HEADQUARTERS
U. S. STRATEGIC BOMBING SURVEY
(PACIFIC)
C/O POSTMASTER, SAN FRANCISCO

INTERROGATION NO. 281

PLACE: Yawata, Kyushu
DATE: 2 November 1945

Division of Origin: Basic Materials

Subject: Japan Iron Works, Nippon Sietetsu K.K., Yawata Plant Operations.

Personnel interrogated:

KOSUDA, Katsuzo	Director and General Manager in Charge of Operations.
TANI, Muneo	Chief Engineer and Director.
TACHIBANA, Kanichiro	Chief of Administration Department.
KAHARU, Mikiji	Chief of Blast Furnace Department.
KOHIRA, Isamu	Chief of Special Steel Department.
SUNAGA, Mijoji	Chief of No. 1 Rolling Mill Department.
ARAKI, Yukio	Chief of Purchasing and Selling Department.
KUME, Masao	Chief of Labor Section.
KITAMURA, Tokio	Chief of Operations Section.
MATSUKURA, Yoshijiro	Chief of No. 2 Blast Furnace Section.
OHOKA, Yutaka	General Affairs Office Manager.
SHIMAMURA, Tetsuo	Metallurgical Engineer, General Office in Tokyo.

Where interviewed: Yawata Plant Offices, Japan Iron Works.

Interrogator: Major W. P. ARMSTRONG, Jr., AUS

Interpreter: Mr. R. P. ALEXANDER

Allied Officers Present: Lt. S. H. ROBOCK
Lt.(jg) R. I. GALLAND
Lt. R. H. DORR
Mr. H. F. VOIGT
T/5 W. (n) WEINFELD

SUMMARY

The Yawata officials were questioned on the subject of raw material sources and supplies. They indicated the increasing difficulties faced in operations by mounting shortages of iron ore, coal, scrap and other materials, but alledged that all policy decisions on such matters were not under their control, as the Company's directors in Tokyo exercised complete jurisdiction. The quality of steel products was admitted to have been seriously affected by the use of inferior raw materials in the face of progressively more rigid consumer specifications. It was stated that the 1944 China based air raids inflicted only minor damage to the plant and that the loss of production was easily made up since operating schedules had already been curtailed in order to extend the available raw materials.

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Q. The statistics submitted to us by your Tokyo office show that stockpiles of iron ore at Yawata were reduced during the period 1937 to 1941. With conditions as they were during that period and particularly in 1941, why were stockpiles permitted to decrease?

A. The reduction in iron ore stocks was a departure from the policy of the company, which was to maintain a stockpile adequate for 18 months operation without imports. The stockpile was built upon imports from Korea (a high-silicon iron ore), China and the South Seas (Philippines and Malaya). The 18 months policy as to stockpiles was not followed after 1939 or 1940 because stockpiles declined as blast furnace capacity increased. The reasons for this change in policy prior to the war are not known to the Yawata managers. It is suggested that the Tokyo directors may have the answer.

Q. At the outbreak of war were most of the stocks of iron ore in Japan held by Nippon Seitetsu at Yawata?

A. Nippon Seitetsu at Yawata had 80 to 90% of all ore stocks in Japan.

Q. How much ore is now on hand in the 2 ore yards at the Yawata Works?

A. 55,327 tons as of October 26, 1945; ore for open hearths is included.

Q. Was iron ore ever a bottleneck during the war?

A. Yes. Because of declines in imports from overseas, by the end of 1944 the blast furnaces at Yawata were being very lightly charged because of ore shortages.

Q. During the war did you import ore from all of the mines in Philippines listed on your FE content table?

A. No, only prior to the war. After the war started only small amounts were brought in (in Army ships) and we believe that all of this came from Calambayangan (Luzon).

Q. Who determined the amounts of ore to be imported for your works?

A. The Tokyo directors, we believe.

Q. Did Nippon Seitetsu own its ore ships?

A. Yes. They were owned and operated until the end of war, with the exception of a small number turned over to the shipping administration.

Q. When were they turned over?

A. I don't know, but they can tell you in Tokyo.

Q. Why was not more high-grade ore imported from the Philippines?

A. The only ships available were those carrying military supplies and they were not left there long enough to reload with ore. Loading facilities are very inadequate in the Philippines.

Q. What steps did you, as the Yawata plant manager, take when you saw stocks of ore dwindling?

A. We made estimates of our needs and sent them to the Tokyo office for disposition.

Q. Did the plant manager at Yawata call attention to the dwindling supplies?

A. Continuously, before and during the war.

Q. Scrap stockpiles seemed low in comparison to consumption even before the war. What did the plant managers do about that?

A. We had no established policy before the war, except to import as much as possible. Also we increased our pig iron producing capacity.

Q. Please provide us with a table showing scrap-pig iron ratios from 1936 to date in your steel making operations. Did the availability of scrap curtail production at the Yawata plant?

A. Yes. In addition the quality of our pig iron declined, that is, it had an increased proportion of silicon. This reduced our refining efficiency and increased the damage to fire brick in the open hearth.

Q. What was the percentage of decline in efficiency in steel production in open hearths attributable to shortages of scrap and declines in the quality of pig?

A. They combined to require an increase in the open hearth furnace cycle (from tap to tap) from 8 to 13-15 hours, reaching the latter figure in June 1945 (percent increases of 62 to 87%).

Q. Comparing the decline in production figures for end products in the period 1941- 1943 with return scrap figures for the same period shows no comparable decline in the latter but rather an increase. How do you account for that?

A. In the earlier years we made regular commercial sizes and shapes. Later, stiffer specifications required more cropping.

Q. Although your ingot production decreased in these years, your output of rolled steel remained constant, and your return scrap increased. Why was that?

A. The rolled products were not all made from ingots from the Yawata plant.

Q. Did this plant benefit materially from the national scrap collection drive?

A. The collection was successful, but Yawata was not favored in the distribution.

Q. Was this because the collection was not particulary great in this area?

A. Yes. For example, the Hirohata plant benefited, being near the municipal collection centers.

Q. After the air raids started, did scrap deliveries at Yawata increase as a result?

A. There certainly was more scrap after the air raids, but Yawata did not get it because the scrap was not in this area and there was not enough manpower or transportation then to collect scrap or deliver it.

Q. Was production ever interrupted because of shortages of manganese ore?

A. No special difficulty as far as blast furnaces were concerned. As manganese charges were reduced, however, the sulphur content of the iron went up. The manganese that was available we used in the open hearth with a longer heat time to reduce the sulphur. Late in 1943 we felt a shortage of manganese for open hearths. We experimented with the use of soda ash as a de-sulphurizer. Tests were successful, but supplies of soda ash were low because of the low imports of salt, and we did nothing along that line..

Q. How did you reconcile higher sulphur content with the more rigid steel specifications you mentioned earlier?

A. Our consumers granted increased sulphur tolerances.

Q. Where did you obtain your manganese supplies?

A. In time of peace from Java, Philippines, India; in the war, from the Philippines, China, Japan.

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Note: Annex A, to the BM company questionnaire, was submitted at this point.

Q. Were operations affected at any time before 1945 because of a coal shortage?

A. Previous to the end of 1944, it was necessary to decrease the proportion of high caking coal from 40 to 29% in the coke charge, but even then we could have smelted more iron ore if we had been able to get it. By April 1945, coal supplies were acute.

Q. Aside from considerations of economy, could Yawata have produced more pig by using all available shipping for transporting high grade iron ore and using only home island coal, despite the resulting high ash content in coke?

A. No. There was not sufficient coking coal locally available to enable us to stop imports of coal. And mining equipment was not available to increase local production.

Q. From what mines in North China did you receive coking coal?

A. Chunghsing, Chinghsing, Kailan, Poshan and a few others.

Q. Were the other coking coals imported from China as good as those from Kailan?

A. Just about, but Kailan was the most convenient.

Q. Why didn't you start importing coal earlier from Karafuto?

A. The quality was not as good, and loading conditions were poor.

Q. Did the capacity of the Yawata Works always permit the full utilization of raw materials?

A. Yes.

Q. Was the drop in production in August, 1944 due to the air raids at that time?

A. Yes. In August, air raids, in September, typhoons.

Q. We have been told that shipbuilding virtually stopped in December, 1944. Why did you continue to roll ship plate?

A. Because we were ordered to keep producing ship-type plate by the Tosei Kai and Tokyo office.

Q. As a result of our various discussions with the officials of the plant, the additional information which we are asking you to supply is as follows:

1. Tables #4 and #5 for iron ore.
2. Blueprint with detailed bomb plot.
3. Pig-scrap ratio as a range in OH and Electric Furnace, for the years 1936-1945, by quarter.
4. Imported coking coal to total coking coal charge as a ratio for the same periods.
5. Photographs of bomb damage.
6. Coal tables to be redone into 2 tables (similiar to #4 and #5 as broken down).
7. Average manhours consumed.
8. Employment table to be revised.
9. Ferro-alloy Annex A.
10. Table #7, production losses.
11. Consumption table to be completed.

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12. The following questions concerning ingots and rolling:

I. Sizes and types of ingots, ordinary OH and alloy steel.

a. For plate rolling.
b. For rails.
c. For sections.
d. For shell rounds, squares, etc.
e. For slabs and blooms.

II. Yields in percentages:

a. Ingot to slab to strip or plate (thin).
b. Ingot to bloom to rail.
c. Ingot to bloom to bar, shell rounds.
d. Ingot to bloom to section.
e. Ingot to bloom to plate (thick).

III. Brief history of mill water supply:

From pump house to machines, cap./24 hours.

IV. Soaking pit capacity.

V. Average manhours consumed per unit of steel rolled.

VI. What bottlenecks were encountered from 1939 to 1945 with regard to soaking pits and rolling mill machinery or their respective parts.