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Description of contents

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SCAP Inspection Reports

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i) Chugoku
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SCAP INSPECTION REPORTS

M-10-G

	DATE	SUBJECT	ISSUING HEADQUARTERS & INDORSEMENT
1.	3 Nov 1947	Examination of the Sakaegami-Komei, Meiji, Kondo and Seimi Asbestos Mines and Mills	SCAP/NRS
2.	10 Dec 1948	Investigation of Progress of New Coal Mines in Tottori and Shimane Prefectures	8th Army
3.	14 Dec 1948	Transmittal of Memorandum for Record (Investigation of Progress of New Coal Mines in Tottori and Shimane Prefectures in West Honshu)	SCAP/NRS - Basic CCAR - 1st Ind
4.	8 Mar 1949	Transmittal of Memorandum for Record	Hq I Corps
5.	9 June 1949	Transmittal of Memorandum for Record	8th Army
6.	25 Oct 1949	Investigation of Mining and Hydrological Activities in Southern Japan	8th Army Basic & 1st Ind
7.	7 Jan 1950	Transmittal of Memorandum for Record (Examination of Metallurgical and Operating Practices at Copper, Lead, and Zinc Metallurgical Plants	SCAP/NRS
8.	1 May 1950	Orientation of Natural Resources Mining Personnel of Chugoku Civil Affairs Region	SCAP/NRS
9.	2 June 1950	Technical Examination of Operating Practices at Antimony, Copper, Lead, and Tin Metallurgical Plants in Osaka, Hiroshima, and Hyogo Prefs.	SCAP/NRS
10.	29 Aug 1950	Time Studies Essential to Japanese Mineral Industry	SCAP/NRS
11.	15 Sept 1950	Technical Examination of Metallurgical Practices at Iron and Steel Plants in Tottori, Shimane, and Hiroshima Prefectures	SCAP/NRS
12.	19 Oct 1950	Use of Films for Technological Orientation of Industry	SCAP/NRS
13.	25 Oct 1950	Technical Examination of Takehara Refinery, and Chigirishima Smelter, Hiroshima Prefecture, Hibi Copper Smelter, Okayama Prefecture, Togane Arsenic-Tungsten Operation, Gifu Prefecture, and Ogoya Concentrator and Copper Smelter, Ishikawa Prefecture	SCAP/NRS
14.	21 Nov 1950	Examination of Administrative Procedures Affecting Mineral Exploration and Exploitation in Shikoku, Chugoku and Kyushu Mining Districts	SCAP/NRS
15.	24 Mar 1951	Examination of Conditions Affecting Exploration and Development of Non-metallic Minerals in Chugoku and Tokai-Hokuriku Districts	SCAP/NRS

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

HGS/RYG/AHS/to
24 March 1951

NR 645 (24 Mar 51)MG

MEMORANDUM FOR: Record

SUBJECT: Examination of Conditions Affecting Exploration and Development of Non-metallic Minerals in Chugoku and Tokai-Hokuriku Districts

1. Authorization: GHQ, FEC, LO 60-10, 1 Mar 51

2. Mission: To examine conditions affecting exploration and development of fireclay, pyrophyllite, feldspar, silica-stone and other "additional minerals" included under the new Mining Law (Law No 289, 1950) as a basis for advice and guidance in preparation of revised regulations.

3. Personnel: Albert H. Solomon, NR/MG, Chiyotaro Maki, JN, Chief, Non-Metallic Minerals Branch, Mining Bureau, and Ryokichi Tanaka, JN, Liaison, Resources Agency, MITI.

4. Summary of Results:

a. During the period 5-11 March examination was made of the Atetsu and Ikura limestone operations, Okayama Prefecture; the Ohira pyrophyllite mine, Mitsuishi, Okayama Prefecture; silica-stone and fireclay quarries and mines in the vicinity of Seto, Aichi Prefecture; and two fireclay operations at Tajimi, Gifu Prefecture.

b. Mining Section personnel of the Chugoku and Tokai-Hokuriku District Bureaus of International Trade and Industry were interviewed and data obtained concerning production of limestone, dolomite, silica stone, feldspar, pyrophyllite, talc and fireclay, the newly added minerals under the Mining Law. (Incl 2-3)

c. The operators of the added minerals generally were pleased with the passage of the new Mining Law which extends to them the same protection previously given to other minerals, including the right to file applications for prospect and mining, obtaining mining rights, and ability to follow their ore deposits, greater freedom from surface owners, a lower tax rate, and general recognition of the importance of their products to the national economy.

d. It was found that several of the larger operators have had to purchase the land on which they quarried or mined, but will be relieved of much of this capital investment in future; those leasing lands now will benefit more promptly; that demand for their products generally exceeds their ability to produce under present hand-labor methods, and several are planning installation of machinery to increase either breakage of clay deposits, improve loading, or render transportation more efficient from the quarry or mine to dressing plant or loading point; that a critical shortage of mine cars exists at the limestone operations and at the clay pits in the Seto district, Aichi Prefecture.

e. Mine Safety hazards were noted at several of the quarries and mines, and operators realize the necessity for compliance with the Mine Safety Code commencing 1 August 1951, when Mining Law specifies safety regulations shall apply. This will add to their costs to some extent.

f. A serious question was raised by fireclay operators as to the definition of "fireclay" coming under the Mining Law, Article 3 providing that this means "only such clay as possesses a fire-resisting quality of Seger Cone (SK) 31 or upwards". Mining Bureau personnel accompanying NR personnel indicated that new regulations now in preparation would clearly define the tests to be made of the deposit and settle any uncertainty on the subject of such mining claims.

g. The priority given to land owners to file for a period of six months on mining claims may involve disputes between surface and mining interests, but determination of the extent of such conflict will have to await the elapse of the period of filing, on 31 July 1951.

h. A more serious interference with exploration and development of the newly-added minerals lies in the bogging down of processing procedure at the Mining Sections of the District Bureau offices. At Hiroshima, it was found that 72 prospecting and mining claims have been filed thus far since 31 January, effective data of the new law, with the expectation that 300 will be filed within the six-months' period allowed to determine priorities. At Nagoya, the Mining Section records show a total of 338 prospecting and mining claims for the added minerals filed, with expectation of about 500 in all. However, Hiroshima has pending about 2,000 claims for other minerals under the mining law, and Nagoya has a pending balance of 1760 as of 31 December 1950. With current filings only about equal in number to the number processed, it

can be seen that processing of mineral applications for the newly-added minerals under present procedures will be delayed for a period approximating two years.

5. Recommendations made to Mining Bureau personnel, Resources Agency, MITI, were:

a. That assistance be given the quarries and mines having transportation problems.

b. That preparation of regulations for enforcement of the revised Mining Law should include provision for tests which will determine clearly what quarries or mines producing fireclay of Seger Cone (SK) 31 and upward are subject to the law.

c. That such regulations should also include provisions which will simplify present procedures for processing of mining and prospecting claims as to all minerals coming under the Mining Law and expedite the same as a means of encouraging exploration and development of the added non-metallic minerals important to the iron and steel, cement, chemical fertilizer, glass, ceramics and soda industries.

6. Detailed discussions are attached as Inclosures 4-8.

8 Incls
1. Itinerary and Personnel Interviewed
2-3. as indic par 4b
4-8. as indic par 6

Copies furnished:
Chugoku CAR
Tokai-Hokuriku CAR
CAS
ESS/IND

Albert H. Solomon
ALBERT H. SOLOMON
Scientific Consultant
Mining and Geology Division

ITINERARY

4	Mar	2015	Lv	Tokyo	
5	Mar	1500	Ar	Hiroshima	
6	Mar	0930	Lv	Hiroshima	
7	Mar	1633	Ar	Okayama	(Visit Mitsuishi, Ikura, Atetsu)
8	Mar	0550	Lv	Okayama	
8	Mar	1255	Ar	Nagoya	(Visit Seto and Tajimi)
9	Mar	2345	Lv	Nagoya	
10	Mar	0700	Ar	Tokyo	

PERSONNEL INTERVIEWED

Messrs H. C. Keisel, Chief, C. Barrett, H. Kawamoto, Economics Section, Chugoku CAR.

Lt Col Stephenson, Chief, and Messrs George, Rosevear, Martin, Economics Section, Tokai-Hokuriku CAR.

Messrs Hashizume, Acting Chief, Terimatsu, Chief, Mining Section, and Sato, Chief, Application and Registration Section, Hiroshima District Bureau, ITI; Messrs Takai, Director, Chugoku Mining Assn.; Takiyama, Nippon Mining Co; Fujita, Director, Shinagawa Firebrick Co; Urakami, manager, Ohira Mine; Suzuki, Chief of Production, and Mori, Gen Mgr, Atetsu Mine, Onoda Cement Co; Eguchi, Gen Mgr, and Morita, Mining Chief, Ikura Mine, Nittetsu Mining Co.

Messrs Sugiwara, Chief, Mining Section; Kaniye, and Kuroishi, Nagoya District Bureau, ITI, Fuji Mining Co; Fuji, Shinagawa Shinano Mine, Hokibe, Kogumi Mine; and Toda, Director, Aichi Prefecture Fireclay Assn; Messrs K. Ushigome, Tokyo Yogyo KK, and Kato, Yamamata Mine Co.

Incl 1

Tokai-Hokuriku District "Added Minerals" Production and Use 1948-1950

Minerals	Measure	Unit	1948	1949	1950	Use	Percent of Total
Limestone	Concentrate	Metric ton	660,378	827,653	695,682	Iron and steel	4
						Cement	37
						Calcium	44
						Building	8
						Chemical	6
						Others	1
Firebrick Silica stone	Concentrate	Metric ton	2,781	4,575	7,607	Mortar	42
						Fire brick	58
Silica stone	Crude	Metric ton	27,563	33,828	18,937	Artificial silica sand	32
						Metalic silicon	43
						Lining furnaces	12
						China ware	8
						Others	5
Soft silica stone	Crude	Metric ton	-	-	11,373	Cement	100
Dolomite	Concentrate	Metric ton	5,318	2,190	1,500	Steel	68
						Fertilizer	32
Feldsper	Crude	Metric ton	506	413	75	Chinaware	100
Aplite	Crude	Metric ton	5,395	5,267	4,845	Chinaware	100
Sava	Crude	Metric ton	27,153	53,174	29,186	Chinaware	100

Incl 2

Minerals	Measure	Unit	1948	1949	1950	Unit	Percent of Total
Kibushi clay	Crude	Metric ton	213,702	194,241	162,774	Fire brick	19
						Refractory	78
						Chinaware	1
						Others	2
Gairome clay (and silica sand)	Crude	Metric ton	206,613	207,774	177,710	Chinaware	100
						Gairome silica sand (Chinaware	5
						(Casting	67
						(Glass	28

SOURCE: Nagoya District Bureau, MITI.

Incl 2 (cont)

Chugoku District "Added Minerals" Production and Use (1945-1950)

1945

Minerals	Production (metric tons)	No. of Mines	Shipped to Consumers	Percent
Limestone	ND			
Pyrophyllite	20,911	40	Refractory	62
			Clay	33
			Porcelain	5
			Others	0
			Total	100
Feldspar	475	3	Porcelain	68
			Glass	32
			Porcelain enamel	0
			Others	0
			Total	100
Talc	380	4	Toilet article	0
			Medicine	0
			Tile	100
			Others	0
			Total	100
Silica stone	2,738	7	Cement	32
			Silica sand	0
			Fire brick	3
			Casting	43
			Others	22
			Total	100
Fireclay (above SK.31)	0	-	Firebrick	0

Remarks: Production since August 1945
SOURCE: Hiroshima District Bureau, MITI

Incl 3

1946

Minerals	Production (metric tons)	No. of Mines	Shipped to Consumers	Percent
Limestone	ND			
Pyrophyllite	89,376	28	Refractory	51
			Clay	45
			Porcelain	4
			Others	0
			Total	100
Feldspar	5,618	6	Porcelain	47
			Glass	49
			Porcelain enamel	0
			Others	4
			Total	100
Talc	746	3	Toilet article	0
			Medicine	0
			Tile	100
			Others	0
			Total	100
Silica stone	16,254	9	Cement	67
			Silica sand	0
			Fire brick	12
			Casting	19
			Others	2
			Total	100
Fireclay (above SK. 31)	0		Fire brick	0

1947

Minerals	Production (metric tons)	No. of Mines	Shipped to Consumers	Percent
Limestone	586,810		Lime	31
			Cement	36
			Iron and Steel	11
			Soda	11
			Others	11
			Total	100
Pyrophyllite	140,800	29	Refractory	64
			Clay	21
			Porcelain	8
			Others	7
			Total	100
Feldspar	9,820	6	Porcelain	52
			Glass	37
			Porcelain enamel	7
			Others	4
			Total	100
Tale	938	3	Toilet article	55
			Medicine	6
			Tile	34
			Others	5
			Total	100
Silica stone	9,796	9	Cement	33
			Silica sand	12
			Fire brick	27
			Casting	25
			Others	3
			Total	100
Fireclay (above SK. 31)	0		Fire brick	0

Incl 3 (cont)

1948

Minerals	Production (metric tons)	No. of Mines	Shipped to Consumers	Percent
Limestone	674,846	142	Lime	21
			Cement	43
			Iron and Steel	10
			Soda	13
			Others	13
			Total	100
Pyrophyllite	176,048	31	Refractory	63
			Clay	27
			Porcelain	8
			Others	2
			Total	100
Feldspar	10,160	11	Porcelain	55
			Glass	37
			Porcelain enamel	7
			Others	1
			Total	100
Talc	2,972	11	Toilet article	73
			Medicine	21
			Tile	2
			Others	4
			Total	100
Silica stone	21,154	14	Cement	36
			Silica sand	24
			Fire brick	23
			Casting	13
			Others	4
			Total	100
Fireclay (above SK.31)			Fire brick	0

Incl 3 (cont)

1949

Minerals	Production (metric tons)	No. of Mines	Shipped to Consumers	Percent
Limestone	1,003,396	115	Quick lime (including slaked lime)	15
			Cement	45
			Iron and Steel	10
			Soda	17
			Others	13
			Total	100
Pyrophyllite	196,028	35	Refractory	62
			Clay	31
			Porcelain	6
			Others	1
			Total	100
Feldspar	7,202	10	Porcelain	56
			Glass	36
			Porcelain enamel	8
			Others	0
			Total	100
Talc	3,502	13	Toilet article	82
			Medicine	7
			Tile	2
			Others	9
			Total	100
Silica stone	43,059	17	Cement	38
			Silica sand	28
			Fire brick	21
			Casting	7
			Others	6
			Total	100
Fireclay (above SK.31)		0	Fire brick	0

Incl 3 (cont)

1950

Minerals	Production (metric tons)	No.of Mines	Shipped to Consumers	Percent
Limestone	1,223,116	84	Lime	13
			Cement	48
			Iron and Steel	16
			Soda	12
			Others	11
			Total	100
Pyrophyllite	224,516	37	Refractory	60
			Clay	36
			Porcelain	4
			Others	0
				100
Feldspar	4,847	7	Porcelain	57
			Glass	40
			Porcelain enamel	3
			Others	0
			Total	100
Talc	2,994	12	Toilet article	64
			Medicine	35
			Tile	0
			Others	1
			Total	100
Silica stone	31,068	13	Cement	47
			Silica sand	31
			Fire brick	10
			Casting	7
			Others	5
			Total	100
Fireclay (above SK. 31)	235	2	Fire brick	100
			Total	100

Incl 3 (cont)

Ateteu Limestone Quarry, Onoda Cement Co

This quarry produces an average of 8,000 metric tons of limestone monthly with peak output in April 1941 of 11,500 tons; reserves are estimated at 58 million tons, of which about 34 million are considered economically recoverable. Analysis of the ore, according to the engineer in charge of production, shows 95 percent $CaCO_3$, with five percent clay and other impurities. All output is used for cement-making at a plant adjoining the quarry.

Operations are chiefly open cut, with one small glory hole. Further extension of the glory hole method is planned, as costs are lower. Except for rock drills operated by compressor, no machinery is used. An endless cable is used to transport the stone to the cement plant nearby. Loading is manual, two men working as a team loading an average of 33 cars per day. Four men are employed drilling blast holes. At present limestone and red clay, both used in cement manufacture, are removed on a fifty-fifty tonnage basis. Total labor force has been reduced from 82 men last summer to 64, including seven office workers.

No geologic mapping of the deposit has been done, basis for reserve calculation being largely guesswork. Ownership of the lands being excavated, and visual observation of the size of the deposit, apparently satisfies the operators, and no mining claims are expected to be filed.

Ikura Limestone Mine and Quarry, Nittetsu Mining Co

The operation yields a monthly output of 14,000 metric tons of limestone, including about 5,000 tons of scrap or fine size. As the company was formerly a subsidiary of the Nittetsu Company, most of its production went to the Hirohata Iron Works until the end of the war when that plant was closed. With the reopening of the Hirohata Works last year, deliveries were resumed, and the bulk of tonnage is used as a flux in iron making. The fine sizes, under four centimeter being too small for the blast furnace, is designated as "scrap" and sold to Onoda Cement Co for cement manufacture.

Mining is conducted by either open or "blind" glory hole, with adits driven horizontally to the outlets, and by open pit quarrying. The "blind glory hole", a modification of the conventional glory hole method, consists of operations between two levels, with gravity drop to the lower level. Pillars are left in the upper level for support. Seven rock drills powered by two compressors are part of mechanized equipment.

Crushed rock is moved in mine cars by endless cable guided by hand labor to a tipple, dumped by hand, then screened and larger sizes run through a gyratory crusher. Stone of four centimeters and larger is transported by conveyor belt to storage bin with capacity of 700 tons. Limited storage capacity of the bin is hampering operations, and a larger bin is now being constructed to accommodate an increased capacity of 2,000 metric tons per month. A car shortage is at present further impeding production. Company officials state that since October 1950 they have shown a profit on operations, with output selling for ¥270 per ton. Labor force includes 80 pit-workers, nine in the office.

Although no geologic mapping has been done, engineers estimate reserves at 30 million metric tons. They expect, however, to do exploratory boring in the near future to more accurately estimate proved reserves.

Increased production is largely dependent on the assurance of a contract for supply from the Hirobata Iron Works, which plans to open a second blast furnace in July 1951. Increase of labor force to 109, according to the mining superintendent, can result in a 25 percent increase in production, but an adequate supply of freight cars is imperative. In connection with increase of labor force and increase of storage space, this company has a long-standing problem of Koreans, former employees, who still utilize company housing and one building for a school for their children. Attempts to oust them peaceably for the past three or four years have been unsuccessful.

Mine safety conditions in the pits are far from satisfactory. One worker, during the examination of a glory hole operation, scored a near miss from rock coming down into the mine car through a weakened chute gate, after it was presumably closed. Rock falls in the open pit are a constant hazard to workers. The Mine Safety Code will apply here after 31 July 1951, under the revised Mining Law.

While the Nittetsu Mining Co owns the land on which present operations are being conducted, unlike the Ikura operators, it has filed claims on adjoining lands to protect future supply.

Ohira Pyrophyllite Mine, Shinagawa Firebrick Co

The Ohira, one of a group of four pyrophyllite and diaspore mines and quarries operated by the Shinagawa Firebrick Co at Mitsuishi, Okayama Prefecture, produces an average of about 4500 metric tons monthly. The Ohira operations consist of four inclined shafts, five horizontal adits, and one open pit. Analysis of rock mined shows 35 percent alumina, and 62-65 percent silica. Seger cone averages 34 (heat resisting 1750°C). Labor force consists of 132, of which 115 are mine and pit workers, with an average output of 30-40 tons per man per month. Prior to World War II rock drills were used, but because of the alternate hardness and softness of the rock, this was abandoned for hand drilling.

Operational difficulties include a shortage of mine timbers, in view of competition of pulp industry which pays higher prices; an excess of underground water, requiring use of 7½ hp pumps in the inclined shafts; high cost of steel rails. To offset increasing cost, the price of pyrophyllite has advanced, and demand is far in excess of supply at present.

Typical of the fireclay operations in this area, about 70 percent of output is used in manufacture of firebrick for blast furnace lining, 20 percent in paper and thread manufacture, and 10 percent for crucibles. The diaspore goes for lining of metal smelting oil furnaces.

Mr Fujita, managing director, who has been in pyrophyllite mining for 15 years, stated that the operators generally feel greater security with the addition of this important mineral to the Mining Law, although mine safety will increase costs. Although his concern owns the land being mined, others depend on leases from landowmers. Non-owning operators' costs should be lowered, and future purchase by larger mines will not be necessary. He indicated that some of the smaller mines of the Shinagawa Company in the Joban District (Tohoku) which have deposits of fireclay in which the Seger Cone varies may be designated as coming under the law, thereby being subject to mine safety regulations, mining taxes, and other restrictions. He also indicated that the Mining Section of the District Bureau at Hiroshima at first insisted on requiring a complete survey of the deposits before accepting claims filed under the revised law by the producers, but that this was later waived.

Akatsu Clay Quarry, Fuji Mining Co

Produces about 250 tons monthly of "gaerome clay", having SK (Seger Cone) 35, from 1000 tons of ore. The silica obtained from the washing process is used as casting sand, making of sandpaper, but chiefly in glass-making. The washed clay is sold to tile manufacturers at ¥5,000 per ton. The variation of the clay in SK from time to time was the chief source of concern to the operators, as a literal interpretation of the revised law would endanger their mineral right when the SK test showed under 31 Seger Cone.

Unsafe handling conditions were observed at the tipple, where the clay is dumped onto a large reloading platform. Shovelers step aside each time a car is dumped, interrupting their work.

Shinagawa Shinano Quarry, Shinagawa Shinano Mine

This quarry produces "kibushi" fireclay, rating about 34 SK, on the average 1300 tons per month. It is sold for ¥1300 per ton. Reserves were estimated by the manager at 3 million tons. Labor force consists of 33, the only-machinery used in the quarry being air pressure picks to break the clay. An endless cable carries the clay into the mill for cleaning and washing.

Other clay mines and pits in the vicinity of Seto, Aichi Prefecture, were examined including the Inzo Mine, producing 400 tons monthly of 34 SK fireclay, and Kogumi Quarry leased from the Prefecture, with an output of 300 tons monthly of "kibushi" fireclay and 300 tons of gaerome clay, as well as a considerable output of silica sand.

The Aichi Prefecture Fireclay Industry Association officers complained that the industry had been reduced to only 40 percent of its normal allocation of freight cars, and that even these were not the open-type cars needed. Priority was claimed because of the strategic nature of the products, including clay for porcelain insulators sent to Korea and fireclay for the iron and steel industry.

Incl 7

Ushigome Quarry, Tokyo Yogyo KK

This is one of the largest producers of fireclay, with a monthly average of 1300 tons output, generally testing 30 SK. About 150 tons of the monthly production tests 32 SK, the balance 28 to 30 SK. All operations are open pit, with four quarries from which the clay is excavated. Hand labor is used exclusively. However, the management expects to acquire a mobile loader.

A firebrick factory is located on the premises, pyrophyllite being brought in from the Nagano Prefecture mines of the company, and mixed with the locally quarried clay, which is dried in outdoor racks or in the yard. Ratio is 93 percent pyrophyllite, 7 percent local clay. The firebrick made here is used almost entirely for blast furnace lining, consumers requiring 500 tons of 32 SK and 500 tons of 30 SK monthly. Worker force totals 52, including 20 in the firebrick factory.

Yamamata Mine and Quarry, Yamamata Mine Co

This is the largest deposit of kibushi fireclay in the vicinity, with production averaging about 800-900 tons per month. Most of the clay is used in chinawere manufacture. About 20 percent is used for firebrick in crucibles, and for electric insulators, testing 30-34 SK. Owing to the huge overburden, one tunnel has been dug some 90 feet into the mountain, with mine timbering supporting the roof. No machinery whatever is used, and the labor force consists of 38 in the pits and mine and, six in the office. No complaint regarding freight cars in the Tajimi area, but the city is on the main line, while Seto is on a private line connecting with the Japanese Government railway.

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

NR 610 (21 Nov 50)MG

HGS/RYG/AHS/jm
21 November 1950

MEMORANDUM FOR: Record

SUBJECT: Examination of Administrative Procedures Affecting Mineral Exploration and Exploitation in Shikoku, Chugoku and Kyushu Mining Districts

1. Authorization: GHQ, FEC, LO 284-18, 26 October 1950

2. Mission: To examine administrative procedures affecting mineral exploration and exploitation in Shikoku, Chugoku and Kyushu district mining bureaus, with a view to recommending methods of expediting handling and processing of mineral prospecting and mining claims. References: Memorandum for Record, NR 602 (21 Aug 50)MG, subject: Field Trip to Confer on Mining and Metallurgical Seminars in the Kinki and Tokai-Hokuriku Mining Districts, 21 August 1950, para 4c (2), and NR 610 (14 Sep 50)MG, subject: Examination of Administrative Procedures in Tohoku and Hokkaido Mining Districts Affecting Mineral Exploration and Exploitation, 14 September 1950. This memorandum completes the mission in all mining districts of Japan.

3. Personnel: Mr Albert H. Solomon, Scientific Consultant, and Iwao Iida, Technical Adviser, NR.

4. Summary of Results:

a. At Marugame, Kagawa Prefecture, Shikoku District Mining Office, records were examined and a summary obtained of the status of prospecting, mining and placer claims as to activity and processing of applications, with the following results as indicated by Inclosure 2 a-f:

(1) Out of 1,208 approved prospecting rights, 275 only are shown to be active, or 23 percent of the rights approved, which, however, includes only 19 percent of the land filed upon; only 37 out of a total of 185 mining claims filed during 1950, or 20 percent, are shown active, while placer claims average five percent activity.

(2) Prospecting rights pending at time of investigation were 803, which is the approximate total of all those filed during 1949 and 1950, while mining rights pending include all filed during 1950 and about half filed in 1949. Pending placer claims, chiefly for iron sand deposits, represent an accumulation of about five years.

b. The following was found to be the factual situation explaining the status indicated by the records:

(1) Normal processing, including filing, recording in the "village" register and on mine claim maps, and notifying the Forestry Bureau and the prefectural office (which in turn notifies the village concerned) takes from 15 to 30 days. Most of the applications received are in good technical form at this office. However, the Application Department makes up a 1:50,000 scale map from the 1:5,000 scale filed by the applicant.

(2) Action on the application sent to the prefecture office (and villages in turn) and Forestry Bureau, usually consumes about two months, depending on delay at the village level. Providing no objection or complication arises, processing takes from 70 to 90 days in all, and the applicant is sent a certificate approving his claim.

(3) If an objection is made by the village or other agency concerned, the Application Department sends an investigator who reports in four to five days, after which the matter is taken up with the governor of the prefecture. Approval may be conditional due to special dangers of damage from mining to the surface. However, normally the entire process, including determination of the validity of the objection, takes about 90 days. Objection by the Forestry Bureau results in a joint investigation with the same time involved for final processing. Conflicts with other claims are usually summarily decided by reducing the size of the claim later in priority of filing.

(4) Personnel for handling procedures in the Shikoku district number 13, of which five are trained investigators. Current delays are partly due to shortage of such investigators and funds in the budget to pay for their travel, as well as shortage of mapping equipment.

(5) Backlog of filing is due also in part to the sudden increase of prospecting applications in 1949, when the four-year limitation on such rights was reinstated, owing to expiration of the Act to Promote the Production of Important Minerals in June 1948.

c. The chief of the Mining Division stated that 60-70 percent of all prospecting rights are in the hands of brokers in the Shikoku district.

d. Showing of the technical films, "Hard Rock Mechanized Mining" and "Gold Ore to Bullion", was arranged for about 100 district bureau officials and mining company representatives. This was followed with a conference at which the pending Mining Bill was discussed. Salient conclusions were:

(1) An indefinite period for the mining right, instead of the 30-year limitation was favored.

(2) A four-year period of prospecting with a two-year renewal was strongly urged in place of the two-year period with two-year renewal.

(3) A question was raised as to the Land Coordination Commission, and the purpose intended by Mr Duncan, visiting expert consultant on mining law, was explained to those present.

e. At Hiroshima, the records of the Mining Division in the Chugoku District (Inclosure 3 a-f) revealed that out of 1,829 prospecting rights filed in 1950, 90 or 4.8 percent were active, although mining claims showed a 40 percent activity. The processing of prospecting rights is over two years in arrears, with a total of 2,179 such applications pendind at time of investigation; the same delay was found as to mining claims, 181 pending out of 183 filed during 1949-1950; placer claims for iron sand have been dormant for four years.

f. Factors bearing on the situation disclosed in the Chugoku district were:

(1) Coal applications form an important group of the claims filed, these coming chiefly from Yamaguchi Prefecture. However, Yamaguchi Prefecture was included in the Kyushu district until February 1947, and mining records of that prefecture were largely destroyed by air-raids during the World War II. Conflicts with currently filed applications are therefore not ascertainable without a rehabilitation of these records, which is now taking place under the terms of the Lost Mining Register Law recently passed by the Diet. This law requires filing of substituted claim records by 20 November 1950.

(2) Personnel handling claims in this office number 20, of which 13 process and map the applications in the district office, and seven are part-time investigators. As this district has many limestone and pyrrophylite deposits, additional minerals embraced under the pending Mining Bill, applications for such mineral lands will increase with the enactment of the Bill into law. Technical problems of overlapping, conflicts and objections from prefectural authorities also require added trained personnel to investigate current accumulated applications. Budget for travel of these investigators is also inadequate.

(3) Other causes complicating the processing picture include sudden increase of prospecting application filings due to expiration of the Act to Promote the Production of Important Minerals, and the trend toward increased activity in metal and non-metal mining in this district, due to increase of prices of mine products. Since 1948, however, coal applications have materially decreased owing to the abolition of the government-subsidized Kodan which purchased all output.

(4) Brokers hold 80 percent of prospecting and 20 percent of mining claims in this district.

g. Reaction to the pending Mining Bill in this district was found to be generally favorable as it will help stabilize mining of the minerals near the surface (the additional non-metallic minerals included in the definition of "minerals" under the law), which has been of a temporary character in the past and dependent on the good will of the surface owner in large part, rather than in the nature of a vested right to the mine.

(1) One major problem was stressed by mine operators at the conference held in Hiroshima: The period of the prospecting right should not be shortened from four to two years, with renewal for two years more. The principal basis for this contention was furnished by Mr Arai, manager, Yanahara pyrite mine (Dowa Mining Co), who stated that prospecting rights have been used by the large mining companies as a "protection" for their mining right operations. For example, at Yanahara, Dowa Mining Co has 1,680,000 tsubo of area in mining rights, all of which are actively producing. Surrounding this area are 10 million tsubo of prospecting rights held by the company for "protection". Mr Arai's attention was called to the similarity of this problem to that of mine operators in the United States, where consideration is being given to enlarging the protection period in order to justify the expenditure of large capital in exploration work and to protect the results of such exploration.

h. Because of previous investigation by Kyushu CA Region personnel (Monthly Report, September 1950, page 23), the field examination was expedited and accomplished by Mr Iida, NR legal mining consultant, with the following results:

(1) Records of approved prospecting rights show that for 1950 about one percent of 2,181 are in active status; out of 1,587 mining claims only 499 or 31 percent are active; placer claims are almost entirely inactive. Processing of prospecting claims are about two years in arrears and number 2,023 pending, while mining claims totaling 264 are one year in abeyance; iron sand filings are about five years behind. (Inclosure 4 a-f). Data for 1944-49 on approved claims was stated to be unavailable.

i. The following points were developed in the investigation as bearing on the problem:

(1) The situation in Kyushu is extremely complicated by destruction of many of the records and mining maps during World War II. With the assumption of about 160 (average) new applications filed monthly, including 50 applications for prospecting and mining rights under the revised mining law when passed for the "additional minerals" not now covered, and a backlog of some 2,460 applications presently pending, it is estimated

by the Mining Division of that office that it will take from four to five years to bring Kyushu district abreast of current business. This includes the making of 243 mine lot maps, requiring special skill.

(2) Present personnel for the work total 27, and the completion of the plan visualized in para (1) preceding would call for 20 additional on handling applications, 28 on lost mining ledgers and mine lot mapping, and 42 to process the additional business under the revised Mining Law and the new Stone Quarrying Law.

(3) Further requirements include an increase in travel budget for investigation of the area applied for, and replacement of destroyed surveying and drafting equipment.

5. Recommendations and Action Taken:

a. As previously indicated from field investigation in other mining districts (see references para 2), obstructions and delays in administrative procedures at district level in the districts visited have created a situation that is far from encouraging for mineral exploration or exploitation. Prompt processing of prospecting and mining applicatcns is essential to a healthy mineral industry. Present conditions favor monopoly and discourage new exploration or development of mineral resources. Additional budget for district personnel, equipment and travel are therefore strongly recommended as a solution.

b. Upon return from the field trip the findings herein summarized were discussed with the Mining Policy Section chief of the Mining Bureau, as well as personnel of ESS/PF, and cooperation assured in the increase and proper allocation of budgets necessary to improve the situation and to ease the burden on district mining personnel.

Albert H. Solomon

ALBERT H. SOLOMON
Scientific Consultant
Mining and Geology Division

4 Incls
1. Itinerary and Personnel Interviewed
2. As indic para 4a
3. As indic para 4e
4. As indic para 4h (1)

Copy furnished:
ESS/PF
CAS
Shikoku CA
Chugoku CA
Kyushu CA

Itinerary:

Date	Depart	Arrive
5 Nov	Tokyo 2015	
6 Nov		Takamatsu 1500
7 Nov	Takamatsu 0830	Marugame 1000
	Marugame 2000	Takamatsu 2140
8 Nov	Takamatsu 1730	Kure 1407
	Kure 1500	Hiroshima 1540
9 Nov	Hiroshima 1120	
10 Nov		Tokyo 0640

Personnel Interviewed:

Civil Affairs: Col B. Papen, CAS, Messrs Larsen, head; Ninneman and Sakaguchi, Economics Section, Shikoku CA Region; Messrs Keisel, head, Barrett and Kawamoto, Economics Section, Chugoku CA Region; Mr Mossman, head, Doi, technical consultant, Economics Section, Kyushu CA Region

Marugame, Kagawa Prefecture: Messrs Ezaki, director, Mitani, chief, Kamekawa, chief, Mining Business; Muramatsu, Fujita, Mining Administration, Chiba, Mine Safety, Takashima, Accounting, Mining Division, Shikoku District Bureau, MITI

Messrs Nomura, chief, Iizuma, liaison, Besshi Mining Co; Baba, Naoshima Smelter; Matsumi, Shingu mine; Niimi, Shirotaki Mine; Kamiyama, Nippon Mining Co; Aihara, Chihara Mine; Yanai, Tosa Limestone Industry Co; Nohara, executive secretary, Shikoku Mining Assn.

Hiroshima: Messrs Kondoh, chief, and Kodama, assistant chief, Mining Administration, Mining Division, Chugoku District Bureau, MITI

Messrs Nasu, Nippon Mining Co; Ijichi, Kawayama Mine; Ushio, Takehara Refinery, Kamioka Mining Co; Takai, Managing Director, Chugoku Mining Assn.

Fukuoka: Messrs Takeda, division chief, Miyahara, assistant chief, Yamamoto, Muta and Goto, Application Section, Mining Division, Kyushu District Bureau, MITI.

encl 1

Status of Approved Prospecting Rights — Shikoku District

Period Filed	Active	Inactive	Total	Percentage Active
1946-1948	704	1,804	2,508	28 %
Tsubo	241,131,448	905,431,446	1,246,562,894	27 %
1949	491	1,305	1,796	27 %
Tsubo	237,328,991	639,796,663	877,125,654	27 %
1950	275	933	1,208	23 %
Tsubo	107,229,121	453,334,190	560,563,311	19 %

Status of Approved Mining Claims — Shikoku District

Period Filed	Active	Inactive	Total	Percentage Active
1940-1946	141	37	178	79
Tsubo	59,149,608	10,629,189	69,778,797	85
1947-1948	63	123	186	34
Tsubo	36,473,274	35,807,726	72,281,000	50
1949	47	143	190	25
Tsubo	30,414,328	43,623,542	74,037,870	41
1950	37	148	185	20
Tsubo	29,570,459	46,712,696	76,283,155	39

Status of Approved Placer Claims — Shikoku District

Period Filed	Active	Inactive	Total	Percentage Active
1946-1948	2	38	40	5.0
Tsubo	146,200	2,917,770	3,063,970	4.8
Ri; Chō; Ken	-	(34; 15; 27)	(34; 15; 27)	-
1949	2	35	37	5.4
Tsubo	146,200	2,840,034	2,986,234	4.9
Ri; Chō; Ken	-	(29; 18; 25)	(29; 18; 25)	-
1950	2	35	37	5.4
Tsubo	146,200	2,840,034	2,986,234	4.9
Ri; Chō; Ken	-	(29; 18; 25)	(29; 18; 25)	-

Processing of Prospecting Rights — Shikoku District

Period Filed	Applications Filed	Approved	Rejected	Pending
1940-1946	2,150	796	800	554
Tsubo	1,112,840,000	412,009,600	414,080,000	286,750,400
1947	131	22	97	566
Tsubo	68,916,400	11,386,900	52,207,222	292,072,678
1948	139	45	350	312
Tsubo	42,986,432	22,256,845	181,160,101	131,642,164
1949	412	69	134	521
Tsubo	219,229,320	36,125,640	67,559,740	247,126,104
1950	434	49	103	803
Tsubo	221,160,794	25,652,970	55,059,989	387,633,939

Processing of Mining Rights — Shikoku District

Period Filed	Applications Filed	Approved	Rejected	Pending
1940-1946	249	160	46	43
Tsubo	106,075,694	66,000,000	18,747,860	21,327,834
1947	7	0	0	50
Tsubo	2,418,270	0	0	23,746,104
1948	17	17	10	40
Tsubo	6,807,500	9,617,684	4,475,120	16,460,800
1949	26	13	21	32
Tsubo	10,556,760	5,243,320	8,652,000	13,122,240
1950	52	9	13	62
Tsubo	20,648,040	3,691,560	5,217,690	24,861,030

Encl 2

Processing of Placer Claims (Iron Sand) Shikoku District

Period Filed	Applications	Approved	Rejected	Pending
1940-1946	87	21	12	65
Tsubo	12,512,775	3,245,928	1,675,908	7,590,939
1947	6	0	0	65
Tsubo	0	0	0	7,590,939
1948	4	2	55	12
Tsubo	514,932	3 Ri; 6 Ch8; 37 Ken	6,215,250	1,890,621
1949	8	0	0	20
Tsubo	1,165,104	0	0	3,055,725
1950	7	2	0	25
Tsubo	654,759	38,540	0	3,671,944

Status of Approved Prospecting Rights Hiroshima District

Period Filed	Active	In Active	Total	Percentage Active
1946-1948	68	3,476	3,544	2 %
Tsubo	29,530,000	1,813,774,000	1,843,304,000	2 %
1949	96	2,740	2,836	3.3 %
Tsubo	37,583,235	1,450,391,283	1,487,974,518	3 %
1950	90	1,739	1,829	4.8 %
Tsubo	34,456,275	962,489,758	996,946,033	3 %

Status of Approved Mining Claims Hiroshima District

Period Filed	Active	In Active	Total	Percentage Active
1940-1946	189	281	470	40
Tsubo	78,785,000	61,297,000	140,082,000	56
1947-1948	179	297	476	38
Tsubo	75,214,000	71,429,000	146,643,000	51
1949	187	274	461	41
Tsubo	82,343,103	53,125,778	135,468,881	61
1950	185	283	468	40
Tsubo	79,957,327	60,004,466	139,961,793	57

Encl 3
a-f

Status of Approved Placer Claims — Hiroshima District

Period Filed	Active	In Active	Total	Percentage Active
1946-1948	-	533	533	0
Tsubo	-	27,316,505	27,316,505	0
Ri; Chō; Ken	-	(118; 24; 59)	(118; 24; 59)	0
1949	8	471	479	2
Tsubo	147,120	24,140,900	24,288,020	1
Ri; Chō; Ken	(2; 1; 31)	(91; 2; 36)	(93; 4; 7)	2
1950	13	449	462	3
Tsubo	206,858	23,144,557	23,351,415	1
Ri; Chō; Ken	(2; 6; 1)	(90; 29; 36)	(92; 35; 37)	2

Processing of Prospecting Rights — Hiroshima District

Period Filed	Applications Filed	Approved	Rejected	Pending
1940-1946	1,044	142	796	106
Tsubo	869,794,440	94,950,019	507,670,453	67,173,968
1947	370	44	184	248
Tsubo	272,783,359	24,219,176	142,739,962	172,998,189
1948	559	36	124	647
Tsubo	412,112,249	10,468,000	83,519,665	491,122,773
1949	709	81	55	1,222
Tsubo	405,663,932	25,657,500	21,124,419	850,004,786
1950	1,011	26	28	2,179
Tsubo	513,665,064	10,309,526	9,628,677	1,343,731,647

Incl 3

Processing of Mining Rights — Hiroshima District

Period Filed	Applications Filed	Approved	Rejected	Pending
1940-1946	52	8	16	28
Tsubo	15,633,345	4,643,731	2,857,935	8,131,677
1947	53	37	6	38
Tsubo	16,950,074	9,538,826	3,020,915	12,522,010
1948	51	24	7	58
Tsubo	17,293,856	8,606,570	3,297,840	17,911,456
1949	80	36	10	92
Tsubo	24,691,362	7,515,270	4,070,160	31,017,388
1950	103	8	6	181
Tsubo	36,156,380	1,075,730	2,772,640	63,325,398

Processing of Placer Claims (Iron Sand) — Hiroshima District

Period Filed	Applications Filed	Approved	Rejected	Pending
1940-1946	130 (19)	0	125 (19)	5 (0)
Tsubo	20,181,617 (27 Ri; 3 Chō; 45 Ken)	0	19,715,591 (27 Ri; 3 Chō; 45 Ken)	466,026
1947	12	0	5	12
Tsubo	7,701,100	0	2,064,800	6,102,326
1948	0	0	0	12
Tsubo	0	0	0	6,102,326
1949	7	0	0	19
Tsubo	3,282,180	0	0	9,384,506
1950	5	0	0	24
Tsubo	1,828,400	0	0	11,212,906

encl 3

a

Status of Approved Prospecting Rights — **Fukuoka District**

Period Filed	Active	In Active	Total	Percentage Active
1940-1943	75	6,737	6,810	1.1
Tsubo	45,732,908	4,003,653,583	4,049,386,491	1.1
1950	23	2,158	2,181	1.1
Tsubo	10,377,752	1,331,197,977	1,341,575,729	0.8

b

Status of Approved Mining Claims — **Fukuoka District**

Period Filed	Active	In Active	Total	Percentage Active
1940-1943	766	730	1,496	51
Tsubo	207,456,928	252,131,287	659,588,215	62
1950	499	1,088	1,587	31
Tsubo	314,270,003	467,724,986	781,994,989	40

c

Status of Approved Placer Claims — **Fukuoka District**

Period Filed	Active	In active	Total	Percentage Active
1940-1943	19	313	332	5.7
Tsubo	306,934	9,526,251	9,833,185	31.
Si; Chō; Ken	(8; 33; 28)	(74; 14; 27)	(83; 11; 55)	10.7
1950	5	368	373	1.4
Tsubo	68,581	44,759,762	44,828,343	0.2
Si; Chō; Ken	(1; 35; 40)	(68; 21; 24)	(70; 21; 4)	3

Encl 4
a - f

Processing of Prospecting Rights Fukuoka District

Period Filed	Application Filed	Approved	Rejected	Pending
1940-1945	181	0	0	181
Tsubo	10,536,000	0	0	10,536,000
1946	415	115	94	387
Tsubo	243,856,300	63,817	8,667,800	235,124,683
1947	786	45	51	1,077
Tsubo	214,567,730	180,395	23,968,594	425,543,224
1948	605	100	213	982
Tsubo	405,820,000	283,663	69,928,360	761,161,201
1949	661	104	103	1,823
Tsubo	432,378,533	339,041	24,075,545	1,169,085,148
1950	1,306	48	38	2,023
Tsubo	846,794,304	146,045	27,387,540	1,988,345,867

Processing of Mining Rights Fukuoka District

Period Filed	Application Filed	Approved	Rejected	Pending
1940-1945	131	0	0	131
Tsubo	9,480,032	0	0	9,480,032
1946	236	166	59	142
Tsubo	391,802,545	29,698	0	157,396,579
1947	226	134	59	165
Tsubo	30,246,947	377,115	8,183,650	179,082,801
1948	184	139	40	170
Tsubo	49,962,393	323,696	26,854,627	182,356,871
1949	206	160	63	173
Tsubo	144,112,843	245,115	30,826,145	295,398,464
1950	273	136	48	264
Tsubo	564,529,536	330,737	5,424,031	854,173,232

Processing of Placer Claims (Iron Sand) Fukuoka District

Period Filed	Application Filed	Approved	Rejected	Pending
1940-1945	128	0	0	128
Tsubo	67,034,760	0	0	67,034,760
1946	6	2	0	132
Tsubo	1,118,000	138,000	0	68,014,760
1947	16	2	0	146
Tsubo	4,207,890	0	0	72,222,650
1948	19	0	20	145
Tsubo	2,072,330 (4Ri; 25Chō; 40Ken)	0	1,420,330 (3Ri; 29Chō; 50Ken)	72,874,650 (31Chō; 50 Ken)
1949	23	0	1	167
Tsubo	3,602,470	0	0	6,477,120 (31 Chō; 50 Ken)
1950	0	0	1	175
Tsubo	4,209,490 (2Ri; 24Chō; 31Ken)	0	3,620	80,682,990 (3Ri; 20Chō; 21Ken)

N.R. Blackwood B
Barratt

CT

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

NR 644(25 Oct 50)MG

HQS/RYG/CHH/tk
25 October 1950

MEMORANDUM FOR: Record

SUBJECT: Technical Examination of Takehara Refinery, and Chigirishima Smelter, Hiroshima Prefecture, Hibi Copper Smelter, Okayama Prefecture, Togane Arsenic-Tungsten Operation, Gifu Prefecture, and Ogoya Concentrator and Copper Smeltér, Ishikawa Prefecture

1. Authorization: LO 255-2, GHQ, FEC, 27 September 1950.

2. Mission: To make a technical examination of metallurgical and milling practices and check progress on NR recommendations at metallurgical operations. References are:

a. NR 631(31 Dec 49)MG; subject: Examination of Metallurgical and Operational Practices at Copper, Lead, and Zinc Metallurgical Plants in Yamaguchi, Hiroshima, and Okayama Prefectures, 31 December 1949.

b. NR 631(12 Nov 49)MG; subject: Examination Metallurgical and Operational Practices at Copper, Lead, and Zinc Metallurgical Plants in Mie, Ishikawa, and Gifu Prefectures, 12 November 1949.

c. NR 644(2 Jun 50)MG; subject: Technical Examination of Operating Practices at Antimony, Copper, Lead, and Tin Metallurgical Plants in Osaka, Hiroshima, and Hyogo Prefectures, 2 June 1950.

3. Personnel: Messrs C. B. Hoskins, Metallurgist and T. Kasahara, technical adviser, NR/MG.

4. Summary of Results

a. Takehara Refinery: Effort is being made to increase production in all units. The white lead plant has

6 Nov 50

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doubled production as of October 1950 and a further capacity increase has been planned. Metallic antimony is being produced in a new plant built for that purpose but the operation is not entirely successful. Sodium chromate has been produced on a pilot-plant scale. The new lead blast furnace is operating successfully.

b. Chigirishima Smelter: Rebuilding has begun. Anticipated blowing-in date is set as January 1951.

c. Hibi Copper Smelter: The new pyrite ore transporting system has been completed. One rebuilt Herreshoff roaster is operating on pyrite to increase sulfuric acid production. A second Herreshoff roaster is scheduled for rebuilding. Experimental work on the following subjects is proceeding: sulfur dioxide recovery from flue dusts; recovery of zinc from brass scrap; recovery of copper from pyrite calcine; and manufacture of lithopone.

d. Togane Arsenic-tungsten Operation: All operations have ceased. The company is reported in financial difficulties. Report on mine operations will be included in a separate memorandum for record.

e. Ogoya Copper Operation: The smelter is operating at reduced capacity due to curtailed concentrate supply. Mine production is low, reserves decreasing and costs are high. The mill is still unable to make a satisfactory copper-zinc separation, although much experimental work has been done.

f. Kamioka Operation: Electrolytic zinc plant capacity has been raised from 670 to 900 tons monthly. Electric furnace fuming of lead blast furnace slag on an experimental basis has been successful.

5. Recommendations were made to management as follows:

a. Takehara Refinery:

(1) Experimental work should be done on improving combustion of coal. NR personnel suggested methods and illustrated

principles of application to furnaces in the plant.

(2) Attention was again directed to the necessity of boxing metal byproducts in the silver refinery and not allowing them to accumulate in piles on the floor. In the main this has been done, but there is room for improvement.

b. Hibi Copper Smelter:

(1) Present experimental studies referred to in par 4 c above should be continued because they show commercial promise.

c. Ogoya Copper Operation:

(1) Soluble copper and iron salts should be removed from the mine water before it is used in the milling circuit.

(2) Mill testing should continue until a successful separation is made between the copper and zinc minerals. NR personnel spent two days in the mill testing laboratory and assay office working with the staff on this problem. Ogoya staff work to date shows definite promise.

d. Kamioka Operation:

(1) Experimental work should be done on all phases of the preparation of the lead blast furnace feed. A general outline was given at the time, which will be followed by detailed suggestions to be sent by mail.

(2) "Dusting" during handling of zinc calcine should be eliminated. This was suggested previously but had received no attention.

(3) The zinc plant in general should be cleaned up, spills contained, fume controlled, and

"good house-keeping" emphasized against the time when it becomes necessary to make 99.99 plus percent zinc for sale in a highly competitive market. At present Kamioka zinc is 99.98 percent. The market is very active and buyers will accept any grade of zinc, but that condition can change quickly.

6. Detailed discussion is contained in Inclosures 2-5.

C. B. Hoskins

C. B. HOSKINS
Scientific Consultant
Mining and Geology Division

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

Copies furnished:
ESS/IND
CAS
Tokai-Hokuriku CA
Chugoku CA

Itinerary

Leave	Tokyo	1940	30 Sep 50
Arrive	Takehara	1422	1 Oct
Arrive	Uno	1334	3 Oct
Arrive	Nagoya	1130	5 Oct
Arrive	Komatsu	1653	6 Oct
Arrive	Inotani	1257	8 Oct
Arrive	Tokyo	0640	12 Oct

Personnel Interviewed

1. The following CA officers were contacted:

a. Chugoku Regional Headquarters

Messrs C. F. Barratt and Kawamoto, interpreter, joined NR personnel at Takehara and accompanied them during the Hibi inspection.

b. Tokai-Hokuriku Regional Headquarters

Mr C. M. George, Economic Officer
Messrs H. Roservear, III, and Yokota, interpreter, accompanied NR personnel during the inspection of Ogoya and Kamioka operations.

2. Japanese personnel:

Messrs J. Ushio, General Manager, K. Shimazaki, Chief Metallurgists and Y. Goi, Special Metals Engineer, Takehara Refinery.

Messrs T. Nishimura, and T. Kobayashi, chief smelting, Hibi Copper Smelter.

Mr T. Imamura, Togane Arsenic Tungsten Operation.

Messrs O. Kajiwara, General Manager, K. Sato, mill supt, T. Sato, mine supt, and K. Nishimatsu, chief, milling section, Tokyo Office, Ogoya Copper Operation.

Messrs T. Takabayashi, Asst manager, H. Takai, chief Engineer, and S. Imai, chief metallurgist, Kamioka Mining Co.

Incl 1

HIBI COPPER SMELTER

Important research projects previously suggested by NR personnel are under way on a pilot-plant scale and show promise of being commercially successful. Laboratory scale experimentation has succeded in producing titanium dioxide from Malay and Swedish ilmenite. Some 2,000 tons of copper-bearing pyrite cinder(formerly stockpiled) has been smelted in the blast furnace. Copper sludge containing gold-silver from the former zinc plant was smelted in the converter to recover the values contained. Hibi has completed the installation of a pyrite ore handling system consisting of a belt conveyer system and concrete storage bins. This new system will make possible the blending of pyrite ore to give a uniform feed to roasters. Roasted pyrite calcine is stockpiled by a new aerial bucket ropeway.

Incl 2

TAKEHARA REFINERY

Takehara Refinery has shown considerable progress in solving its metallurgical problems since last visited by NR personnel. The newly-installed lead blast furnace operation is satisfactory. Secondary residue piles are finally being worked for contained values. The electrolytic antimony plant is experiencing difficulty because bismuth impurities co-deposit with the antimony at the cathode, and antimony trisulfate oxidizes to pentasulfate at the anode. A search of technical literature will be made by NR personnel to assist in solving this difficult problem. A study of the cooling water system of the lead blast furnace was strongly urged. Takehara is short of water and conservation is necessary; a closed-circuit cooling system was suggested with exchange of heat between the jacket water and the tuyere air. Takehara's white lead plant capacity has been increased from 10 to 20 metric tons monthly. Additional capacity increase to 50 tons a month is planned for immediate construction. A new coal-fired furnace has been built in the red lead plant to melt lead, after which the lead will be cast into cubes prior to attrition grinding and oxidizing to red lead. In the silver refinery a new coal-fired brick evaporator furnace has been built.

Encl 3

OGOYA COPPER OPERATION

Ogoya mines a complex copper, zinc, pyrite ore. The sulfides are easily liberated from the gangue but require fine grinding to liberate sphalerite from chalcopyrite. Much laboratory test work followed by plant scale testing has been done by the metallurgical staff. Unfortunately the failure to recognize the amount and chemical composition of the soluble salt in the mine water that is used in the mill has nullified this work. Belated analysis shows reagent quantity of soluble copper present. Grinding the sulfides in this mine water activates the sulfides to the point where no commercial separation is possible. During the two days NR personnel spent at Ogoya mill the entire problem was reviewed and laboratory tests conducted. To demonstrate the adverse effects of mine water a series of tests were suggested in which mine ore taken from a dry part of the mine will be tested with water free of mineral salts. This will show the conditioning effect of mine water. Should the continued testing show that a commercial separation is possible the mine will construct a water treatment plant to provide mineral free water for milling. NR personnel have advised, suggested, and watched these mill tests with much interest for several years because considerable value is lost in zinc. Rough calculations show that 50 percent recovery of the zinc now being lost would pay the cost of a ¥10,000,000 water treatment plant in four months.

The entire Japanese mining industry will benefit should Ogoya be able to make a commercial separation. The majority of ore bodies in Japan are mixtures of complex sulfides. Present practices are very crude in comparison to present mineral dressing practices elsewhere in the world. Ogoya is a testcase for a copper-zinc-pyrite ore and success there will serve as an example and stimulate similar achievement in other mills.

Incl 4

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GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

HGS/RYG/AHS/ts
19 October 1950

NR 610 (19 Oct 50)MG

MEMORANDUM FOR: Record

SUBJECT: Use of Films For Technological Orientation of Industry

1. During the field season, July-September 1950, Mining and Geology Division personnel of Natural Resources Section arranged for the showing usually at mines, smelters, refineries and iron and steel plants, of six films dealing with non-ferrous metal mining, smelting and refining, iron and steel making and the processing of gold ore. The objective was to furnish Japanese producers of major non-ferrous metals, precious metals and of iron and steel with visual evidence of some recent developments in American techniques, to illustrate the advice, and recommendations made by NR technologists in the field, and to stimulate interest in exchange of technical information between Japanese engineers, management and government personnel in the mining field, and between mining companies.

2. Due to the assistance generously given by Civil Affairs Section personnel in this Headquarters, and in sach of the Civil Affairs Regions, and the Japanese prefectural, Governments in furnishing projection equipment and personnel, considerable coverage was possible throughout Japan during the 90-day period. The attached statements of showings (Incl 1-6) of each of the following 16 mm sound films indicate the coverage by group and place showing, date, type of audience and total attendance:

a. Anaconda Copper Mining Co's "Copper", (color film)

b. U. S. Bureau of Mines' "Story of Copper"

c. U. S. Bureau of Mines" "Lead Mining in Southwest Missouri"

d. Bethlehem Steel Co's "Fifteen Minutes wigh Bethlehem Steel" and "Hishlights in Steel Making"

e. Canadian Department of Mines and Resources "From Gold Ore to Bullion".

3. The compiled data show that the films were seen by a total of 85,206 persons, of whom 17,313 were technical, and 37,378 administrative employees of the mining and refining companies, government agencies

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related to the mining industry and engineering department personnel of universities. The remainder were towns people at or near the mines or plants. The Anaconda copper film brought the most stimulating reaction, as it is an excellent portrayal of the operation os one of the world's largest copper mining, smelting and refining operations. Many features of American practice, efficient modern machinery, recent technological processes and safety measures, are demonstrated in all of the films shown. Particularly to be noted in the iron and steel films is the stress laid on metallurgical control, a principle strongly urged on the Japanese by NR ferrous metallurgical engineers.

4. In many instances the showing of the films was incidental to group seminars held by NR personnel at the mines plants or emelters to encourage Japanese management, engineers and other technical personnel to meet and discuss mutual technical problems, on a plant, company, district and national level. The seminars were materially aided by the showing of the films since they raised questions and opened discussions of technical problems.

5. As a direct result of seeing these films, NR personnel feel that many Japanese engineers and managers of mines, smelters, refineries and iron and steel plants have been inspired and helped in a practical way. One mine manager, for example, stated that after seeing the Anaconda copper film, he built a single-ignition safety fuse for blasting similar to the one used in the film, and that the Japanese Mining Bureau has since encouraged other mines in adapting this improvement in their operations. Other mine managers and superintendents of smelting and refining plants have made further inquiries of NR personnel and have shown interest in more efficient type equipment and machinery.

6. The valuable assistance of CI&E Section in obtaining loan of these films, and the work currently being done by that Section to bring more films of the same kind to Japan, should also be noted.

6 Incls
as indic para 2

/s/ Albert H. Solomon
ALBERT H. SOLOMON
Deputy Chief, Mining and Geology Division

Copies furnished
CI&E
CAS
Hokkaido CAR
Kinki CAR
Tohoku CAR

SHOWING OF ANACONDA COPPER M NING CO'S "COPPER"
(16 mm Sound Color Film)

Group & Place	Shown By	Date 1950	Type of Audience: Technical	Admin.	Others	Total
Tochigi Pref. Govt.,	Mr. Kidd, NR.	21 June			475	475
Hosokura, Osarizawa, Kosaka, Hanaoka Mines	Mr. Solomon, NR	6-12 June	500	4,500	5,845	10,845
Nikko Refinery Tochigi Pref.	Mr. Kidd, NR	19-20 July		1,100		1,100
Hitachi, Copper Mine, Smelter & Refinery	Mr. Hoskins, NR	25-27 July		1,900	1,900	3,800
Takehara Refinery	Chugoku CAR	3 Aug		200		200
Kawayama Mine		4 Aug		300		300
Hibi Smelter		9 Aug		200		200
Yanahara Mine		10 Aug		1,000		1,000
Osaka Smelter		14 Aug	80			80
Nippon Mining Co. (Osaka Branch)		14 Aug	12	38		50
Ikuno Mine	Kinki CAR	15 Aug	480		720	1,200
Akenobe Mine		16 Aug		1,800	1,200	3,000
Mikobata Plant (Akenobe)						
Kamioka, Lead-Zinc Mine & Smelter	Mr. Nishiwaki, NR	20-23 Aug		2,450	610	3,060
Hokkaido Trade & Ind. Bureau	Hokkaido CAR and Hokkaido Pref. Mining Section	7 Sep	200			200
Hokkaido University, Science Dept		8 Sep	30			30
Itomuka Metal Mine Hokkaido		11-13 Sep	460	220	200	880
Kitami " " "		14 Sep	350	100	150	600
Konomai " " "		15 Sep	500	200	300	1,000
Shimokawa " " "		16 Sep	350	100	150	600
Chitose " " "		18 Sep	450	200	150	800
Horobetsu " " "		19 Sep	100	50	50	200
Horobetsu Sulphur Mine Hokkaido		20 Sep	50	25	25	100
Tokushunbetsu, Metal Mine, Hokkaido		21 Sep	150	50	60	260
Kutchan, Metal Mine Hokkaido		22 Sep	200	75	75	350
Yoiichi Metal Mine Hokkaido		23 Sep	150	60	40	250
Inakuraishi " "		24 Sep	200	75	75	350
Kunitomi " " "		26 Sep	350	100	150	600
Yakumo " " "		26 Sep	200	100	100	400
Shojingawa, Sulphur Mine Hokkaido		28 Sep	100	50	50	200
Garo Metal Mine, Hokkaido		29 Sep	350	100	150	600

(Cont'd)

SHOWING OF ANACONDA COPPER MINING CO'S "COPPER"
(16 mm Sound Color Film)

(Cont'd)

Group & Place	Shown By	Date 1950	Type of Audience Techinical	Admin.	Other	Total
Ishizaki Metal Mine, Hokkaido)						
Imaiishizaki " " ")		30 Sep	10	5	5	20
Kaminokuni " " ")	Hokkaido	1 Oct	150	75	75	300
Katsuyama " " ")	CAR and	1 Oct	150	75	75	300
Nippon Cement Factory, Hokkaido)	Hokkaido Pref.	2 Oct	50	25	25	100
Hokkaido Coal Engineer's Club, Sapporo)	Mining Section	2 Oct		150	150	300
Nikko Refinery Tochigi Pref.)		3 Oct	100			100
Ashio Mine. Tochigi Pref.)	Kanto CAR	8 Oct	175			175
		8 Oct	285			285
Totals			6,182	15,863	13,665	35,710

- C O P Y -

SHOWING OF U.S. BUREAU OF MINES' "LEAD MINING IN SOUTHWEST MISSOURI,"
(16 mm Sound Film)

Group & Place	Shown By	Date 1950	Type of Audience: Technical	Admin.	Others	Total
Hosokura, Osarizawa, Kosaka						
Hanaoka Ani Mines	Mr. Solomon, NR	6-13 July	500	4,500	5,845	10,845
Hitachi Mine & Smelter	Mr. Hoskins, NR	25-27 July		1,900	1,900	3,800
Mining & Metallurgical Engineers' Seminar	Mr. Kidd, NR	3 Aug	148			148
Yanahara Mine	Chugoku CAR	10 Aug		1,000		1,000
Ikunō Mine	Kinki CAR	15 Aug		480	720	1,200
Akenobe Mine	" "	16 Aug		1,200	1,800	3,000
Mikobata Dressing Plant (Akenobe)	" "	16 Aug	560	840	840	1,400
Kamioka, Lead-Zinc Mine & Smelter	Mr. Nishiwaki, NR	20-23 Aug		2,450	610	3,060
Total			1,208	11,530	11,715	24,453

- C O P Y -

SHOWING OF U.S. BUREAU OF MINES' "STORY OF COPPER."
(16 mm Sound Film)

Tochigi Pref. Govt., Nikko Refinery, Tochigi Pref.	Mr. Kidd, NR	21 June	75	400		475
Hitachi Copper Mine, Smelter & Refinery	Mr. Kidd. NR	19-20 July	400	700		1,100
Mining & Metallurgical Engineers' Seminar	Mr. Hoskins, NR.	27 July	1,500	1,400	1,900	3,800
Kamioka, Lead-Zinc Mine & Smelter	Mr. Kidd, NR.	3 Aug	148			148
	Mr. Nishiwaki, NR	20-23 Aug	[illegible]	2,450	610	3,060
Totals			1,123	4,950	2,510	8,583

SHOWING OF "GOLD ORE TO BULLION."
(16 mm Sound Film)

Group & Place	Shown By	Date 1950	Type of Audience Technical	Admin.	Others	Total
Hokkaido Trade & Ind. Dureau		7 Sep	200			200
Hokkaido University, Scaince Dept.		8 Sep	30			30
Itomuka Metal Mine, Hokkaido		11-13 Sep	460	220	220	880
Kitami " " "		14 Sep	350	100	150	600
Konomai " " "		15 Sep	500	200	300	1,000
Shimokawa" " "		16 Sep	350	100	150	600
Chitose " " "		18 Sep	450	200	150	800
Horobetsu" " "		19 Sep	100	50	50	200
Horobetsu Sulphur Mine, Hokkaido		20 Sep	50	25	25	100
Tokushunbetsu Metal Mine) Hokkaido		21 Sep	150	50	60	260
Kuchan Metal Mine, Hokkaido		22 Sep	200	75	75	350
Yoiichi " " "		23 Sep	150	60	40	250
Inakuraishi " "	Hokkaido CAR	24 Sep	200	75	75	350
Kunitomi " " "	and Hokkaido	26 Sep	350	100	150	600
Yakumo " " "	Pref. Mining	26 Sep	200	100	100	400
Shojingawa Sulphur Mine) Hokkaido	Sec.	28 Sep	100	50	50	200
Garo Metal Mine Hokkaido)		29 Sep	350	100	150	600
Ishizaki " " ")		30 Sep	10	5	5	20
Imai-Ishizaki" ")		1 Oct	150	75	75	300
Kaminokuni " ")		1 Oct	150	75	75	300
Katsuyama " ")		2 Oct	50	25	25	100
Nippon Cement Factory,) Hokkaido		2 Oct		150	150	300
Hokkaido Coal Engineers) Club, Hokkaido		3 Oct	100			100
Ashio Mine, Tochigi Pref.	Kanto CAR	7 Oct	285			285
Nikko Refinery, Tochigi Pref.	" "	8 Oct	175			175
Totals			5,110	1,835	2,055	9,000

- C O P Y -

SHOWING OF BETHLEHEM STEEL FILM "HIGH LIGHTS OF STEEL MAKING".
(16 mm Sound Film)

Group & Place	Shown By	Date 1950	Technical	Admin.	Others	Total
Toto Seiko K.K.		25 July			100	100
Natural Resources Section		31 July			35	35
Japan Steel Tube Co.		3-4 Aug	750	800		1,550
Fuji Iron Steel Co.	Mr. Hersch, NR.	8 Aug	125			125
Iron & Steel Institute		10 Aug	120			120
Fuso Metal Co.		17 Aug	50			50
Yasugi Plant, Hitachi Works						
Yonago Plant, Nissan Steel Co.		22-23 Aug	550	550		1,100
Japan Iron & Steel Federation		26 Aug	250	250		500
Tokyo University, Science Dept		21 Sep			150	150
Total			1,845	1,600	285	3,730

- C O P Y -

SHOWING OF BETHLEHEM STEEL FILM "15 MIN. WITH BETHLEHEM STEEL"
(16 mm Sound Film)

Group & Place	Shown By	Date	Type of Audience			
		1950	Technical	Admin.	Others	Total
Toto Seiko K.K.		25 July			100	100
Natural Resources Section		31 July			35	35
Japan Steel Tube Co.		3-4 Aug	750	800		1,550
Fuji Iron & Steel Co.	Mr. Hersch, NR.	4 Aug	125			125
Iron & Steel Institute		10 Aug	120			120
Fuso Metal Industry Co.		17 Aug	50			50
Yasugi Plant & Yonago Plant						
Hitachi Mfg. & Nisso Steel Co.		22-23 Aug	550	550		1,100
Japan Iron & Steel Federation		25 Aug	250	250		500
Tokyo University		21 Sep			150	150
Total			1,845	1,600	285	3,730

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GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

NR 644 (15 Sep 50)MG

NRS/NRE/JEH/yt
15 September 1950

MEMORANDUM FOR: Record

SUBJECT: Technical Examination of Metallurgical Practices at Iron and Steel Plants in Tottori, Shimane, and Hiroshima Prefectures

1. Authorization: AG 201-AGPO LO 193-14, 27 July 1950.

2. Mission: To make a technical examination and obtain data on metallurgical methods and procedures for producing iron and steel economically; to obtain technical data on operation and construction of small charcoal blast furnaces; and to discuss metallurgical problems with plant staffs at Yonago Plant, Misso Steel Company Ltd, Tottori Prefecture, Yasugi and Torikami Plants, Hitachi Manufacturing Works Ltd, Shimane Prefecture, and Takemori Plant, Imperial Iron Company, Ltd, Hiroshima Prefecture. References: a. NR 631 (31 Oct 49)MG, subject: Technical Examination of Metallurgical Practices and Processes at Iron and Steel and Ferroalloy Plants in Kochi and Hyogo Prefectures, 31 October 1949. b. NR 631 (29 April 50)MG, subject: Technical Examination of Metallurgical Practices at Iron and Steel Plants in Hyogo and Osaka Prefectures, 29 April 1950. c. NR 631 (7 Aug 50)MG, subject: Technical Examination of Metallurgical Practices at Iron and Steel Plants in Hyogo, Wakayama and Osaka Prefectures, 7 August 1950.

3. Personnel: Messrs Joseph E. Hersch, ferrous metallurgist, and Kizaburo Tsutsumi, Japanese technical advisor, NR/MG.

4. Summary of Results:

a. It was found that the basic problems confronting the charcoal-pig iron plants are: high production cost of charcoal, and the high rate of charcoal consumption per ton of pig iron produced. If these two problems are solved those plants will be able to compete, economically with the large blast furnaces, and produce a uniform high quality pig iron

b. The steel making plants visited showed a definite need for the establishment of metallurgical control departments to stabilize control of operations, increase efficiency and increase quality and yield of product. A sizing and grading system for raw materials is also highly desirable.

c. NR representatives showed two films produced by the Bethlehem Steel Company. Many of the recommendations that have been

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made by NR metallurgists are shown pictorially in this film. The film was shown at Yasugi City where 1,000 personnel from five companies attended. The second showing was at Osaka where more than 500 personnel representing 35 companies from the Osaka and Kobe areas attended. A seminar was held after each showing at which time NR recommendations were discussed and recommended for adoption at the plants concerned.

5. Recommendations

a. Larger scale production per unit of charcoal, setting up a sizing and grading system for raw materials being charged to the blast furnaces, producing a pig iron of 2.5 to 3 percent carbon content instead of 4 to 4.5 percent, and setting up of a small scale metallurgical department within their plants were recommended to aid them in solving their problems.

b. Recommendations outlined in reference a and b pertaining to small blast furnaces were suggested for adoption.

c. Recommendations, reference 3c, pertaining to electric steel furnace plants were also suggested for adoption at the plants concerned.

Joseph E. Hersch

JOSEPH E. HERSCH
Scientific Consultant
Mining and Geology Division

1 Incl.
Itinerary and
Personnel Interviewed

Copies furnished
Chugoku CA
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ITINERARY

20	Aug 1950	Lv Tokyo	1940
21		Ar Yonago	1726
22		Lv Yonago	1100
23		Ar Tojyo	1320
24		Lv Tojyo	0900
24		Ar Hiroshima	1200
25		Lv Hiroshima	1057
26		Ar Tokyo	0640

PERSONNEL INTERVIEWED

Chugoku CA Region

Mr Charles Barratt, chief, Natural Resources

Yonago Plant, Misso Steel Co Ltd

Messrs Bunzo Matsumoto, manager of the plant;
Hiroshi Masuda, chief of General Affairs;
Yoshio Umemoto, chief engineer

Yasugi Plant, Hitachi Manufacturing Works Ltd

Messrs Takeichi Dokiya, asst manager of the plant;
Takehiko Yano, chief engineer; Mikio Mizue, chief of General Affairs Section; Nobuo Nakamura, staff of Laboratory; Masao Sumita, staff of General Affairs Section; Jiro Tonoi, staff of Tokyo Office.

Torikami Plant, Hitachi Manufacturing Works Ltd

Mr Takayoshi Nabika, chief of the plant

Takemori Plant, Imperial Iron Co Ltd

Messrs Fukutaro Nojima, president of the Company;
Kiichi Seto, superintendent of the plant; Juro Kishi,
chief of General Affairs, Hiroshima Office

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CHUGOKU INFORMATION: O.D. 15.

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GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

NR 609 (29 Aug 50)MG

HGS/RYG/JFH/jm
29 August 1950

MEMORANDUM FOR: Record

SUBJECT: Time Studies Essential to Japanese Mineral Industry

1. Usually time studies are necessary at an operating mine before there can be any intelligent selection of a new mining method or installation of new type equipment. These studies are now essential to many Japanese mines as it is not always readily apparent how much to mechanize a mine that uses low cost labor.

2. Today conditions are rapidly changing in Japan and many of the mining companies are investigating methods of lowering the unit cost of production. Wages have increased, new equipment has been developed, and the Japanese Government no longer subsidizes production regardless of cost. Management is faced with the prospect of producing at a profit or going out of business. Fortunately, demand and prices of most metal remain fairly high and the predicted 1948 collapse of the copper mining industry did not materialize.

3. Most Japanese mines have lagged behind the average American mine in mechanization for good reasons. These are as follows: (1) the relatively low cost of Japanese labor; (2) unadaptability of many Japanese ore deposits to large scale mechanization; (3) the high capital investment required for machines; (4) dependency of many mining companies first upon government subsidies or bonus payments rather than upon investigation of improved techniques to lower costs.

a. American underground wages are now about $12.00 per working day. Underground labor in Japan costs about the yen equivalent of one dollar per day. In America it is usually necessary to maximize labor's productivity with all the latest modern techniques and machines possible. In Japan a decision to replace men with machines may not be justified until a complete analysis and cost breakdown of each method is obtained. Sometimes an apparently inefficient hand-mucking or hand-tramming operation using many men may have a lower unit cost of production than that obtainable with mucking machines and battery locomotives.

b. Wage rates continually change so that methods applicable two years ago may not be preferable now. In Japan the percentage of the total mining cost charged to labor has increased from 30 percent in pre-war years to about 40 percent at present. Jobs that could be mechanized should be studied again.

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NR 609 (29 Aug 50)MG

c. Many of the larger Japanese mineral deposits such as Yanahara, Matsuo, Kamioka, Kamaishi, Hitachi, Ashio, Konomai and others are adaptable to large scale mechanized mining methods. Some of these mines are efficient and utilize modern techniques and equipment necessary for low cost operation. Others could profitably start time studies to obtain the correct answers to questions that face any mine manager. Some of these questions arise in the selection of a new mining method, different drilling patterns and machines, jumbo, tripod or column mounts; hand-mucking, mucking machines or scrapers; most effective size car and dumping method; hand-tramming, locomotive, or conveyor belt.

d. Underground advances usually follow a cycle of drilling, blasting, timbering and mucking. In the United States there have been large reductions in the time necessary in the drilling and mucking periods. Jumbo-mounted drills in drilling position move to the face and start drilling, thus cutting off one hour of the five hours formerly required for setting up, drilling, and tearing down. Modern mucking machines muck out a blasted round in one hour instead of the four hours formerly required. In Japan the mucking machine and scraper is used in some mines and could no doubt be profitably utilized in many others. Very few jumbo-mounted drills are used but some mines are experimenting and they will be in common use. Machine framing of timbers on the surface could be used at a few large mines. Large mines could investigate the concentration of work in certain parts of the mine to reduce supervision, transportation, air and power requirements.

4. Medium-sized and small mines should also seek the lowest possible unit cost, since in some cases it is more essential than at the larger mines. In the future, as large deposits are depleted, more of the present small or sub-marginal deposits may have to be worked. In the United States efficient, portable sink-float plants mounted on skids now work old waste dumps or jig tailings. Small surface deposits can be quickly prospected by bulldozer treching and diamond drilling, small, efficient diesel power plants are available, and light fast drills using detachable or throw-away bits reduce the need for drill-sharpening equipment or a blacksmith shop. Small compact dragline plants work placers that could not be considered for a large dredge. In Japan it may be possible to work iron sand, or chromite or small manganese deposits by considering new methods.

5. The miners who required eight percent copper ore in 1875 did not dream that the largest copper mines of 1950 would yield the major requirements of the world from one percent copper ore with much less effort and higher wages per working shift than in 1875. The waste rock or sub-marginal ore of today will become the commerical ore to tomorrow. Many deposits that cannot be worked with today's cheap labor will supply

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such of the mineral requirements of the future when new equipment and new techniques are developed.

6. Leaders in the Japanese mining industry should consider and apply all studies of new methods as rapidly as they appear as a possibility. Time studies over an extended period are a necessity. Short period time studies are usually valueless as labor will often extend itself far above average effort in a short time test.

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

Copies furnished:
Mr. Kennedy, ESS/DPU
Mr. Cottscharlk, Hokkaido CA
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GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

INFORMATION O.D.

NR 644 (2 Jun 50)MG

HBS/RYG/RLK/tk
2 Jun 1950

JUN - 9 1950

MEMORANDUM FOR: Record

SUBJECT: Technical Examination of Operating Practices at Antimony, Copper, Lead, and Tin Metallurgical Plants in Osaka, Hiroshima, and Hyogo Prefectures

1. Authorization: AG 201-AGPO, LO 79-34, 30 March 1950

2. Mission: To study metallurgical and operating practices and discuss related problems with the respective staffs at the Mikuni and Suita antimony smelters, Osaka Prefecture, and Ikuno tin smelter, Hyogo Prefecture; to discuss metallurgical problems with management of the Takehara copper refinery and examine physical equipment of the idle Chigirishima lead smelter, Hiroshima Prefecture; also, to ascertain what action has been taken on recommendations previously made by NR personnel at the Nakase mine antimony smelter in February 1949, (Memorandum for Record NR 631 (21 Apr 49)MG, subject: Inspection Metallurgical and Operating Practices at the Shimizu Alumina and Kanbara Alumina Plants, Shizuoka Prefecture, Osaka Copper Refinery and Osaka Smelter, Osaka Prefecture, and Nakase Mine Antimony Smelter, Hyogo Prefecture, 21 April 1949.

3. Personnel:

Mr Robert L. Kidd, Head, Metallurgy Branch, NR/MG, Mr Colehour, Chugoku CA Region, Natural Resources (accompanied Mr Kidd to Chigirishima smelter and Takehara refinery), Messrs Y. Hayashi, Kinki CA Region, H. Kawamoto, Chugoku CA Region, Frank Wada and Y. Koizumi, Taihei Mining Co, interpreters.

4. Summary of Results:

a. The Mikuni antimony plant is in fair physical condition. Plant facilities to substitute the Herrenschmidt process for the present direct process of producing antimony from ores are being installed. Observations indicate that there is a lack of qualified metallurgical personnel on the

staff, and management is reluctant to correct minor operating conditions about the plant to reduce labor costs.

b. Suita antimony smelter management is handicapped in its improvement program by the lack of finances. Too many problems are under investigation and no qualified metallurgical supervision on the staff is available.

c. In general, management of the Takehara copper refinery is making satisfactory progress on recommendations made by NR personnel. The majority of these recommendations were of the type calling for supervision by a capable metallurgical staff. Although management acknowledges the importance of such a staff, its efforts to correct the situation are not aggressive.

d. The Chigirishima lead smelter, except for the condition of the buildings, is in very poor physical condition.

e. The Ikuno tin smelter operates about two months each year because of a shortage of tin concentrates. In general the smelter is in very good physical condition. Some cleaning up of residues and reconditioning of equipment could be done as economy measures.

f. No apparent attempt has been made by Nakase Mine management to consider any of the recommendations made by NR personnel in February 1949. These recommendations were reviewed and discussed in detail. Plant operations have been stabilized according to conventional Japanese practice. The new process developed by a Japanese metallurgist has been abandoned in favor of the old established Herrenschmidt process.

5. Recommendations

a. At Suita antimony smelter, it was suggested that only one problem be considered at a time for solution. More serious consideration should also be given to reducing operating costs.

b. Takehara management was again reminded of the necessity for an adequate metallurgical staff to assist in

operating the plant efficiently. It was also suggested that all high grade intermediates or residues, such as the anode slime before and after roasting, be confined in suitable metal containers to reduce precious metal losses to a minimum; that the foul electrolyte purification and copper sulfate production sections be given the same attention as the main electrolysis section relative to elimination of solution losses, and that a thorough investigation of the preparation of anodes for electrolysis and maintenance of electrolytic tank house equipment be made in an effort to reduce power consumption per ton of cathode copper produced.

c. At the Ikuno tin smelter it was recommended that a more concentrated effort be made to recover cassiterite from the mill tailings by flotation. In the smelter, it was suggested that a small bin fitted with a discharge gate be installed to receive the slag from the first smelting operation; this would eliminate the services of two men.

d. The Nakase mine antimony smelter management was again reminded that plant metallurgical and operating efficiency could be increased, and operating costs materially reduced by considering again recommendations made in February 1949 that a competent metallurgical staff be retained to assist the mill and smelter superintendents with their metallurgical and operating problems; a comprehensive study be made of the milling of the type of ore produced at the mine, in conjunction with a similar study of treating the concentrates produced, to recover metallic antimony, antimony trioxide, gold and silver.

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

7 Incls
1. Itinerary and Personnel Interviewed
2-7 as indic par 6

Robert L. Kidd

ROBERT L. KIDD
Scientific Consultant
Mining and Geology Division

Copies furnished:
ESS/IND
CAS
Kinki CA Region
Chugoku CA Region

Itinerary

Lv	Tokyo	1940	13 Apr 50
Ar	Osaka	0642	14 Apr 50
Lv	Osaka	2046	16 Apr 50
Ar	Kure	0334	17 Apr 50
Lv	Kure	0900	17 Apr 50
Ar	Takehara	1100	17 Apr 50
Lv	Takehara	0800	18 Apr 50
Ar	Kure	1030	18 Apr 50
Lv	Kure	2359	19 Apr 50
Ar	Himeji	0516	20 Apr 50
Lv	Himeji	1000	20 Apr 50
Ar	Ikuno	1130	20 Apr 50
Lv	Ikuno	0807	23 Apr 50
Ar	Wadayama	0839	23 Apr 50
Lv	Wadayama	0908	23 Apr 50
Ar	Yoka	0920	23 Apr 50
Lv	Yoka	1102	24 Apr 50
Ar	Kyoto	1505	24 Apr 50
Lv	Kyoto	2023	24 Apr 50
Ar	Tokyo	0640	25 Apr 50

Personnel Interviewed

1. The following CA officers were contacted:

a. Kinki CA Region

Messrs Joseph C. Goldsby, chief, Economic Section, Harry H. Shepherd, and Y. Hayashi, interpreter, Economic Section

b. Chugoku CA Region

Col Frank Kowalski, chief
Messrs Henry G. Keisel, chief, Economic Section, Charles Barrett, Douglas G. O'Brien, R. Neis, Colehour, and Henry Kawamoto, interpreter, Natural Resources

2. The following Japanese were interviewed:

a. Mikumi antimony smelter

Mr Nishida, labor manager

b. Suita antimony smelter

Messrs Kunikatsu Hibino, president of parent

Encl 1

company, Hibino Industry Corp. and I. Ikuro, plant manager

c. Takehara copper refinery

Messrs R. Kurimura, manager, K. Shimazaki, chief, Refinery Section

d. Chigirishima lead smelter

Mr K. Ishiwara, manager

e. Ikuno tin smelter, Ikuno concentrator, and Akenobe mine and concentrator

Messrs Shoichi Aihara, manager, and R. Okada, I. Yamamoto, J. Ono, submanagers, Isao Nara, security supervisor, M. Maruyama, chief, Mining Section, J. Kanegae, chief, Dressing Section, Y. Koizumi, chief, Smelting Section, T. Koga, chief, Mikobata mill, T. Yoshiki, metallurgist, and Frank Wada, mining engineer, Tokyo office.

f. Nakase mine antimony smelter

Messrs K. Kawaguchi, manager, R. Hagiwara, submanager, T. Koga, mill supt, S. Hirata, smelter supt.

Mikuni Antimony Smelter, Osaka Prefecture

The Mikuni antimony smelter was not operating on the day visited; and the management not available.

Antimony concentrates are smelted with scrap iron, charcoal, and soda ash in a reverberatory furnace to produce crude antimony metal which is further refined in a second furnace to remove excess iron. Plans are under way to treat the concentrates in an Herrenschmidt type furnace to produce antimony oxide which will be reduced with soda ash and/or Glauber's salt and charcoal in a reverberatory furnace to produce refined antimony.

The physical condition of the plant is fair. Methods of handling and storage of raw materials and intermediates are inefficient. Scrap iron is stored in the open where considerable oxidation takes place, resulting in a loss of iron and a reduction of metallurgical efficiency in the antimony smelting furnace, all of which indicate a lack of qualified metallurgical personnel on the staff.

Production for March 1950 was 12.8 metric tons of refined antimony. This is about half of what the plant could produce were sufficient antimony concentrates available.

Encl 2

Suita Antimony Smelter, Osaka Prefecture

This plant is smelting low grade ore obtained mostly from its own mine. Production for March 1950 was 20.6 metric tons of refined antimony and varies depending on mine production. Bolivian concentrates have also been treated, but the company is having trouble raising money for purchase of concentrates abroad, consequently none from this source are being treated at present.

Process in use is the same as at the Mikuni smelter. This plant is in the experimental stage of recovering antimony from ore and concentrates by the Herrenschmidt process. Several experimental operations were observed in various stages of completion about the plant. It was explained that only one experimental operation should be undertaken at one time and it should be followed through to completion before attempting another. Management was also reminded that, in order to compete with other producers, operating costs must be constantly reduced. This could be accomplished only through constant vigilance by a competent metallurgist.

Encl 3

Takehara Copper Refinery, Hiroshima Prefecture

In general, management is making satisfactory progress with plant improvements recommended by NR personnel. Power consumption, sampling of anodes and cathodes and assaying procedures, and cleaning of busbars are their main concern. Various NR recommendations and methods for solving these problems were discussed in detail, the overall solution of which depends upon the setting up of a competent metallurgical staff and the availability of supporting physical units such as laboratories, pilot plant, and availability of scientific instruments. Management explained that the establishment of a metallurgical staff, as recommended on many occasions by NR personnel, is still under study and that they are proceeding cautiously because of the adverse attitude assumed by certain employees.

Improvement in tank house cleanliness and operational procedure was noted. The basement floor is in good condition. It was suggested that the electrode washing and foul electrolyte purifying section floors be given the same consideration as the tank house basement floor. Also, frequent and thorough inspections of all electrolyte confining elements is necessary to prevent loss of electrolyte.

Construction of the antimony plant has been completed. It appears to be an excellent job, except that no automatic controls were noted.

No effort is made to determine the values contained and to make an inventory of the various stockpiles of intermediates and residues. To allow them to accumulate without processing for recovery of values contained means an economic loss.

Upon roasting the slime, it is removed from the furnace and allowed to accumulate on the floor beside the furnace. This dry and dusty material contains about 30 percent copper, four percent silver and 0.1 percent gold. It was suggested that this high grade material be confined in metal containers of convenient size for handling. This will eliminate present losses due to workmen walking over the material and carrying away values which adhere to their footgear.

The large number of simple fundamental recommendations made by NR personnel during discussions with the plant

Encl 4

management is indicative of the fact that management apparently does not realize the importance of an adequate staff of capable metallurgical personnel.

Chigirishima Lead Smelter, Hiroshima Prefecture

The Chigirishima smelter generally is in poor physical condition. Most of the buildings and the stack are in fair condition. The main flues should be rebuilt, especially their roofs; auxiliary flues have completely deteriorated. The blast furnace and fore-hearth will have to be rebuilt and auxiliary units must be purchased and installed. The Cottrell precipitator must be replaced entirely. The roaster pots will require overhauling and their auxiliary and supporting units rebuilt or reinstalled.

This plant, including the island and one neighbouring island have been purchased by the Toho Zinc Company. This company plans to rebuild the lead smelter and operate it in conjunction with a lead refinery under construction at its Annaka zinc plant in Gumma Prefecture.

Ikuno Tin Smelter, Hyogo Prefecture

Since the Ikuno tin smelter is operating about two months out of the year it is difficult to evaluate metallurgical and operating practices. The slag from the first smelting operation is allowed to run into pans on a continous pan conveyor where it is chilled by a water spray. The conveyor discharges the slag onto a metal platform (Fig. 1) from which two men shovel it by hand into an ore car, the top of which is slightly below the platform level. It was suggested that this platform be replaced by a small bin with a discharge chute so the car operator could fill the car by gravity and thus eliminate the services of the two muckers. The tin content of the mill tailings is as much as 0.7 percent and averages about 0.4 percent. No comprehensive investigation has been made to determine what percentage, if any, of this tin can be recovered profitably. It was suggest that such a study be started at once. Flotation procedures and combined flotation - gravity concentration procedures were discussed.

Fig. 1

Encl 6

Nakase Mine Antimony Smelter, Hyogo Prefecture

No improvement was noted in operations at the Nakase antimony mill and smelter over conditions found by NR metallurgists in February 1949, except that plant operations have been somewhat stabilized according to conventional Japanese practice.

The new process of treating stibnite ore, invented by Dr Tatsuo Matsukawa of Osaka University and developed by the Seiko K.K. (owner of the Nakase mine), is not in use. When the plant was visited in February 1949 by NR metallurgists, the first trial run utilizing the process which had been completed a short time before, had failed. It was recommended at that time that a pilot plant operation was the only way to solve the many problems encountered. No effort has been made to set up such an operation.

NR metallurgists emphasized again that a competent metallurgical staff of qualified technologists was the solution to the many metallurgical and operating problems facing management, and that to start with one man would assist materially.

Several problems were singled out and discussed in detail as follows:

(1) Testing laboratory and pilot plant are completely lacking. Fig 1 shows two small laboratory flotation cells, both of which are useless in this plant, yet management refers to this as the testing laboratory.

(2) Figs 2 and 3 show the assay laboratory. Fig 2 shows the fusion furnace; it is a small pit in the floor utilizing coke and/or charcoal as fuel. In Fig 3 the cupelling furnace is to the extreme right and in the background. It is a desirable furnace for cupelling, except that the muffle door is in the side of the furnace next to the wall. Both units are in the same room. No work benches are available; all bench work directly related to furnace operations is done on the floor and the floor is very dirty resulting in poor working conditions, low working efficiency, and questionable

assay results. Under these conditions about 12 assays per man per day is average whereas 100 assays should be completed in a normal operation.

(3) In Fig 4 four women are shown handsorting lump antimony concentrates previously sorted from the mill heads by 12 women. The claim that the 12 women sorting the mill feed discard about 15 percent of it as waste is questioned. However, it was suggested that a thorough study be made of the cost of these operations as compared with mechanical treatment of the mill heads.

(4) Fig 5, shows a "callow cone" and "jig" in series in the circuit between the ball mill discharge and the classifier intake. These two units produce a spigot discharge or concentrate which is transferred by hand to the box in the foreground. From this box the concentrate is transferred by hand to the stamp mill where gold and silver is recovered by malgamation; this concentrate assays about 250 grams silver and 150 grams gold per ton. It was suggested that a modern two-compartment, pulsating type jig installed at this point would produce two concentrates: A concentrate assaying about 2,000 and 1,000 grams of silver and gold per ton instead of 250 and 150 grams, respectively, as at present; and a sand antimony concentrate, assaying about 50 percent antimony with an estimated recovery of at least 60 percent of the antimony contained in the mill feed as compared with present total claimed recovery of about 64 percent of the antimony.

(5) Fig 6 shows the charge floor of the two Herrenschmidt furnaces. Note the three piles, (A) coke, (B) lump antimony concentrates, and (C) briquettes of antimony flotation concentrates. In the immediate foreground is a stockpile of briquettes (D). It was pointed out that labor could be saved if the stocks of briquettes, lump concentrates, and coke were confined to bins so designed that a buggy could be filled from each bin with the correct weight of each material and then wheeled to the feed door of the furnace and dumped in directly.

(6) The clinker from the Herrenschmidt furnaces contains gold and silver and is shipped to the Naoshima copper smelter for recovery of these values. Fig 7 shows part of this clinker piled under cover and in Fig 8 part of it in the open. In both cases it is on the ground and has to be shoveled on to the truck (Fig 8) by hand. The contour of the country is such that a receiving bin for this clinker could be installed to allow loading into the truck by gravity from the bin. This procedure would also eliminate the present loss of gold and silver values on the ground.

(7) Flotation concentrates after filtering are stockpiled on the ground. (Fig 9). They should be stored in a bin, so installed that the cars can be loaded by gravity. The cars are pulled up an inclined track in the background to the briquetting plant (Fig 10). Here the concentrates are dumped on the floor in the foreground (A), then shoveled by hand to the mixer floor (B) and again by hand into the mixer (C). From the mixer the charge drops onto the mixer floor at (D) and shoveled by hand into the briquetting machine at (E). The briquettes discharge from the briquetting machine onto the floor at (F) where they are again loaded into a car by hand and transferred to the Herrenschmidt furnace charge floor (Fig 6, item D). It was recommended that this phase of handling and processing the concentrates be mechanized and redesigned where necessary to reduce operating costs. A very simple solution was discussed in detail.

Fig. 1

Laboratory Flotation Cells

Fig. 2

Fusion Furnace Assay Laboratory

Fig. 3

Copellation Furnace Assay Laboratory

Fig. 4

Cobbing Hand sorted Antimony Ore

Fig. 5

"Callow Cone" and "Jig"
in Grinding Circuit

Fig. 6

Charge Floor Herrenschmidt Furnaces

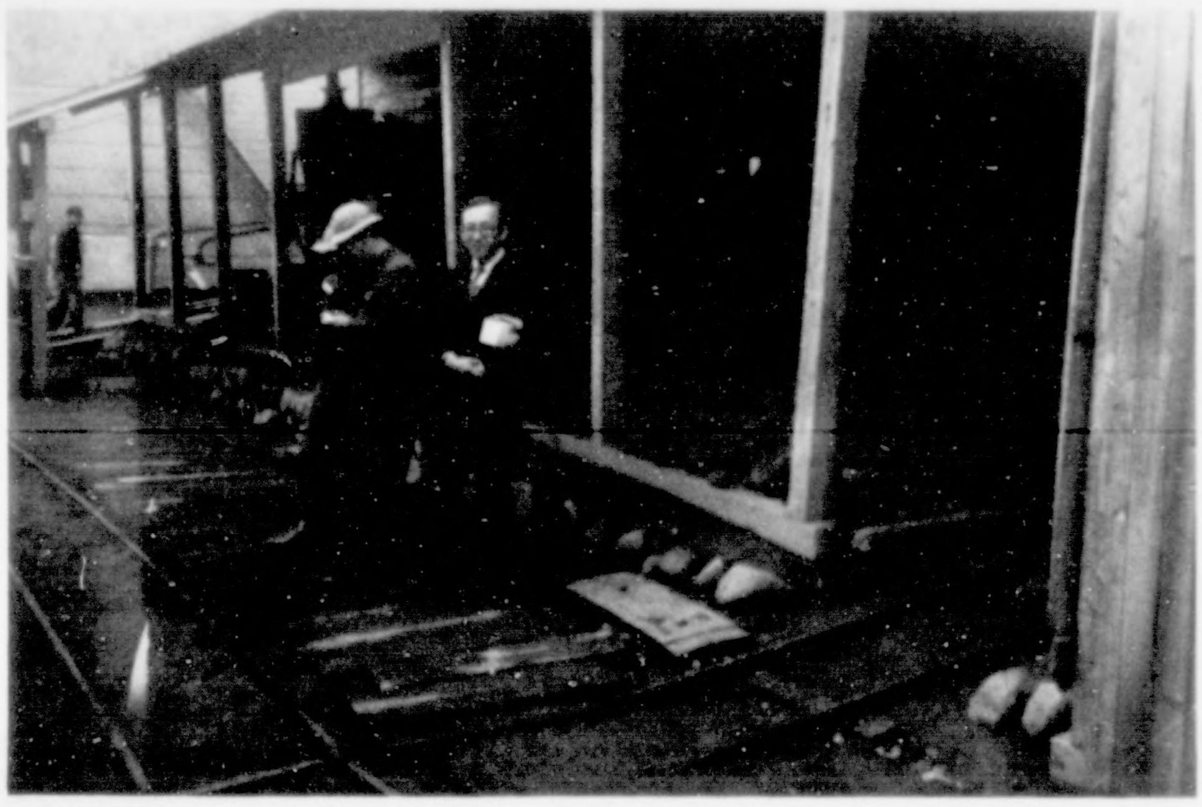

Fig. 7

Clinker Storage
under cover on Ground

Fig. 8

Clinker Storage
in Open on Ground and truck loaded

Fig. 9

Antimony Concentrate Storage on Ground

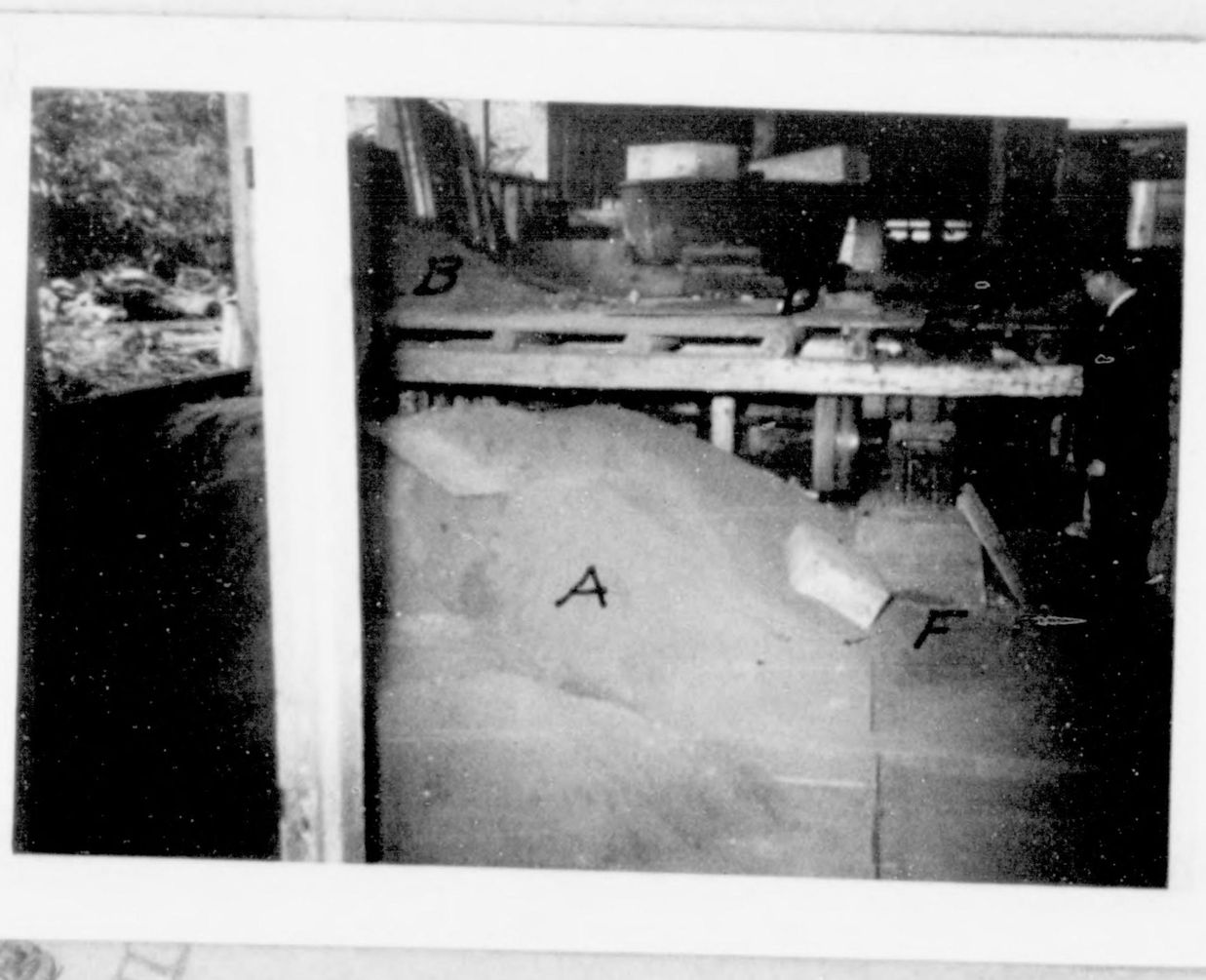

Fig. 10

Briquetting Plant

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

O.D. 15

NR 602 (24 Apr 50)MG

HGS/RYG/AHS/jrm
24 April 1950

MAY - 1. 1950

MEMORANDUM FOR: Record

SUBJECT: Orientation of Natural Resources Mining Personnel of Chugoku Civil Affairs Region

1. Authority: LO 79-37, and LO 79-35, GHQ, FEC, 30 March 1950

2. Mission: To orient Chugoku Region Civil Affairs personnel in production and processing problems at mines and metall[illegible]ical plants, and in mine safety.

3. Personnel:

Messrs Albert H. Solomon and Joseph F. Harrington; NR/MG, who were joined at Kure and Hiroshima by Mr Robert L. Kidd, NR/MG.

4. Summary of Results:

a. At conferences and interviews with Chugoku Civil Affairs Region personnel on 18-19 April at Kure, it developed that a need existed for clarification of [illegible]rocedures by Civil Affairs personnel in the field in order to effectively carry out the provisions of new Operation Directive for Civil Affairs Regions on Mining.

b. This clarification was effected by exchange of views between Col Kowalski, chief, and Messrs Kreisel, economics officer and Barrett, Chugoku Civil Affairs Region, and NR personnel. It was agreed that Civil Affairs personnel are to observe and report the progress on projects in which SCAP technical personnel are working and what, if any, action has been taken to carry out suggestions made to mine and plant management. It was further stressed that NR personnel are offering technical guidance only to the Japanese, and that there was nothing mandatory in such recommendations. Differences of opinion among experts as to specific remedies for mining or metallurgical problems should not be a problem for CA personnel, since determination of the appropriate solution is within the province of the SCAP experts, and Civil Affairs, according to Col Kowalski, should primarily observe and report conditions and progress.

c. Copies of memoranda for record by NR personnel which go to Civil Affairs Regions would be most helpful if neither too simple nor too technical, giving Civil Affairs personnel a sufficient understanding

of the problem and recommendations made, without an undue amount of technical detail.

d. Several operating problems were raised by both Civil Affairs and Japanese mining industry personnel at a conference in Hiroshima on 19 April, and full discussion held. These consisted chiefly of the following:

(1) Col Kowalski called attention to the threat of shut-down and flooding of coal mines in the Ube coal field, Yamaguchi Prefecture, owing to cutting off of electric power from mines which were in arrears in payment to the power company. In this same area, it had been reported to Civil Affairs that the government compensation payments for labor in disability and accident cases was about ¥48 million in arrears. Col Kowalski was assured that this would be transmitted to Civil Affairs Section in Tokyo, and that Solid Fuels Branch personnel in NR/MG would assist if called upon for technical advice. Mr Solomon telephoned Maj Freeman, Civil Affairs Section, on 21 April transmitting this information.

(2) Mr T. Morita, president, Chugoku District Mining Assn, called special attention to the electric power problem for mines, smelters, and refineries in the Chugoku area, where basic allocation of power is below that required, and excess use is penalized by very high rates. He was advised that this problem and that of transportation charges for moving mineral products were national in character and were being studied by SCAP personnel, chiefly in ESS/UF and PD, and CTS, who have primary responsibility in these fields. The destruction of the market for Chugoku district limestone quarries by excessive freight rates was pointed out by the Japanese.

(3) The program of the Mining Assn to aid small and medium-sized mines, particularly with a program of technical guidance, was stressed by both the Japanese and NR personnel. Liaison with the national Mining Assn was urged to coordinate the district program with a national program for industrial management and technical personnel seminars, sponsored by NR personnel, utilizing Japanese who have been to the U.S. on technical or educational missions Additional phases of the program of technical assistance to the smaller mines include financial aid, cooperative purchasing of mining materials, and marketing of output, particularly of manganese mines.

Albert M. Solomon

ALBERT M. SOLOMON
Deputy Chief, Mining and Geology Division

1 Incl
Itinerary and Personnel Interviewed

Copies furnished:
CAS
Chugoku CA Region

Itinerary

Date	Depart	Arrive
April		
17	Tokyo 1940	
18		Kure 1421
19	Kure 0930	Hiroshima 1030
	Hiroshima 2100	Kure 2200
	Kure 2359	
20		Tokyo 1830

Personnel Interviewed

Chugoku CA Region: Col Kowalski, chief, Chugoku CA Region
Mr Kreisel, head, Economics Section
Mr Barrett, Economics Section (mining)

Chugoku District Mining Assn: (principal personnel)

Mr Morita, president
Mr Hamano, managing director

Incl 1

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section
APO 500

7 JAN 1950

NR 631 (7 JAN 1950) MG

SUBJECT: Transmittal of Memorandum for Record

TO: Commanding Officer
Chugoku Civil Affairs Region
APO 248

Forwarded for your information is a copy of Memorandum for Record, file NR 631(31 Dec 49)MG, subject, "Examination of Metallurgical and Operating Practices at Copper, Lead, and Zinc Metallurgical Plants in Yamaguchi, Hiroshima, and Okayama Prefectures", 31 December 1949, prepared by Mr Charles B. Hoskins, Scientific Consultant, Natural Resources Section, General Headquarters, Supreme Commander for the Allied Powers.

FOR THE CHIEF OF SECTION:

JAMES C. WALKER
Major Infantry
Chief, Administration Division

1 Incl
as indic

1798

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

NR 631 (31 Dec 49)MG

HES/RYG/CBH/hk
31 December 1949

MEMORANDUM FOR: Record

SUBJECT: Examination of Metallurgical and Operating Practices at Copper, Lead, and Zinc Metallurgical Plants in Yamaguchi, Hiroshima, and Okayama Prefectures

1. Authorization: CP Order 333-2, GHQ, FEC, 29 November 1949

2. Mission:

a. To ascertain what action has been taken on previous recommendations made by NR personnel. Reference, Memorandum for Record, NR 631 (26 Aug 48)MG, subject: Inspection of Hibi Copper Smelter, Okayama Prefecture, and Takehara Electrolytic Refinery, Hikoshima Prefecture, and Memorandum for Record, NR 631 (11 May 49)MG, subject: Investigation of Metallurgical and Operating Practices at Hikoshima Retort Zinc Plant, Yamaguchi Prefecture.

b. To investigate present operations and metallurgical practices and discuss problems with the respective staffs.

3. Personnel:

Messers, Charles B. Hoskins, metallurgist, and Tamio Kasahara, technical consultant and interpreter, NR/MG

4. Summary:

a. Hikoshima Zinc Smelter

Mechanical difficulties account for most operating problems. Retort life is short in comparison to American practice. Management pledged itself to increase operating efficiency.

b. Takehara Refinery

Operations are limited by supply of blister copper from Hibi copper smelter and amount of scrap lead for processing. Metallurgical staff is aggressive and has support of management in planning.

c. Hibi copper smelter is operating at about 15 percent of designed capacity. Power costs are increasing rapidly, and although uneconomically operated, it continues to do so owing to the possible adverse affect on the Takehara refinery and the community if a shutdown occurs. Management indicates it will not cease operations and is seeking additional sources of copper concentrates outside Japan, to utilize capacity to a greater extent.

5. Recommendations were made as follows:

a. Hikoshima Smelter

(1) Ceramic research should be instigated to determine the best mixture from clays available for retort use.

(2) A standard "high silica" retort mix similar to American practice should be tried.

(3) De-aeration of clay mixture should be tried prior to retort molding.

(4) Accelerated drying of molded retorts under controlled conditions should be tried.

(5) The metallurgical staff was urged to recover the values contained in the accumulated retort residues.

b. Takehara Refinery

(1) A program of by-product utilization should be instigated and vigorously continued to realize metal values contained in scrap and stockpiles.

(2) Lead refinery anodes should be drossed when cast.

(3) Guards for moving machinery, ventilating hoods, and better illumination should be provided in working places.

(4) Bus bars and contacts should be steam-cleaned for better contact to increase current efficiency.

c. Hibi Copper Smelter

(1) Research work should be done to reclaim values in zinc plant residues.

(2) Pyrite cinder containing copper should be processed for the recovery of copper to upgrade its value as iron

blast furnace feed.

(3) The recovery of selenium from "mist" Cottrell mud should be investigated. The "mud" is dumped into the sea at present.

(4) Scrap brass and bronze should be processed in a seperate operation for recovery of values.

(5) Stack Cottrell dust and flue dusts should be processed for contained values in a separate operation and not recycled.

6. Details:

a. Detailed discussions held with plant staffs are attached as inclosures 2-4.

C. B. Hoskins

CHARLES B. HOSKINS
Scientific Consultant
Mining and Geology Division

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

Copies furnished:
ESS/IND
CA Section, GHQ
Chugoku CA Region

Itinerary

Action	Destination	Hour	December
Leave	Tokyo	1940	1
Arrive	Kure	1421	2
Leave	Kure	0851	3
Arrive	Shimonoseki	0904	3
Leave	Shimonoseki	0607	5
Arrive	Kure	1130	5
Leave	Kure (Nipponese trains)	1602	5
Arrive	Takehara "	1750	5
Leave	Takehara "	0693	8
Arrive	Itozaki "	0720	8
Leave	Itozaki "	0743	8
Arrive	Okayama "	0959	8
Leave	Okayama "	1049	8
Arrive	Uno (Tamano) "	1148	8
Leave	Uno "	1339	11
Arrive	Okayama "	1435	11
Leave	Okayama GI train	1532	11
Arrive	Tokyo	0640	12

Personnel Interviewed

1. The following CA officers were contacted:

a. Chugoku Regional Headquarters

Col Kowalski, Commanding Officer
Lt Col Truden, Executive Officer
Mr H. F. Kiesel, Economic Officer, NR
Mr C. F. Barratt, Economic Officer, NR
Capt R. H. Millynn, (Australian Commonwealth), Economic Officer, NR
Capt R. H. Millynn, and his interpreter, Mr Harry Yamaguchi joined the party at Kure and accompanied NR personnel in the examination of Takehara electrolytic refinery, and Hibi smelter.

2. The following Japanese were interviewed:

a. Hikoshima Retort Zinc Plant

B. Muto, plant manager
J. Ushio, chief engineer
M. Kidera, chief, General Affairs
I. Nishi, chief, Personnel
M. Haraguchi, chief, Accounting
T. Kuroda, asst chief, Accounting
M. Nakajima, chief, Machine Shop
K. Usami, chief metallurgist
T. Iwaguma, engr in charge of roasters
T. Takai, asst chief, General Affairs
T. Masuko, engr in charge, Retort Plant

b. Takehara Electrolytic Refinery

R. Kurimura, plant manager
F. Harimoto, chief, General Affairs
T. Nagai, chief, Business
J. Omura, deputy chief, General Affairs
K. Shimazaki, chief metallurgist
S. Kishimoto, engr in charge of tank house
Y. Goi, engr in charge of special metals
S. Yamane, engr in charge of machinery

c. Hibi Smelter

I. Harada, plant manager
T. Nishimura, chief engineer
R. Mikane, chief, Business
T. Kobayashi, chief, Smelting
S. Saijo, chief, General Affairs
N. Yamashita, chief, Machine Shop
T. Iga, staff

Hikoshima Retort Zinc Plant

Hikoshima retort zinc plant has three retort banks, for zinc distillation, in operation and a fourth scheduled to start in February 1950. To supply additional calcine a fifth Spirlet roaster is being repaired and when in operation an additional 140 tons of sulfuric acid will be possible from roaster gases. Adoption of NR personnel's recommendation for recirculation of gas from Dwight-Lloyd sintering machine has increased sulfuric acid manufacture resulting in a decrease of sulfur dioxide gas lost in stack gases; final stack gas still contains 0.2 percent sulfur dioxide. Unloading facilities are not up to American standards. Zinc concentrates are stockpiled under an open shed following recommendations made by NR personnel previously. Pyrite concentrates and retort residues are still piled in the open. Hand tramming moves the materials. General maintenance is excessive, resulting in high operating costs. Obsolete Spirlet roasters first roast zinc concentrates to eight percent sulfur. This calcine is next sintered on a circular Dwight-Lloyd sintering machine. Rich sulfur dioxide gases from the sintering machine and all roasters join for sulfuric acid manufacture.

Difficulty is experienced in making satisfactory clay retorts for zinc distillation, and retort life is short compared to American Practice. Considerable time was spent discussing ways of improvising retort practice and lengthening retort life. The more important were:

a. Ceramic research to be undertaken to develop a mix suitable for retort use from available clays. This research should be coordinated with the Miike retort plant for the mutual benefit of both.

b. The standard high silica retort as used in the United States should be tried, on experimental basis, for comparison with present plant practice.

c. De-aeration of the clay mix prior to molding of the retort was strongly urged. A spare horizontal pug mill will be remodeled to include a vacuum chamber. Test batches for retort use will be made for comparison with present standard practice.

d. By using thermostatically controlled circulated heated air, drying of molded retorts can be accelerated. Present practice is to dry for four months, which is expensive. Controlled drying will cut the time to four days. With small construction costs and the use of available equipment this quick-drying can be installed and used in conjunction with plant operation and ceramic research.

Hikoshima has considerable stockpiles of retort residue, pyrite cinder, and intermediates. It was emphasized that these should be processed as formed to recover values contained, or, in the case of pyrite cinder, to increase its value as a source of iron.

Hibi Smelter

Hibi smelter is operating the copper section at about 15 percent of designed capacity; mounting power costs under the new power price structure further complicate the operations picture. Were it not for the adverse affect on the Takehara refinery and the community, in which the refinery is located the copper smelting section might well close down. The electrolytic zinc section has been idle since 1945. Costs are high and efficieney low, operating at less than break-even capacity, but the company is seeking additional sources of copper concentrates despite low selling price and slack demand for copper.

Brass and copper scrap still constitute a portion of the blast furnace and converter charges. Metallurgical research should be directed to a process to treat this brass scrap to recover both zinc and copper. Under present practice the zinc is lost.

Further metallurgical research should be directed to the following:

a. Reclaiming values in zinc plant residues.

b. Selenium recovery from "mist" Cottrell operation. Present practice is to dump the "mud" in the sea.

#7 c. Treating pyrite cinder and low-grade copper ore for the contained values so that up-graded cinder could be used as iron blast furnace feed.

d. Recovering of the values in stack Cottrell dust and main flue dust as a separate by-product operation, and not returning same to the Greenwalt sintering machine as now practiced. Management admits it is poor practice to recycle these dusts but doesn't know what to do with them.

An experimental pilot plant built along lines recommended by Natural Resources Section personnel to remove sulfur dioxide gas from stack gases will be ready for operation in 1950.

In general, the metallurgical staffs, as organized, are trying to solve their many problems, but there is much to be desired as compared with American practice.

Sheet 3

Takehara Refinery

Takehara refinery has much more capacity than is being utilized. Until the supply of blister copper and anode lead for processing increases, costs at Takehara will be high and efficiency low. Increase in power costs under new power rates effective 11 December 1949 will further increase costs.

Takehara refinery depends upon Hibi copper smelter for blister copper and scrap lead for processing. Present methods for reworking scrap lead prior to casting into anodes are not as efficient as American practice. The refinery is operating like a secondary scrap metal plant, and not as a refinery with an assured supply of incoming raw material.

The metallurgical staff is anxious to develop new products and to make further utilization of present intermediates. A new antimony plant for processing antimony slimes will be in operation in February 1950. An electrolytic white lead plant (Luckner process) is operating at maximum capacity; red lead and litharge plants are approaching capacity. Metallurgical staff and management are aggressive and have carried out, or are completing, several previous recommendations by NR personnel.

M-10-G

BASIC: Ltr, Hq Eighth Army, AGMGEN 333.5, dtd 19 Oct 49, subj: "Transmittal of Memorandum for Record".

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

Hq I Corps, APO 301, OCT 25 1949

TO: Chief, Kinki Civil Affairs Region, APO 25
Chief, Chugoku Civil Affairs Region, APO 248
Chief, Shikoku Civil Affairs Region, APO 1050

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File Index No. 6

0682

BASIC: Ltr, HQ Eighth Army, AGMGEN 333.5, dtd 19 Oct 49, subj: "Transmittal of Memorandum for Record".

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

HQ I Corps, APO 301, OCT 25 1949

TO: Chief, Kinki Civil Affairs Region, APO 25
Chief, Chugoku Civil Affairs Region, APO 248
Chief, Shikoku Civil Affairs Region, APO 1050

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Shikoku CA Region (1 copy)

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

AGMGEN 333.5

Oct 19 1949

SUBJECT: Transmittal of Memorandum for Record

TO: Commanding General
I Corps
APO 301

1. Transmitted herewith are 3 copies of a report of a field trip made by Melvin Pollard, Geologist, Natural Resources Section, General Headquarters, Supreme Commander for the Allied Powers.

2. Request that copiesof subject Memorandum for Record be forwarded to Yamaguchi Civil Affairs Team, APO 248, Nara Civil Affairs Team, APO 24-5, and Shikoku Regional Civil Affairs Team, APO 1050.

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

BY COMMAND OF LIEUTENANT GENERAL WALKER:

/s/t/ J. A. O'BRIEN
CWO USA
Asst Adj Gen

1 Incl:
Report of Visit to
I Corps (3 copies)

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

HGS/AHS/JFH/MP/lb
12 October 1949

NR 660 (12 Oct 49)MG

MEMORANDUM FOR: Record

SUBJECT: Investigation of Mining and Hydrological Activities in Southern Japan

1. Authority: CP Order 196-6, GHQ, FEC, 15 July 1949

2. Mission:

a. To investigate results of hydrologic survey by Japanese NR consultant in Nara Prefecture;

b. To make special mineral investigation in Yamaguchi Prefecture.

c. To investigate geologic program of Besshi mine, Shikoku

3. Personnel: Mr Pollard, geologist, NR/MG, and Mr Nishihara, Japanese technical consultant.

4. Summary of Results:

a. Hydrological Investigation of Yamato plain, Nara Prefecture

(1) The work of Mr Murakami, Japanese technical consultant to NR, on hydrology of Yamato plain was checked. Mr Murakami's map appeared to be based largely on the work of Kyoto University professors, but on the basis of what he stated to be his own electrical prospecting, he postulated several faults for which there was obviously no evidence from the areal geologic map. It was decided that it would be necessary to have a competent geophysicist, expert in hydrologic work, at least, spot-check Mr Murakami's work and possibly again perform the survey in its entirety. Mr Kondo, Japanese technical consultant, with a wide reputation for success in electrical prospecting, and long experience in hydrological work, was chosen to spot check the survey, and Mr Ridge, economics officer, Nara CA Team, so advised. Through the latter, the Nara Prefectural Government was advised that Mr Murakami's investigation was purely preliminary, and that no definite conclusions could be drawn until Mr Kondo completed his check.

YAMAGUCHI CA TEAM

b. Geological Program of Besshi mine, Shikoku:

(1) There appears to be no intelligent geological program at the Besshi mine, although the mine has been in operation for over 250 years. Detailed geologic maps of the underground levels are not available, and in the caved areas this information is irrevocably lost.

5. Detailed Discussion

a. Present prospecting is being conducted chiefly below the 16th level at an approximate depth of 5,000 feet. Grounds for the company's optimism are based on six bore holes which in five cases struck ore with fairly good values. However, there appears to be little doubt that the ore is tapering out in length of strike and it would appear that the Japanese Government's money should better be spent prospecting in other areas of the mine district. These include extensions of the old levels which were terminated at a point where the ore became uneconomical in some cases 50 or 100 years ago; under present conditions, many of these values are much higher than present ore requirements. Possible secondary enriched zones at several prospects near the Besshi mine should be intensively investigated.

b. The proved and probable ore reserves appear to be grossly exaggerated, probably for the purpose of making a good impression in applications to the Government for loans.

c. A preliminary study will be prepared on the hydrologic survey of the Yamato plain including the data obtained on this and other field examinations.

d. The mineral investigation in Yamaguchi Prefecture will be described in a separate classified memorandum for record.

1 Incl
Itinerary and Personnel Interviewed

Melvin Pollard
MELVIN POLLARD
Geologist
Mining and Geology Division

Copies furnished:
Nara CA Team
Yamaguchi CA Team
Shikoku Regional CA Team
CA Section, Eighth Army

Itinerary

Day, July 1949	Time	Left	Arrived
7	1940	Tokyo	
8	0645		Osaka
8	0700	Osaka	
8	1047		Okayama
8	1248	Okayama	
8	1348		Uno
8	1405	Uno	
8	1510		Takamatsu
8	1613	Takamatsu	
8	1941		Niihama (Besshi Mine)
15	0715	Niihama	
15	1059		Takamatsu
15	1135	Takamatsu	
15	2040		Kyoto
17	0600	Kyoto	
17	1700		Tokyo

Personnel Interviewed

Occupation Personnel

Mr Thurman Ridge, economics officer, Nara CA Team
Sgt Broadstreet, asst to economics officer, Yamaguchi CA Team
Adjutant (by telephone, name unknown), Shikoku Regional CA Team

Japanese Personnel

Mr I. Bada, general manager, Besshi mine
Mr T. Amamori, chief geologist, Besshi mine

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

AGMGEN 333.5

SUBJECT: Transmittal of Memorandum for Record JUN 9 1949

TO: Commanding General
I Corps
APO 301

1. Transmitted herewith are 2 copies of a report of a field trip made by Mr. Robert D. MacAfee, Scientific Consultant, Natural Resources Section, General Headquarters, Supreme Commander for the Allied Powers.

2. This material will be forwarded to the Yamaguchi and Kyushu Military Government Teams.

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

BY COMMAND OF LIEUTENANT GENERAL WALKER:

1 Incl:
Report of Visit to
Yamaguchi and Kyushu
(2 copies)

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

AG 333.5 - BA 1st Ind CET/wd/yn

Hq I Corps, APO 301, JUN 16 1949

TO: CO, Chugoku Mil Govt Region, APO 248
CO, Kyushu Mil Govt Region, APO 24-5

C. R.

1 Incl:
Copies to:
Chugoku 1
Kyushu 1

EN 505

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

AGMGEN 333.5 SEP 9 1949

SUBJECT: Transmittal of Memorandum for Record

7415

TO: Commanding General
I Corps
APO 301

CA

1. Transmitted herewith are 2 copies of a report of a field trip made by Mr. R. D. MacAfee, 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 (2 copies)

18987

GENERAL HEADQUARTERS
SUPREME COMMANDER FOR THE ALLIED POWERS
Natural Resources Section

NGS/RYG/NEM/ib
29 August 1949

NR 641 (29 Aug 49)NG

MEMORANDUM FOR: Record

SUBJECT: Inspection of Coal Mines and Drilling Operations in Saga and Yamaguchi Prefectures

1. Authorization: CP Order 159-10, 8 June 1949

2. Mission: To examine coal mines and drilling programs in Saga Prefecture; to examine coal mines and instruct in the use of American-type rock loading machines at Ube coal field, Yamaguchi Prefecture.

3. Personnel: Mr R. D. MacAfee, coal mining engineer, Mining and Geology Division, and Mr K. Sawa, Japanese technical consultant

4. Summary of Results:

a. Nine bituminous coal mines were inspected, namely, Ogi, Befu, Karatsu coal field, Saga Prefecture Kyushu, and Misomeshin, Fujiyama, Ebisu, Nakahara, Mede, Okinoyama, and Nishi-Okinoyama, located near Ube City, Yamaguchi Prefecture, Honshu.

b. Active development and improvements are being carried on in all these mines. Special emphasis is being placed on the improvement of the quality of the coal by selective mining of the seams and improvement of preparation procedure.

c. The Ogi and Befu are adjoining mines in Kyushu, owned by the same company. The coal from both mines is prepared in a central washing plant located at the Ogi mine. An extensive drilling program is underway in order to extend the known limits of coal. A good grade of industrial coal is being produced profitably at these mines.

d. The Okinoyama mine, flooded by a sea break through in 1948, has been pumped out. Monthly production is 35,000 metric tons. Use of mechanical loading machines to clean out mud and debris left in the main electric haulage tunnel from flooding will greatly facilitate rehabilitation of this mine.

YAMAGUCHI CA TEAM

Incl 1

e. The Nishi-Okinoyama mine covers 10 square kilometers of reclaimed sea area. About one-half of the area is now drained, allowing drilling to be carried on and preparations started for a central pit. Production from the upper part of the main Etsuden seam should be started by September 1949.

f. The Misomeshin, Fujiyama, Ebisu, Nakahara, and Mede mines owned and operated by the Ito Engineering Co, are small coal mines with thin seams and small individual tonnages. As a result of improved mining methods and reduction of personnel working on the surface, these mines are able to operate at a small profit. Plans call for an active development program during 1949 in order to increase production. The grade of coal produced is being improved by careful cleaning. These mines produced over 172,000 metric tons of coal in 1948.

5. Recommendations:

a. Japanese-manufactured mucking machines of Finlay-Eimco type should be installed in the Ogi and Befu mines to facilitate the development of underground rock tunnels now being undertaken by hand methods. The Ogi mine is one of the Kyushu mines in which Mr Barry, ESS coal mine consultant recommended American mucking machines be installed.

b. A section of the reclaimed area in the Nishi-Okinoyama mine offers a possible open-cut operation. Recommendations were made for trenching and prospect shafting without delay to prove limits for this type of mining.

c. Instructions were given at the Okinoyama mine on use of Japanese type Myers-Whaley loading machines. Use of movable sections of prefabricated track as the machine advances at the face were also discussed.

d. Recommendation was made to the Ito mines to discontinue mining the low-grade Oba seam and concentrate on the deeper Itsuden seam to produce coal of 4,000 calories and over, which is needed in Ube industries. More careful cleaning of the coals will also improve grades of coal from these mines. Also recommended was that wire ropes used for hoisting should be greased to preserve them.

e. The commanding officer of the Yamaguchi Civil Affairs Team and the economics officer of the Saga Civil Affairs Team were advised of problems of these mines and the recommendations made.

NR 641 (29 Aug 49)MG

f. Detailed discussion of mines inspected are given in inclosures 2-9.

9 Incls
1. Itinerary and Personnel Interviewed
2-9 As indic par f

ROBERT D. MACAFEE
Scientific Consultant
Mining and Geology Division

Copy furnished:
CA Section, Eighth Army
Saga CA Team
Yamaguchi CA Team
ESS/UF, Attn Mr Carroll

Itinerary:

13 Jun - 0945 left Tokyo
14 Jun - 1230 arrived Hakata, arrived Saga city at 1630
17 Jun - 0830 departed Saga city, 0330 departed Hakata, 1830 arrived Ogori, 2200 arrived Ube city
21 Jun - 1630 arrived Yamaguchi city, arrived Ogori at 1930
22 Jun - 1930 arrived Tokyo

Personnel Interviewed:

a. Civil Affairs Personnel

Lt Col Sargent, Executive officer, Kyushu Regional
Lt Col Oliver, head, Kyushu Regional Coal Team
Capt Stutts, labor officer, Kyushu Regional Govt
Lt Col Roth, CO, Saga Civil Affairs Team
Maj Walsh, economics officer, Saga Civil Affairs Team
Lt Armstrong, Natural Resources officer, Saga Civil Affairs Team
Lt Col McNamara, CO, Yamaguchi Civil Affairs Team
Mr A. B. Stanley, member coal team, Yamaguchi Civil Affairs Team

b. Japanese Personnel

Mr K. Yamaguchi, Owner and general manager Ogi and Befu coal mines
S. Yamasaki, director, Ogi coal mine
F. Tanaka, manager, Ogi coal mine
S. Kimura director, Befu coal mine
I. Sho, director, Ito coal mines, and manager Misoneshin coal mine
K. Shimizu chief, Eng Section, Coal Assn, West Honshu
S. Kawakami, engineer, Coal Bureau, West Honshu
H. Towarada Asst mgr, Ube Industrial Co
S. Kasahara, Managing director, Okinoyama coal mine
Z. Hamano, chief, Okinoyama coal mine
S. Iwazawa, chief engineer, Okinoyama coal mine
Y. Ito, chief director, Ito coal mines
Y. Hagita, mgr, Fujiyama coal mine
S. Nozu, director, Nakahara coal mine
T. Morimoto, head, Engineering Section, Nakahara coal mine

Incl 1 to Encl 1

Ogi Coal Mine

1. The Ogi coal mine, owned by the Yamaguchi Mining Co, is located at Higashitaki-mura, Ogi-gun, Saga Prefecture, Kyushu. It lies about 10 kilometers west of Saga City. The mine lots cover 7,093,673 tsubo and adjoining prospecting lots cover an area of 30,981,900 tsubo east of Saga City and south of the Ariake Sea. The proved coal area, where the mine proper is located, covers 1,244,780 tsubo.

2. An extensive drilling program undertaken by the company has resulted in proving the extension of the Karatsu coal field a considerable distance to the east. Additional drilling on the prospecting lots is expected to show extensions to the south in an area heretofore not mined.

3. There are five workable seams; however, mining is being carried on in only the No 1 and 2 lower seams. The five seams listed below cover the present mine area; probable coal covers eight mining lots. The general dip of the seams is 15° and strikes north-south. Hanging and foot walls are firm sandstone. The coal ranks as high grade bituminous that is weakly coking. Proximate analysis of the No 2 lower seam is as follows:

Moisture (percent)	Ash (percent)	Volatile Matter (percent)	Fixed Carbon (percent)	Sulfur (percent)	Calorific Value
3.31	14.37	40.93	41.39	1.23	6,756

The following shows the proved and probable coal reserves and seam thickness of mine lots:

Coal Seams	Coal Area (tsubo)	Seam Thickness (feet)	Reserves per Tsubo (metric tons)	Coal Reserves (metric tons)	Recoverable Coal (metric tons)	Ratio of Recovery (percent)
Upper	1,092,980	2.50	3.12	3,410,035	1,705,017	50
Main	978,010	5.90	7.38	7,217,714	5,774,171	80
No 1 Lower	1,099,980	3.00	3.75	4,124,925	2,062,462	50
No 2 Lower	1,009,980	5.20	6.50	7,035,696	5,628,557	80
No 3 Lower	1,099,980	2.20	2.75	3,024,945	2,117,461	70
Total				24,813,315	17,287,668	
Probable coal	7,093,673			162,376,523	291,230,000	50

4. Mining is by advancing longwall faces with coal being blasted from solid in sections and also by use of coal picks. It is hand-loaded from the face on to chain conveyors which discharge into 0.7 ton cars at haulage entries. Most of the entries are driven in rock below the seams. Cars are conveyed by endless rope haulage to the main slope where they are hoisted to surface.

Incl 2 to Incl 1