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PIR

PHOTOGRAPHIC INTELLIGENCE REPORT

STRATEGIC PETROLEUM RESERVE STORAGE SYSTEM
IN COMMUNIST CHINA

Declass Review by NIMA/DOD

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CIA/FIR 65133

DATE MAY 1966

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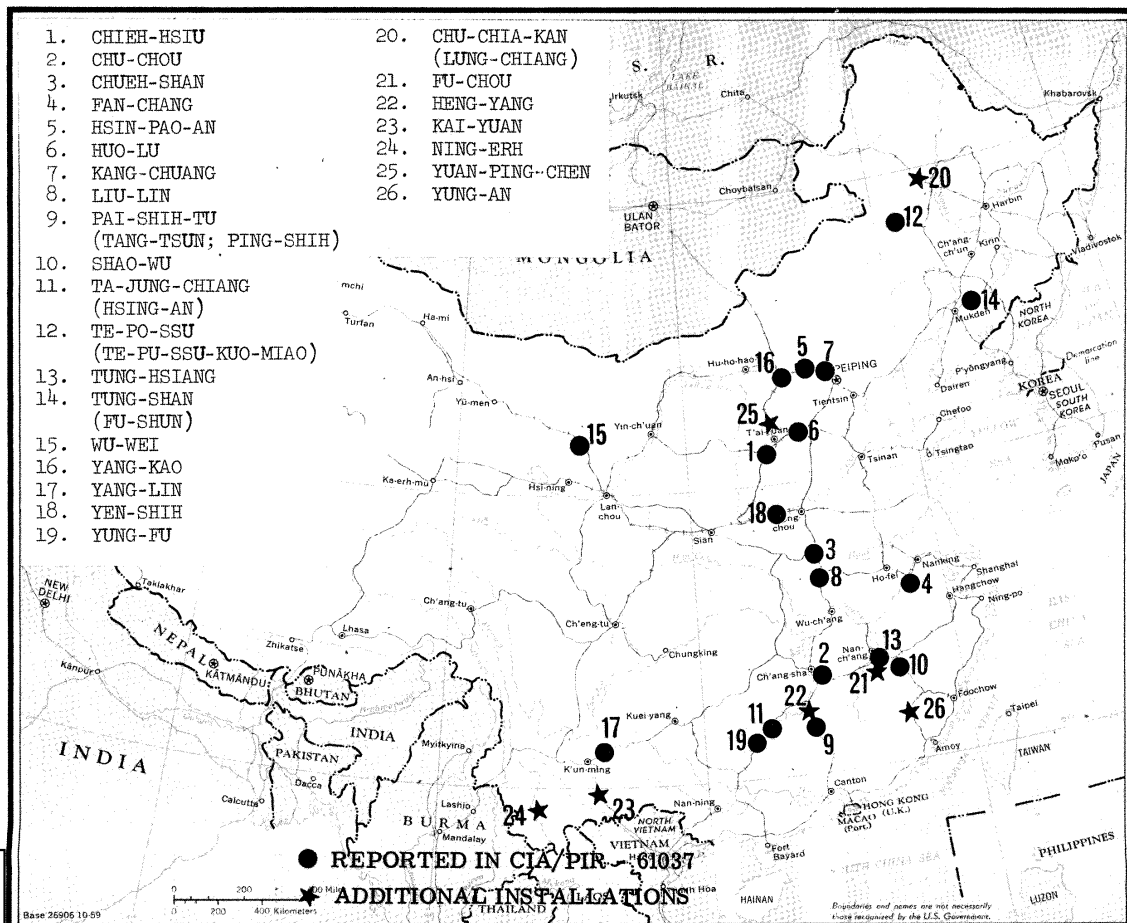
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STRATEGIC PETROLEUM RESERVE STORAGE SYSTEM IN
CHINA

The development of an extensive petroleum reserve storage system, begun by Communist China in the late 1950's, is continuing. This storage system is now considered to be composed of a minimum of twenty six sites (Figure 1).

These installations are of an unusual configuration for POL storage, and have many similar components. Although some sites lack one or more of the typical features, most installations have the following characteristics:

1. They are remotely located, with no major urban areas nearby, and are often situated in hilly or mountainous terrain.
2. All installations, except the Ning-erh site, are rail served. The spur, often 2-3 miles in length, has been constructed especially to serve each site and no other installation. Road transportation routes are available to all the sites.
3. The principal storage tanks at these installations vary in number from four at Heng-yang to nearly forty at Yuan-ping-chen. Many of the sites have twenty tanks. These tanks are dispersed in a random pattern, apparently taking advantage of the protection afforded by natural terrain features when possible. Photographic coverage over several sites during the various phases of construction has revealed several characteristics of the tanks:
 - a. A portion of each tank is below the surface in a previously prepared excavation.
 - b. An outer shell, approximately two feet thick, constructed in at least two separate layers, surrounds each tank.
 - c. Each tank is covered with a dome shaped structure. Vents and other openings extend to the surface.
 - d. Openings near the base are present on many of the tanks, possibly for access during construction. Pipeline connections appear to be at this level.
 - e. As a final step, the structures are earth covered, leaving vent openings and entrances at the surface.



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 FIGURE 1

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f. Tank construction has typically been at elevations higher than the railhead, possibly allowing gravity draining in case of a failure in the pumping system.

Accurate measurements of these tanks are difficult to obtain. Many of the sites were complete and the tanks earth covered when first observed. However, measurements of tanks at installations under construction, and of the probable outer limits of the earth covered tanks has indicated diameters from near fifty feet to a maximum of approximately eighty feet. Where tanks have been observed under construction, a maximum wall height of approximately forty feet has been obtained.

Smaller buried tanks, both horizontal and vertical, are present at many of these installations.

4. A well developed railhead facility composed of two or three sidings is usually present. Piperacks for loading and unloading tank cars are adjacent to the sidings, and are generally capable of handling twenty or more tank cars [redacted] at a time. One and sometimes two pumphouses are noted near the railheads. Surface traces of buried pipelines and open trenches at sites under construction are apparent, running from the pump-house to the semi-buried tanks.

5. Extensive support areas at these installations, include: warehouses, small probable shops, above ground vertical and lay-down tanks or drums, and associated administration and barracks areas.

The installations presently included in this storage system are shown on the general locator map of China (Figure 1). The nineteen sites reported in CIA/PIR-65054 of October 1965 include:

NAME	COORDINATES
Chieh-hsiu	36 59N - 111 55E
Chu-chou	27 49N - 113 13E
Chueh-shan	32 47N - 114 01E
Fan-chang	31 04N - 118 07E
Hsin-pao-an	40 27N - 115 21E
Huo-lu	38 03N - 114 17E
Kang-chuang	40 19N - 115 54E
Liu-lin	31 58N - 114 06E
Pai-shih-tu (Ping-shih)	25 25N - 113 04E
(Tang-tsun)	
Shao-wu	27 26N - 117 27E
Ta-jung-chiang (Hsing-an)	25 35N - 110 32E

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NAME	COORDINATES
Te-po-ssu (Te-pu-ssu-kuo-miao)	46 27N - 121 18E
Tung-hsiang	28 10N - 116 38E
Tung-shan (Fu-shun)	41 58N - 124 32E
Wu-wei	37 59N - 102 30E
Yang-kao	40 20N - 113 41E
Yang-lin	25 14N - 103 06E
Yen-shih	34 44N - 112 55E
Yung-fu	24 49N - 110 00E

Seven additional sites are now considered as parts of this system.

*Chu-chia-kan (Lung-chiang)	47 27N - 123 01E
Fu-chou	28 01N - 116 16E
*Heng-yang	26 44N - 112 43E
Kai-yuan	23 39N - 103 20E
*Ning-erh	23 00N - 101 04E
*Yung-an	25 59N - 117 24E
Yuan-ping-chen	38 44N - 112 39E

*These sites, in addition to the nineteen on the above list were discussed in DIA report, SAO/AP-1-630-1-7-65, Communist China's Developing Strategic Petroleum Storage Reserve System, November 1965. Also included in the above report was a site near Hsiang-yun at 25 28N - 100 41E. We are not presently including this installation within the Reserve Storage System, because of its probable function as a POL storage area for the nearby Yun-nan-1 Airfield.

The following discussion describes the changes and activity of the seven additional sites:

Chu-chia-kan (Mongolian Military District) (Figures 2-4, Table 1)

This installation is located on a rail spur off the Harbin/Nien-tzu-shan Rail Line. Ten large storage tanks are located approximately one nautical mile north of the railhead and other support facilities at this location. Construction appears to have been substantially completed at this site when covered in [REDACTED]. Only minor changes, and these in the support areas, had occurred by [REDACTED]. The estimated capacity at this facility is 40,000 metric tons.**

**All measurements have been made by the NPIC Technical Intelligence Division, with the exception of the storage tank diameters at the Heng-yang, Yung-an, and Ha-mi sites. These measurements were made by the CIA/IAD project analyst.

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They should be considered as approximate and must not be taken as official NPIC mensuration data. The considered accuracy of the NPIC/TID mensuration data for each site is stated in the text where appropriate and on the Tables accompanying the graphics. Capacities of tanks at all sites were estimated on the basis of a constant height-diameter ratio, using the measured diameters. The conversion to metric tons was based on a volume of 6.3 barrels per metric ton of petroleum products.

Fu-chou (Foochow Military District) (Figures 5-6)

This small storage site, less than twenty nautical miles from the older Tung-hsiang installation, is under construction along a branch line which extends to a mining area from the Shanghai/Chu-chou Rail Line. Construction at this location started after [] When noted in [] the installation appeared to be nearing completion. Four tanks have been earth covered, and the remaining two are under construction. The railhead and other support areas are nearing completion. The diameter of the storage tanks was [] (+ 10 ft.). Assuming the final number of tanks is six, the estimated capacity at this location is 10,000 metric tons.

Heng-yang (Canton Military District) (Figures 7-9, Table 2)

Only four large buried tanks are present at this location on a rail-spur off the Heng-yang/Shao-kuan Rail Line. However, at least two groups of buried horizontal tanks and many small laydown tanks were observed, on all coverage, in the extensive support areas. This installation was complete and operational when observed on coverage from [] and no significant changes in facilities have occurred between that date and []. The estimated capacity is 12,000 metric tons.

Kai-yuan (Kun-ming Military District) (Figures 10-11)

This installation is located near the Kun-ming/Hanoi Rail Line, approximately seventy five nautical miles northwest of the North Vietnam/China border. It was first noted on photography of []. Examination of earlier coverage, reveals that construction had started by []. [] coverage, the railhead and other facilities, including six large and five small semi-buried tanks are under construction. Approximately fifty warehouse, construction support, and barrack-type buildings are located in this vicinity. In the present stage of construction, the final storage capacity at this site cannot be accurately estimated.

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Ning-erh (Kun-ming Military District) (Figures 12-14, Table 3)

This is the only installation, considered as part of this petroleum storage system, which is not rail served. Five large semi-buried vertical tanks and two groups of probable buried horizontal tanks were observed. Several small above ground tanks have been noted in the support area. Construction was in progress at this location in [] on both the storage and support areas. By [] the installation appeared complete. No significant changes have been noted since that date, through [] The estimated capacity is 10,000 metric tons.

Yung-an (Fu-chou Military District) (Figures 15-17, Table 4)

This installation, the oldest in the group, is served by a rail spur running east from Yung-an, coming off the north-south rail line through this area. In [] construction of an outer protective shell around two of the five large vertical storage tanks, in place several years, was in progress. Two areas of fresh ground scarring indicated a recent emplacement of buried horizontal tanks. By [] work was nearly complete on the project of doming and earth covering the five vertical tanks. No further changes had taken place in the storage areas [] The railhead and support facilities have remained basically unchanged since 1963. The storage capacity at this site is estimated to be 10,000 metric tons.

Yuan-ping-chen (Peiping Military District) (Figures 18-21)

The layout at this site, located approximately thirty nautical miles north of Tai-yuan, on a railspur off the line running to Ta-tung, represents a considerable departure from that noted at the other sites. However, the large volume of storage present at this relatively isolated location suggests that it is of the same general type. Approximately thirty nine tanks, diameters [] were constructed below the surface level, and the entire storage area was then earth covered. Also, the facilities in the railhead area appear to be partially concealed. Without comparative coverage during the construction at this site, identification of the installation as a petroleum storage facility would have been impossible. When observed in [] tank excavations and a barracks area were present and construction was in progress on the tanks, support facilities, and the rail spur. In [] the tank area was being earth covered and other construction appeared to be nearing completion. The installation appears operational on [] coverage. Total storage capacity at this site is estimated to be 60,000 metric tons.

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Ha-Mi (Sinkiang Military District) (Figures 22-23)

A POL storage area, somewhat similar in appearance to the Regional Storage Installations is located in the outskirts of Ha-mi (42 47N - 93 35E) in the Sinkiang province. Since the storage capacity of the twenty two large tanks, estimated by the IAD project analyst to be 70,000 metric tons, appears excessive for use solely by the nearby airfield (Ha-mi 2), to which it is apparently connected by pipeline, it is suggested that the installation may at least partially fulfill the function of a Reserve Storage Site. This site is served by a rail spur coming off the line which runs northwest from Lan-chou and terminates near Urumchi.

No photographic correlation between these installations and consumers has been possible. However, because of the high construction cost for this type of petroleum product storage, the general remoteness of these locations from immediate users, and their great similarity in engineering design, it is obvious that these installations occupy a high priority in national planning and are for regional or national storage, rather than being local distribution depots.

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MAPS AND CHARTS

Locator Map, Communist China, 26906, 10-59 (UNCLASSIFIED)

Chu-chia-kan

ACIC. USAF Pilotage Chart - Low Altitude, Chi-chi-ha-erh, China, PCL 283A, Scale 1:500,000, 1st classified edition, February 1961 (CONFIDENTIAL)

Fu-chou

ACIC. US Air Target Chart, Series 200, Sheet 493-22 HL, Scale 1:200,000, 3rd edition, February 1964 (SECRET)

Heng-yang

ACIC. US Air Target Chart, Series 200, Sheet 497-10HL, Scale 1:200,000, 3rd edition, October 1964 (SECRET)

Kai-yuan

ACIC. US Air Target Chart, Series 200, Sheet 0616-2HL, Scale 1:200,000, 3rd edition, September 1965 (SECRET)

Ning-erh

ACIC. US Air Target Chart, Series 200, Sheet 616-6AL, Scale 1:200,000, 1st edition, May 1960 (CONFIDENTIAL)

Yung-an

ACIC. US Air Target Chart, Series 200, Sheet 498-14HL, Scale 1:200,000, 2nd edition, April 1963 (SECRET)

Yuan-ping-chan

ACIC. World Aeronautical Chart, Sheet 382, Scale 1:1,000,000, 5th classified edition, July 1953 (CONFIDENTIAL)

Ha-mi

ACIC. US Air Target Chart, Series 200, Sheet M0331-7HL, Scale 1:200,000, 2nd edition, January 1965 (SECRET)

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REPORTS

1. CIA/PIR 61037, Regional Liquid Storage Installations in Communist China, October 1965 (TOP SECRET [REDACTED])
2. DIA Special Report, SAO/AP-1-630-1-7-65 INT, Communist China's Developing Strategic Petroleum Storage Reserve System, November 1965 (TOP SECRET [REDACTED])
3. CIA/PIR 65054, Regional Petroleum Storage Installations in Communist China, November 1965 (SECRET [REDACTED])

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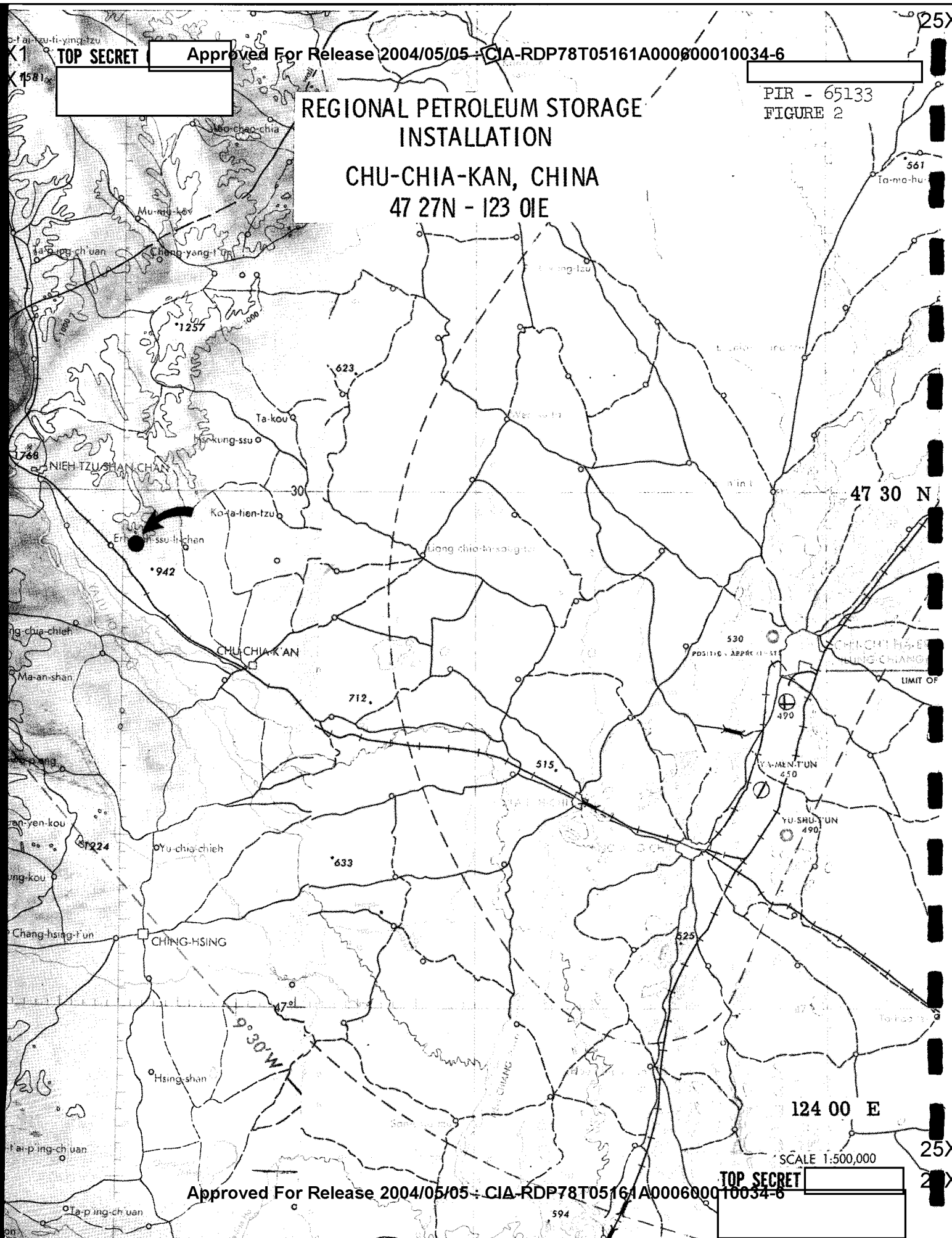
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REGIONAL PETROLEUM STORAGE INSTALLATION

CHU-CHIA-KAN, CHINA
47 27N - 123 01E



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FIGURE 3

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FIGURE 4

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REGIONAL PETROLEUM STORAGE
INSTALLATION

FU-CHOU, CHINA
28 01N 116 16E

SEMI-BURIED TANKS (U/C)

RAILHEAD

SUPPORT AREA



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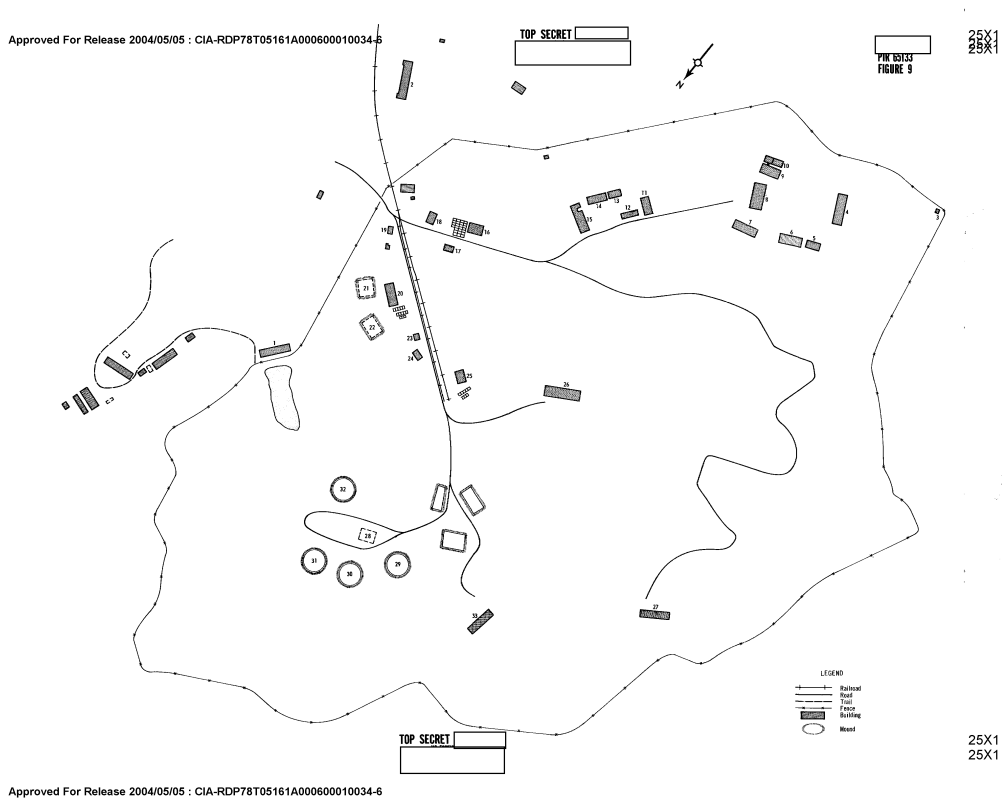
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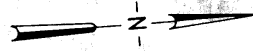
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REGIONAL PETROLEUM STORAGE
INSTALLATION

KAI-YUAN, CHINA
23 39N 103 20E

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Figure 11

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RAIL HEAD

SUPPORT AREA

SEMI-BURIED TANKS (U/C)

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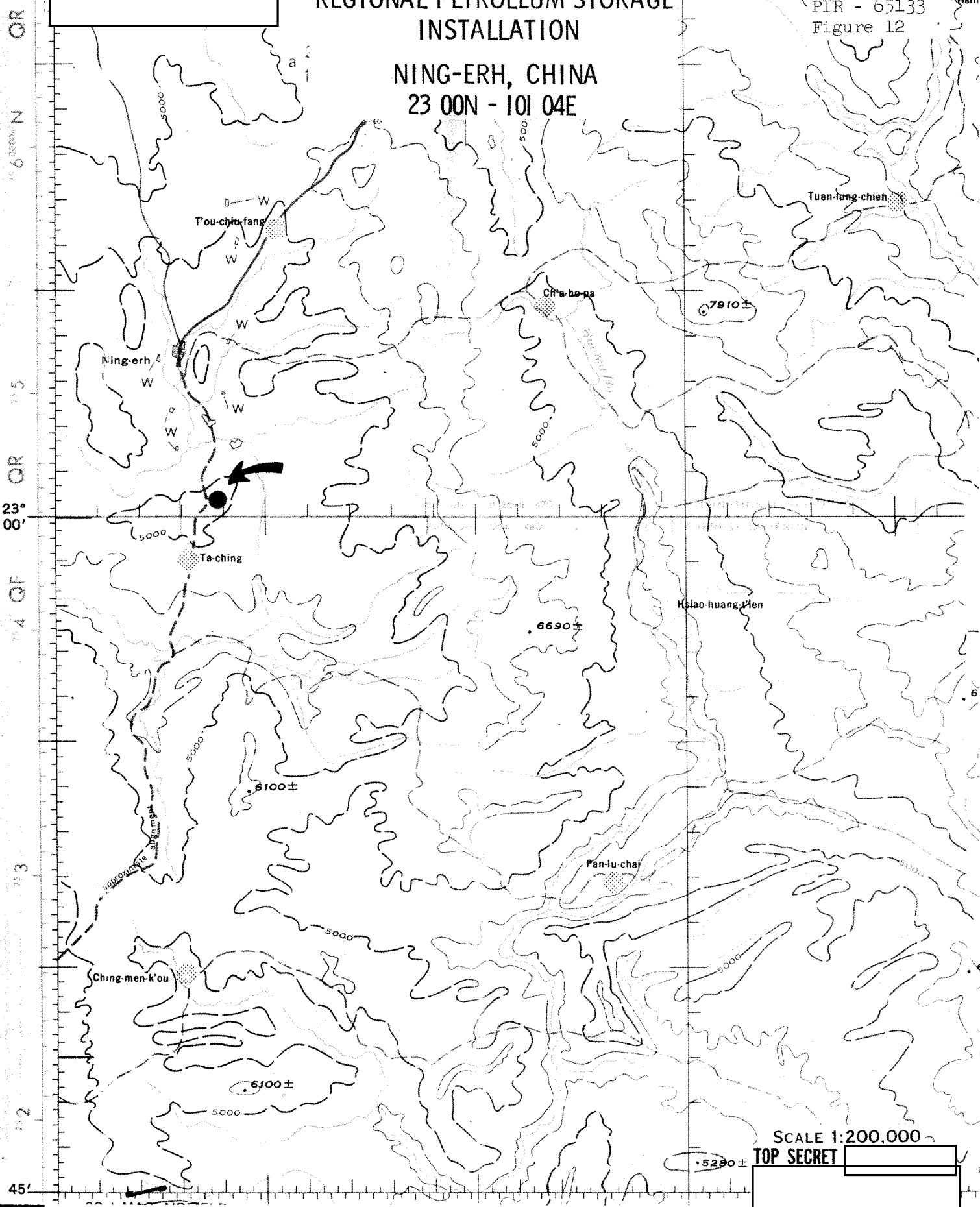
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REGIONAL PETROLEUM STORAGE
INSTALLATION

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Figure 12

NING-ERH, CHINA
23 00N - 101 04E



SCALE 1:200,000

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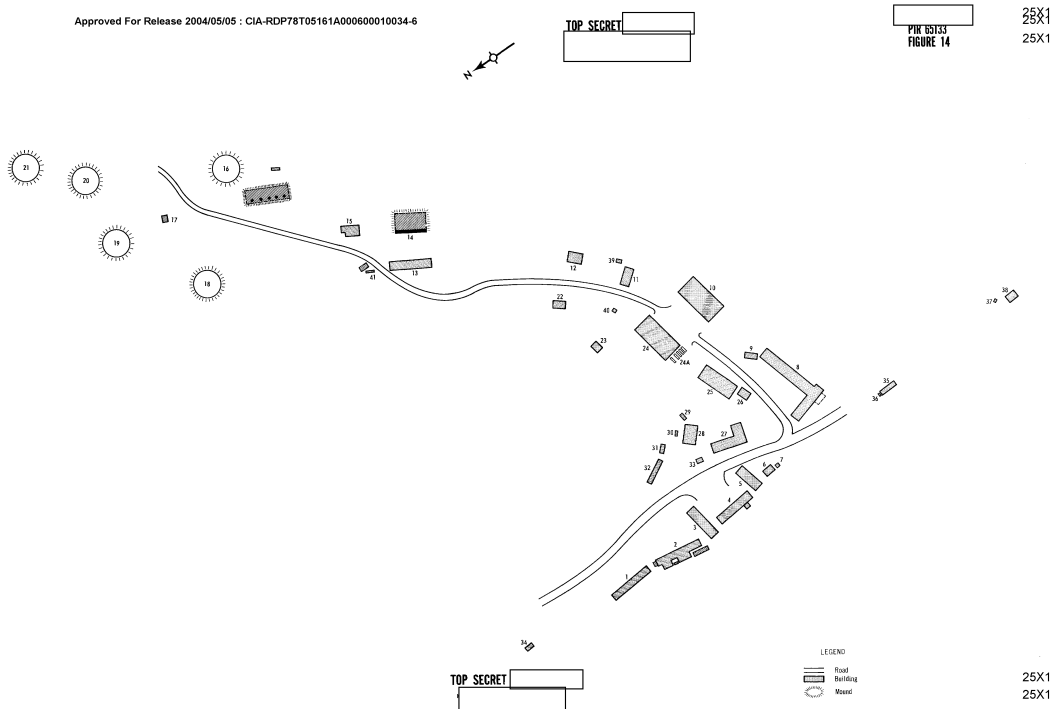
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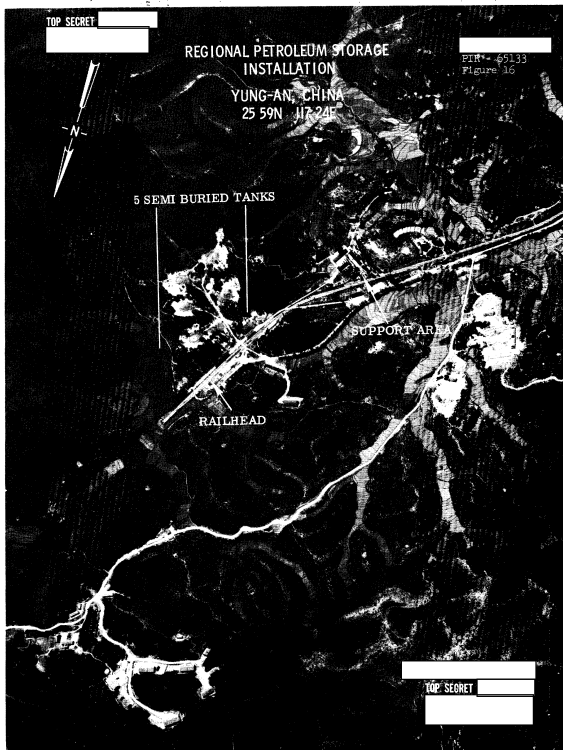
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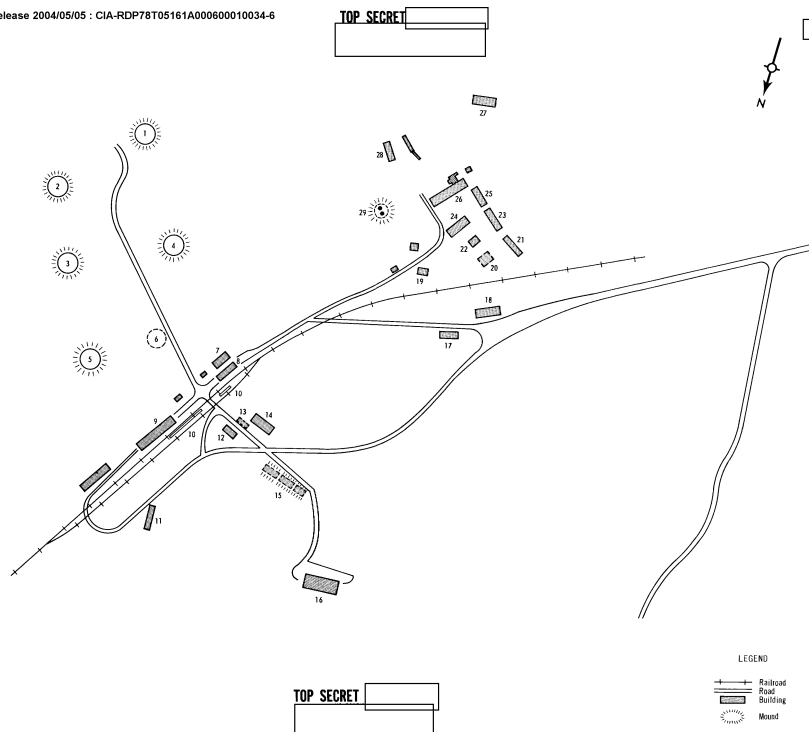
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REGIONAL PETROLEUM STORAGE
INSTALLATION

YUAN-P'ING-CHEN, CHINA

38 44N 112 39E

STORAGE TANK (U/C)

RAILROAD

SUPPORT AREA

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CHINA PETROLEUM STORAGE
INSTALLATION

YUAN-PING-CHEN, CHINA

38 39E

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REGIONAL PETROLEUM STORAGE
INSTALLATION

YUAN-P'ING-CHEN, CHINA

38.44N 112.39E



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Figure 25

PETROLEUM STORAGE INSTALLATION
YI-HA-MY CHINA
42 47N - 93 35E



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