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DIRECTORATE OF
INTELLIGENCE

Industrial Facilities
(Non-Military)

Basic Imagery Interpretation Report

Iron and Steel Plants

North Korea

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RCS 13/0021/71

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DATE APRIL 1971

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CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
Imagery Analysis Service

ABSTRACT

This report updates the Basic Imagery Interpretation Report on two iron and steel plants and two steel plants in North Korea. An initial report on a sponge iron plant is also included. These five plants comprise all of North Korea's known iron and steel production capability. This report covers the period from mid-1969 to late 1970.

Construction activity was observed at all of the previously reported plants. The major additions include a basic oxygen furnace section at the Chongjin Iron and Steel Plant Kimchaek and an air separation plant at the Songnim Iron and Steel Plant Hwanghae. A high level of activity was observed at all of the previously reported plants during the reporting period. Construction of the new Kiyang Sponge Iron Plant was started between November 1968 and October 1969. The plant was complete and operating when last observed in September 1970.

The four updates describe construction and level of activity and include more recent photography of the Chongjin and Kimchaek plants. The report on the new sponge iron plant includes an annotated photograph, mensuration of significant features, and a discussion of plant status and activity.

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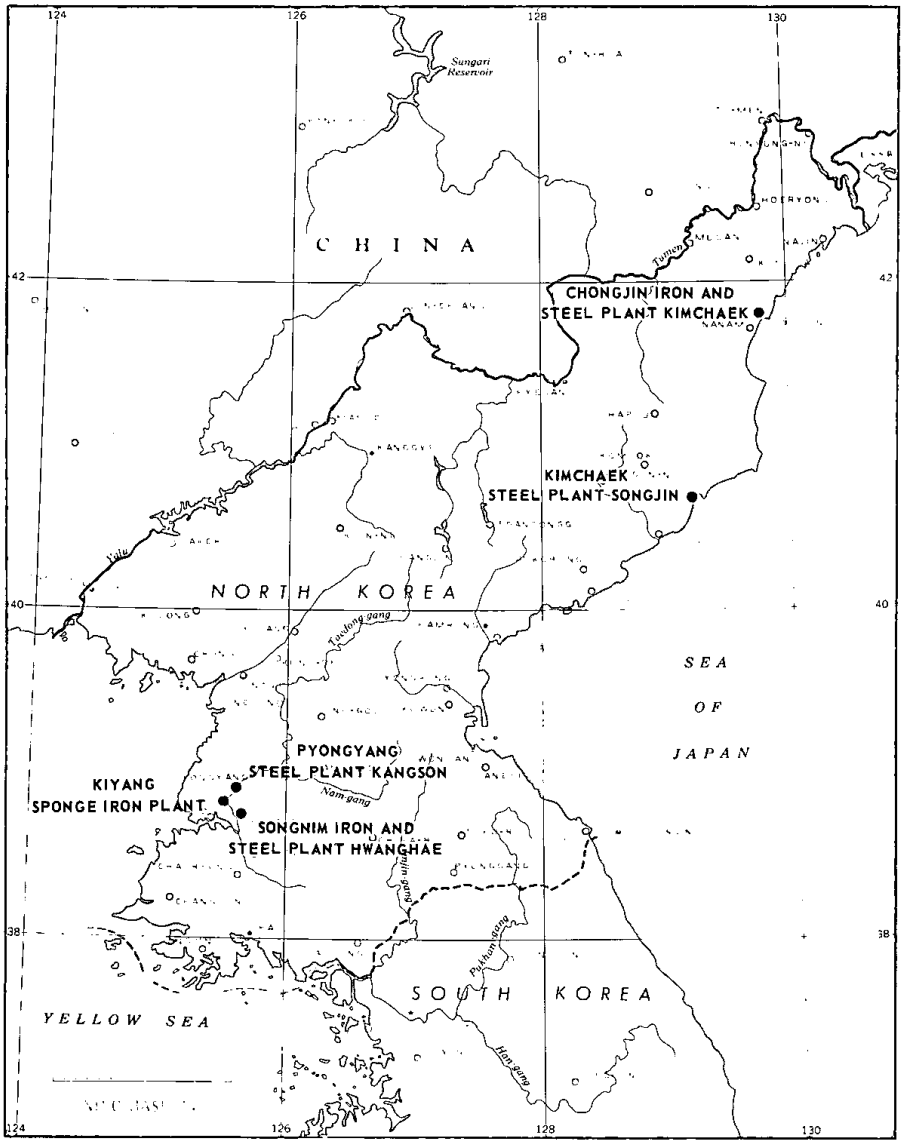

FIGURE 1. LOCATION MAP.

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INTRODUCTION

This report includes studies on the following five plants: Chongjin Iron and Steel Plant Kimchaek, Kimchaek Steel Plant Songjin, Kiyang Sponge Iron Plant, Pyongyang Steel Plant Kangson, and Songnim Iron and Steel Plant Hwanghae.

The plants at Chongjin and Songjin are on the east coast, on the Sea of Japan. The other three plants, at Kangson, Kiyang and Songnim, are in the western part of the country, southwest of Pyongyang along the Taedong River (see Figure 1). All five plants are served by road, rail, and water.

Four processes are used in North Korea to produce steel from pig iron or sponge iron: side-blown converter, open-hearth, electric, and basic oxygen. Air separation facilities at four of the plants produce oxygen for use in all of the various types of furnaces. Oxygen improves the quality of the steel by reducing impurities and shortening reduction time.

The approximate sizes and capacities of the blast furnaces were determined by comparing them with similar furnaces of known capacities in China. Blast furnaces are described as small (up to 200 tons a day), medium (200-700 tons a day), and large (700-1,300 tons a day).

Requirement

COMIREX NO2
Support Number 421986

Document

CIA RCS - 13/0001/70, Iron and Steel Plants, North Korea, December 1969,
TOP SECRET
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INSTALLATION OR ACTIVITY NAME	COUNTRY
Chongjin Iron and Steel Plant Kimchaek	KN

UTM COORDINATES	GEOGRAPHIC COORDINATES
52TEB632228	41-45-35N 129-45-24E

MAP REFERENCE

USATC, Series 200, Sheet 0290-15HL, 3rd ed, Aug 64, Scale 1:200,000 (SECRET)

LATEST IMAGERY USED	NEGATION DATE (If required)
	NA

BASIC DESCRIPTION

Construction activity has been evident in both sections of the Chongjin Iron and Steel Plant since June 1969, the date of the latest photography used in the previous report. In the west section, the previously identified addition to the southeast corner of the side-blown converter shop (Figure 2, Item 1) was completed by October 1969. A basic oxygen furnace section (Item 2), containing three furnaces, was identified on November 1969 photography. Construction of this facility started just prior to March 1968 and it was complete and operating when last observed in October 1970. The two small blast furnaces (Item 3), previously reported under construction, were not complete in October 1970. It appeared that work on them had stopped or was progressing at a very slow rate. Between June 1969 and October 1970, an additional cooling tower and spray pond were added at the air separation plant (Item 4). In the east section (not shown on graphic), a storage building in the forge/foundry complex was complete by March 1970. This building was previously unidentified.

A high level of activity was observed at the plant between September 1969 and October 1970. On the latest photography, which was typical of most of the referenced coverage, the following facilities were observed operating: the five operational blast furnaces, one basic oxygen furnace, the side-blown converter shop, the by-product coke oven batteries, the iron ore sintering plant, the iron ore concentration plants, and the power plant.

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INSTALLATION OR ACTIVITY NAME	COUNTRY
Kimchaek Steel Plant Songjin	KN

UTM COORDINATES	GEOGRAPHIC COORDINATES
52TEA178047	40-41-46N 129-12-43E

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MAP REFERENCE

548RTG. USATC, Series 200, Sheet M0290-24HL, 4th ed, Apr 68, Scale 1:200,000 (SECRET

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LATEST IMAGERY USED	NEGATION DATE (If required)
	NA

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BASIC DESCRIPTION

Construction has been observed in the northern section of the Kimchaek Steel Plant Songjin since June 1969, the date of the latest photography used in the previous report. The addition previously reported under construction at the forge/foundry complex (Figure 3, Item 1) was completed by February 1970. Construction was progressing on the new section at the rolling, blooming and slabbing mill (Item 2). A probable rolling mill (Item 3), previously reported as an unidentified building under construction, remained unchanged. A new unidentified building (Item 4), measuring approximately 310 by 130 feet, was externally complete when last observed in October 1970. Initial ground scarring for this building was observed in March 1969. No construction activity was observed in the southern section of the plant.

A high level of activity was observed at both sections of the plant from October 1969 to October 1970. On the latest imagery, which was typical of most of the referenced coverage, the following facilities were observed operating: three of the five probable open-hearth furnaces, the electric furnace building, two large rolling mills, two forge/foundry shops, one foundry, and one forge shop. Both of the materials storage yards were filled with ingots and finished products.

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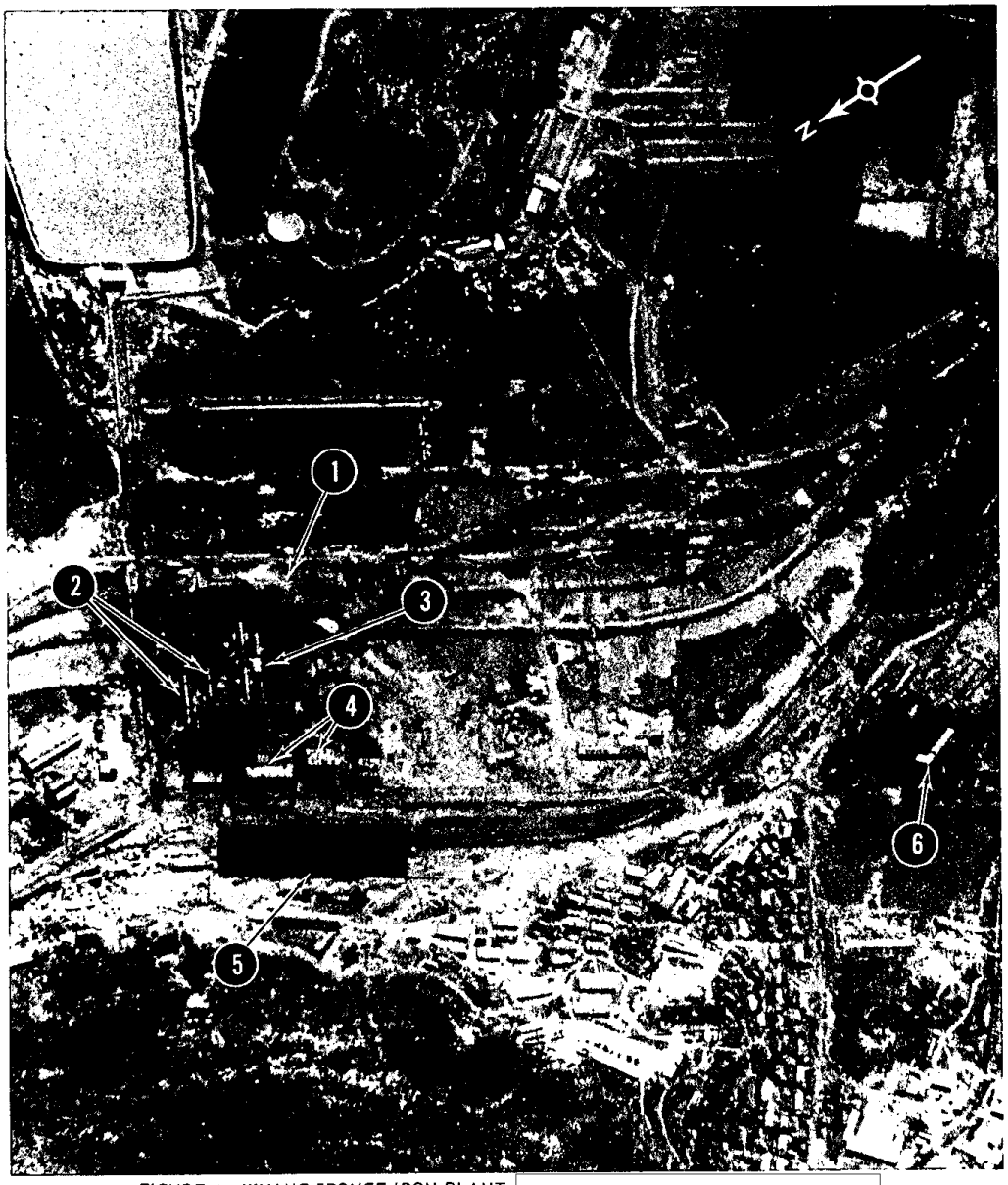

FIGURE 4. KIYANG SPONGE IRON PLANT,

Key to Annotations			
Item	Description	Dimensions (Ft)	Roof Cover (Sq Ft)
1	Sponge Iron Separation and Shipping Building	350 x 85	29,750
2	Rotary Kilns (2)		-
3	Rotary Kilns (2)	240 x 10	
4	Ore Preparation and Mixing Facilities	-	-
5	Ore Receiving Building	460 x 85	39,100
6	Probable Producer Gas Plant	-	-

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INSTALLATION OR ACTIVITY NAME			COUNTRY		
Kiyang Sponge Iron Plant			KN		
UTM COORDINATES	GEOGRAPHIC COORDINATES		BE NUMBER	COMIREX NO.	NIETB NO.
51SYD212075	38-53-11N 125-33-50E		None	None	None

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MAP REFERENCE

USN00. USATC, Series 200, Sheet M0380-7HL, 4th ed, Nov 68, Scale 1:200,000 (SECRET)

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LATEST IMAGERY USED	NEGATION DATE (If required)

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BASIC DESCRIPTION

The Kiyang Sponge Iron Plant is located 0.5 nautical miles (nm) northeast of the village of Posan on the west bank of the Taedong River, and 2.6 nm southeast of Kiyang. It is road and rail served and occupies an unsecured area approximately 3,200 by 2,800 feet. The plant will have direct access to the river for shipping when a wharf under construction, 0.5 nm to the southeast, and the connecting rail spurs are completed.

This plant probably employs the Krupp-Renn process which is designed to process high-silica ore. The primary product of this process is an iron nodule or sponge iron which will be shipped to an iron or steel plant. The plant contains an ore receiving building, ore preparation and mixing facilities, four rotary kilns, and a sponge iron separation and shipping building. A probable producer gas plant is located nearby.

Construction of this plant started between November 1968 and October 1969. It was complete and operating when last observed in September 1970.

REFERENCES

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Document

DOD. IR 1772014670, The Sail Sam Ironworks in Posan-ni, 26 August 1970 (CONFIDENTIAL)

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INSTALLATION OR ACTIVITY NAME	COUNTRY
Pyongyang Steel Plant Kangson	KN

UTM COORDINATES	GEOGRAPHIC COORDINATES
51SYD240113	38-55-14N 125-35-01E

MAP REFERENCE

USNOO. USATC, Series 200, Sheet M0380-7HL, 4th ed, Nov 68, Scale 1:200,000 (SECRET/

LATEST IMAGERY USED	NEGATION DATE (If required)
	NA

BASIC DESCRIPTION

Construction has been observed at the Pyongyang Steel Plant Kangson since August 1969, the date of the latest photography used in the previous report. The addition, previously observed under construction, at the eastern electric furnace was complete in March 1970. A large storage building (approximately 370 by 70 feet) has been constructed next to the two north ingot storage yards. This building was finished between October 1969 and April 1970. In addition, both of the northern ingot storage yards were extended between April and September 1970.

A high level of activity was observed at the plant on all photographic missions from October 1969 to September 1970. No smoke was seen emanating from the new electric furnace building. On imagery of April and September 1970, however, ingots were observed in small numbers adjacent to the building. This indicates the new electric furnaces are probably operating.

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INSTALLATION OR ACTIVITY NAME	COUNTRY
Songnim Iron and Steel Plant Hwanghae	KN

UTM COORDINATES	GEOGRAPHIC COORDINATES
51SYC287912	38-44-22N 125-37-08E

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MAP REFERENCE

USNOO, USATC, Series 200, Sheet M0380-7HL, 4th ed, Nov 68, Scale 1:200,000 (SECRET/

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LATEST IMAGERY USED	NEGATION DATE (If required)
	NA

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BASIC DESCRIPTION

Construction has been observed at the Songnim Iron and Steel Plant Hwanghae since November 1968, the date of the latest photography used in the previous report. An air separation plant has been constructed approximately 1,100 feet north-northeast of the probable furnace and rolling facility. A pipeline connects the two facilities. The air separation plant was first observed under construction in January 1968 and it was complete in November 1969. The two small blast furnaces, previously observed under construction, have been completed and appear to be operational. Construction on two others, which will probably be large blast furnaces, appears to have stopped. The possible iron ore sintering plant has either been completed or is nearing completion. It did not appear to be operating. Continuing analysis revealed that there are possibly six open-hearth furnaces in the probable furnace and rolling facility rather than five as previously reported.

A high level of activity was observed at the plant on the referenced imagery between July 1969 and April 1970. On the latest coverage, the following facilities were observed operating: five of the seven operational blast furnaces, four of the possible six open-hearth furnaces, and the by-product coke oven batteries.

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