6,000 calories kilogram.

3. There are stockpiles of this coal at Misumi which because it was not cleaned well, was not in demand. However, the company claims they can clean the coal and reduce the ash to compete with the production from other mines.

4. Additional power is very necessary as the allocations by ESB has cut power to one half of the amount needed. Also, gasoline allocations for trucks were cut so drastically that there is not now enough to transport the coal now being mined.

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Onike coal mine, Amakusa Island

1. This property is located in the southern part of the island and is producing the largest amount of anthracite on the Island. October production was about 1,700 tons. The new No 2 slope, which is 835 meters long on a 20° dip, has been completed, and the faces now being opened in the main seam will average about five feet in thickness. The coal seam, dipping northeast about 40° in a syncline structure can be mined easily.

2. Natural ventilation is used and about one cubic meter of water is pumped per minute using turbine type pumps. About 400 workers are employed with 248 working underground. Coal picks and blasting are used to break coal from the faces. Proved reserves of No 2 and 3 pits are calculated at 1,500,000 metric tons of which 1,000,000 tons will be recoverable.

3. The equipment is modern and well kept. Cleaning of coal is by hand-picking and Zimmer screens are used for sizing. As the mine is located at a good harbor, coal is loaded by conveyor directly from the screening plant into boats or stockpiled at quayside. Foundations are in place for new cleaning and washing plant but installation has been stopped pending action on an application for counterpart fund loan. About ¥2,500,000 are needed to complete the plant which would materially improve quality of the coal by reducing the ash content. Present ash content averages from 15-18 percent. The coal is shipped to gas producing companies, with about one-fourth going to Mitsubishi Chemical Co. The price received is ¥4,100 to 4,300 per ton which is increased ¥200 for each two percent decrease in ash.

4. Power allocation to this company was not cut as much as the others in Amakusa. It uses over one-half of the total power averaging about 300,000 KWH per month so is not suffering from the shortage of electric power to the extent the other mines are. Aid should be given this mine in the form of a Counterpart fund loan in order to complete the washing plant as this mine can increase its production as well as the quality of coal with moderate expenditures.

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Nanten coal mine, Amakusa Island

1. This property adjoins the larger Oniki coal mine in the southern Amakusa coal area. It is located on the coast and is adjacent to harbor facilities for loading. Mining and prospecting concessions consist of 862,550 tsubo with 617,000 metric tons of good workable coal reserves. Entries to coal No 2 and No 3 Shaku coal seams, which are the same seams as mined at Oniki, are through a long adit. The seams dip west about 55° at No 3 level and at surface dips 70-80°. There are five levels below the adit to a depth of 270 feet. Coal is hoisted to adit level underground then taken by cars to surface through the adit.

2. New development work is necessary to increase working faces if the mine is to increase its output. Present production is 400 tons per month. This is less than normal owing to the allocation of electricity of which only 20 percent of normal amount needed for production has been allocated. Proximate analysis of the No 3 seam is as follows:

Moisture (percent)	Ash (percent)	Volatile Matter (percent)	Fixed Carbon (percent)	Sulfur (percent)	Calories
0.50	4.60	13.64	81.86	1.08	7,796

The coal is screened for size but not washed and is sold to Mitsubishi Chemical Co and Yawata Iron Works.

3. The mine has natural ventilation and makes very little water which is drained through the adit. There are 141 employees of whom 76 are underground, 42 surface, and 23 office and staff workers. The future of this property depends on amount of development work they do and whether financial assistance is obtained.

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Gongenyama coal mine, Amakusa Island

1. This mine adjoins the Oniki mine to the south and is mining the same five foot seam as Onike. The coal is reached by an adit one kilometer in length then by an incline of 30° to lowest level 330 feet below sea level. For future development, a new slope from surface is planned for 1951 and 1952. Reserves of 1,000,000 tons are proved with 800,000 workable.

2. Production is about 850 tons per month attained by using 238 employees of whom 144 are underground, 64 surface, and 30 on staff. The coal is screened for size and hand-picked. Average ash is 6-15 percent, sulfur 0.74-1.70 percent and calorific content 7,500-7,900. Average fines of 7,000 calories and 7 percent ash are sold for ¥4,100 per ton. Coal is used by Tokyo Gas Co, Osaka Gas Co, Nagoya Gas Co, and Mitsubishi Chemical Co.

3. The planned development of the new slopes will greatly increase present tonnage and will put this mine on an operating level with the Oniki mine, which is the largest in the field. The grade of anthracite is good and management seems to have thoroughly planned the mine's programs. The power situation is acute, therefore, development work cannot be continued until a larger allocation is received.

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Ushibuka coal mine, Amakusa Island

1. This property is the southernmost Amakusa mine and is located on a small island adjoining the mainland. There are harbor facilities for direct coal loading from dressing plant to boats. The coal produced is the highest quality of any anthracite produced in Japan, averaging about 8,000 calories. The new No 2 pit slopes are at the edge of the sea and are 203 meters in depth on a 23° angle. The coal seams, which dip about 35° extend under the sea. The mine levels have been laid out to carry on extensive undersea mining operations and two seams are being mined. Proximate analysis of seams is as follows:

Seam	Moisture (percent)	Ash (Percent)	Volatile Matter (percent)	Fixed Carbon (percent)	Sulfur (percent)	Calories
3 Shaku	0.50	4.73	10.57	84.20	0.70	8,096
2 Shaku	0.40	9.46	12.36	77.78	2.01	7,693

Average quality of lump coal after screening and picking is 6-8 percent ash with calorific content of 8,200, which sells at tipple for ¥7,400 per metric ton. About 20 percent of production is lump size. The fines have ash content of 8-9 percent and a calorific value of 8,000 for which ¥5,000 per ton is received. The Mitsubishi Chemical Co purchases all coal available.

2. Production to November was about 1,200 tons monthly and could be increased if more power were made available. This mine was severely cut by ESB on its allocation despite the high quality of the coal and the demand for this coal by Japan Chemical Industry. The company has an auxiliary diesel power unit operating that will assure safety from flooding owing to power interruptions; about 120 cubic feet of water per minute is pumped from the undersea workings. A petition submitted in April 1949 to Fukuoka Power Bureau requesting minimum power necessary for safety and operation has not been acted upon to date.

3. This mine shows progressive management, and is well planned and kept; also offers possibilities of doubling tonnage in the next year. After extensive geological work and careful computation of coal reserves from workings and drilling the reserves estimates are given as over 6,000,000 metric tons as possible, over 2,000,000 tons as proved and over 1,500,000 as workable tonnage. This mine needs 100 KW additional power allocation in addition to their present allocation of 300 KW which is sufficient to operate only 60 percent of equipment, to be able to increase tonnage and provide safety factors necessary for undersea mining.

4. The attitude of ESB, as reported by the operators, is that sufficient anthracite coal is being produced now, and it is not necessary to increase production.

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Otsuru coal mine, Saga Prefecture

1. This property, owned by Kajima Coal Mining Co, is located in the northwestern part of Saga Prefecture. It is on a peninsula and has facilities for water transportation at the mine. The coal is strongly coking and is used for blending for metallurgical coke by the Yawata Iron Works, Kokura, and for gas by Tokyo Gas Co.

2. There are three workable seams with the upper, known as the two foot seam, being worked through two pits. Production is about 8,000 metric tons per month now and can be doubled in 1950 if development plans can be carried through for working the lower "Kaso" and "Uenimani-so" seams. Two drills are making borings to extend known coal area. Reserves are calculated at 6,590,000 metric tons with 1,370,000 tons workable of Class 1 coal and 1,174,000 tons workable of Class II coal. Proximate analysis of these seams is as follows:

Seam	Moisture (percent)	Ash (percent)	Fixed Carbon (percent)	Volatile Matter (percent)	Sulfur (percent)	Calories
2 Foot	0.99	24.26	47.80	26.95	0.88	6,214
Kaso	1.27	17.62	52.32	30.07	0.83	7,131
Uenimani-so	2.05	15.40	45.70	27.85	-	7,029

The coal in the No 2 pit, which is producing most of tonnage, is reached through a haulage adit, then by a slope. Coal seam dips 15° and is mined by retreating longwall method. At the surface the coal is picked, screened, and washed, using Baum jigs; the fines which have high ash content are treated by flotation. About 150 tons of fines per month are dried and burned after covering with ashes to exclude air and partially coked. This material is sold for domestic use as briquettes, the washed coal is shipped by coat to industrial users. There are no rail facilities at the mine.

3. Mine water is removed in three stages, using turbine pumps.

4. About 1,215 people are employed, 780 of whom work underground. An average of 5.5 tons per man per month is mined.

5. The electric power allocation has been reduced and more is badly needed. As this mine produces coking coal, its production is valuable to Japan's economy. Suggestions were discussed with management on tests for improving grade using heavy media cleaning to reduce the ash content. Also the labor force should be reduced in the mine.

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Nishiki Coal Mine, Karatsu Field, Saga Prefecture

1. The property, owned by the Meiji Coal Co is located in the central part of Saga Prefecture near the town of Takeo, Kyushu. The mining concession covers 3,760,000 tsubo with an additional 7,500,000 tsubo of prospecting rights. Workable reserves are calculated at 2,200,000 tons. Mining was started in 1936 in the main pit and a new incline pit was started in 1948 in a new section which will be a separate mine known as the Meiji Saga coal mine.

2. There are four coal seams; the upper one, known as the Kishima main seam is now being worked. It averages 1.32 meters in thickness. The other seams have been prospected by drilling. Mining is done by advancing longwall method using longwall faces of 60, 80, and 120 meters. Walls are hard sandstone. The main slope is 1,400 meters in length on an angle of 10-13° and the coal seam dips 13-14°N. A large andesite intrusion causes a syncline of the coal seams in the central part of property. Attempts to go through this andesite body proved too expensive so workings were turned and coal on northwest side is being mined. Natural coke is found in proximity to the andesite.

3. Equipment for hoisting consists of two hoists of 250 and 300 HP. For ventilation a turbo fan of 100,000 cubic feet per minute capacity is used with small booster fans at faces. About 60 cubic feet of water per minute is pumped using 14 turbine pumps in series. The dressing plant for preparing coal has picking belts for coarse sizes and Zimmer screens for two inches to zero sizes. The fines under two inches are washed three times in circuit using Baum jigs of 50 tons per hour and 20 tons. Fines are settled in ponds and dried; coal is moved from dressing plants to railroad loading bins by aerial tramway of 50 per hour capacity. Storage bins of 600 ton capacity are to be completed in December 1949.

4. The coal is weakly coking but has sulfur content of over four percent so is not suitable for metallurgical coke use. It is sold to brewing plants, Japan Cement Co, starch plants, and railroad use. Present production is about 7,000 tons monthly. Proximate analysis is as follows:

Seam	Moisture (percent)	Volatile Matter (percent)	Fixed Carbon (percent)	Ash (percent)	Sulfur (percent)	Calories
Main seam	2.84	42.59	45.03	9.54	4.0	7,152

5. Total employees as of November 1949 are 1,182 of whom 634 are underground, 424 surface, and 124 on staff, which is to be reduced to 100 in June 1950.

6. This company had a heavy media plant operating for seven years to clean the coal using chrome sand (Dunite) before the war cut off the source of supply. The plant is now idle. It was recommended that tests be made using sintered pyrite, which is available, as a media in order to operate the plant again.

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7. Owing to the synclinal structure of coal measures now being mined, which makes ventilation difficult as faces are over 500 meters from slopes, the mine is not in good economical working condition. A new shaft is planned to work deeper sections of the syncline and give proper ventilation. Power allocations have been reduced and the washing plant is operated only one shift per day so tonnage cannot be increased.

Kitakata Coal Mine, Karatsu Coal Field, Saga Prefecture

1. This property, owned by the Kajima Coal Co, operators of the Otsura coal mine, adjoins the Nishika coal property near the town of Takeo in central Saga Prefecture, Kyushu. Concession is composed of 10,314,000 tsubo with coal reserves calculated at 30,000,000 metric tons. There are two coal seams being worked, the upper five shaku seam and lower three shaku seam. Main production comes from the upper seam which corresponds to the main seam worked at the Nishiki mine adjoining. Present production is 8,400 metric tons monthly derived from the two pits now being operated; if electric power allocations are restored, production will be increased to 10,000 tons by December. The proximate analysis of the two seams are as follows:

Seam	Moisture (percent)	Volatile Matter (percent)	Fixed Carbon (percent)	Ash (percent)	Sulfur (percent)	Calories
5 Shaku	2.32	46.09	44.39	7.20	2.34	7,455
3 Shaku	2.03	40.97	45.60	11.40	2.03	7,050

2. Coal is mined by advancing longwall method, using electric and air drills and blasting from solid, then loaded on chain conveyors to cars for transporting to surface. Coal cutters were used before World War II but have not been available since the cessation of hostilities. Ventilation is accomplished in the pits by two fans, one a turbo of 60,000 cubic feet per minute capacity and the other a Sirocco of the same size. The dressing plant has a capacity of 75 tons per hour with picking belts for coarse sizes, Zimmer screens, and Baum washers.

3. Coal is medium coking and burns with a long flame. It is in demand for glass industries at Osaka and Tokyo, also for tile burning, cement plants, and railroads.

4. There are 822 employees with 60 percent working underground and 45 on the staff.

5. This property is well managed and offers a source for industrial coal which is badly needed.

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Onoda Coal Mine, Ube Coal Field, Yamaguchi Prefecture

1. The Onoda coal mine is located in the western section of the Ube coal field. The coal is semi-bituminous and seams are flat, lying about 50 meters below the surface. Great damage from subsidence occurs to surface from this mine. A technical description of mine operations has been given from previous NR visits.

2. There are three pits operating with a new pit being opened to conduct mining undersea. Mining is by room-and-pillar in part of area and by retreating longwall in other sections. Packing is used to keep land subsidence to a minimum. Present production is 4,000 tons per month but will be increased to 7,000 after January 1950 if present plans materialize. A new washing plant was started in October 1949 to improve quality of coal using Baum jigs. About 25 percent of the tonnage will be discarded by washing and picking to bring the calorific content to over 5,000 calories. This is now being accomplished by mining the lower better grade Nanako seam and by careful cleaning which gives four grades of coal: Superior lump with 4,800 calories, lump, 4,600 calories, washed nuts, 5,000 calories, and washed fines, 4,700 calories, which is being sold to Ube Nitrogen Plant and for industrial use in Nagoya, Osaka, and Kobe.

3. The rehabilitation of subsided surface has been conducted in 1949 by using a suction dredge to pump mud and sand from edge of bay to subsided areas. Funds for this work were provided from Haitan Kodan deduction on coal sales, but more work must be done to rehabilitate the land that is now a swamp.

4. This mine is typical of the operations of the smaller mines in the Ube area in problems of land subsidence and improving the rather poor quality of subbituminous coal and marketing it since the Government Kodan was eliminated in September. By careful management, coal preparation, and cutting down on surplus expenses and extra labor, these mines will be able to again be economically able to continue operations. The present labor force of 634 with 60 percent working underground is a reduction that has aided in getting readjusted.

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Matsuhama Coal Mine, Ube City, Yamaguchi Prefecture

1. This mine adjoins the large Higashimisome coal mine and is located in the city of Ube at the water edge. It is independently operated and rapidly being developed. The coal is mined undersea from the Hitoeishi seam four feet thick and is of top grade for this field. Concession covers 360,000 tsubo and reserves of Hitoeishi seam now being worked are 296,596 metric tons.

2. An 18° slope penetrates the coal seam which dips from 3-4° on a synclinal axis. A panel system is used in mining with packing with pillars being left to hold roof. About 55 percent of total coal is mined. Mining is done with coal picks loading directly into 0.6 ton cars with picking to clean being done underground as coal is loaded. It is screened for size on surface. No washing is done.

3. Production for October and November has been 5,800 tons per month which will be increased to 6,500 tons in January. The coal is sold to Ube Nitrogen Plant and Japan Electric Co as well as to small industrial plants on the coast.

4. A total of 234 are employed with 184 working underground. Production of 15 tons per man per month is high for Japan. Average analysis for lump is 10.7 percent moisture, 19.75 percent ash and 5,400-5,700 calorific content for which an average selling price of ¥2,448 per ton is received.

5. This mine is well managed, centrally located, and will be able to continue to enlarge its working as it progresses undersea.

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Higashimisome Mine, Ube Coal Field, Yamaguchi Prefecture

1. This mine is operated by the Ube Kossan Co and is the largest producer in the field. October tonnage was 38,000 tons. All mining is from undersea workings. The new underground development work being done is principally on a new electric haulage road connecting the new vertical shaft with main workings which will be completed in 1950. Two-ton steel cars will be used with electric haulage locomotives taking 20 cars per trip. Also larger man cars will greatly speed up getting men to central part of mine as workings now extend over seven kilometers out under the sea. Also, work is being carried on in the new installation of Baum jigs in dressing plant. These were destroyed during the World War II. Installation will be completed by April 1950.

2. The Hitoeishi coal seam is being opened and will be worked by retreating longwall. Production now comes from the Oha (65 percent of total) which is very low grade and the Itsuden (35 percent of total) which is chemical use coal.

3. A total of 3,520 employees are now working. This is a reduction of 300 from the member employed in October.

4. Oha seam coal is used by thermal plants in Ube and Onoda; the coal is also used in the soda and nitrogen plants. The mine has a stockpile of sized coal of about 10,000 tons which is used for ship loading to Osaka and other coastal cities.

5. A recent cut of all fuel oil allocations for boat use has made conditions very difficult at Ube as the harbor is shallow and steamships cannot enter so stockpiles are increasing.

Sakurayama Mine, Ube Coal Field, Yamaguchi Prefecture

1. This property, located on coast on west side of Ube field is in the town of Onoda. Part of the mine is land workings and part undersea workings. The property covers 520,000 tsubo with 200,000 being in undersea area. Three coal seams mined are Futaeishi, Hitoeishi and Nanako. Coal seams strike NE and dip 4°east. Proved reserves are calculated at 2,500,000 metric tons of which 2,000,000 tons can be mined.

2. A modified room-and-pillar system is used under land areas and pillars are taken out after filling as they retreat; 90 percent of timber is recovered. Undersea area retreating longwall is used. About 7,000 tons per month is now being mined, using 735 employees 455 of whom are working underground.

3. A new shaft has been sunk, which has improved ventilation, which is carried on with Sirocco fans. About 1.8 cubic meters of water per minute is pumped from mine. The coal is picked and screened for size and the following grades are marketed:

Kind	Moisture (percent)	Ash (percent)	Calories
Special lump	8.6	17.7	5,550
Special fines	8.4	25.5	4,880
Fines	8.2	30.0	4,470
2nd Class general lump	7.9	23.0	5,170

Coal is hauled by truck to the Ube industrial users or to Onoda station for railroad shipment to Osaka and Kobe. Some coal is loaded at Onoda harbor for coastal towns.

4. This mine had several costly strikes in 1949 resulting in losses due to sabotage. It is reported that the communist influence was strong; however, as of October the union has changed leadership and operation are smoother.

5. The land subsidence problem is difficult since many buildings have had to be replaced and more will be damaged. The company, owing to the strike, is in debt but with increased production in 1950 believes that it can continued to operate.

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CMGR 333.5 (D-Ki) 1st Ind
(14 Dec 1948)
SUBJECT: Transmittal of Memorandum for Record ("Inspection of Anthracite Coal Mines, Omine Coal Field, Yamaguchi, West Honshu").

Headquarters, Chugoku Military Government Region, APO 317, Kure, Honshu,
18 December 1948

TO: Commanding Officer, Yamaguchi Military Government Team, APO 317

The inclosed memorandum for record is forwarded for your information.

BY ORDER OF COLONEL SNYDER:

1 Incl:
n/c

A. T. HUGHES
WOJG, USA
Asst Adjutant

8177

AGMGEN 333.5

14 DEC 1948

SUBJECT: Transmittal of Memorandum for Record ("Inspection of Anthracite Coal Mines, Omine Coal Field, Yamaguchi, West Honshu").

TO : Commanding Officer
Chugoku Military Government Region
APO 317

1. Attached as inclosure 1 is Memorandum for Record, Natural Resources Section, General Headquarters, Supreme Commander for the Allied Powers, NR 641 (7 Dec 48)MG, 7 December 1948, subject: "Inspection of Anthractite Coal Mines, Omine Coal Field, Yamaguchi, West Honshu," prepared by Mr. R. D. MacAfee, Scientific Consultant, Natural Resources Section, General Headquarters, Supreme Commander for the Allied Powers.

2. Subject Memorandum for Record will be forwarded to the Yamaguchi Military Government Team.

BY COMMAND OF LIEUTENANT GENERAL WALKER:

1 Incl:
SCAP Memo
Dated 7 Dec 48

MONROE N. HINEY
Major AGD
Asst Adj Gen

3500

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GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

HGS/RYG/RDM/ak
7 December 1948

NR 641 (7 Dec 48)MG

MEMORANDUM FOR: Record

SUBJECT: Inspection of Anthracite Coal Mines, Omine Coal Field, Yamaguchi, West Honshu

1. Authorization: CP Order 286-1, dated 12 October 1948

2. Mission: To inspect anthracite mines in Omine field not heretofore visited.

3. Personnel: Messrs R. D. MacAfee, coal mining engineer, and T. Sakamoto, Translator-Interpreter.

4. Summary of Results:

a. Three anthracite mines were inspected: The Taimei Muen, Nagato Muen and Mitoyo Muen, in Omine coal field.

b. Active work is progressing on the above properties, with new development that should assure an increased production in 1949.

c. These mines are proving economically important extensions to the main producing Omine property, the Sanyo M en coal mine, and are proving extensions of the main coal beds.

d. The planned development program to be completed by 1952 will increase annual coal production per mine by 10,000-25,000 metric tons, to a total of over 150,000 metric tons per year.

e. Recommendations:

(1) Since anthracite coal is vitally needed for industrial use all over Japan, increased production from the smaller mines must be encouraged by using more efficient methods of mining and cleaning of coal. Every effort should be made to assist the individual managements in solving problems of obtaining necessary materials and equipment to carry through their scheduled programs. Periodic inspections will greatly aid in obtaining knowledge to render this aid through proper Japanese agencies.

5. Detailed discussion:

a. Taimei Muen Mine

(1) This anthracite producer is located to the northwest of the main Sanyo Muen mine, which accounts for over one-half the total

COPY

COPY

production of the Omine field. The property has been leased from the Sanyo Company on an eight percent royalty basis for 10 years and is developing extensions of the same seams as mined by the Sanyo mine.

(2) Three seams are being worked: the Jaso, which is 2.3 meters thick, the Kaso, which is two meters thick, and the Fujigakawachi, which is 2.5 meters thick. The dip of these beds is 30°W and the strike is NE. Advancing room and pillar system is being used, and extensive development of the seams is being carried on from three drifts. This property is a new mine development and has had to build surface plants and workers' quarters in 1948. The production for 1947 was 3,531 metric tons, which has been steadily increased in 1948, with 1,500 tons being produced in October 1948 and 2,000 tons expected in November 1948. The schedule is set for 30,000 metric tons in 1949, increasing to 50,000 metric tons by 1952. Average production in 1948 was 10 tons per man per month.

(3) The coal is transported from the mine to a rail head loading point at Omine, a distance of 4.3 kilometers, by a narrow gauge railroad. Gasoline-powered locomotives are used to haul trains of ten 1-ton cars from the mine to Omine.

(4) The lump coal is shipped mainly to Nagoya for cement and sericulture industries, and the fines are used in briquettes for consumption all over Japan. Coal classifies 20 percent plus 60 millimeters, 40 percent minus 20 millimeters, and 40 percent plus 20 millimeters in size. Analysis of the coal is 10.46 percent moisture, 20.02 percent ash, 23.06 percent volatile matter, 0.42 percent sulfur and 46.40 percent fixed carbon. Calorific value is 6,000.

b. Nageto Muen Mine

(1) The mine adjoins the Sanyo property on the west. Production was started in 1943 and has been steadily increased as the mine was developed. Production in metric tons in former years follows:

Year	Amount
1943	2,661
1944	6,511
1945	4,505
1946	10,208
1947	13,741

The expected production for 1948 is estimated at 20,000 metric tons. A five-year planned schedule is for a production of 65,000 metric tons yearly by 1952.

COPY

(2) Coal is mined from three seams known as the bottom coal seam, No 2 Shaku and No 3 Shaku. The primary work is now concentrated on No 3 Shaku seam, which is 1.2 meters thick, with 2.5 meters of sandstone between it and No 2 Shaku seam, which is 0.7 meters thick. Beds dip 15-20°W and the strike is N.

(3) Present production comes from a main slope and two drifts, the retreating pillar system being used. A new adit is beign prepared to aid in increasing the production. The present hand mining is to be supplemented with pneumatic picks in 1949. Natural ventilation is used in the mine.

(4) The company is merging three individually owned properties adjoining the main mine lot; these cover an area of 720,000 tsubo. Proved coal reserves are listed at 3,110,000 metric tons, with 2,200,000 metric tons recoverable by room and pillar mining.

(5) The coal at the preparation plant is hand-picked, run through a Blake-type crusher to one-inch size, and then screened. The fines are used for briquettes and larger sizes are shipped for industrial use to the Osaka and Kure areas.

(6) Analysis of the coal is as follows: 1.76 percent moisture, 24.84 percent ash, 10.51 percent volatile matter, 0.68 percent sulfur, 52.89 fixed carbon, and calorific value, 5,220.

c. Mitoyo Muen Mine

(1) This property is owned by the Ube Industrial Co, which also owns the Sanyo mine. It is located in the southern section of the field and adjoins the main Sanyo mine lots. The following record of production in metric tons shows progressive increase:

Year	Amount
1942	14,886
1943	15,676
1944	16,895
1945	13,376
1946	22,108
1947	26,319

Production for 1948 should be over 30,000 metric tons. The five-year schedule is for 50,000 tons per year by 1952.

(2) Three beds are being mined, using the room and pillar system and natural ventilation. The mine has five adits. Present main production comes from the Joso seam. The coal mined is first crushed and then screened, using trommel screen, and is shipped to the Osaka area. The fines are being used for briquettes. An average of 11.5 tons per man per month is produced. The actual miners at the face average 10 tons per man per day.

(3) Average analysis of the coal is as follows: 6 percent moisture, 31 percent ash, six percent volatile matter, 0.3 percent sulfur, and 57 percent fixed carbon. Calorific value is 5,000. Recently acquired adjoining mine claims have added substantial reserves, which will assure 20 years' operation. The company is building a new preparation plant equipped with roller screens for sizing. New mine houses are being built at the property. A new compressor is being installed for use of pneumatic picks, which will enable increase of mine tonnages.

d. Conclusion:

(1) The above mines are all showing an increase in production and have developed substantial coal reserves which warrant the continued use of the mining methods and modernization planned. They will, if production plans are followed, contribute substantially to the increase of anthracite. coal in Japan.

1 Incl
Itinerary and Personnel
Interviewed

Copies furnished:
Yamaguchi MG Tm
MG, Eighth Army

/S/ ROBT. D. MacAFEE
/t/ R.D. MacAFEE
Scientific Consultant
Mining and Geology Division

Itinerary:

19 Oct 48	0930	Left Tokyo
20 Oct 48	0840	Arrived Ogori
	1000	Arrived Yamaguchi
	1230	Arrived Ube City
26 Oct 48	1200	Left Ube City
	1300	Left Yamaguchi
	1730	Left Ogori
27 Oct 48	0730	Arrived Tokyo

Personnel Interviewed:

Military

Lt Col Eugene J. McNamara, Yamaguchi Military Government Team
Maj Nolan, economic officer, Chugoku Military Government Region
Maj F.C. Wiggin, economic officer, Yamaguchi Military Government Team
Mr. E.M. Ten Eyck, economic Officer, Yamaguchi Military Government Team
1st Lt W.D. Tucker, Adjutant, Yamaguchi Military Government Team

Japanese

T. Yamada, chief, Ube Coal Bureau
Y. Nagamatsu, chief, Production Section, Ube Coal Bureau
T. Sato, chief, Materials Section, Ube Coal Bureau
H. Raison, operator, Chosei mine
K. Yoshida, representative, Kurashiki Spinning Co
I. Ishida, consulting engineer
K. Wada, supt, Nagato Muen mine
T. Suenaga, supt, Taimei Muen mine
K. Doda, supt Sanyo Muen mine
S. Furutani, mgr, Mitoyo Muen mine

Econ

HEADQUARTERS EIGHTH ARMY
Military Government Section
Economics Division
Natural Resources Branch
APO 343

15 December 1948

TO: Economics Officer
Chugoku MG Region
APO 317

According to the preliminary telegraphic reports received by the Central Coal Board from various local Coal Bureaus, the coal production for 1st ten-day period of December was: (Unit: 1,000 tons)

District	Goal	Actual	% of Goal
Hokkaido	323.5	269.1	83.2
Tohoku	71.8	66.9	93.2
Tobu	28.1	28.1	100
Seibu	3.5	3.3	94.3
Yamaguchi	89.9	87.4	97.2
Kyushu	606.2	563.7	93.0
Total	1,123.0	1,018.5	90.5%

file M-10

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

NR 641 (7 Dec 48)MG

HGS/RYG/RDM/ak
7 December 1948

MEMORANDUM FOR: Record

SUBJECT: Inspection of Anthracite Coal Mines, Omine Coal Field, Yamaguchi, West Honshu

1. Authorization: CP Order 286-1, dated 12 October 1948

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e. Recommendations:

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Yamaguchi MG T

file 1' (3)

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Robt. D. MacAfee

R. D. MacAFEE
Scientific Consultant
Mining and Geology Division

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Personnel Interviewed:

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K. Yoshida, representative, Kurashiki Spinning Co
I. Ishida, consulting engineer
K. Wada, supt, Nagato Muen mine
T. Suenaga, supt, Taimei Muen mine
K. Soda, supt, Sanyo Muen mine
S. Furutani, mgr, Mitoyo Muen mine

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GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

HGS/RYG/RDM/jrm/
3 September 1948

NR 631 (3 Sep 48)MG

MEMORANDUM FOR: Record

SUBJECT: Coal Mine Inspection of Ube and Omine Fields, Yamaguchi Prefecture, West Honshu

1. Authorization: CP Order 210-4, dated 28 July 1948

2. Mission: To inspect operating mines and to inaugurate newer methods of drift mining.

3. Personnel: Robert D. MacAfee, coal mining engineer, and
K. Sawa, interpreter (Japanese National)

4. Summary of Results:

a. General

(1) Eight coal mines were inspected, six in the Ube field and two in the Omine field.

(2) Inspection included: workings and study of surface land subsidence of the Daini Suzumeda, Onoyama, and Nagasawa mines adjoining Ube city and Onoda; the quay wall and area to be reclaimed and mined, when draining is completed at Nishiokinoyama mine; Motoyama, Ohama, and Okiube undersea mines in the Ube area; the Enokiyama anthracite mine, Omine field.

(3) Mr MacAfee instructed in standard drift mining practice in rock drifts at the Sanyo Muen mine, Omine field.

b. Recommendation:

(1) That regular visits be made to the Ube and Omine fields to advise the smaller mines on problems pertaining to modernizing of mining methods and to aid companies in starting mechanization plans.

5. Detailed Discussion:

a. Onoyama coal mine, Onoda city, Ube area

(1) This mine was started in 1942 and is located under

Yamaguchi MG

Incl 1 (2)

File Index
No. 3

flat farming surface area on the edge of the town of Onoda. Land subsidence has caused much damage and high expenditures for damages. It covers 1,401,530 square meters and is worked through three pits: the No. 1 Wakayama, the No. 2 Wakayama, and the Onoyama, which is the principal and largest pit.

(2) Production in 1947 from these pits was: Onoyama 57,000 tons; No. 1 Wakayama, 24,000 tons; and No. 2 Wakayama, 2,315 tons, making a total of 83,315 tons. The coal mined is from the Nanako seam, about 35- 50 meters below the surface. This seam is flat-lying, dips 3 - 10° S and strikes E.W. Average thickness of mineable coal is 53 inches with several 1½-inch partings. One area of workings is mined by room and pillar system, and about 60 percent of the coal is recovered. The rest of the mine has a retreating longwall system. A second seam, the Santaka, which is 10 meters deeper, is not being mined yet.

(3) Coal is taken out by endless rope haulage and by 0.5-ton cars up slopes to the surface, where it is cleaned by hand-picking. The coal from the Nanako seam is of about the same quality as the Itsudan seam mined at Ube city and is used by manufacturing industries and for the power generating plant at Onoda. About 40 percent of production goes by boat to Osaka, Kobe, and Nagoya from the port of Onoda.

(4) Proved reserves are: No. 1 Wakayama, 2,490,000 metric tons; No. 2 Wakayama, 5,743,000 tons; and Onoyama, 2,712,000 tons. Possible additional reserves are calculated at 5,000,000 tons.

(5) Natural ventilation is used, and air shafts are put down at intervals to aid ventilation.

(6) Water is handled by turbine-type-pumps and averages about 80 cubic feet per minute. There are 340 underground employees, which is 66 percent of the total employed. Coal produced has averaged 15 tons per man per month, which is the highest average in district.

A production of 100,000 tons is scheduled for 1948.

b. Nagasawa coal mine, Ube city

(1) This mine, owned by the Ube Industrial Co, adjoins Okinoyama mine on the west and was opened in 1940. It is developed through a slope, and the workings extend into the new Nishiokinoyama mine drainage development area. Two seams are mined, the Futaeishi, which is 35 meters below surface, and the Nanako, which is 75 meters below surface.

(2) The Futaeishi seam averages 0.63 meters thick and the Nanako, from which most of the coal is mined, is 1.5 meters thick. The seams dip 3° S.W. and strike E.W. Reserves are listed at 4,860,000 tons, of which 70 percent is recoverable. The retreating longwall system, now replacing the room and pillar system, is used with chain conveyers, moving coal from the face. It is then loaded in 0.5-ton cars and moved by endless rope haulage in 0.5-ton tubs to the slope, where the cars are taken to the surface by hoist. Coal is mined, using pneumatic picks. Ventilation is by a double suction Sirocco fan, and pumping is done with two turbine pumps, which handle 3.5 cubic meters per minute average flow.

(3) The Nanako seam coal is used in the chemical plants at Ube city, and is shipped by boat from Ube port to the area around Hiroshima for the rayon industry. After picking coal at surface dressing plant, the poorer grades are sent to the local electric power generating plants. The mine employs 1,064 workers, 595 underground, and 469 on the surface, of which 300 are women who work in the preparation plant and office. Production in 1946 was 67,059 tons and in 1947, 94,708 tons. It is expected that 110,000 tons will be produced in 1948.

(4) Analysis of coal produced in percent is:

	Moisture	Ash	Volatile Matter	Fixed Carbon	Sulfur	Calorific Value
Nanako seam	9.16	35.11	30.01	17.66	0.65	4,137
Futaeishi seam	10.38	18.20	41.60	38.04	3.10	5,398