5. The main ventilation fan is a 75 horse power Sirocco, 750 RPM motor, which blows 1,980 cubic meters per minute of air into the slope entry. Auxilliary booster fans are used to force air into the rock tunnels as well as the coal faces.

6. About 10 cubic meters of water per minute are removed from the mine by turbine pumps in series.

7. The surface preparation plant is well equipped to clean the coal. Coarse sizes are handpicked and finer sizes are washed by Baumé-type jigs with the middling product being re-washed. The coal is sized and de-watered by appropriate screening. Storage bins for both truck and railroad loading are provided. The secondary grades of coal are sent to the company's distillation plant. About 250 tons of coal are carbonized monthly with 25 tons of tar being produced. Coke produced is used locally. The tar is further refined for oils by dry distillation. 170 tons of coalite are made.

8. The coal is being mined profitably with a monthly production of about 11,500 tons. As development work progresses, plans call for an estimated production of 156,000 tons for 1949, 200,000 tons for 1950, 250,000 tons for 1951 and 300,000 tons for 1952.

9. Since the coal beds dip 15° or less, mechanical equipment could be adapted in order to reduce the cost of production, especially when driving the rock tunnels. Management is planning to install mechanical equipment as soon as funds permit.

10. New coal storage bins are being built with an enlarged capacity. About half the labor housing program has been completed along with the hospital and other welfare buildings.

(C) (C)

Befu Coal Mine

1. The Befu coal mine, owned by Mehiku Coal Mine Development Co, is located at Higashitaki-mura, Ogi-gun, Saga Prefecture, Kyushu. This mine adjoins the Ogi mine and covers an area of 886,659 tsubo. The mine was worked for many years from another pit. Present work is on a small area that was left unmined. The new slopes are about one kilometer from the Ogi Preparation plant and the coal is taken by endless rope haulage on surface to the Ogi plant for cleaning and sizing.

2. About 400,000 metric tons will be mineable in the present pit from proved coal reserves in the three coal seams. The new slopes follow the dip of the main coal seam which is five feet thick with several thin partings. The coal is weakly coking and is of same general grade and analysis as the Ogi coal. It is mixed and shipped with Ogi coal at the preparation plant. The following table shows area possible to mine and the proved and possible reserves of coal:

Seam	Area (tsubo)	Reserves per Tsubo	Total of Reserves (metric tons)	Tonnages Recoverable (metric tons)	Percent Recoverable
Main	25,000	7.6	190,000	152,000	80
No 1 Lower	35,000	5.0	175,000	140,000	80
No 2 Lower	40,000	3.5	140,000	112,000	80
Proved Total			505,000	404,000	
Possible Reserves (from Itsuki seam - deep seam, unworked)	400,000	4.0	1,600,000	800,000	50
TOTAL			2,105,000	1,204,000	

3. Ventilation is by an upcast fan at the mouth of the slope. As development proceeds auxilliary fans will be used as headings are driven. At present, coal is being mined from development headings turned from slope and from coal taken from slope sinking.

4. About six cubic feet of water per minute is being pumped by turbine pumps from slope sinking.

5. About 250 tons of coal is being produced daily. Present production averages 11 tons of coal per man per month which is the highest rate in this coal field. Management stated that the mine is paying its way on present

Incl 3 to Encl 1

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operations. When the lower Itsuki seam is opened production will be increased to 350 tons daily or about 6,000 tons monthly. The mine is expected to produce about 70,000 tons yearly by 1952. Management-labor relations are exceedingly good. Labor did not participate in the nationwide strike in June.

( ) A ( )

Misomeshin Coal Mine

1. The Misomeshin coal mine, owned by Mr K. Ito, is located at No 3150 Onda, Okuibe, Ube city. The mine was opened June 1947 and covers an area of 1,814,309 tsubo. The surface area is flat and coal beds have a dip of 5-20° and strike N45 E. These seams are about 30-40 meters below the surface. The roof is country rock of sandy shale and the footwall is slate.

2. There are four seams: Oha, five feet thick; Itsudan, 4.5 feet thick; Futadan, two feet thick; and Sanjaku, three feet thick. The calorific value of coal averages 4,500-5,700 and is utilized by Ube industrial and power plants. Proved reserves are 1,655,238 metric tons. The coal is prepared by hand-picking and screening. The following table gives sizes, calorific value, and tonnage for May 1949.

Method of Preparation	Size	Calories	Tonnage
Screening	Lump	4,900	382
	Fines	3,900	449
	Special lump	5,700	168
	Special fine	5,100	70
	Common lump	4,200	1,242
	Total		2,311

3. The Onda, Sasayama, and Omae pits have natural ventilation systems with one inclined and two vertical shafts to coal beds. Small propeller booster fans are used for auxilliary circulation in headings. About 2.8 cubic meters of water are pumped per month using turbine pumps.

4. Production in 1948 was 25,173 metric tons. In May 1949, 2,811 metric tons were produced using 354 employees resulting in an average of 7.94 tons of coal per man per month.

5. This mine is representative of the smaller land mines, mining on thin seams at shallow depths, in the Ube area. Mr K. Ito stated that operations are profitable, but with improved equipment a larger profit could be realized. It was recommended that the wire hoisting rope be lubricated and attention to safety measures on hoisting in vertical shaft be more closely observed.

Encl 4 to Encl 1

Fujiyama Coal Mine

1. The Fujiyama coal mine, owned by Mr K. Ito, is located in the northern section of Ube City. Mining was started in May 1946 on the 1,592,891 tsubo mine lot. The surface is flat and coal seams dip 3° and strike N35°W. Beds are 35 meters below surface. Country rock is sandy shale.

2. There are three seams being mined: Itsudan, 4.8 feet thick, Futadan, one foot thick, and Sanjaku, 1.6 feet thick. Calorific content of these seams averages 4,800-5,500 and the coal is utilized by industries in the Ube city area. Reserves are estimated at 875,800 metric tons. The coal is screened and handpicked at surface. The following table gives sizes, quality, and tonnages for May 1949:

Method of Preparation	Sizes	Calories	Tonnage
Screening	Sanjaku lump	4,900	392
	Common lum	3,900	576
	Sanjaku fines	3,900	1,805
Total			2,773

3. Coal is mined from the Sanjiyaku pit through a slope using natural ventilation. About 0.4 cubic meters of water per minute are pumped using turbines and plunger pumps. Mining is by shortwall system using air picks and hand loading.

4. Production in 1948 was 38,215 metric tons. In May 1949, 2,774 metric tons were produced with 250 employees, averaging 11.10 tons of coal per man per month.

5. By careful mining and cleaning, production is increasing each year. The company is preparing a new pit on the adjoining Ebisu workings which will be producing by the end of 1949.

Incl 5 to Desp 1

(C) A (C)

Nakahara Coal Mine

1. The Nakahara coal mine, owned by Mr K. Ito, is located in the western section of Ube City. Mining was started in January 1944 on the 7,450.07 tsubo mine lot. The surface is hilly and coal seams dip 2° and strike S30°W. Beds are 40 meters below surface. The country rock is sandstone and shale.

2. There are two seams being mined: Hitoeshi, two feet thick; and Nanako, five feet thick. Calorific content of these seams averages 3,900-5,500. This coal is shipped by truck and railroad to Ube city and adjoining areas for power use. Reserves are estimated at 272,560 metric tons. The coal is screened and handpicked at surface. The following table gives sizes, quality, and tonnages for May 1949:

Method of Separation	Sizes	Calories	Tonnage
Screening	Special lump	6,600	41
	Lump	3,600	3,222
	Fines	3,000	1,944
Total			5,207

3. Coal is mined from two pits by vertical shafts using natural ventilation. About two cubic meters of water per minute is pumped using turbine pumps. Production in 1948 was 57,764 metric tons. In May 1949, production was 5,207 tons, using 347 employees, averaging 15.0 tons of coal per man per month.

4. This mine must improve its grade of coal by more careful mining and preparation. The mine is profiting as the ratio of tonnage per man is very good for Japan.

Incl 6 to Encl 1

Nishi-Okinoyama Mine

1. The Nishi-Okinoyama mine is a new mine developed in a reclaimed sea area and operated by Ube Industrial Co. The project was started in 1938 and completed in May 1949. A sea wall surrounds the reclaimed area of 10 square kilometers.

2. Since coal seams are close to the surface, draining of the sea water from the area can be accomplished by drilling. A dredge is being used to fill the area that can not be drained by gravity. Details of development plans for this area have been described in Memorandum for Record, NR 641 (29 Apr 49)MG subject: Inspection of Coal Mines in Ube Coal Field, Yamaguchi Prefecture, 29 April 1949.

3. Using the open cut method, production is scheduled to start by end of 1949. Sinking of the main slope will be started in October. This mine will contribute a substantial tonnage of coal from the higher grade Itsuden coal seam in 1950.

Encl 7 to Encl 1

Mede Coal Mine

1. The Mede coal mine, owned by Mr K. Ito, is located in the Onoda district west of Ube City. Mining was started in December 1943 on the 22,305.22 tsubo mine lot. The surface is hilly in this section; coal seams dip 6° and strike N80°E. Beds are about 40 meters below the surface. Country rock is sandy shale and sandstone.

2. There are two thin seams being worked: Nansko, 2.4 feet thick, and Santaku, .87 feet thick. The calorific content of these coals averages 4,200-5,200, and the coal is used by local industrial plants in the Ube area. Reserves are estimated at 1,027,000 metric tons. The coal is screened and handpicked at surface. The following table gives sizes, quality, and tonnages for May 1949:

Method of Preparation	Sizes	Calories	Tonnage
Screening and handpicking	Fines	3,000	1,802
	Special lump	4,700	206
Total			2,008

3. Coal is mined from four pits opened by slopes. Natural ventilation is used in three of the pits; the other pit uses a Sirocco exhaust fan. About 0.5 cubic meters per minute of water is pumped, using turbine pumps and plunger pumps. Mining is by shortwall systems, using air picks and hand loading.

4. Production in 1948 was 33,169 metric tons. In May 1949, 2,008 metric tons were produced by 273 employees, with an average of 7.36 tons of coal per man per month. This mine has been successful in mining the thin seams worked and has steadily improved output and installations during 1948. New mine housing and improved surface installations have aided in making this operation a success.

Note the four (4) mines in Ube herein reported.
produced in May 12,299 m/t with 1224 men in pit
an average of 10.04 m/t per man

Anl 8 to Encl 1

Okinoyama Coal Mine

1. The Okinoyama coal mine is an undersea operation, operated by Ube Industrial Co, and ranks as the largest mine in the Ube coal field Yamaguchi Prefecture. This mine was flooded in September 1948; however, rehabilitation and dewatering operations have been completed. Coal production was up to 35,000 tons per month in June 1949, which is about 90 percent of capacity.

2. The remaining rehabilitation is on the main lower haulage tunnel which extends five kilometers undersea and is filled to a depth of about five feet with silt and mud caused by the flooding. By hand mucking, progress has been very slow in the debris removal.

3. A Myers-Whaley type mechanical mucking and loading machine has been acquired by the company and is being installed to remove the muck by loading directly into cars. As its track gauge is wider than the permanent track gauge in the haulage tunnel, prefabricated short removable sections of rails were designed which will be used for machine advances.

4. It is expected that the tunnel will be cleaned out by November and that the lower workings will be reopened for production of the better coal used by the chemical industry obtained from the Itsuden seam. A production of 40,000 tons per month from this mine should be realized.

5. A delay in the rehabilitation schedule was caused by lack of funds which had been approved by Coal Board when subsidies were cancelled. This mine is scheduled to receive financial assistance from the Counterpart Fund. Production should be at full capacity by the end of 1949.

Encl 9 to Desp 1

HEADQUARTERS I CORPS
APO 301 (Kyoto, Honshu)

EHN/wd/tn

AG 333.5 - BA

SUBJECT: Transmittal of Memorandum for Record

MAR 8 1949

TO : Commanding Officer
Chugoku Military Government Region
APO 248

1. Attached as inclosure 1 is Memorandum for Record, Natural Resources Section, General Headquarters, Supreme Commander for the Allied Powers, NR 630.1 (21 Feb 49)MG, 21 February 1949, subject: "Mine Safety Conference in Kyushu", prepared by Major Charles S. Merriam, 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 MAJOR GENERAL COULTER:

WILLIAM A. FRANKS
Major, AGD
Asst Adj General

1 Incl:
SCAP Memo
Dated 21 Feb 49

21° H50

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

NR 630.1 (21 Feb 49)MG

NRS/TSG/CSM/lk
21 February 1949

MEMORANDUM FOR: Record

SUBJECT: Mine Safety Conference in Kyushu

1. Authorization: AGPO LO 30-7, dated 5 February 1949.

2. Mission: To attend a mine safety conference in Kyushu at request of the Japanese Ministry of Commerce and Industry.

3. Personnel: Maj Charles S. Merriam, Inf, coal engineer, and Mr. T. Sakamoto, Translator-Interpreter.

4. Summary of Results:

a. As a result of this conference, the coal and metal mine operators, labor union officials, and government officials in Kyushu and Yamaguchi Prefecture have a better understanding of the principles of mine safety and the need for a strict mine safety code and good inspection service.

5. Detailed Discussion:

a. This conference, held in the main auditorium of the Kyushu University, Fukuoka, was attended by about 300 men representing the coal and metal mines operators' associations, labor unions, and officials of the Japanese Coal Board and the Ministry of Commerce and Industry. Mines represented were in Kyushu and Yamaguchi Prefecture.

b. Opening the conference on 9 February, Major Merriam delivered the same prepared talk presented at a similar conference held in Sapporo, Hokkaido, 21 January 1949. Following this, Capt Wycoff, of the Kyushu MG Coal Production Team, requested cooperation of all present to further the aims of the mine safety program, and offered Military Government assistance. Owing to the extreme cold in the unheated assembly hall, the scheduled question-and-answer period was cancelled.

c. On 10 February the conference was reconvened, and Mr. S. Araki, assistant chief of the Safety Section, Ministry of Commerce and Industry, explained the provisions of the draft of the proposed Mine Safety Law, laying groundwork for the public hearings scheduled to begin in March 1949.

Yamaguchi MG Team

Incl 14

AGR 630.1 (21 Feb 49)MG

d. In closing the conference, all men present gave assurances of cooperation in the mine safety program.

Charles S. Merriam

CHARLES S. MERRIAM
Maj Inf
Mining and Geology Division

2 Incls:
1 Copy of Maj Merriam's talk
2 Itinerary and personnel interviewed

Copies furnished:
ESS/LA
Kyushu MG Region
Yamaguchi MG Team
MG, Eighth Army

TALK TO BE DELIVERED BY MAJ MERRIAM AT SAFETY CONFERENCE IN ~~SAPPORO~~ Fukuoka, Kyushu ~~HOKKAIDO~~, ~~21 JANUARY~~ 9 February 1949

On ~~23~~ 21 December 1948 the Japanese government took the necessary action to permit all the resources of the Safety Section, ~~of the Coal Board~~, Ministry of Commerce and Industry, to be set in motion toward achieving a real mine safety program. I have been working with the officials of the Coal Board for more than eighteen months toward that end. All of those men deserve the highest priase for their efforts. This conference this morning is for the purpose of explaining what we attempt to do in furthering mine safety programs in this country and what you men, the miners and the operators, can do toward obtaining maximum benefit from the new safety code.

I think it would be helpful to outline for you, as briefly as possible, some of the things that went into the making of the present mine safety program. Since the beginning of the Occupation of Japan, American mining engineers on duty with SCAP have been concerned over the very high accident rate in the mines of this country. An examination of the safety regulations revealed that, according to American safety practices, the standards were far too low and the laws were too difficult to enforce. Early in 1948 a mine safety expert from the United States Bureau of Mines was brought to Japan to study the mine safety practices and to recommend changes where necessary. As a result of his work, proposed mine safety codes were drawn up for coal and metal mines, and these were presented to your government to be used as guides in preparing its own codes. Unfortunately, politics entered the picture and action on the codes was unnecessarily delayed. The government's action on 21 December solved the jurisdictional problem, and we are now in a position to take some positive action toward reducing the accident rate.

Let me say a few words on accident rates. We all know that too many men are killed or injured in the mining industry of this country. When production is used as a basis in computing the rate of accidents, for example in the coal mining industry, it is a shocking figure. It is more than thirty times the fatality rate per million tons of coal produced in the United States. However, to attempt to make a comparison on a production basis is more than misleading, it is actually false. The true criteria for comparing the accident rate of one mine or of one country with that of another is the rate based on man-hours of exposure to accident hazards. Such records have not always been kept in the United States and it has only been in recent years that steps were taken to maintain accurate records of man-hours worked for the purpose of computing accident rates. Now, the accident rate at nearly all mines in the United States is kept by production, in millions of tons mined, and by exposure, either in millions or billions of man-hours worked. It is still difficult to obtain an accurate comparison between two or more mines or mining companies because seldom do two mines of the same size have about the same number of employees and operate in the same coal beds under the same natural conditions.

end / last word / 2

In Japan I have been unable to obtain any accurate data on man-hours of employment in the mining industry. However, when one considers that there are more than 500,000 employees in the coal mines of this country, as compared with about 380,000 in the American coal mines, and each country working about the same number of hours daily, I think you would be very surprised at how closely the accident rates of the two countries, based on man-hours of exposure, would be together. I have attempted to work it out, using arbitrary data for Japan, and obtained a figure of about 70 accidents per million man-hours of exposure in 1946, which was only slightly more than the rate of about 60 in the United States for the same year.

The new safety codes for coal and metal mines were designed to correct the obvious deficiencies of the old Mining Police Regulations. Minimum standards have been incorporated in the codes which should not be violated. There are provisions in the codes for making revisions where they appear necessary. There are provisions whereby the Chief of the Bureau of Mine Safety and Inspection may make exceptions for special cause or grant a specified period of time to permit the mines to attain the standards established by the codes. There are provisions for the elimination of mine inspectors or other officials whose conduct in office is unsatisfactory. And there will be penalties provided for the new mining laws for mine operators who violate the provisions of the safety codes or who refuse to accept the recommendations of the district mine inspectors. It is definitely not intended to place undue hardship or difficulty on either laborers or managers. But it is expected that everyone will do his share toward making the mines as safe as is humanly possible. In America we have always believed that mine safety is a two-way street whose name is cooperation. Regardless of the laws established to promote mine safety, no matter how good they may be or how strict, safety is still dependant on the human equation. Laws or rules or enforcement agents, or even jails, will not prevent violations of those rules by a minority - the miner who secretely lights a cigarette - who jumps off a moving man trip - who daily takes chances.

A safety program based on compulsion may, and in Japan probably will, get some results -- but it does not get the same results as are obtained by enthusiastic cooperation. While definite rules are essential to the program, if cooperation is obtained, these rules become a by-product of good practice, and become a part of your safety program. Safety will not become the thing we desire until employees and employers attack the problem jointly. When the leaders of both operators and miners unite on a program of cooperation, based on the willingness of each to accept their responsibilities, then under such leadership the frequency and severity of accidents can and will be reduced to a minimum. The basis of safety is cooperation; and cooperation, plus good leadership, will get the answer that is right for safety.

There is a provision in the new safety codes for the establishment of a mine safety committee to be made up of miners at each mine. In the codes there were no restrictions placed on the number of members of these committees; however, I feel quite strongly that there should be no more than ten with a minimum of five members. Furthermore, these men should not become "white-collar workers" as so frequently happens here. They can perform

their functions on the committee much better by being actual workers in the pits, and they should continue at their regularly assigned jobs. The committees should meet periodically, say once a week after duty hours, with the safety officials of the mine to discuss mine hazards and how to correct them. One of the most important topics for such meetings should be a discussion of the accidents that have actually occurred since the last meeting, how the accidents could have been avoided, and what can be done to prevent such accidents from happening again. It must be remembered that the mine safety committee is not intended to be a negotiating group; it is an advisory group with the special mission of advising the management's safety officials and the leaders of the miners' union on matters pertaining to safety. Once each month this committee should accompany the mine safety supervisor on a complete inspection of the mine, both on the surface and underground. Following this inspection tour they should hold a critique to discuss all of the good and bad safety features observed on the inspection. For the bad ones, of course, immediate corrections must be made. The good features should be publicized in order that all miners may know of them. Where individual performance deserves particular credit, no time should be lost in awarding that credit. The members of the mine safety committee should wear some distinctive article of clothing to indicate their membership on the committee. In America they frequently wear "hard hats" painted white in order that they may be recognized. The mine safety committee, if properly managed, can do more to build confidence between the workers and the management and to promote safety than anything else.

I am addressing my remarks not to a single group but to that collective group of workers, foremen, and managing officials who must work together to produce the coal or minerals and who must also work together for safety. However, I would like to take just a few moments now to place emphasis on a very important phase of safety from management's viewpoint. The new codes provide that the operator shall appoint a mine safety director and certain other mine safety supervisors, bosses and guards. Top management must be kept aware of the importance of safety in making its plans and programs for the future. A safety program, to be really effective, very definitely implies the employment of a safety director or engineer who can devote his full time and efforts to the safety program. It is quite unlikely, even in a small mine, that the work of directing a safety program can be imposed upon the mine foreman, superintendent or manager because of the numerous responsibilities already placed upon those officials. These men must manage the production work, supervise the transportation system, check the ventilation system, and provide for drainage of the mine, just to mention a few duties, in addition to their personnel work as supervisors over one or more groups of workers.

In performing all this work, these supervisory and production men must keep safety constantly in mind and must include it in all their plans because of the very nature of their duties. Nevertheless, they will obviously have neither the time nor the energy to conduct all phases of an integrated safety program. Therefore, the safety work must be placed in the hands of some other individual. In America, the principle that production and safety cannot be separated has been generally accepted. Hence, a person selected

to be the safety director at most mines is a men experienced in supervisory or production work and the problems connected therewith. With some incidental training on the subject of safety in general, and the establishment of an integrated safety program for mining in particular, there should be little question of the fact that a man possession this background, plus the proper personality and enthusiasm for safety, must succeed without fail.

The mine safety director should occupy a position or status equal to that of the general mine superintendant or production manager. In no event should he be permitted to countermand the orders of the production department, but he always should have the right to make recommendations to mine officials and to be able to go even as far as the main office of the company if his recommendations are not carried out. He should review all plans for mining, and mining methods, in the special interest of safety, and should concern himself generally with the management of the mines from a safety standpoint. In other words, the safety director is the right-hand-man of the mine manager. He relieves the manager of most of the details of supervising the safety program, and keeps the manager informed daily as to exactly what progress is being made, or what is lacking if no progress is being made.

The adoption of the "new-look" safety codes and the assignment of jurisdiction over the codes by your government is not going to automatically make the mines safe or save any miner's lives. I cannot repeat too many times: safety means cooperation from everybody in the mining industry from the president of the company down to the actual miner. From my own experience, and the experiences of many American mine safety engineers, the big road-block to a safety program is the resistance of the miner to the program. Getting safety across to miners is not an easy job. Keeping them sold on safety is tougher still. Unfortunately, the safe way of performing a task is not always the easy way, and is most frequently not the way the miner has been accustomed to doing it for perhaps many years. Therefore, he is reluctant to change and often must be forced to do so. But miners can be sold on safety and kept sold if the approach is right. This approach calls for (1) a basic program that keeps up a steady barrage of safety talk and training, and (2) a standby emergency program that moves in on special occasions when the resistance of the miner to safety salesmanship is at a low ebb. The whole set-up must be based on complete honesty, enthusiasm, and skillful promotion by management, union leaders, and the mine safety committee.

The resistance of a miner to a safety program is not always of his own making. Sometimes it may be his own union leaders who throw all blame for accidents on the company and seldom suggest that the miner has any share in keeping himself safe. Sometimes such union leaders attempt to block management's efforts to penalize workers for safety violations. Thus the unions approach to safety does not always show the rank-and-file miner that he has a share in safety.

On the other side, management itself does not always lead the way correctly. The company's foreman who constantly takes chances, who fail to enforce safety rules, who gamble on "fairly good" roof or "just a little bit" of methane, weakens the safety program at the very point where it

should be strongest -- foreman - miner relations. If management brushes aside the mine safety committee's recommendations or is slow to act on the recommendations of the district mine inspector, the miners themselves cannot be expected to take much interest in the safety program.

We do not attempt to say that the new safety codes are perfect. We know they will require revisions to suit particular situations and the peculiar conditions of Japanese mines. However, as one miner extremely interested in safety to others, I ask you to give the codes an honest, fair chance. I am confident that they can be made to work, and if given a chance will result in a great decrease in accidents. Remember again -- cooperation will do more towards making the mine safe than anything else. Don't worry about where the periods and commas are in the codes, or whether you like a certain word or phrase or not - just cooperate and let's make this year a safe year for mining.

ITINERARY

Depart Tokyo ---------- 0930 8 February 1949

Arrive Fukuoka --------- 1300 9 February

Depart Fukuoka --------- 1548 10 February

Arrive Tokyo ---------- 1900 11 February

PERSONNEL INTERVIEWED

Colonel S.C. Hilton, Commanding Officer, Kyushu MG District

Lt Col Oliver, Chief, Kyushu MG Coal Production Team

Capt Wycoff, Safety Engineer, Kyushu MG Coal Production Team

Mr Mikel, Labor Officer, Kyushu Coal Production Team

Mr H. Konishi, vice-President, Kyushu Coal Mine Operators Assn

end 2 dtd end 1/2

CMLR 333.5 (D-Ki) 1st Ind
(10 Dec 1948)

SUBJECT: Transmittal of Memorandum for Record ("Investigation of Progress of New Coal Mines in Tottori and Shimane Prefectures in West Honshu").

Headquarters, Chugoku Military Government Region, APO 317, Kure, Honshu, 14 December 1948

TO: Commanding Officer, Tottori Military Government Team, APO 317
Commanding Officer, Shimane Military Government Team, APO 317

The inclosed copy of memorandum for record is forwarded for your information.

BY ORDER OF COLONEL SNYDER:

1 Incl:
n/c

JERRY W. TOM
1st Lt, USAF
Adjutant

HEADQUARTERS EIGHTH ARMY
United States Army
Office of the Commanding General
APO 343

7834
EN 199

AGMGEN 333.5

10 DEC 1948

SUBJECT: Transmittal of Memorandum for Record ("Investigation of Progress of New Coal Mines in Tottori and Shimane Prefectures in 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 (3 Dec 48)MG, 3 Dec 48, subject: "Investigation of Progress of New Coal Mines in Tottori and Shimane Prefectures in 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 Tottori and Shimane Military Government Teams.

8

BY COMMAND OF LIEUTENANT GENERAL WALKER:

1 Incl:
SCAP Memo
Dated 3 Dec 48

for L. M. Devereux
MONROE N. MINEY
Major AGDC
Asst Adj Gen

3382

COPY

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

HGS/RYC/RDM/jm
3 December 1948

NR 641 (3 Dec 48)MG

MEMORANDUM FOR: Record

SUBJECT: Investigation of Progress of New Coal Mines in Tottori and Shimane Prefectures in West Honshu

1. Authorization: CP Order 314-5, dated 9 November 1948.

2. Missions: To investigate progress of development work at new coal mines.

3. Personnel: R. D. MacAfee, coal mining engineer, and T. Sakamoto, translater-interpreter.

4. Summary of Results:

a. Two new developing coal mines in West Honshu were inspected: Tanaka Muen mine, near Uradome, Tottori Prefecture, and Shimane-Hokoku mine near Matsue, Shimane Prefecture.

b. The Tanaka mine is working a new discovery of anthracite coal and is being developed to determine its extent. A limited production in 1949 is expected.

c. The Shimane-Hokoku mine has been operating since 1945 and is concentrating on completion of workers' housing and shops. A new slope, which will provide added production of coal from lower seams, has been started.

d. Recommendations:

(1) The Tanaka anthracite mine is a new mine prospect and the primary development work now being done, along with a proposed drilling program, should prove its extent and worth. Coal produced from development will be hauled by wagons two kilometers to a railroad. Some rock is needed on the road, whi ch will be taken care of by local prefectural authorities. If and when coal tonnage warrants, it is recommended that the road be widened and put into condition for truck transportation.

(2) The Shimane-Hokoku mine has an ideal stripping area that warrants aid in obtaining mechanical equipment to get into operation. Present production is from a shallow underground development program which is not progressing very rapidly. With a simple cable line drag bucket scraper system, or a bulldozer and scraper, the soft surface overburden could be removed rapidly, so that coal could be mined on the proposed schedule.

COPY

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NR 641 (3 Dec 48)MG

5. Detailed Discussion:

a. The Tanaka Muen Mine

(1) The Tanaka Muen mine is a new prospect being developed by an independent operator. It is located about two kilometers from Uradome, Tottori Prefecture, on the west coast of Honshu.

(2) The mine consists of two known seams of anthracite coal which outcrop on a steep hillside, about 230 meters above the valley and 240 meters above sea level. The beds dip 10°E and strike N-S. The upper bed is 1½ meters thick, with several irregular partings from two to six inches thick, consisting of clay and shale. The lower bed, three meters below the upper bed, is about one meter thick and shows two or three parting. The coal as mined from this development is about 80 percent lump size. This may vary as beds are worked further, owing to distortion from pressure of igneous intrusions.

(3) Present development work consists of two tunnels, about 25 and 40 meters long, respectively, following the strike of the beds. These tunnels will be continued to determine further extent of coal. Five drill holes are planned to be started in the spring. There is no mechanical equipment at the mine and mining is carried on by hand methods.

(4) Twenty-pound mine rails procured from the prefectural government are being laid for a distance of 600 meters from the tunnel mouth around the hillside to a point where a jig-back tram will take coal to the valley and road level. This track is about 80 percent completed. A small tipple, to pick and screen coal, is almost completed at the lower tunnel mouth.

(5) This anthracite coal contains 25-30 percent ash, three percent moisture, and about four percent sulfur. It has a calorific value of 5,800-6,500. It is not suitable for local domestic use and will be shipped by rail to Osaka for industrial use there.

(6) A narrow access road runs up the valley to a point where the coal can be lowered from the mine. This road is not surfaced and is not suited for heavy loads. It will have to be widened and have some rock surfacing to allow trucks to go over it, if furture mine tonnage warrants it.

(7) The future value of this property will be determined from the present development program and drilling, as the work has not progressed far enough to warrant tonnage estimates or any extensive equipment installations beyond those now being installed.

(8) This mine is the only coal prospect in Tottori Prefecture that is being worked and offers a possible additional anthracite tonnage for industries in Osaka.

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NR 641 (3 Dec 48)MG

b. Shimane- Hokoku Coal Mine

(1) This coal mine is the only industrial producer of any importance in Shimane Prefecture. The coal is subbituminous in grade and is suitable for local use, but is not of sufficient calorific value or quality to warrant shipping any great distances. Its local use, however, will relieve the necessity of shipping coal in from Kyushu and allow that coal to go to other markets.

(2) The mine has been improved extensively during the last year and has received federal funds for development. A new serial tram from the mine to the railroad, a distance of 4.2 kilometers, has been completed, with terminal facilities. A program of 230 miners' houses at the mine is 90 percent completed and a machine shop is now in course of construction. Delays in the building program were caused by trouble encountered in acquiring land for housing from local farmers, and land for dumping facilities.

(3) The mine has two coal beds in the eastern section that are to be worked now. The upper bed is up to four meters thick and dips about 10°W, striking N-E. It is suitable for open cut mining, as it has only a few meters of overburden, which is mostly surface soil and can be stripped easily by mechanical means at a low cost. The present work on this bed is by shallow tunnel workings and about 60 tons per day are being mined by hand methods. This tonnage should be greatly increased by working from open cuts and using a shoval or scraper for loading. The coal, being close to the surface, is soft and somewhat discolored and carries a calorific value of about 4,200.

(4) The lower bed is being opened by a slope which has not yet reached coal. The coal from this lower bed is of a better grade than the upper bed and is expected to have a calorific value of 5,000, which will be acceptable for railroad use.

(5) The eastern section, now being worked, has been drilled, and proved reserves are estimated at 1,300,000 metric tons. The second area now being drilled is to the west and will be worked as soon as it can be developed. Two beds a pear suitable to work in this area; these, with extensions of the eastern area, will give an estimated 4,700,000 metric tons of probable coal. The extensions of the western section now being prespected is estimated at 1,000,000 metric tons and is classified as possible coal, making a total of 7,000,000 metric tons, of whidh it is considered 3,7000,000 will be recoverable.

(6) The five-year program production goal in metric tons is as follows:

1948 - 15,000
1949 - 40,000
1950 - 100,000
1951 - 110,000
1952 - 120,000

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NR 641 (3 Dec 48) MG

(7) The aerial tram has a capacity of 300 tons per day. However, only 60 tons per day are being produced. For 1948 the 15,000-ton goal will not be achieved, as the schedule has been delayed in getting housing for employees and land for dumping of overburden. The stripping program has not yet been started and no equipment has been acquired to do the stripping. The Shimane Military Government has aided the mine management in every way possible in helping to get supplies for their needs and is very anxious for this mine to get into full production.

(8) The need for proper mechanical equipment is great, if this mine is to reach its scheduled production and utilize the large tonnage available from the upper bed by stripping methods. The present work is not being conducted to advantage. It must be more systematized and a plan followed that will accomplish results.

(9) The employees are distributed as follows: Surface workers, 127, underground, 92, of which 54 are miners and 16 timbermen. One hundred extra men are employed in building and miscellaneous work.

c. Conclusions:

(1) The Tanaka Muen coal mine is at this time only a prespect which has not had enough development work done to warrant any conclusions as to its tonnage possiblities. If the proposed drilling program proves the beds are continuous, it will warrant development assistance and should offer a new source of anthracite coal for Osaka consumers in the future.

(2) The Shimane-Hokoku coal mine has possibilities for supplying coal to the immediate surrounding area of West Honshu that is quite isolated as to shipping in of coal. This mine has had a great deal of help from Military Government and local prefectural authorities. It is a question now of getting proper equipment to get the tonnage out and concentrating of management's efforts in constructive mine development.

1 Incl
Itinerary and personnel interviewed

/s/ R. D. MacAfee
/t/ R. D. MacAFEE
Scientific Consultant
Mining and Geology Division

Copies furnished:
Tottori MG Tm
Shimane MG Tm
MG, Eighth Army

COPY

COPY

1. Itinerary:

15 Nov 48 - Left Tokyo 1940
16 Nov 48 - Arrived Osaka 0646, left Osaka 0930, arrived Tottori 1606
17 Nov 48 - Left Tottori 1613, arrived Matsue 1847
19 Nov 48 - Left Matsue 0843
20 Nov 48 - Arrived Tokyo 0748

2. Personnel Interviewed:

Maj Elliot, Chugoku Regional MG, Economic Section
Capt King, Chugoku Regional MG
Lt Col Lensing, commanding officer, Tottori MG Tm
Capt Marksly, economic officer, Tottori MG Tm
Capt Costrick, economic officer, Shimane MG Tm
Mr T. Tanaka, owner, Tanaka Nuen coal mine
Mr T. Tanaka, director, Shimane-Hokoku coal mine
Mr S. Oba, vice-director and chief engineer, Shimane-Hokoku coal mine

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C O P Y

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M-10-G

HEADQUARTERS EIGHTH ARMY
United States Army
Office of the Commanding General
APO 343

AGMGEN 333.5

10 Dec 1948

SUBJECT: Transmittal of Memorandum for Record ("Investigation of Progress of New Coal Mines in Tottori and Shimane Prefectures in 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 (3 Dec 48)MG, 3 Dec 48, subject: "Investigation of Progress of New Coal Mines in Tottori and Shimane Prefectures in 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 Tottori and Shimane Military Government Teams.

BY COMMAND OF LIEUTENANT GENERAL WALKER:

1 Incl:
SCAP Memo
Dated 3 Dec 48

/s/ S. R. Mohn
for /t/ MONROE N. HINEY
Major AGD
Asst Adj Gen

C O P Y

3382

File Index
No. 2

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

HGS/RYC/RDM/jm
3 December 1948

NR 641 (3 Dec 48)MG

MEMORANDUM FOR: Record

SUBJECT: Investigation of Progress of New Coal Mines in Tottori and Shimane Prefectures in West Honshu

1. Authorization: CP Order 314-5, dated 9 November 1948.

2. Mission: To investigate progress of development work at new coal mines.

3. Personnel: R. D. MacAfee, coal mining engineer, and T. Sakamoto, translator-interpreter.

4. Summary of Results:

a. Two new developing coal mines in West Honshu were inspected: Tanaka Muen mine, near Urademe, Tottori Prefecture, and Shimane-Hokoku mine near Matsue, Shimane Prefecture.

b. The Tanaka mine is working a new discovery of anthracite coal and is being developed to determine its extent. A limited production in 1949 is expected.

c. The Shimane-Hokoku mine has been operating since 1945 and is concentrating on completion of workers' housing and shops. A new slope, which will provide added production of coal from lower seams, has been started.

d. Recommendations:

(1) The Tanaka anthracite mine is a new mine prospect and the primary development work now being done, along with a proposed drilling program, should prove its extent and worth. Coal produced from development will be hauled by wagons two kilometers to a railroad. Some rock is needed on the road, which will be taken care of by local prefectural authorities. If and when coal tonnage warrants, it is recommended that the road be widened and put into condition for truck transportation.

(2) The Shimane-Hokoku mine has an ideal stripping area that warrants aid in obtaining mechanical equipment to get into operation. Present production is from a shallow underground development program which is not progressing very rapidly. With a simple cable line drag bucket scraper system, or a bulldozer and scraper, the soft surface overburden could be removed rapidly, so that coal could be mined on the proposed schedule.

SHIMANE MG TM

Closed

Incl 1-2

NR 641 (3 Dec 48)MG

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a. The Tanaka Muen Mine

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(6) A narrow access road runs up the valley to a point where the coal can be lowered from the mine. This road is not surfaced and is not suited for heavy loads. It will have to be widened and have some rock surfacing to allow trucks to go over it, if future mine tonnage warrants it.

(7) The future value of this property will be determined from the present development program and drilling, as the work has not progressed far enough to warrant tonnage estimates or any extensive equipment installations beyond those now being installed.

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Robt D MacAfee

R. D. MacAFEE
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Mining and Geology Division

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Mr S. Tanaka, director, Shimane-Hokoku coal mine
Mr S. Oba, vice-director and chief engineer, Shimane-Hokoku coal mine

Encl 1 To Encl 2

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

NR 631 (3 Nov 47)MG

HGS/RYG/RSD/DEL/jr
3 November 1947

MEMORANDUM FOR: Record

SUBJECT: Examination of the Sakaegami-Komei, Meiji, Kondo and Seimi Asbestos Mines and Mills

1. Reference: Preliminary memorandum for record, 17 October 1947.

2. Authorization: CPO 122-6, dated 1 October 1947.

3. Mission: To investigate and examine the Sakaegami-Komei and Meiji amphibole asbestos mines and mills in Kayaki Mura, Nishisonoki-gun, Nagasaki Prefecture, Kyushu; the Kondo amphibole asbestos mine and mill in Toyofuku Mura, Shimomaseki-gun, Kumamoto Prefecture, Kyushu, and the Seimi chrysotile asbestos mine and mill in Atoichi-mura, Naka-gun, Shimane Prefecture, Honshu.

4. Personnel: Mr R. D. Sample, Geologist, P-4
Mr D. E. Lee, Geologist, P-3
Mr Shinichiro Nishiwaki, Interpreter.

5. Itinerary:

3 October 1947	0930	Depart Tokyo
4 October 1947	1950	Arrive Nagasaki
4 October 1947	2030	Reported Nagasaki MG
6 October 1947	0800	Depart Nagasaki
6 October 1947	0900	Arrive Sakaegami-Komei mine and mill
6 October 1947	1330	Depart Sakaegami-Komei mine and mill
6 October 1947	1340	Arrive Meiji mine and mill
6 October 1947	1500	Depart Meiji mine and mill
6 October 1947	1630	Arrive Nagasaki
7 October 1947	0514	Depart Nagasaki
7 October 1947	0820	Arrive Hizen-Yamaguchi
7 October 1947	0830	Depart Hizen-Yamaguchi
7 October 1947	1000	Arrive Tosu
7 October 1947	1245	Depart Tosu
7 October 1947	1445	Arrive Kumamoto
7 October 1947	1500	Reported Kumamoto MG
8 October 1947	0730	Depart Kumamoto
8 October 1947	1000	Arrive Ogawa Shingle Factory
8 October 1947	1030	Depart Ogawa Shingle Factory
8 October 1947	1045	Arrive Kondo Mine
8 October 1947	1145	Depart Kondo Mine
8 October 1947	1200	Arrive Kondo Mill
8 October 1947	1300	Depart Kondo Mill
8 October 1947	1600	Arrive Kumamoto Branch Mill, Asahi Slate Company

8 October 1947	1645	Depart Kumamoto Branch Mill, Asahi Slate Company
8 October 1947	1800	Arrive Kumamoto
9 October 1947	0906	Depart Kumamoto
9 October 1947	1300	Arrive Hakata
9 October 1947	1547	Depart Hakata
9 October 1947	1800	Arrive Shimonoseki
9 October 1947	1930	Depart Shimonoseki
9 October 1947	2030	Arrive Kawatana
10 October 1947	1200	Depart Kawatana
10 October 1947	1800	Arrive Gotzu
11 October 1947	0900	Depart Gotzu
11 October 1947	0940	Arrive Seimi Mine and Mill
11 October 1947	1500	Depart Seimi Mine and Mill
11 October 1947	1540	Arrive Gotzu
12 October 1947	0935	Depart Gotzu
12 October 1947	1008	Arrive Hamada
12 October 1947	1044	Depart Hamada
12 October 1947	1241	Arrive Masuda
12 October 1947	1336	Depart Masuda
12 October 1947	1624	Arrive Ogori
12 October 1947	1930	Depart Ogori
13 October 1947	1900	Arrive Tokyo

6. Persons Interviewed:

(a) Nagasaki Military Government
Lt Col Delanore - CO, Nagasaki MG Team
Capt Goldsby - Commerce and Industry officer
Mr Winfield Niblo - I&E Director

(b) Kumamoto Military Government
Maj Correll - Housing officer
Sgt Winsey - Commerce and Industry Branch

(c) Sakaegami - Komei Mine and Mill
Michio Matsumoto - Owner and manager

(d) Kondo Mine and Mill
Chito Kondo- Owner

(e) Seimi Mine and Mill
Yonetaro Takiyama - President

7. Summary of Results:

a. Asbestos deposits in Kyushu are of the amphibole variety.

Due to lack of demand, there has been no production from these mines since the end of the war. Sporadic small-scale processing of asbestos continues at some of the mills from stockpiles or reworked dumps.

b. The amphibole asbestos is processed by both wet and dry milling methods.

c. Because most of the amphibole asbestos is unsuited for weaving purposes and is used mostly in the cement and building industries, the economic recovery of the former is to a great extent contingent upon that of the latter two industries.

d. Asbestos deposits in Shimane Prefecture are mostly of the chrysotile variety and are of comparatively low grade.

e. Chrysotile fiber in Shimane Prefecture is recovered by wet methods. Daily production averages about 800 kilograms of fiber.

f. With the recent increase in the official price of chrysotile fiber to ¥15,000 per ton for grade 52, the Semi mine can operate without loss.

8. Detailed Discussion of Mines, Mills, and Factories Visited:

a. Sakaegami- Komei Mine

(1) The Sakaegami - Komei mine is owned and was operated by Michio Matsumoto. It is in Kayaki-mura, Nishisonoki-gun, Nagasaki Prefecture, Kyushu. It is about 10 miles south of Nagasaki and can be reached by fair roads. The coordinates of the mine on sheet 4044-I Kyushu scale 1:50,000 are 1290.5-1051.5.

(2) This deposit is said to have been discovered by a Swiss mining engineer, Faburand, about 70 years ago, but mining operations at this site first began in 1936 and continued until August 1945. Since records were burned in 1945 at the instruction of the Japanese Army, no accurate past production figures are available, but the owner estimates that fiber production during the nine years of activity averaged about 50 MT per month.

(3) The asbestos produced was of the amphibole slip-fiber type, probably tremolite. The ore mined averaged about two percent fiber. About one half of one percent of the fiber produced was classified as high quality and sold for ¥6,000 per MT. Lower grades averaged ¥2,000 per MT in price.

(4) Former production was used:

(a) By the Japanese Army for gas mask filter
(b) As boiler insulation by the army and railroads
(c) By Nisshin Spinning Mill in Tokyo. Here the material was floated on a liquid, and the floating mat was pressed between two rollers to form a thin sheet.

The pressed sheet was cut into narrow strips which were twisted into threads, and these threads were spun into cloth.

(d) In the manufacture of clutch facings and brake linings. In more prosperous days the Sakaegami-Komei mine and mill employed 200 - 300 men. No estimates of reserves are available. In a discussion of future plans, the owner, Michio Matsumoto, appeared somewhat inconsistent. After declaring that production now would be uneconomical because of a very bad market and the poor attitude of the laborers, he said that an operational fund of about ¥600,000 would make it feasible for him to resume mining operations at once.

b. Sakaegami Komei Mill

The Sakaegami-Komei mill is located next to the mine and has the same owner as the mine. The mill has a floor plan of about 22 X 12 yards. The steps in the milling process are as follows:

(1) Conveyer belt - The ore is carried by cable car from the mine a few hundred yards to the mill and dumped on a conveyer belt.

(2) Jaw Crusher - The conveyer belt feeds a jaw crusher which has a daily capacity of 50 - 100 tons.

(3) Corrugated Roller Crusher - Some of the material from the jaw crusher is hand-fed through a small corrugated roller crusher, but apparently this step is not consistently used in the milling process.

(4) Trommel screen - From the crusher the material is hand-fed to a trommel screen.

(5) Opener - Fine materials from the trommel screen are passed through an opener.

(6) Stamp-Crusher - Coarser materials from the trommel screen are fed by hand to a stamp crusher. From the stamps the crushed material is water-washed into a tank. The water in this tank is agitated sufficiently to keep the fibrous material from settling with the sand, and the overflow from this tank passes into a second tank, where the fibers are allowed to settle and are removed periodically.

(7) Presser - Materials from the stamp-crusher are pressed and bagged.

(8) Bagging Room - The materials from the opener in (5) are

blown into the bagging room, and are packed separately from the products of the stamp-crusher.

(9) Mill Conditions - The mill is now in a dilapidated condition and would require extensive repairing to resume milling operations. However, a 50-HP electric motor, said to be in good condition, operates a 300-cu-ft-per-minute compressor for the air separation process.

c. Meiji Mine

(1) The Meiji mine is owned, and was operated, by Mr Ota, and is located in Kayaki-mura, Nishisonoki-gun, Nagasaki Prefecture, Kyushu. It is about 10 miles south of Nagasaki and can be reached by fair roads. The coordinates of the mine on sheet 4044-I Kyushu scale 1:50,000 are 1290.5-1051.5.

(2) Neither the owner nor the caretaker was available for interview at the time of the visit. Such information as was obtained was given by personnel of the nearby Sakaegami-Komei asbestos mine.

(3) Peak production at the Meiji mine was 20-30 MT per month. This production, which began about 1941, and ceased about August 1945 was very irregular and inconsistent.

(4) Geologically, this deposit is undoubtedly similar in origin to the Sakaegami-Komei deposit, which lies just to the south. The general trend of the asbestos belt is N-S. Sandstone and shale in this area was tightly folded and faulted by a stress which produced from the sediments a quartz-mica-schist by dynamic metamorphism. Associated with the folding was the lit-par-lit injection of a high-magnesium intrusive along this particular zone of faulting and weakness. This intrusive has developed much talc and a mineral which appears to resemble chlorite very closely. Smaller garnets are found in this latter material. The asbestos appears as a sli-fiber in the region of faulting and intrusion and appears to be tremolite or perhaps actinolite.

d. The Meiji Mill

(1) The Meiji mill is also owned, and was operated, by Mr Ota. Most of the mill machinery has been dismantled and sold,

and the mill buildings, located next to the Meiji mine, are old and have not been kept up.

(2) It is said that the mill formerly used a crude water process for separating and collecting the asbestos fibers. The fibers were placed in trays and dried in the sun. Apparently neither the mine nor the mill was a financial success.

e. The Kondo Mine

(1) The Kondo mine is owned and was operated by Chito Kondo and is located in Toyofuku-mura, Shimomasaki-gun, Kumamoto Prefecture. It is about 15 miles south of Kumamoto by fair roads. The nearest railroad runs through Matsubase, about three miles to the northwest. The coordinates of the mine on sheet 4244-IV Kyushu 1:50,000 are 1382.5-1052.

(2) The Kondo mine began production about 1940 and produced until 1945. The workings consist of five pits, all within a very small area. About 300 people were employed in prosperous days, when seven MT of wet fiber were produced each day. This wet fiber averaged 25 percent pure asbestos fiber.

(3) The material mined appears to be a radiated cummingtonite schist. Explosives were seldom used in mining. The material is fairly soft and easily worked by hand. The best fiber was formerly purchased by the Army for heat insulation.

(4) Since no drilling has ever been done in this area, reserve estimates are based solely on surface outcrops. Mine officials are in disagreement in the matter of reserves. Estimates range widely from 200,000 MT of 10 percent ore to 20,000 MT of asbestos fiber.

(5) Past production figures obtained from the owner, Mrs Chito Kondo, are as follows:

PRODUCTION
(MT)

Year	Total Fiber Produced
1940	3,500
1941	3,850
1942	1,425
1943	1,160
1944	4,400
1945	2,600

f. The Kondo Mill

(1) The Kondo mill is owned and was operated by Mrs Chito Kondo. It is located less than two miles from the Kondo mine. The coordinates of the mill on sheet 4244-IV Kyushu 1:50,000 are 1380-1051.5.

(2) Two systems of milling were used in working the ore from the Kondo mine. Much the more important was the wet system; a dry system was also used to a small extent. The steps in the wet milling process follow:

(a) Stamp-Crusher - The ore was first hand fed to the stamp-crushers. The stamps consist of wooden timbers capped with iron, and there are nine batteries of crushers, each with 24 stamps.

(b) Trommel screen - The crushed material is water-washed from the stamping machines into a trough, and from this trough it is hand fed to two 50-mesh trommel screens. Each of these screens is 10 feet long and has a diameter of 22 inches. The material which passes through the trommel screen is classified as waste.

(c) Shaker-screen - The material which rides on the trommel screen is hand-fed to a shaker screen. The coarse material from the shaker-screen is dried as fiber, and the fines are discarded as waste.

(d) Washing - Occasionally material from the shaker screen is further refined by washing and cleaning. On the basis of the amount of this washing and cleaning, there are five different grades of finished product. Occasionally some of the waste products from the screenings is rewashed in a special machine to effect a further fiber recovery.

(3) The steps in the dry milling process at the Kondo mill, briefly are as follows:

(a) Jaw crusher

(b) Roller crusher

(c) Shaking screen - The loose fibers are drawn from the end of the screen by a blower and blown into collecting chamber No 1. Another blower carries the light and dusty material from chamber No 1 to chamber No 2.

Occasionally the residue in the first chamber is reworked by water. There is no consistent procedure beyond step (b).

g. The Ogawa Shingle (Sheeting) Factory

(1) The Ogawa shingle factory is owned and operated by Mrs Chito Kondo and is located in Genoe-mura, Shimomashiki-gun, Kumamoto Prefecture, Kyushu. The coordinates of the factory on sheet 4244-IV are 1380-1045.5.

(2) For about six years beginning about 1940, part of the production of the Kondo asbestos mine was used by this factory in the manufacture of asbestos board for use as insulation, but recently the demand for this product dropped off so much as to make continued production uneconomical.

(3) In August 1947 the factory was converted to the manufacture of a new product, a shingle or sheeting. This shingle is made from straw, paper pulp, vegetable fibers and sawdust. These materials are mixed in a water medium, pressed into sheets and dried in the sun. Finished sheets are one meter square and one centimeter thick. It is planned that in the future these sheets will be covered with a thin sheet of asbestos to make them more durable.

(4) At present the daily production is 60 sheets. The price of these sheets as manufactured now without the asbestos covering is ¥35 each. The factory employs six women and five men. Daily wages for women are ¥30, for a man ¥45.

h. The Kumamoto Branch Mill of the Asahi Asbestos Slate Company

(1) This mill is owned by the Asahi Asbestos Slate Co and is located in Toyono-mura, Shimo-mashiki-gun, Kumamoto Prefecture, Kyushu. The coordinates of the mill on sheet 4244-IV are 1382-1053.

(2) This mill produces chimney pipes from cement, chrysotile asbestos fiber and gunny sacks.

(3) The asbestos fiber, low grade chrysotile which is used by this mill is produced by the nearby Kawadoko mine, also owned by the Asahi asbestos slate Co.

(4) Both the mine and the mill were started about 1945. The mine was worked by four men, and its production was extremely variable. At present the mine is idle and the mill is operating on a 500-MT stockpile of 20 percent ore. A crude wet process is used in the fiber separation.

i. The Seimi Mine

i. The Seimi Mine

(1) The Seimi mine is owned and operated by the Japan asbestos Mining Co and is located in Atoichi-mura, Naka-gun, Shimane Prefecture, Honshu. The coordinates of the mine on sheet 4651-1, Central Honshu scale 1:50,000 are 727-1329,5.

(2) Operations at the Seimi mine were begun by Mr Nakajo in 1942. Apparently little ore was mined by Mr Nakajo, and he sent all his produce to Tokyo to be milled. In 1943 the mine was sold to Mr Takiyama, who is now president of the Japan Asbestos Mining Co. Mr Takiyama in 1943 also bought some buildings in Gotsu and installed some machinery with which to mill the ore from the Seimi mine. In 1946 a new mill was constructed at the mine site and the old mill was converted into a factory-warehouse. The fiber from the Seimi mine is predominantly low-grade chrysotile asbestos. As selectively mined, the ore runs about 10 percent fiber. The deposit is worked by open-pit methods, and some blasting is necessary. On the basis of three drill holes and surface outcrops the fiber reserve is estimated at 96,000 MT. No geologic map has ever been made of the mine area. The past production figures, as obtained from the present mine owner, are as follows:

PRODUCTION
(MT)

Period	Ore	Fiber Production
1943	50	---
1944	2,120	241
1945	3,010	295
1946	4,350	422
Apr 1947	800	77
May 1947	900	80
Jun 1947	780	75
Jul 1947	760	73
Aug 1947	750	77

(3) A list of the employees of the mine follows:

NR 631 (3 Nov 47)MG

EMPLOYEES

	Men	Women	Total
Staff	9	4	13
Engineers	2	--	2
Mill	20	10	30
Mine pit	20	--	20
(Tree cutters) (Soil Strippers)	35 ±	0	35 ±
Total	86 ±	14	100 ±

Wages of the laborers range from ¥1,500 - 3,400 per month for men, to ¥800 - 1,450 per month for women.

j. The Seimi Mill

(1) The Seimi mill, see inclosure 1, diagram of Seimi mill, is located next to the mine, and is also owned and operated by the Japan Asbestos Mining Co. The milling procedure here, a modified wet process, is original with the staff at this mine. The reasons for its inception are that it separates the talc powder from the fibers, and is more suitable here because of the inherent nature of the ore (poorly consolidated and high in fiber). The steps in the milling process are as follows:

(a) The ore is brought by ore cars from the open pit to several large stirring vessels (separators). An 800-kg charge is placed in each vessel and stirred for 20 minutes. Water is fed to the separators as the rotary or stirring motion is maintained.

(b) The overflow from the separator carries the lighter fibers to a sand-separating table, which is merely a sloping table crossed by baffle boards to trap the undesirable sand as the lighter fibers float over the top of the ridges.

(c) From the sand-separating table, the water is passed onto a shaking screen, which collects the fibers as the water flows through.

(d) The fibers are moved by hand from the shaking screen to a centrifugal dryer.

(e) After treatment in the centrifugal dryer, the fibers are further dried on mats placed in the

sun or in crude outdoor ovens.

(f) The drainage from the shaken screen is passed off into a series of settling pits. Each pit is allowed to dry up occasionally to permit the recovery of any short fibers which have settled on the bottom. This material is used with clay in the manufacture of konros (see k. Old Seimi Mill).

k. Old Seimi Mill

(1) The old Seimi mill is owned by the Japan Asbestos Mining Co. The coordinates of this mill on sheet 4552-111, Southern Honshu scale 1:50,000 are 723.5 - 1337.5. It is located in Gotsu. The mill is now used principally as a warehouse, but it also serves as a factory for the manufacture of konro. The konro is similar to a hibachi and is used as a container for a charcoal fire. The konro also has a system for draft and is commonly used for cooking purposes. The konro are made from low-grade asbestos fiber obtained from the Seiri mine and from clay. They are handformed and dried in the sun and are priced at ¥25 each. The ten people employed in the factory produce 1,500 - 2,000 konro per month.

Raymond D. Sample

RAYMOND D. SAMPLE
Scientific Consultant
Mining and Geology Division

1 Incl
as indic par 8-j

Copies furnished:
Kumamoto MG Tm
Nagasaki MG Tm
Shimane MG Tm

Donald E. Lee-R d S

DONALD E. LEE
Scientific Consultant
Mining and Geology Division

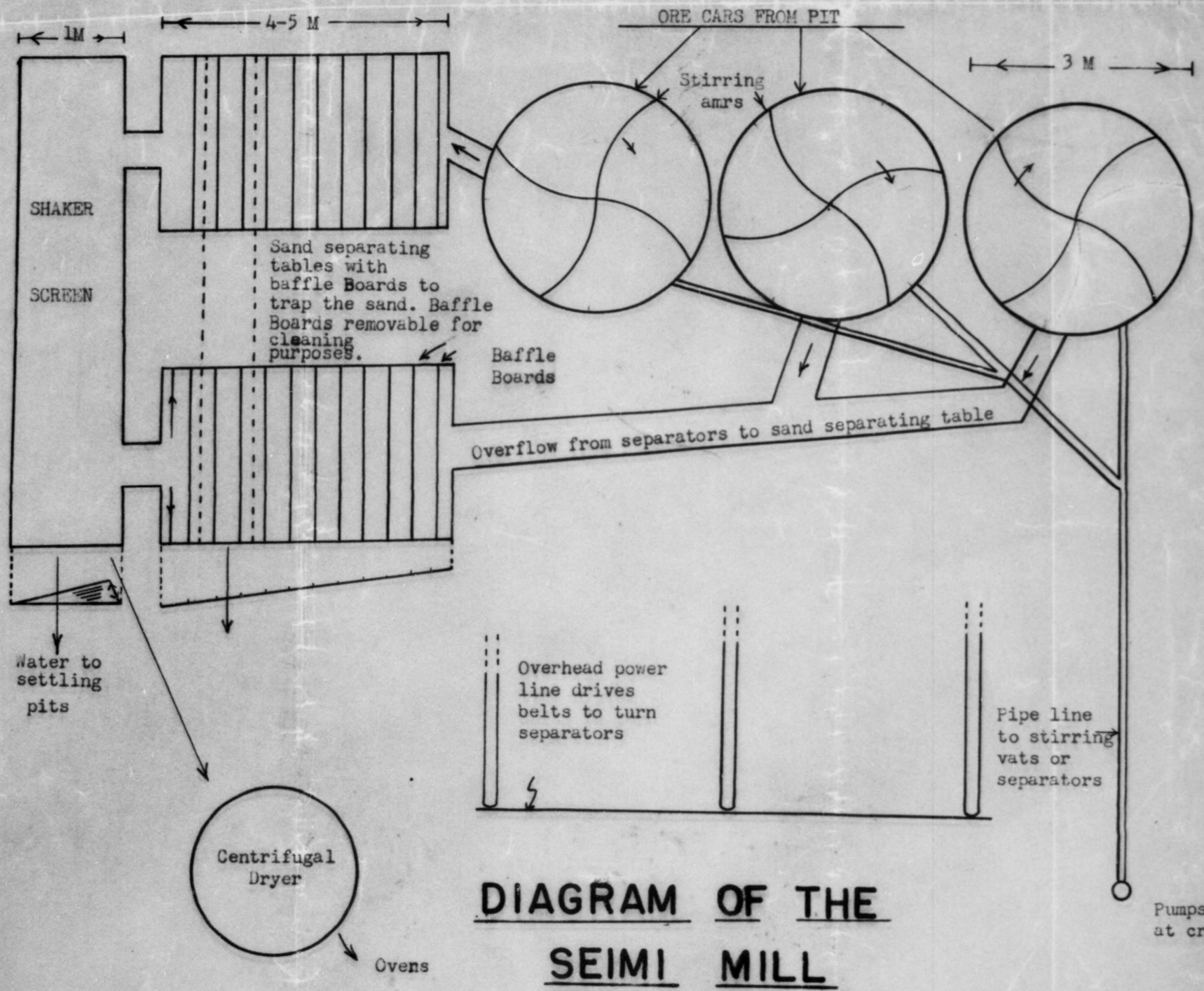

DIAGRAM OF THE SEIMI MILL

M-10-H

SCAP INSPECTION REPORTS

	DATE	SUBJECT	ISSUING HEADQUARTERS & INDORSEMENTS
1.	25 Mar 50	Transmittal of Field Trip Report	SCAP

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

230.42 (25 MAR 1950)CAS-EM

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 Mr. J. F. Hamilton, Economic and Scientific 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:

1 Incl:
Report of Visit to
Chugoku & Shikoku
CARs (Cpy)

ECON 8.10

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Economic and Scientific Section
APO 500

MMC/HBO/JPH/cc
14 March 1950

SUBJECT: Field Trip to Takehara and Niihama Copper Refineries, Nisshin Aluminum Co.

TO: Chief, ESS

THRU: Chief, Industry Division

1. Mission of Visit:

a. To survey the condition of slimes' rooms and methods used in recovering precious metals from by-product slimes.

b. Observe effect of power allocation and rates on aluminum production at Nisshin Aluminum Company.

2. I reported to the following local military officials:

	Name	Grade	Organization
Upon Arrival	Morris Colehour		Economic Sect, Chugoku Civil Affairs Region
	C. F. Barratt		Chief, NRS, Chugoku Civil Affairs Region
	M. Faulk		Office of Chief, Shikoku Civil Affairs Region
Upon Departure	Same as above		

3. Variations from approved itinerary:

Lengthened inspection one day at Takehara Copper Refinery

4. Personnel interviewed:

Name in Full	Position	Organization
Ryokichi Momota	Manager	Niihama Elect. Refinery
Shiro Karazawa	Chief, Electrolytic Copper Refining Sect.	" " "
Kenjiro Ono	Chief of Slime Treatment Sect	" " "
Sanai Nakabe	Chief Engineer	" " "
Yoshishige Harada	Dir, Kikumoto Works	Nisshin Aluminum Co.
Tadao Nakao	Vice-Dir, Kikumoto Works	" " "
Nisashi Shiba	Chief, Planning Sect.	" " "
H. Sugano	Mgr., Mfg. Dept.	" " "
M. Tokemoto	Chief, Technical Sect.	" " "

Field Trip to Takehara and Niihama Copper Refineries, Nisshin Aluminum Co., 14 Mar 50

Name in Full	Position	Organization
Ryuzo Kurimura	Manager	Takehara Electrolytic Refinery
Shigeru Kishimoto	Ch., Electrolytic Ref. Div.	" " "
Kohei Shimazaki	Ch., Laboratory Div.	" " "
Iwao Tanaka	Ch., Assay Div.	" " "

5. BRIEF SUMMARY OF RESULTS AND ACCOMPLISHMENTS OF THIS TRIP:

Niihama Copper Refinery

This plant went on strike the day I arrived, so was unable to observe operating technique; however, from flow sheets and data available, recommendations were made that:

a. Analysis on slimes be made once every three days instead of once every 15 days.

b. Analyses be made on one out of every five blister copper anodes instead of one out of nine because the richer zone of the Besshi mine (source of copper) is in the process of development.

c. The slimes' furnace room be cleaned from top to bottom to recover precious metals' bearing dust.

d. Slimes to be kept well boxed to avoid loss.

Nisshin Aluminum Co.

This plant has 2 reduction plants capable of operation, one with 92 furnaces not operating at all (lack of power), one with 160 furnaces but operating only 40 at present time (lack of power). The power rates are 1.10 to 1.20 ¥/KWH as compared to the cost of .20 ¥/KWH for Nihon Keikinzoku Aluminum Co. This Co. is quite concerned about the lack of enthusiasm of the Shikoku Power Distribution Co. regarding power improvement on Shikoku Island. A few meters are being installed by the Power Distribution Co., but no real interest is shown at all to improve the situation.

Takehara Copper Refinery

The slimes' room, below the electrolytic tanks, has been cleaned up as a result of former ESS recommendations, and is in excellent condition in this plant; however, several recommendations were made to facilitate better plant control and safety:

a. Change from a 5 hole template to a 20 hole template in making drill samples of blister copper anodes.

Field Trip to Takehara and Niihama Copper Refineries, Nisshin Aluminum Co., 14 Mar 50

b. Start getting the silver refinery in shape to handle anticipated silver anodes from Kushikino Cyanide Plant, scheduled to start operation later this summer.

c. As protective factor for silver and gold electrolytic room, reinforce present thin wooden paneled door with heavy steel screen, to avoid another incident similar to the Osaka Refinery robbery.

d. Place steel screen or similar cover over the lead anode scrap remelting furnace to avoid a very dangerous existing situation to workers.

e. In the chemical analysis laboratory, run 3 or more tests on each sample of copper anode instead of 2 for more accuracy in computing precious metals' content.

f. Other safety factors for workers:

(1) Arm supports on steps

(2) Numerous holes in floor should be covered.

James F Hamilton
J. F. HAMILTON

1 Incl
Travel Order LO 54-2

SCAP INSPECTION REPORTS

M-10-0

	DATE	SUBJECT	ISSUING HEADQUARTERS & INDORSEMENT
1.	29 Sept 1949	Transmittal of Memorandum for Record	Hq I Corps - 1st Ind.
2.	18 April 1950	Technical Examination of Geology and Mining Practices at Makimine Mine, Miyazaki Prefecture; Kushikino Mine, Kagoshima Prefecture; Aso (Aka-mizu) Mine, Kumamoto Prefecture; and Yanahara Mine, Okayama Prefecture	SCAP/NRS

CHUGOKU

INFORMATION:
O.D. 15

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

HCS/RYG/JFH/BMP/yt
18 April 1950

NR 645 (18 Apr 50) MG

MAY 1 1950

MEMORANDUM FOR: Record

SUBJECT: Technical Examination of Geology and Mining Practices at Makimine Mine, Miyazaki Prefecture; Kushikino Mine, Kagoshima Prefecture; Aso (Akamizu) Mine, Kumamoto Prefecture; and Yamahara Mine, Okayama Prefecture

1. Authority: CP Order 40-5, 9 February 1950.

2. Mission: To examine present status, geology, geological practices, and exploration methods at the Makimine, Kushikino Aso, and Yamahara mines and to examine mining practices at the latter mine.

3. Personnel: Messrs Harrington (Yamahara mine only), Page, Lee, Shiboi and Otagawa.

4. Summary of results:

a. The Makimine copper-pyrite mine is producing 3,000-4,000 tons of pyrite ore containing about two percent copper. Some increase in operating efficiency has been realized, but until recently little exploration for new ore deposits has been conducted. During much of last year practically no ore was developed ahead of mining. Of the known ore bodies, about 40 are largely worked out and only two or three are still yielding ore. The geology of the deposits is such that scientific prospecting is difficult but not impossible. A resident geologist has recently made a good start toward mapping and interpreting the geology. A Kyushu University professor made a self-potential geophysical survey in 1948 with disappointing results. The mining company has a satisfactory drilling program, but boring equipment now in use is inadequate. New equipment is expected soon.

b. The Kushikino gold mine, once the second largest gold producer in Japan, was closed during the war and is now being reopened. Pending completion of a new mill, only 20 tons of ore, containing six grams of gold per ton, is being produced daily. The ore occurs in an enormous composite quartz vein and several branching veins. The various quartz components of the veins differ in character and gold content, and only restricted portions can be profitably mined at present. Little geological work has been done, but the mining company intends to assign a

geologist to the mine in the near future.

c. The Aso (Akamizu) deposits containing limonite iron ore and jarosite limonite only, is now being mined at the low rate of 600 metric tons monthly; of this only a fraction is brittle and lumpy enough to be accepted by the smelters ; the remainder is very soft and earthy and is sold for ochre pigment. Open pit mining is done by primitive hand methods. Known ore reserves are small. Jarosite was formerly mined, and 37,000 metric tons remain. It can be effectively used as a source of low grade potash fertilizer, but the economics of this utilization are doubtful. Both the limonite and jarosite occur as horizontal layers just beneath the ground surface, and shallow sampling and development has apparently been well done in areas explored to date. It seems likely that more ore could be discovered if demand should warrant exploration.

d. The Yanahara mine, one of Japan's two largest pyrite sources, is yielding about 30,000 tons monthly of high-grade pyrite. The large massive ore bodies contain large developed reserves, almost 10 million tons. Underground transportation, filling of stopes, and limited crushing plant capacity are causing difficulties. Contemplated large scale improvements are to be effected during 1950 without stopping production, and should permit increased output by 1951. The geology is complex, and no ore controls or ore indicators have been recognized to aid exploration. In fact, little geological work has been done by the company, and none is in progress. The results of drilling have largely been wasted through lack of interpretation. However, one outlying ore body has been found by drilling, and another, previously worked, is being reopened. Boring equipment is obsolete and inadequate. A promising geophysical survey was made by a Kyoto University professor and students. The mine manager stated his intention of starting a geological program in 1951.

5. Summary of recommendations:

a. The Makimine mine geologist should make a study of the country rock alteration as a possible guide to ore, and should extend the structural and petrologic work to determine the factors which localized the two known ore zones. In the meantime, it should not be assumed that only the two zones exist. Electrical geophysical methods should be applied in crosscuts, where practicable.

b. Geological work at the Kushikino mine should include mapping of the wall rock alteration and determination of the sequence of gold and successive quartz depositions. The quartz of various ages should be mapped separately if they are found to contain individual ore shoots. On the other hand,

the zones of mineralization may transgress the various quartz components of the vein.

c. In the Aso mine area, a few borings about 20 meters should be made to supplement the information obtained from existing shallow auger holes, and the origin of the ore deposits should be determined to guide future prospecting.

d. Operation of the Yamahara mine would be improved by use of wagon drills in open cuts, surface benching or adoption of "glory hole" for obtaining waste fill, use of heavier V-type scrapers in stopes, and (if headroom can be planned) installation of a gyratory crusher underground. A geological program should be started immediately. A competent staff should be acquired and the accepted modern methods of geological examination and mapping should be instituted. Some emphasis should be placed upon the recognition, mapping, and interpretation of the various types of rock alteration, which seem to be well developed in t he district. Resulting data should be used in selecting sites for drilling and crosscutting in search of new ore bodies.

6. Detailed discussions are contained in inclosures 2-5.

J. F. Harrington

JOSEPH F. HARRINGTON
Scientific Consultant
Mining and Geology Division

5 Incls:
1 Itinerary and Personnel Interviewed
2-5 as indic par 6

Ben M. Page

Ben M. Page
Scientific Consultant
Mining and Geology Division

Copies furnished:
Kyushu CA Region
Chugoku CA Region
CA Section

ITINERARY:

Date	Time	Lv	Arrive
February 1950			
13	1940	Tokyo	
14	2040		Moji
	2143	Moji	
15	0558		Nobeoka
	0757	Nobeoka	
	0923		Makimine mine
17	0800	Makimine mine	
	1000		Nobeoka
	1051	Nobeoka	
	1714		Kagoshima
	1724	Kagoshima	
	1858		Kushikino mine
20	0820	Kagoshima	
	1240		Akamizu mine
22	1257	Kumamoto	
	1544		Fukuoka
	1609	Fukuoka	
23	0730		Osaka
27	0735	Osaka	
	1134		Wake
	1200	Wake	
	1315		Yanahara mine
March			
2	0917	Yanahara	
3	0640		Tokyo

Encl 1

PERSONNEL INTERVIEWED

1. Makimine Mine

K. Ueda, manager
K. Negishi, sub-manager
Ito, chief, Mining Section
M. Sugimoto, mining engineer
S. Morinaga, geologist
Takara, chief, Milling Section
Sasaki, acting chief, General Affairs

2. Kushikino Mine

T. Watanabe, chief, General Affairs
H. Fukui, chief, Mining Section

3. Aso Mine

K. Tsuchiyama, manager
F. Kochō, acting chief, Mitsui Fukuoka Office
A. Inatus, chief, General Affairs Section, Miike Smelter

4. Yamahara Mine

C. Inoue, chief, Mining Section
T. Yasuda, chief, General Affairs

YAMAHARA PYRITE MINE, OKAYAMA PREFECTURE

Dowa Mining Co Ltd (See also Memorandum for Record NR 631 (15 Sep 49)MI, subject: Technical Examination of Surface Plant and Underground Workings at Yamahara Pyrite Mine, 15 Sep 49)

Current Production and Status

The Yamahara mine, one of the two largest sources of pyrite in Japan at present, is now yielding about 30,000 tons of ore per month. This ore contains 48 percent sulfur and is desirable for the manufacture of sulfuric acid as it is uniform in grade; the clean cinder obtained after roasting may be utilized as an iron ore. Redesign of the underground transportation system and crushing plant should increase production to 40,000 tons monthly by the end of 1950. The large developed reserves of nearly 10 million tons assure this mine a dependable future.

Difficulties and Planned Improvements

Underground transportation and filling are two of the principal bottlenecks to immediate increased production. Another factor is limiting capacity of the crushing plant. Management is reluctant to hire additional men for installation of necessary equipment. They would prefer to make the change gradually, utilizing the present working force instead of hiring men recently discharged.

The main haulage shaft will be equipped with a skip for ore hoisting, and a crushing plant and skip pocket on the tenth level. Ore passing from the upper levels would serve as cushion storage. A conveyor belt between the top skip pocket and the outside secondary crushing plant will have an underground storage bin located about midway on the conveyor belt. Gyratory crushers were recommended for primary crushing instead of the Blake type, because the gyratory can be buried under ore and work its way out without necessity for close regulation of the feed rate.

Filling lags behind mining by 50,000 meters of open stope. Present surface mining of waste rock is inefficient and consists of small random cuts and small mucking machine loading of one ton cars. Bench cuts with wagon drills and shovel loading of larger self-dumping Granby type cars were recommended. Scrapers on filling are too light for the job and should be redesigned. Mucking machines are also too light for loading the heavy ore. Drill rods two inches in diameter are necessary to avoid excessive rod breakage; this large heavy rod reduces the efficiency of the drilling and lowers drilling speed. NR metallurgists will discuss this problem with steel manufacturers.

Incl 2

The crushing plant will be redesigned with gyratory primary crushers feeding directly to Symmons cone type crushers. Recommendations were made to provide storage bin space between the two crushers so that capacity inequalities or repairs on one crusher would not slow or shut down both units. Rebuilding the crushing plant will be accomplished a section at a time so that the plant may be kept operating at present capacity during construction.

Recommendations

1. Use of wagon drills on the surface open cut for more efficient drilling.

2. Surface benching or "glory hole" for obtaining waste filling at less cost. If an electric shovel is used, then larger Granby type cars should also be used.

3. Heavier V type toothed scrapers for both ore production and stope filling. Replace mucking machines with scrapers except in drift and development work.

4. Use of a gyratory in place of the Blake type crusher now contemplated in the underground primary crushing if headroom can be planned.

Geology

Various Mesozoic (?) rocks enclose the ore bodies. These rock units, whose influence upon the ore deposition is apparently unknown as yet, include altered diabase, fine tuff, slate-hornfels, and a granitoid rock locally called "quartz gabbro". The last-named rock shows several abnormal features and obscure boundary relations. Quartz porphyry dikes, probably older than the mineralization, occur within the ore bodies and country rock. One such dike is important inasmuch as it was selected as the firmest ground available for two shafts. Several other rock types are present near the mine workings.

The bulk of the known ore constitutes three large massive, thick ore bodies of gentle but variable dip. In addition to the principal bodies, three or four outlying deposits have been discovered.

The country rock in the vicinity of the ore, and probably elsewhere also, is locally intensely altered.

The geologic structure is unknown.

Geological and Exploratory Work to Date

Little modern exploration has been carried out, partly because the large reserves have induced complacency, and partly because the Dowa Co until recently did not have prospecting rights in the outlying area surrounding the principal deposits. Until 1949 there was no resident geologist. At present, Mr T. Arai holds the title of sub-manager and geologist. Although an intelligent and capable engineer, Mr Arai apparently lacks experience as a geologist and is too busy running the mine to carry out a

geological program.

The best available geologic map of the surface is a reconnaissance map made by Prof Kato many years ago. Some of the underground geology has been mapped on a large scale, but with insufficient detail. Mine models show the shapes and positions of the ore bodies, but little else. A published article by Prof Kato 1/ gives some petrographic data and other information.

About 160 boreholes have been drilled without geological guidance. No detailed logs were kept, except for presence or absence of mineralization, and the cores are now mixed or lost. The holes are drilled inefficiently with inadequate equipment, and in some cases deviate 55° from the intended line. The results are plotted as though the holes were vertical. Several holes reached a new ore body, which has since been penetrated by a crosscut from the main workings.

Electric and magnetic geophysical surveys have been made by a Kyoto University professor and students, with encouraging results that have not yet been tested by boring.

Geological Recommendations

1. Although the Yamahara district is obviously widely mineralized and ore has been found with little effort, it is high time to establish a long term program which may begin to "pay off" in a period of two to five years when discovery would otherwise become difficult.

2. An effective geological staff should be acquired, consisting of one seasoned expert and three or four other men of varying experience. All should be well trained. At least one must be qualified for petrographic work, but he, as well as the others, must be a capable field man.

3. The least altered rocks should be identified and mapped on a large scale where best exposed, in preparation for mapping the rock distribution, structure, and alteration in its relation to known ore bodies. For example, strip maps on a scale between 1:500 and 1:1200 might be made along the Yoshii River north and south of the main mine workings. The rocks should be identified microscopically by one of the men who make the maps, and specimen localities should be marked in the field with paint.

1/ Kato Takeo, "Geology and ore deposits of the Yamahara Mining District, Province of Mimasaka, Japan". Japanese Journal of Geology and Geog., vol. 1, pp.77-116. (No date)

Alteration should then be studied microscopically and megascopically until the various kinds of alteration can be recognized in the field.

5. The following geologic maps should be made: (a) a plane table map of the outcrop area of the No 1 ore body, Quarry No 1, Quarry No 2, and adjacent ground; (b) maps of underground workings, 1:300; (c) detailed surface maps wherever exposures and exploration possibilities warrant such work; (d) a revised edition of Prof Kato's map of the entire district.

6. All detailed mapping must show the distribution of original rock types, variety and intensity of alteration, and the significant structural features.

7. The foregoing steps will probably yield information regarding the controls of ore deposition, indicators of the proximity of ore bodies, etc. This knowledge should be applied to the selection of sites for trenches, boreholes, and crosscuts, and should also be used in interpreting drillhole cores. In short, it would provide a scientific basis for exploration.

MAKIMINE COPPER-PYRITE MINE, MIYAZAKI PREFECTURE, KYUSHU,
Mitsubishi Mining Co Ltd (See also Memorandum for Record, NR 631 (27 Jun 49) MG, Investigation of Makimine Copper Mine, Miyazaki Prefecture, and Aso Jarosite Mine, Kumamoto Prefecture, 27 June 1949)

Current Production and Status

The Makimine mine now produces 3,500-4,000 tons monthly of pyrite ore containing about two percent copper, 16 percent sulfur, and appreciable amounts of gold and silver. The removal of copper price control and subsidy in October 1949 reduced the monthly output of crude ore about 40 percent, but the total output of metal and sulfur has scarcely decreased. This indicates increased efficiency following the withdrawal of government support. Many further improvements are possible. Unfortunately, of the ore bodies exposed so far, more than 40 are largely worked out and only two or three are still yielding ore. In recent months practically no ore was developed ahead of mining, and the situation was critical. In January or February, small reserves were developed averting a crisis.

Geology

The country rock is phyllite with minor amounts of hard sandstone. These rocks form a broad, plunging structural nose, and each of the two limbs of the fold contains a swarm-like zone of sulfide ore bodies. Five crosscuts between the two zones have failed to locate ore in the intervening ground. The ore bodies are spatula-shaped lenses 0.5 to 4 meters thick, 5 to 165 meters wide, and up to 600 meters long. Within each of the two zones, the ore bodies are approximately parallel, although lying at different horizons, and in a broad sense they are nearly concordant with the foliation of the phyllite. The long axes of the deposits plunge 20°-40° in the plane of the foliation. The principal mineral is cupriferous pyrite, but the margins of the ore bodies are locally rich in pyrrhotite with important amounts of chalcopyrite. Many faults of small displacement and one fault of about 180 meters displacement cut the ore bodies. Surface geological exposures are poor except along the Tsunanose River and its tributaries.

Geological and Exploratory Work

Mr Morinaga, resident geologist, has produced the following items to aid exploration: large scale geologic strip maps along the Tsunanose River; large scale detailed geologic maps of some crosscuts and drifts; useful plans, sections, and diagrams of the ore bodies; and a model showing the relationships of the deposits in three dimensions. A small-size

Incl 3

areal map by the Geological Survey of Japan is the principal geologic map of the surface, and although inadequate, it can only be locally revised because of insufficient exposures.

In 1948 Prof Noguchi of Kyushu University made a self-potential geophysical survey, but the results are difficult to interpret. The company has done a small amount of encouraging core drilling and has a satisfactory program for future drilling, but boring equipment now in use is very poor. New equipment is expected this spring.

Recommendations

Continuance and acceleration of the present geological and exploratory program will probably revive the mine. The following recommendations were made:

1. Wall rock alteration should be studied, although practical results cannot be guaranteed.

2. Further structural and petrologic studies should be made to determine the cause of the two known ore zones.

3. In the meantime, it should not be assumed that only two ore zones exist.

4. Since obvious wall rock alteration is restricted and ore bodies commonly terminate abruptly, cross cuts may narrowly miss ore bodies without disclosing any trace. Hence, electrical geophysical methods should be applied in crosscuts, first being tested in workings near known ore bodies.

5. Mr Morinaga should have a trained assistant. (He now has three untrained helpers).

KUSHIKINO GOLD-SILVER MINE, KAGOSHIMA PREFECTURE, KYUSHU

Mitsui Mining Co (See also Memorandum for Record, NR 410.4 (11 May 46)MG, subject, Examination of Mines, 11 May 1946)

Current Status and Production

The Kushikino mine, once the second largest gold producer in Japan, was closed during the war and the mill was dismantled by government order. A new 400 ton mill is now under construction, and the mine is being placed in working order. A small amount of ore is being mined from a footwall vein. The output is 20 metric tons per day of ore containing six grams of gold and about 75 grams of silver per ton. The mine is flooded below the third level, and no pumping is being done.

Geology

The country rock consists of two or more varieties of andesite, highly altered in the vicinity of the workings. The ore occurs in an enormous epithermal quartz vein and several branch or subsidiary veins. The principal vein is 4,000 meters long, up to 30 meters thick, and dips 30 to 40 degrees. Visible metallic minerals, which are scarce, include pyrite and fine argentite. The gold is not visible. The structure of the veins indicates that deposition of quartz alternated with recurrent shearing, and it is possible that gold and silver deposition likewise took place more than once. The various parts of the veins differ in texture and gold content, and only limited parts are rich enough to be mined at present.

Geological Work to Date

Little geological work has been done, but the Mitsui Company plans to establish a resident geologist. In the meantime, Mr T. Nagano, a surveyor, has constructed an excellent glass model of the mine workings vein outlines, and approximate distribution of various grades of ore. He has made large-scale, detailed geologic maps of one or two small parts of the mine.

Recommendations

The Mitsui Company will undoubtedly carry out standard geological mapping. The following additional recommendations were made to Mr T. Nishiwaki, company geologist:

1. Wall rock alteration should be mapped to confirm or deny the existence of alteration envelopes that might serve as indicators in boreholes and crosscut.

2. It is important to determine the chronology of gold and quartz deposition. Some varieties of the quartz may be post-ore in age and can be eliminated from

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further consideration.

3. If found to contain individual deposits of gold, parts of the veins formed at various times should be mapped separately. Several parts may each have independent ore shoots. On the other hand, it may turn out that ore shoots transgress the separate zones of quartz.

4. The major vein may be expected to branch repeatedly, especially near the ends, and the branches should be sought and explored. The internal zones of mineralization may branch independently of the vein mass as a whole.

ASO(AKAMIZU) IRON-JAROSITE MINE, KUMAMOTO PREFECTURE, KYUSHU

Mitsui Mining Co (Reference Memorandum for Record, MR 631 (27 Jun 49)MG, subject: Investigation of Makimine Copper Mine, Miyazaki Prefecture and Aso Jarosite Mine, Kumamoto Prefecture, 27 Jun 49)

Current Status, Production and Outlook

The Aso deposits contain iron ore (limonite) and jarosite. The ore is dug from shallow open pits by primitive hand methods.

Limonite is the only material mined at present. 600 metric tons is produced monthly, but of this, only a fraction is lump ore which is bought by the Yawata smelter. The lump ore contains 50 percent to 56 percent iron; the smelter pays 75 percent of the ceiling price. The bulk of the 600 metric tons production is very soft, pulverulent limonite that is not accepted by the smelter and must be sold for ochre pigment. During the war the pulverulent ore (50 percent Fe) was briquetted and successfully used for iron, but now the smelter obtains imported ore of preferred quality. The Aso mine has only 265,800 metric tons of lump and pulverulent limonite (collectively) as proved reserves. In addition, a possible 800,000 tons is suggested by incomplete borings. The immediate future of the mine depends largely upon the policy of the iron smelters with respect to the acceptance of the limonite and the price offered.

Jarosite was formerly mined, a total of 1,470 metric tons having been produced. None is mined at present, but a reserve of 37,600 metric tons is on hand. Jarosite contains potash and could be used in making fertilizer (Reference Memorandum for Record, MR 645 (10 Dec. 48)MG, subject: Indigenous Jarosite Resources of Japan). Apparently there are several reasons for present non-production, including the following:

(a) the Chemical Bureau has not approved the processing of jarosite for fertilizer;
(b) the cost per unit of K_2O is much higher in the jarosite product than in imported potash fertilizer;
(c) the mining company is not certain that imported fertilizer will continue to be insufficient in quantity.

The Mitsui Company is considering making a combined nitrogen-potash fertilizer from the Aso jarosite using autoclaves at the Miike smelter. Another untested plan, suggested for jarosite from a different mine is to roast the ore at high temperature, driving off potassium and sulfur, using the residue for iron ore, and recovering potash from flue gases.

(Yawata consumes 2,600^T X 1.8/day = 4,680.)

-end-

Geology

The limonite and jarosite at the Aso mine occur in irregular thin layers in a nearly flat terrain just beneath the ground surface. The thickest series of limonite-jarosite beds now exposed are two meters thick and said to be underlain by volcanic ash. Small seams of intercalated peat indicate a swampy environment during deposition, and an ancient farming tool and oar covered by the ore beds indicate a recent origin. Some of the deposits form low, subdued mounds and it is said that prior to mining, a row of such mounds existed. Probably the deposits and mounds were formed by precipitation of iron minerals from hot springs issuing from subterranean fissures. Some impure jarosite masses show a texture suggesting that volcanic ash may have been replaced by jarosite, but this has not been confirmed.

Recommendations

1. A few borings should be made to a depth of 20 meters or more to test the present assumption that the ore is restricted to very shallow levels. Nearly all borings to date have been less than 8 meters deep.

2. The origin of the deposits should be determined, if possible, to guide future prospecting.

File No. M-10-0

BASIC: Ltr, Hq Eighth Army, AGMGEN 333.5, dtd 23 Sep 49, subj: "Transmittal of Memorandum for Record".

AG 333 - BA 1st Ind TJQ/wd/yn

Hq I Corps, APO 301, SEP 29 1949

TO: Chief, Chugoku Civil Affairs Region, APO 248

A. S.

RECORDED HQ I CORPS

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BASIC: Ltr, Hq Eighth Army, AGMGEN 333.5, dtd 23 Sep 49, subj: "Transmittal of Memorandum for Record".

AG 333 - BA 1st Ind TJQ/wd/yn

Hq I Corps, APO 301,

SEP 29 1949

TO: Chief, Chugoku Civil Affairs Region, APO 248

A. S.

1 Incl:
n/c

HEADQUARTERS EIGHTH ARMY
United States Army
Office of the Commanding General
APO 343

EN 517

AGMGEN 333.5

SEP 23 1949

SUBJECT: Transmittal of Memorandum for Record

CA

3069

TO: Commanding General
I Corps
APO 301

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

2. Circulation within the I Corps area may be made as considered desirable.

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

BY COMMAND OF LIEUTENANT GENERAL WALKER:

J. A. O'BRIEN
CWO, USA
Asst Adj Gen

1 Incl:
Report of Visit to
I Corps (1 copy)

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Reaources Section

NR 631 (15 Sep 49)MG

HGS/RYG/WHM/tk
15 September 1949

MEMORANDUM FOR: Record

SUBJECT: Technical Examination of Surface Plant and Underground Workings at Yanahara Pyrite Mine.

1. Authority: GHQ, FEC, CP order 273-3,25 August 49.

2. Mission: To make technical examination of the surface plant and underground workings at Yanahara pyrite mine.

3. Personnel: Messrs William H. Munds, mining engineer, and H. Nishihara, Japanese technical consultant.

4. Summary of results:

a. The surface plant and underground workings of the Yanahara pyrite mine were examined.

b. During May, June, and July 1949 the Yanahara mine produced 90,023 tons of pyrite ore which averaged 50 percent sulfur per ton. This ore was sold at an average of ¥ 1,639 per ton, F.O.B. mine, making a profit of ¥ 248 per ton or a total of ¥ 22,413,163 after taxes, insurance, and interest were deducted.

c. Proved ore reserves of 7,000,000 tons of 50 percent sulfur ore are left in the Yanahara ore body which is practically all developed and ready for mining.

d. At present the Yanahara has a market in the Osaka district for 40,000 tons of ore each month.

e. Owing to wartime demands by the Japanese Government the mine produced ore at a faster rate than stopes could be filled, stopes are now 50,000 cubic meters behind in filling. Because present capacity for stope filling is very little more than that necessary for a 30,000 ton per month production, the management considers this the top safe production rate, until such time as filling capacity is increased.

f. Experiments on a method of stope filling by air have been carried on for the past two years. Results have encouraged management to install a large blower, a mixing hopper, and pipe lines to carry on these experiments on a much larger scale.

g. Mine air pressure is 60 pounds per square inch. Another compressor of 500 HP will be installed.

h. At present 500 pieces of conventional drill steel are brought to the blacksmith shop, sharpened and returned each day. Management intends to change to detachable bits by 1 January 1949.

i. Management seemed well acquainted with most mechanical equipment used in American mines through the current mining magazines, but like most Japanese is not cost-of-labor conscious. Compared to other mines in Japan, the Yanahara must be considered efficiently and economically managed.

5. Recommendations:

a. If standard detachable bits are adopted, a hot milling machine and tempering bath should be installed for sharpening. It was pointed out that tungsten carbide bits might prove more satisfactory.

b. Unless air packing proves economical as well as satisfactory in other respects, slushers should be tried.

c. A better system of filling waste cars in the open-cut should be employed.

1 Incl
Itinerary and Personnel Interviewed

Copies furnished:
Okayama CA Team
CA Section, 8th Army

William H. Mumbo

WILLIAM H. MUMBO
Scientific Consultant
Mining and Geology Division

Itinerary

Day, August 1949	Time	Left	Arrived
30	1040	Tokyo	
31	1047		Okayama
31	1101	Okayama	
31	1148		Wake
31	1300	Yanahara Mine	
Day, September 1949			
5	0930	Yanahara Mine	
5	1200		Okayama
5	1558	Okayama	
6	0738		Tokyo

Personnel Interviewed

Mr A.F.McGimsey, Okayama Civil Affairs Team, (By telephone)
Mr Matsunaga, general manager, Yanahara mine and director, Dowa Mining Co
W. Yasuda, chief, General Affairs, Yanahara mine
Hidesaburo Kurushima, president, Dowa Mining Co

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