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PHOTOGRAPHIC
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REPORT

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FIRST SILO LAUNCH OF THE CSS-X-4 ICBM, WU-CHAI MISSILE TEST CENTER, PRC (TSR)

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FIRST SILO LAUNCH OF THE CSS-X-4 ICBM WU-CHAI MISSILE TEST CENTER, PRC (TSR)

ABSTRACT

1. (TSR) This report provides an imagery-derived summary and assessment of the developments and of the preparations observed at the Wu-chai Missile Test Center (MTC) which led to the first in-silo launch of the People's Republic of China's (PRC) large ICBM, the CSS-X-4. Activities observed at Wu-chai that are reliable indicators of an impending test from the silo and of the intended direction of flight of the missile are included in this report. The quantity and the interpretability of the imagery needed to detect an upcoming test are also discussed.

BACKGROUND

2. [redacted] The CSS-X-4 missile has a range estimated to be about 7,000 nautical miles (nm) and can reach most areas in the continental US. The missile reportedly was launched from Wu-chai for the first time on [redacted] The CSS-X-4 missile was fired from Wu-chai SSM Research/Development/Training Launch Site B ([redacted] to the Hsi-chang Missile Impact Area [redacted] in the southern PRC (Figures 1 and 2), a distance of only about 840 nm. [redacted]

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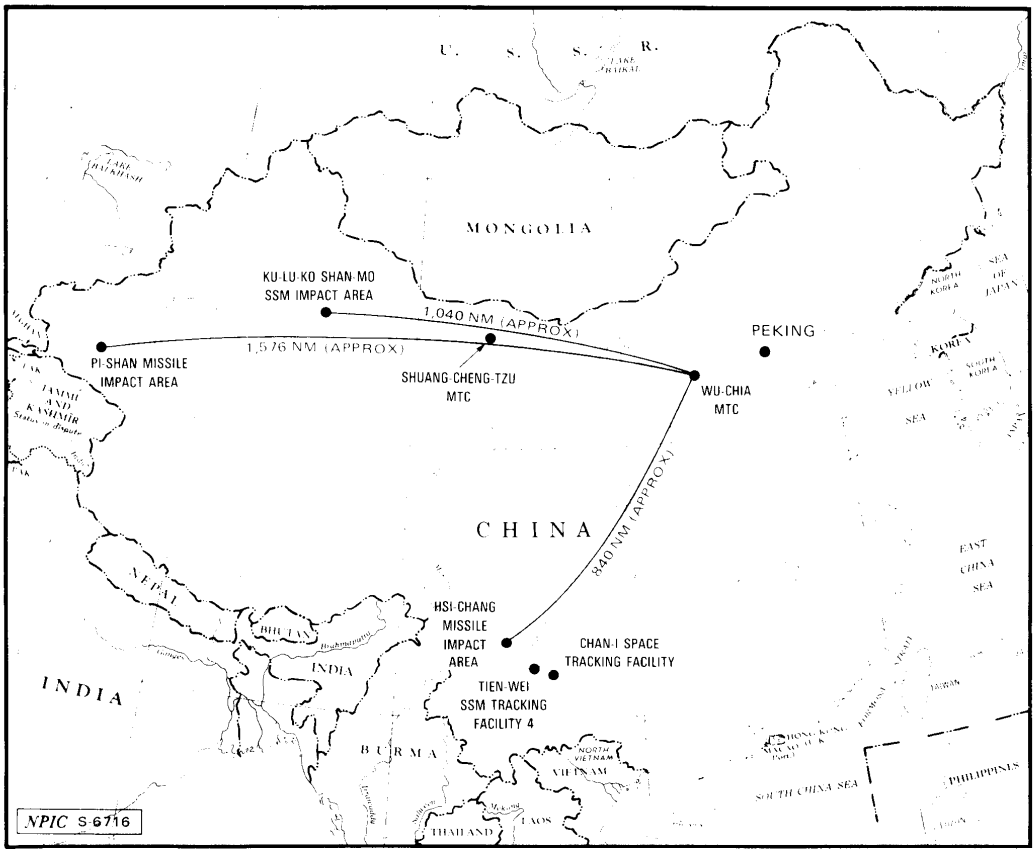

FIGURE 1. LOCATION MAP OF WU-CHAI MISSILE TEST CENTER AND TEST-RELATED FACILITIES, PRC

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DESCRIPTION

3. (TSR) The first indications of CSS-X-4 activity at Wu-chai were seen on imagery of [redacted] 25X1
[redacted] before the firing. A cycle of exercises followed in which it appeared that 25X1
a missile was loaded into the silo on three separate occasions. There is photographic evidence that the missile which was fired was different from the one used during the first two exercises. These assessments can be made with considerable confidence because portions of the launch complex were imaged on 82 of the [redacted] days preceding the launch. The silo alone was observed 76 times, 25X1
with the longest gap in coverage being only five days.

4. (TSR) In addition to the exercises observed at the silo launch site, personnel and equipment supporting the launch at Wu-chai and elsewhere in the PRC were observed preparing for the firing. At Wu-chai, a few pieces of mobile electronics equipment were observed at monitoring sites on several dates starting on [redacted] The first extensive exercise involving this equip- 25X1
ment was observed on imagery of [redacted] nearly two months prior to the launch. At that 25X1
time the alignment of the electronics van trucks at approximately 275 degrees indicated that a generally westward CSS-X-4 firing was planned.

5. [redacted] A westward firing had been anticipated, based on best rangehead tracking 25X1
capabilities and even more on the unusual CSS-2 IRBM firing[2] which occurred on [redacted] 25X1
during the CSS-X-4 launch preparations. This was the first missile launched from Wu-chai to the new Ku-lu-ko Shan-mo SSM Impact Area [redacted] in the western PRC (Figure 1). A 25X1
similar pattern of events was seen just a few months earlier at Shuang-cheng-tzu Missile Test Range Complex [redacted] where a CSS-1 was fired to Ku-lu-ko Shan-mo,[3] followed by a 25X1
CSS-X-4 firing.[4] The first missile flight may have been used in each case to test downrange instrumentation that would also record the CSS-X-4 flight which followed. [redacted] 25X1

[redacted] 25X1

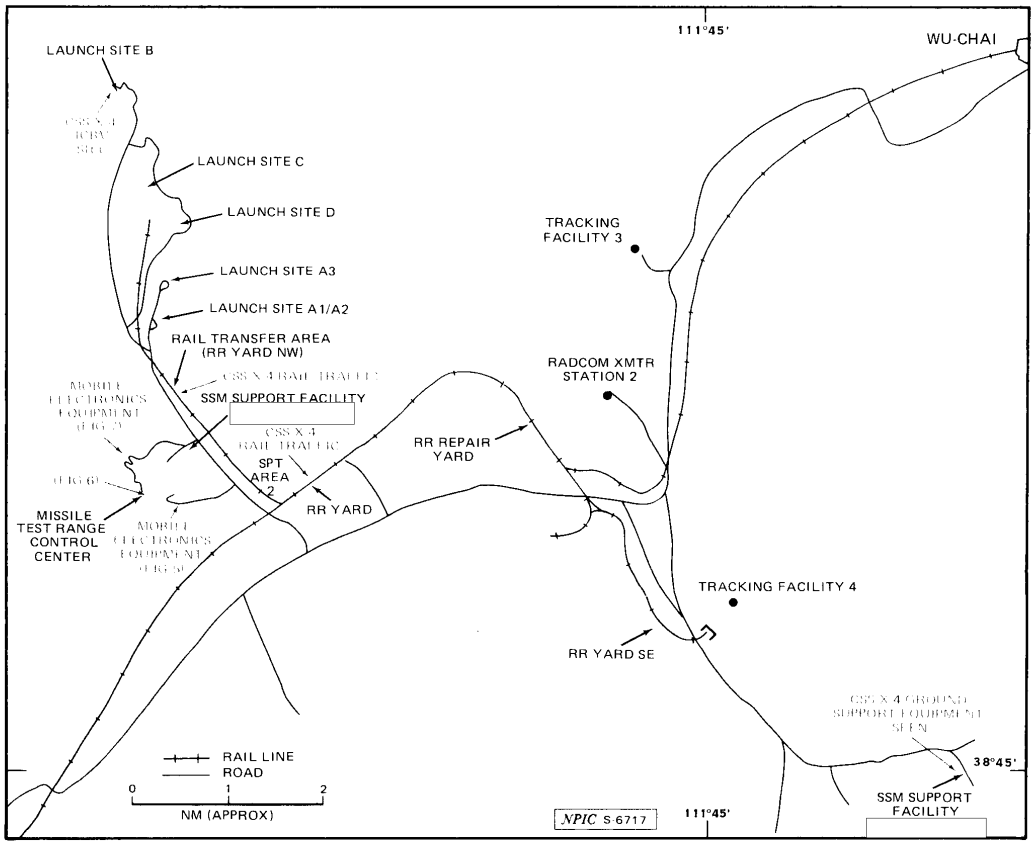

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FIGURE 2. WU-CHAI MISSILE TEST CENTER

[redacted] 25X1

6. [redacted] It now appears that the Chinese were preparing to fire the CSS-X-4 to either Ku-lu-ko Shan-mo or Hsi-chang with weather being a significant or determining factor in the final choice. As the flight date pushed further into winter, the weather deteriorated at Ku-lu-ko Shan-mo and improved at Hsi-chang. Downrange instrumentation in the Hsi-chang area which could be used to monitor a CSS-X-4 launch from Wu-chai had already been tested. In 1977, on [redacted]

[redacted]

7. (TSR) By mid-December 1978, Hsi-chang became the more likely impact area for the upcoming CSS-X-4 flight. On [redacted] the electronics equipment at Wu-chai was still aligned on a westerly azimuth. This equipment was removed on the [redacted] and returned for an exercise on the [redacted] and for the first time was aligned on a [redacted] azimuth indicating a flight test to the southwest. The final choice was clear in late December when electronics equipment exercises at Wu-chai continued on the [redacted] azimuth and when mobile electronics equipment deployed at Shuang-cheng-tzu was relocated for an event which would only be in the eastern horizon. Satellite imagery in late December and early January verified that no activity was taking place at Ku-lu-ko Shan-mo and that the weather there was poor.

8. ([redacted] A chronological summary of the preparations and events observed at Wu-chai which led to the CSS-X-4 launch is presented below in tabular form. Activities observed elsewhere in the PRC have been included (in italics) to complete the summary.

1978

[redacted]
First activity observed; ramp built at silo test launch site

[redacted]
CSS-X-4 transporters first seen at rail transfer area of complex

[redacted]
Silo loaded; CSS-X-4 missile railcars arrive at rail transfer area (railcars depart by [redacted] missile transporters arrive and remain at silo; CSS-X-4 warhead van first seen at Wu-chai rail transfer area

[redacted]
CSS-X-4 fired from Shuang-cheng-tzu MTC to Ku-lu-ko Shan-mo

[redacted]
Silo unloaded; CSS-X-4 railcars again arrive and depart complex; second stage of missile seen (Figure 3) on silo apron; CSS-X-4 warhead van and a new type of truck-mounted crane observed at the silo; all ground support equipment departs silo apron; the CSS-X-4 warhead van and new type of truck-mounted crane seen at a large missile support facility 12 nm southeast of the launch area at SSM Support Facility [redacted]
[redacted]

[redacted]
CSS-2 fired from Wu-chai to Ku-lu-ko Shan-mo for the first time

[redacted]
First propellant dry-run exercises or propellant loading indicated; type M propellant trucks observed at rail transfer area and at the silo; interior of silo being maintained or prepared for use

[redacted]
Silo loaded; CSS-X-4 transporters and new warhead van again seen on silo apron; equipment removed by [redacted]
[redacted] reentry vehicle portion of missile observed within the silo on [redacted]

[redacted]
Full-scale exercise and test of mobile electronics equipment observed; equipment removed by [redacted] when deployment area was next imaged; *FIRE CAN radar deployed at Tien-wei SSM Tracking Facility 4 (BE*
[redacted]

[redacted]
Silo unloaded; CSS-X-4 transporters arrive and depart silo

[redacted]
Full-scale exercise of mobile electronics equipment and fixed instrumentation observed at Tien-wei SSM Tracking Facility 4

[redacted] 25X1

CSS-X-4 propellant railcars (types K and L) first seen at Wu-chai; propellant trucks arrive and depart rail transfer area, probably to transport propellants to the silo; CSS-X-4 missile railcars again return to the complex; railcars observed at SSM Support Area 2 ([redacted] 25X1

[redacted] 25X1

Silo loaded; missile transporters returned to silo apron; final loading of silo indicated; reentry vehicle portion of missile observed in the silo on [redacted] Figure 4); portions of silo exhaust duct covers removed 25X1

[redacted] 25X1

Exercise of mobile electronics equipment observed; equipment removed from monitoring site by [redacted] 25X1

[redacted] 25X1

All CSS-X-4 propellant railcars and missile railcars removed from Wu-chai MTC

[redacted] 25X1

Mobile electronic equipment returned to monitoring site; construction of a new communications mast observed

[redacted] 25X1

Mobile electronics equipment deployed for launch from Wu-chai first observed at Shuang-cheng-tzu Complex near Tracking Facility 11 [redacted] *no equipment was deployed in the same location on* 25X1

[redacted] 25X1

[redacted] 25X1

CSS-X-4 transporters removed from the silo launch site

[redacted] 25X1

Mobile electronics equipment deployed at Shuang-cheng-tzu SSM Tracking Facility 1 [redacted] 25X1

[redacted] 25X1

All covers removed from the exhaust ducts of the test site; van truck placed next to an adit southwest of the silo; mobile electronics equipment observed deployed at range control center for the first time

1979

[redacted] 25X1

Slogan signboards removed from edge of silo apron; increased amount of mobile electronics equipment deployed; *mobile electronics equipment still deployed at Tien-wei SSM Tracking Facility 4*

[redacted] 25X1

Mobile electronics equipment, previously observed near Shuang-cheng-tzu SSM Tracking Facility 11, had been moved to vicinity of Tracking Facility 10 ([redacted] *the change in location provided an unobstructed view to the east* 25X1

[redacted] 25X1

All test support equipment in place for the first time; final rehearsals and launch indicated; all mobile electronics equipment deployed (Figures 5 through 7); large missile-loading crane moved from silo apron and parked on the launch site access road near base of the silo

[redacted] 25X1

No changes observed

[redacted] 25X1

All acquired imagery cloud covered

[redacted] 25X1

CSS-X-4 launched; no photo coverage; *first imagery of Chan-i Space Tracking Facility* [redacted] 25X1 *showed that mobile electronics equipment was deployed there to monitor the launch from Wu-chai*

[redacted] 25X1

Postlaunch imagery; no damage to the silo and no obvious stains or blast marks on the apron; silo door open and a light-toned, ring-shaped pattern, approximately 9 meters in diameter, first seen on silo door; pattern may have been to delineate a helicopter landing area; helicopter observed at Wu-chai North Airfield (BE [redacted] 25X1

[redacted] 25X1

Mobile electronics equipment removed from Shuang-cheng-tzu Tracking Facilities 1 and 10

[redacted] 25X1

All mobile electronics equipment removed; large crane returned to silo apron

[redacted] 25X1

Mobile electronics equipment removed from Chan-i Space Tracking Facility

[redacted] 25X1

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COMMENTS

9. (TSR) The information presented in tabular format described the three occasions on which missile transporters were present at and were removed from the silo launch site as well as the three separate occasions on which missile-carrying railcars were present at and removed from the complex. These events provide the best evidence that the silo was loaded three times and that two or possibly three separate missiles were loaded into the silo. Such extensive exercises for future CSS-X-4 tests will probably not be conducted beforehand. The chronology of activity from [redacted] will likely prove to be a full cycle of events which leads to a firing and is four to six weeks in duration. 25X1

10. (TSR) The best indicators of an upcoming CSS-X-4 firing within four to six weeks are the sightings of propellant-carrying railcars (types K and L, Figure 8) and the deployment of mobile electronics equipment for exercises. There are no provisions outside the silo for storing CSS-X-4 propellants; therefore, it is likely that propellant railcars will be brought to the rail transfer area prior to a test. The missile-carrying railcars (types C and B, Figure 9) are not reliable test indicators because they have been seen often at Wu-chai, and no test firing followed. Likewise, the sighting of CSS-X-4 transporters and other ground support equipment at the silo has not proved to be a reliable indicator.

11. (TSR) The best indicators of an imminent firing from the silo (within five days) are the deployment of mobile electronics equipment together with all generator trailers as shown in Figures 5 through 7 and the clearing of the silo apron. The most important aspect of the final deployment of mobile electronics equipment was the large number of generator trailers which are used to ensure uninterrupted power to the monitoring equipment. During exercises (Figure 10), few if any generator trailers were used because no backup power was needed to supplement that supplied by the local transmission line grid, the primary source of electricity. Also, mobile electronics equipment was not deployed to the areas shown in Figures 6 and 7 during early exercises.

12. (TSR) Before late-stage test preparations were observed, the exhaust ducts of the silo were uncovered. A wooden environmental cover in six sections protects each of the exhaust ducts (Figure 3). The covers must be removed in order for the silo to operate. During exercises, even when a missile was loaded into the silo, the duct covers were not removed (Figure 3). Therefore, sighting the exhaust duct covers on the silo apron (Figure 4) or just off it (Figure 11) proved to be a reliable indicator that a missile test firing, not an exercise, was in progress.

13. (TSR) Therefore, reliable evidence about the progress and flight direction of any CSS-X-4 launch from Wu-chai can be obtained by monitoring just three targets there: the silo itself; Wu-chai SSM Support Facility [redacted] which will also cover the mobile electronics equipment and rail transfer areas; and Wu-chai SSM Support Facility [redacted] the large missile checkout area for the CSS-X-4, 14 nm southeast of the silo. The intended impact area, indicated by the alignment of the electronics van trucks, can then be checked for activity as preparations progress. 25X1 25X1

REFERENCES

IMAGERY

(TSR) All pertinent KEYHOLE imagery acquired from [redacted] was used in the preparation of this report. 25X1 25X1

MAPS OR CHARTS

DMA, Special Intelligence Graphic, Series 1505, Sheet NJ 49-7, 1st ed, Mar 73, scale 1:250,000 (SECRET [redacted] 25X1 25X1

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2. DEFSMAC, Cable 3/DQ/55-78, 231253Z Oct 78 (TOP SECRET [redacted] 25X1
3. DEFSMAC, Cable 3/DQ/22-78, 202311 Jul 78 (TOP SECRET [redacted] 25X1
4. DEFSMAC, Cable K/DQ/1420-78, 132204Z Oct 78 (TOP SECRET [redacted] 25X1 25X1
5. DEFSMAC, Cable 3/DQ/57-78, 232204Z Oct 78 (TOP SECRET [redacted] 25X1
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REQUIREMENT

Project 130064NP

(S) Comments and queries regarding this report are welcome. They may be directed to [redacted] Asian Forces Division, Imagery Exploitation Group, NPIC, [redacted] 25X1 25X1