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DIRECTORATE OF
INTELLIGENCE

Industrial Facilities
(Non-Military)

Basic Imagery Interpretation Report

Ka-erh-mu Potassium Fertilizer Plant

Ka-erh-mu, China

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DATE JUNE 1972

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CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
Imagery Analysis Service

INSTALLATION OR ACTIVITY NAME			COUNTRY	
Ka-erh-mu Potassium Fertilizer Plant			CH	
UTM COORDINATES	GEOGRAPHIC COORDINATES		COMIREX NO.	NIETB NO.
NA	36-48N 095-20E		None	None

MAP REFERENCE

ACIC. Tactical Pilotage Chart, Series TPC, Sheet G-8A, Edition 1 ACIC, 20 Nov 68, Scale 1:500,000 (UNCLASSIFIED)

LATEST IMAGERY USED	NEGATION DATE (If required)
	NA

ABSTRACT

The primary function of Ka-erh-mu Potassium Fertilizer Plant is the production of potassium fertilizer from naturally occurring salts. The salts are processed into a commercial grade fertilizer, probably consisting of a double-salt of potassium chloride and magnesium chloride. The plant consists of a processing facility and an evaporation field containing trenches.

When first observed on photography, in September 1959, the evaporation field consisted of about 1,270 acres. The field has continually expanded and in February 1972 the total size of the field was about 4,000 acres.

The plant was operating in September 1959. It has been in operation and under continuous expansion on all subsequent photography through February 1972.

This report includes photographs and a chronological summary of construction and operational status.

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INTRODUCTION

Ka-erh-mu Potassium Fertilizer Plant is located 32 nautical miles (nm) northeast of the center of Ka-erh-mu and 12 nm northeast of Cha-erh-han, Tsinghai Province (see Figure 1). Steam is supplied by a collocated steam plant. Electric power appears to come from the regional grid. The Ka-erh-mu Airfield [redacted] is adjacent to the north side of the evaporation field. An area northwest of the processing plant contains salt pans, but these appear different from the trenches in the evaporation field and may not be associated with the plant.

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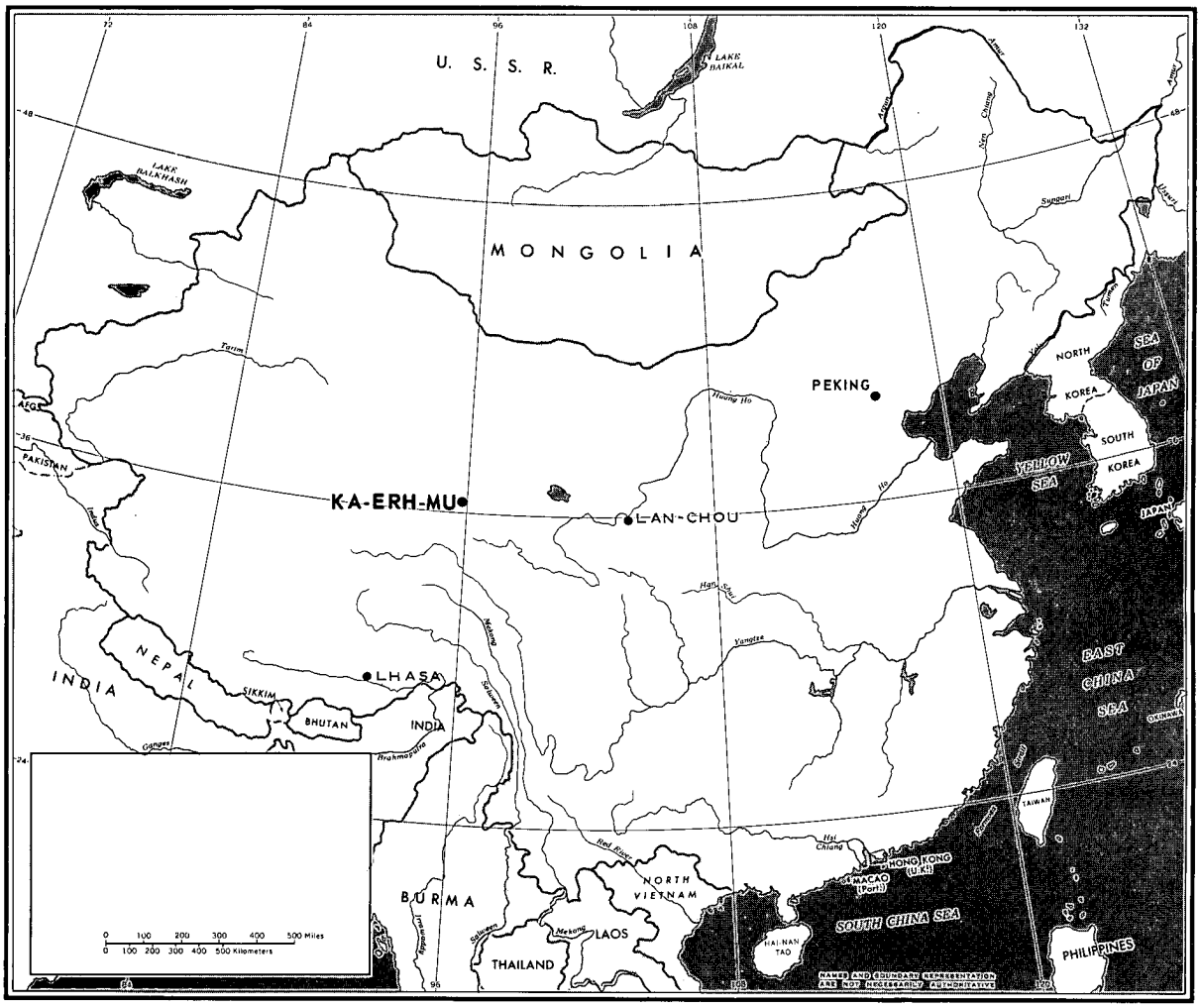

FIGURE 1. LOCATION MAP.

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BASIC DESCRIPTION

Physical Features

The fertilizer plant consists of a salt processing facility and an adjacent evaporation field containing trenches (see Figures 2 and 3). The evaporation field is part of the Cha-erh-han Yen-chih (Salt Lake), which is primarily a vast rock salt area containing carnallite deposits, a raw material for potassium fertilizer. The lake occupies about 110 square nm in an area measuring 22 by 5 nm. Part of the lake on the north side still contains water and is called Ta-pu-hsun Lake. 1/ The salt processing facility and associated housing and support facilities occupy 80 acres in a rectangular area measuring 2,200 by 1,600 feet. The plant is served by the Hsi-ning to Lhasa road.

Operational Functions

The primary product of the plant is potassium fertilizer derived from naturally occurring salts. A physical process rather than chemical is utilized to obtain the commercial grade fertilizer, probably a double-salt of potassium chloride and magnesium chloride. This process appears to be mechanized.

The salts are located in a dry salt lake and are leached out of the crystalline structure by rainfall. The resulting brine seeps into trenches. During the dry season these trenches act as the evaporation beds for the brine. As the brine evaporates, it becomes saturated with sodium chloride and this salt begins to precipitate out of the solution. Most of the precipitated sodium chloride is removed by scraping the trenches. As evaporation continues, the concentration of potassium and magnesium salts in the brine increases. When the brine is completely evaporated, the resultant potassium and magnesium salt contains very little sodium chloride. This salt is next taken to the processing plant from the evaporation field by trucks on an internal service road network or by boats on two parallel canals. Here the salt is redissolved under controlled conditions and the final traces of sodium chloride are removed, leaving the potassium fertilizer. The sodium chloride waste is returned to the lake. It is possible that chemical grade potassium chloride and magnesium chloride could also be made by additional processing at the facility.

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Construction and Operational Status

In September 1959, when the plant was first observed on photography, the evaporation field consisted of about 1,270 acres and the trenching pattern was very irregular. By 1961, the field had increased by 435 acres and a systematic pattern of trenching had been developed. Since that time the evaporation field has been expanded at the following rates: 340 acres between 1961 and 1964, 665 acres by 1966, 695 acres by 1968, 450 acres by 1970, and 220 acres by February 1972. At that time the field contained about 4,000 acres.

The processing facility was in operation on all coverages from September 1959 through February 1972. This was indicated by effluent coming from the plant and by fluctuation in vehicular traffic, bulk material, and bags of fertilizer within the plant. During this period, continued expansion and changes have been observed in the processing facility and associated housing and support area.

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Map

ACIC. Tactical Pilotage Chart, Series TPC, Sheet G-8A, Edition 1 ACIC, 20 November 1968, Scale 1:500,000 (UNCLASSIFIED)

Documents

1. DOD. Production Activities of Cha-erh-han Potassium Fertilizer Plant, Ka-erh-mu, Tsinghai Province, 16 December 1971 (CONFIDENTIAL 25X1 25X1

2. Commerce. JPRS: 17,120, A Journey to Cha-erh-han Salt Lake in Tsinghai Province (translated from Chung-kuo Hsin-wen (China News), 14 January 1963 (UNCLASSIFIED)

3. Hsinhua News Agency. Daily Bulletin 333, Factory Built on Salt Lake Crust, 25 November 1958 (UNCLASSIFIED)

Requirement

COMIREX NO7
Support Number 428925

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