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NATIONAL PHOTOGRAPHIC INTERPRETATION CENTER



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basic imagery interpretation report

# First Broad-Ocean Area Missile Test from Shuangchengzi Missile Test Range Complex SSM, China (S)

MISSILE RANGES: STRATEGIC SSM SPACE FACILITIES

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DECEMBER 1980  
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INSTALLATION OR ACTIVITY NAME		COUNTRY
Shuangchengzi Missile Test Range Complex SSM		CH
UTM COORDINATES	GEOGRAPHIC COORDINATES	
NA	41-08-00N 100-15-00E	
MAP REFERENCE		
SAC. USATC. Series 200. Sheet 0287-16. scale 1:200,000		
LATEST IMAGERY USED		NEGATION DATE (if required)
		NA

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**ABSTRACT**

1. (S/D) This basic report provides a chronology of launch preparation activity observed at Shuangchengzi Missile Test Range (MTR) Complex SSM and several other associated facilities in support of China's first out-of-country, broad-ocean area (BOA) ICBM flight test. The report contains a map of the Shuangchengzi MTR, an overall map of associated facilities and downrange deployment, 19 annotated photographs, and a chart depicting the chronology of events.

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**INTRODUCTION**

2. (S/D) China's first BOA missile flight test was the most complex missile test series attempted to date by the Chinese. Launch-related activity was observed involving coordinated activity at many facilities (Figures 1 and 2), including activity at two missile test centers, two missile production facilities, a large portion of the SSM/space tracking network, and an 18-ship naval task force. There is substantial evidence that this coordination effort was carried out efficiently, with the necessary diverse construction and preparation activity being done simultaneously at one or several facilities. The extensive and varied types of instrumentation deployed to monitor these missile launches indicated the Chinese determination to continue to improve their strategic missile forces.

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**BASIC DESCRIPTION**

3. (S/D) The initial launch preparation at Shuangchengzi MTR Complex SSM for the BOA missile launches was the start of construction of two new theodolite shelters (Figures 3A and 3B) between Within this same timeframe, telemetry/tracking equipment at Shuangchengzi SSM Tracking Facility 10 and slogan placards at SSM Tracking Facility 11 were deployed in support of a CSS-X-4 missile launch (items 1, 2, 31, and 36; Chart 1) from the Wuzhai MTC to western China. Construction of the theodolite shelters took place within the Launch Complex B support area. The new shelters were somewhat larger than the old shelter , suggesting a new type of launch azimuth alignment equipment. The first theodolite shelter was externally complete by . The completed shelters remained in the support area until the new launch azimuth alignment pads were complete.

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4. (S/D) Naval activity during November 1979 consisted of the continued outfitting of both Yuang Wang space event support ships (SESSs) with their telemetry/tracking instrumentation (item 52, Chart 1).

5. (S/D) Further launch preparation construction was started in late November 1979, when buried cables were installed to connect the new probable microwave transmission towers to their control buildings and an interconnecting cable network for mobile telemetry/tracking equipment to Shuangchengzi SSM Support Facility and SSM Tracking Facility 10. The installation of the buried cables at Tracking Facility 10 was delayed by the presence of the mobile telemetry/tracking equipment in support of the launch at Wuzhai MTC (items 22, 31, and 32; Chart 1). Installation of these interconnecting cable networks had been completed at Tracking Facility 10 by and at the SSM support facility by .

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6. (S/D) Imagery of revealed the deployment of a new type of telemetry/tracking equipment set. Two of the new telemetry/tracking equipment sets, interim NPIC designation Shuangchengzi-A (SCZ-A), were observed adjacent to the launch position B2 launch control facility (LCF) at Shuangchengzi Launch Test Site B1/2. The equipment appeared to be cable connected to the B2 LCF and may have been undergoing initial checkout. The SCZ-A set consists of one cab-over-engine van truck, one van trailer, and one pedestal-mounted dish antenna on the rear of a truck chassis. The two SCZ-A telemetry/tracking sets remained adjacent to the B2 LCF until when one of the sets was no longer seen, and the second had redeployed to Tracking Facility 10 (items 3 and 34, Chart 1). The SCZ-A set at Tracking Facility 10 remained in position until , when it was no longer in evidence.

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7. (S/D) In late December 1979, a missile airframe was probably shipped from Shanghai/Minhang Missile Production Plant [redacted] to Shuangchengzi MTC. Between [redacted] [redacted] a unit train consisting of one type-B and two type-C missile railcars left Shanghai/Minhang Missile Production Plant (item 40, Chart 1). These railcars had been present at Minhang since [redacted] [redacted] Type-C missile railcars are used to transport the stages of the CSL-2/CSS-X-4 missile. The Shanghai/Minhang production plant has previously been associated with CSL-2 space launch vehicles.

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8. (S/D) Naval activity during December 1979 consisted of the completion of outfitting of both SESSs with their telemetry/tracking instrumentation.

9. (S/D) Imagery of [redacted] of Shuangchengzi SSM Support Facility revealed the first observation of missile transporters for this launch cycle. The transporters were on the apron of the west checkout building (items 25 and 26, Chart 1). This activity probably signaled the arrival of the CSL-2 space launch vehicle airframe from Shanghai/Minhang Missile Production Plant.

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10. (S/D) A second missile airframe shipment was observed in January, when a unit train consisting of one type-B and two type-C missile railcars left Beijing/Nanyuan Missile Production Plant [redacted] [redacted] between [redacted] Beijing/Nanyuan Missile Production Plant has previously been identified with the production of CSS-X-4 ICBM missiles. Missile-associated railcars, resembling passenger/

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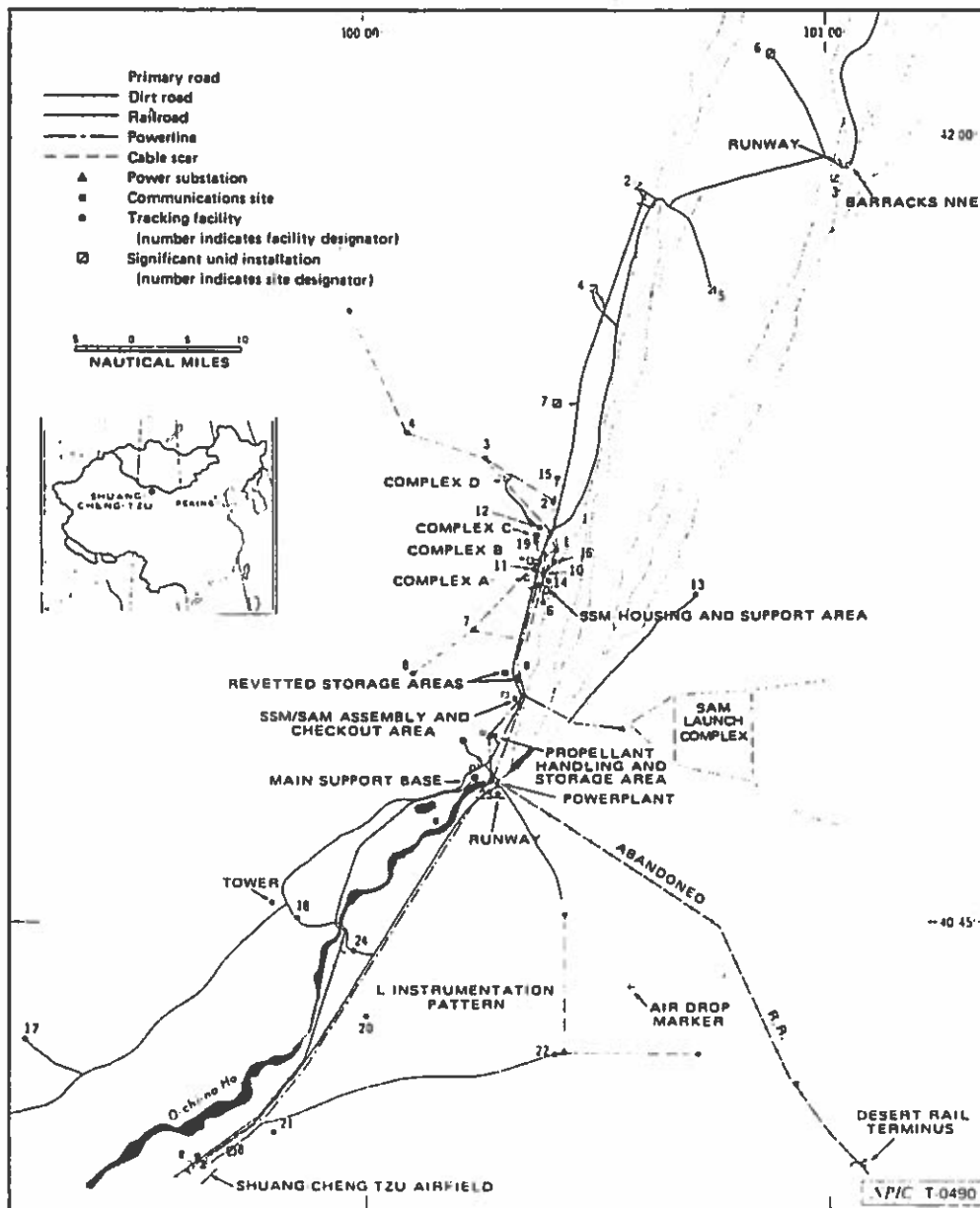


FIGURE 1. SHUANGCHENGZI MISSILE TEST CENTER, CHINA

baggage cars, were also observed to have left the Beijing/Kyauksean plant between [redacted] imagery of [redacted] revealed a single type-C missile rocket and a CS-1/1 transporter, in addition to the previously mentioned CS-1-N-4 first- and second-stage transporters, at Shuangchengzi SSIM Support Facility, probably indicating the arrival of the second shipment (Items 20, 42, and 46, Chart 1). The presence of the CS-1/1 transporter would not be consistent with the current launch preparation activity (Item 21, Chart 1). Subsequent imagery revealed that the CS-1/1 transporter was not moved during the launch cycle. A likely explanation would be that it had been removed from its assembly/checkout building to make room for the additional missile shipment.

11. (S/D) February imagery revealed further unusual personnel activity when unusually high counts of personnel vehicles were seen at Shuangchengzi SSIM Launch Complex 01/2. Imagery of [redacted] showed three type-C/1 propulsion rockets (the usual number) on the sliding serving the east propulsion facility. On 19 February, and seven type-K, propulsion rockets were on the sliding serving the west propulsion facility (usually only three type-K rockets are used). A propulsion transfer operation was apparently in progress at the time of the [redacted] imagery. A group of personnel and a [redacted] were adjacent to the propulsion transfer area. The transfer point, imagery of [redacted] of Shuangchengzi MTC Propulsion Facility [redacted] showed one type-L and seven type-K propulsion rockets on the sliding (Items 6 and 8, Chart 1).

12. (S/D) Imagery of [redacted] of Shuangchengzi SSIM Support Facility showed three boosters and a baggage tractor on the sliding serving the east assembly/checkout building, suggesting the arrival of support equipment probably in support of the previously delivered softwares. The CS-1/1 transporter and the first- and second-stage CS-1-N-4 transporters remained parked on the apron of the east checkout building (Items 23 and 24, Chart 1).

13. (S/D) Additional airborne shipments to the SSIM support facility continued in May February, when a second [redacted] was received from Beijing/Kyauksean Production Plant between [redacted] (Item 41, Chart 1). At the same time, a number of missile-associated rockets were shipped from Beijing/Kyauksean (Item 41, Chart 1). None of these rockets was observed to arrive at Shuangchengzi MTC; however, a second CS-1-N-4 first-stage transporter was parked on the apron of the east assembly/checkout building (Item 25, Chart 1). If the sighting of the additional CS-1-N-4 first-stage transporter indicated the arrival of the second Beijing/Kyauksean airborne shipment, then at least three missile shipments would have been in the assembly/checkout area of Shuangchengzi.

14. (S/D) Naval activity during February was highlighted by the observation of one of the Yang Wang SESs deployed off the coast near Qingdao (Figure 4). The Log Periodic communication antennas were oriented in a southerly direction, and most of the communication was observed in white (the usual steered position). This deployment was probably part of the initial test for the recently completed SES (Items 32 and 33, Chart 1).

15. (S/D) March activity indicated that launch preparations had entered the final stages. Construction of two new launch azimuth shoulder pads was observed at Shuangchengzi Launch Complex 01/2 on imagery of [redacted]. The pad at launch position 01 had been completed by [redacted] and the pad at launch position 02 by [redacted] (Items 6 and 8, Chart 1). The construction of both launch azimuth pads indicated that the intended launch azimuth would be [redacted]. Both of these new pads appeared to be different from the previous launch azimuth pads. A smaller, secondary mound had been graded between the launch position and the main pad, and a small club mat had been erected atop the mound. A similarly configured launch azimuth shoulder pad had previously been observed at Wafang Launch Site D [redacted] when a first booster operation. The new configurations of these launch azimuth pads and the new, larger shoulder mounds suggest that a new or modified alignment system had replaced the older system. Imagery of [redacted] showed one of the new shoulder mounds being placed on the new degree launch azimuth pad at launch position 01 by a truck-mounted crane (Figure 3). The second shoulder mound was in position on the new launch azimuth pad at launch position 02 by [redacted]. A security fence was constructed around the launch area of Complex 01/1 (Item 10, Chart 1). The fence was incomplete, however, since gates had not been constructed at the three openings (for two rail sidings and the access road) in the fence.

16. (S/D) Additional construction was observed at Shuangchengzi SSIM Support Facility and Tracking Facility 10 during March. [redacted] at both facilities, a dirt-covered material was spread over the ground in the telemetry/tracking equipment deployment areas (Figures 5 and 6 and Item 21 and 22, Chart 1). This dirt-covered material may have been to conceal other dirt or ground reflection of the electronic telemetry/tracking signals.

17. (S/D) Delivery of the telemetry/tracking equipment to the support areas at the Working facilities was observed between [redacted] at Shuangchengzi SSIM Tracking Facility 10, the SSIM Support Facility, and Wafang Missile Test Complex Instrumentation Area [redacted]. All of the telemetry/tracking equipment had been operationally deployed at all three facilities by [redacted] (Items 24, 25, and 26, Chart 1). The equipment deployed at each location was similar (Figures 7 through 9) and consisted of at least one of two SC-2 telemetry/tracking sets, two to five four-element horn antennas with their associated van tracks, and the seven-element track telemetry/tracking set (usually parked in either a staggered or an echelon formation). Instrumentation at all three locations was deployed to support the indicated launch azimuth. The telemetry/tracking instrumentation at these sites remained in position until the conclusion of the launch cycle.

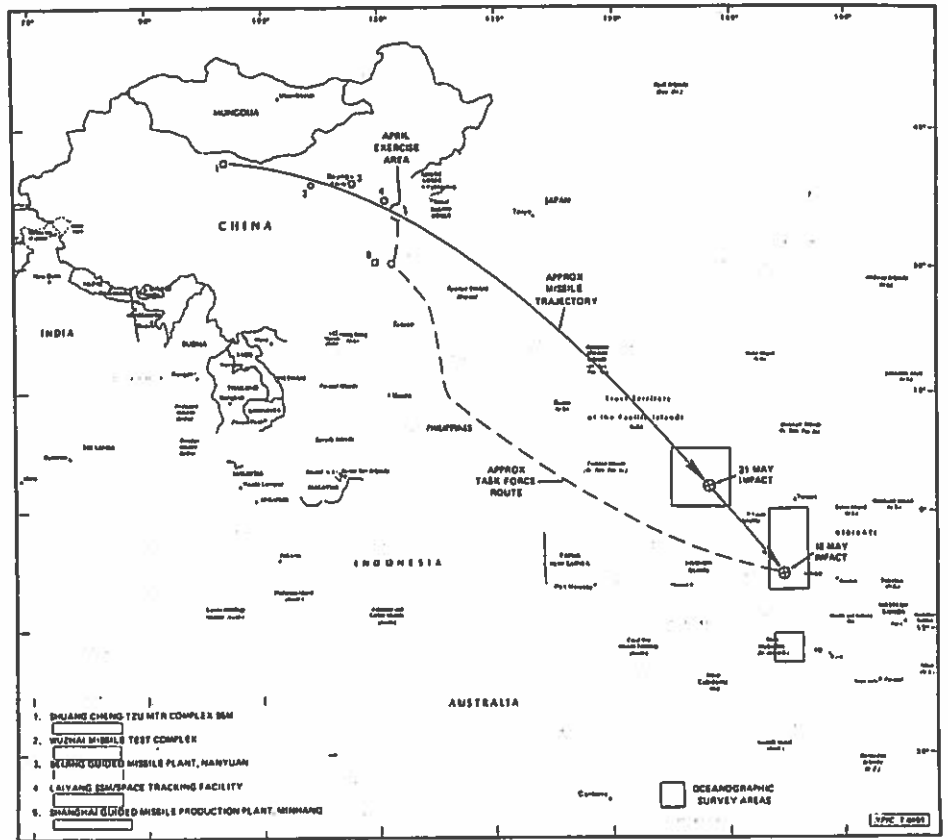


FIGURE 2. LOCATION OF LAUNCH-RELATED ACTIVITY AND FACILITIES



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18. (S/D) Between [redacted] a flatcar train in the railyard at Beijing/Nanyuan was observed being loaded with a sedan, buses, and trucks (item 50, Chart 1). These vehicles were probably to provide transportation for technicians at the launch site. A third unit train, consisting of one type-B and two type-C missile railcars and ten missile-associated railcars, left the railyard of the Beijing/Nanyuan Missile Production Plant between [redacted] (items 44 and 48, Chart 1). Imagery of [redacted] showed five of the missile-associated railcars on the sidings of the Shuangchengzi SSM Support Facility (item 28, Chart 1), suggesting that at least part of this shipment was delivered to Shuangchengzi MTC. 25X1
19. [redacted] Naval activity during March consisted of the initial helicopter training at Qingdao/Cangkou Airfield [redacted] for precision takeoffs and landings. The Xiang Yang Hung 10 (XYH-10) oceanographic research ship (AGOR) was observed in port for repair/maintenance between [redacted] (item 54, Chart 1). An exercise for the naval task force began on [redacted] and continued until [redacted] (Figure 2 and item 57, Chart 1). The 18-ship task force assembled off the coast of Qingdao and rehearsed recovery operations involving Super Frelon helicopters. The task force consisted of two Yuang Wang SESSs, an XYH-5 AGOR, an XYH-10 AGOR, two Dajiang submarine tenders (ASs), two Fuqing replenishment oilers (AORs), six Luta destroyers (DDs), three Tuzhong rescue ocean tugs (ATRs; Figures 4 and 10 through 14), and one unidentified vessel. 25X1  
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20. (TSR) Between [redacted] a CSS-X-4 missile was erected at launch position B2 (item 16, Chart 1). Empty first- and second-stage CSS-X-4 transporters were observed on the apron of launch position B2, with the gantry covering the launch position, on imagery of [redacted] (item 15, Chart 1). This activity was the first indication that a missile was being erected. Imagery of [redacted] revealed a CSS-X-4 missile erected at launch position B2. Enhancement of the [redacted] imagery showed the payload/shroud to be sharply pointed and similar to the cone/cone shaped payload previously observed on CSS-X-4 missiles (Figure 15A). On imagery of [redacted] launch position B2 was again covered by the gantry, the first- and second-stage transporters were at the base of the gantry, and a CSS-X-4 warhead van was on the access road. The observation of the CSS-X-4 warhead van further confirmed that the erected missile had been a CSS-X-4 and not a CSL-2 space launch vehicle. Imagery of [redacted] showed launch position B2 to be empty. Slogan placards were also observed erected at Shuangchengzi SSM Tracking Facility 11 from [redacted] during the missile exercise (item 37, Chart 1). The removal of the erected missile at Shuangchengzi and the termination of the naval task force exercise at the same time suggest that both exercises were related and probably indicates that a rehearsal involving all participants took place during that time (items 16, 56, and 57; Chart 1). 25X1  
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21. (S/D) Imagery of [redacted] also revealed that during the missile exercise, the old theodolite shelter was removed from the [redacted] launch azimuth pad at launch position B2 (item 13, Chart 1). On imagery of [redacted] components resembling the missing old theodolite shelter were observed within a small salvage yard in the support area of Launch Complex B (Figure 3D). The observation of these components suggests that the old theodolite shelter had been dismantled (item 14, Chart 1). 25X1  
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22. (S/D) Between [redacted] the security fence was extended around the support area at Shuangchengzi Launch Complex B1/2 (item 11, Chart 1). This new fence, as well as the fence around the launch area, still did not have gates at the access points (Figure 16). 25X1
23. (S/D) One first- and one second-stage CSS-X-4 transporter were absent from the apron of the east assembly/checkout building at the SSM Support Facility on [redacted] when imagery showed the two transporters on the apron near launch position B2 (items 15, 25, and 26; Chart 1). On imagery of [redacted] a first- and a second-stage CSS-X-4 transporter were absent from the apron of the east assembly/checkout facility; by [redacted] they had returned. On imagery of [redacted] a CSS-X-4 first-stage transporter was observed to be absent; it had returned by [redacted]. This may have been for preparation of the transporter prior to loading the missile airframe. Missile-associated railcar counts at the SSM Support Facility reached a peak of 13 railcars on [redacted] and then decreased to a count of five for the rest of the month (items 28 and 30, Chart 1). A type-C missile railcar was observed on the siding serving the west assembly/checkout building on [redacted] and on all subsequent coverage during the month. 25X1  
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24. (S/D) A fourth missile-associated railcar train departed Beijing/Nanyuan Missile Production Plant between [redacted] (items 49 and 51, Chart 1). Subsequent imagery of the Shuangchengzi SSM Support Facility revealed an increase in the number of missile-associated railcars at the SSM Support Facility (items 28, 29, and 30; Chart 1). 25X1
25. [redacted] Naval activity during April consisted of the completion of the training/rehearsal exercise off Qingdao (item 57, Chart 1) and the sighting of two Dajiang ASs and a Tuzhong ATR in port for repair/maintenance (item 58, Chart 1). 25X1
26. (S/D) Final preparations at Launch Complex B1/2 were observed on imagery of [redacted] when first- and second-stage transporters were seen repositioned on the apron in front of the doors of the east assembly/checkout building. Transporters have been in similar positions during previous launch cycles and have been an indication that the missile airframe was about to be transferred to the transporters. Imagery of [redacted] revealed the gantry covering launch position B2, slogan placards displayed adjacent to the launch position, and security gates added to the access points in the launch area security fence, suggesting that a missile had been erected (items 12 and 19; Chart 1). Further evidence at the SSM Support Facility was seen in the repositioning of the transporters previously seen parked in front of the east assembly/checkout building. Imagery of [redacted] revealed a portion of a missile between the legs of the covering gantry, and imagery of [redacted] showed a fully-staged missile erected on launch position B2 (Figure 15B). Three missile-associated railcars were parked on the siding adjacent to the support area at Launch Complex B from [redacted] (item 20, Chart 1). These railcars probably provided personnel or equipment support for the launch preparations. 25X1  
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27. (S/D) A second missile was seen erected at launch position B1 on imagery of [redacted] when a portion of the missile could again be seen between the legs of the covering gantry. The slogan placards at launch position B2 and the slogan placards erected since [redacted] at Tracking Facility 11 were no longer in evidence on imagery of [redacted] (items 19 and 38, Chart 1). Two van trucks were deployed near launch position B1 between [redacted] (item 17, Chart 1). These vehicles have been observed in this position previously and are probably associated with checkout of launch position B1, since they were removed before launch.

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28. (S/D) A fourth unit train, consisting of one type-B and two type-C missile railcars, left the railyard of the Beijing/Nanyuan Missile Production Plant between [redacted] (item 45, Chart 1). Missile and missile-associated railcar counts at Shuangchengzi SSM Support Facility started to increase two days later, on [redacted] and peaked on [redacted] with four type-C, one type-B, and nine missile-associated railcars at the SSM Support Facility (items 28, 29, and 30; Chart 1).

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29. [redacted] Naval activity during May consisted of the deployment of the task force from the Shanghai area to the midocean impact area between [redacted] (Figure 2). The task force was reportedly on station in the impact area from [redacted] until the termination of the launch cycle on [redacted]

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30. [redacted] The first CSS-X-4 missile was reportedly launched on [redacted] at 0200Z, with impact occurring at 07-42-43S 172-15-27E, within the 70-nm closure area. Postlaunch imagery of [redacted] of Shuangchengzi Launch Complex B1/2 showed launch position B2 empty, with blast marks from the launch in evidence and the first clear observation of the erected missile on launch position B1 (Figure 15C). The second missile was reportedly launched on [redacted] at 0319Z, with impact occurring at 07-20S 172-20E, approximately 815 nm short of the announced closure area. Postlaunch imagery of [redacted] (38 minutes after launch; Figure 16) revealed launch position B1 to be empty, with vehicles and personnel on the apron at the base of the service tower. The same postlaunch imagery of other rangehead facilities revealed at least 27 BJ-210 jeeps, 43 cargo trucks, 17 buses, and a large group of people at the viewing stand adjacent to Shuangchengzi SSM Tracking Facility 1 [redacted] [redacted] Additionally, two buses, ten cargo trucks, one BJ-210 jeep, and a second large group of people were observed at Shuangchengzi Launch Complex A [redacted]. Numerous other vehicles were observed along the complex access roads. These people and vehicles had apparently attended the second missile launch, on [redacted] and were leaving the area after the launch.

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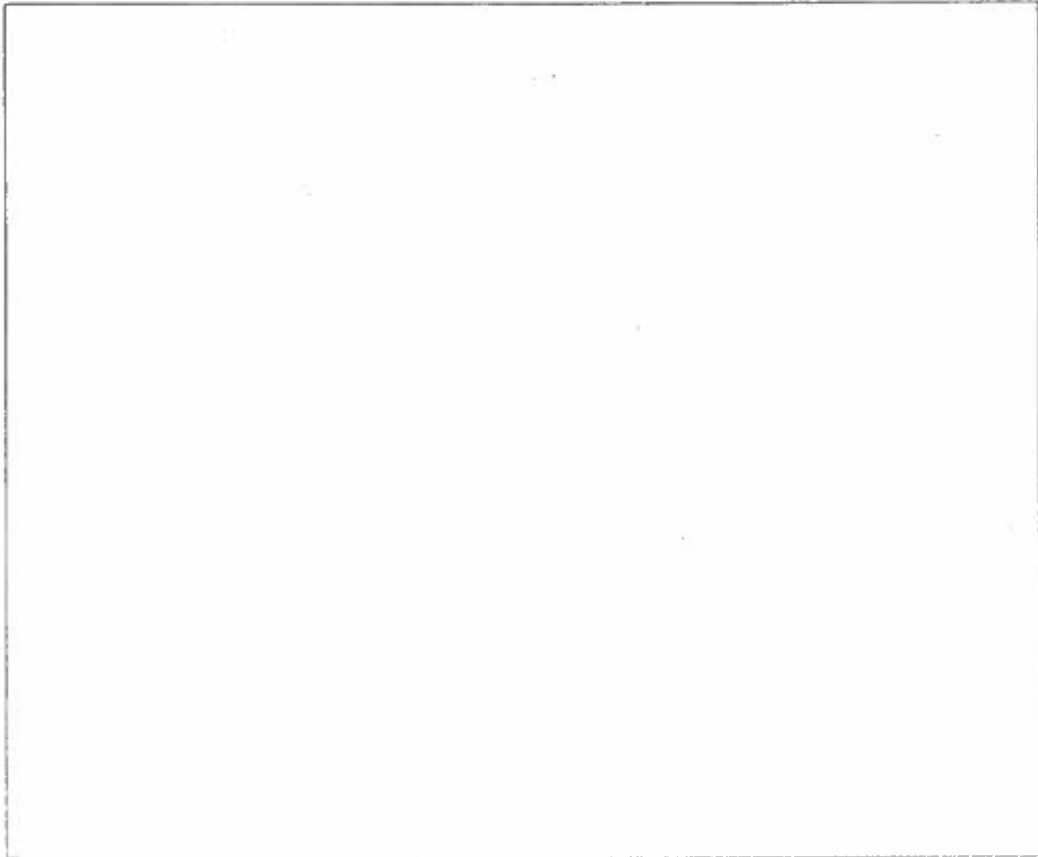
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FIGURE 11. XIANG YANG HUNG 10 AGOR

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31. (S/D) Evidence of additional telemetry/tracking equipment deployment was observed on imagery of [redacted] at the apex site of the L-shaped instrumentation pattern that is part of Shuangchengzi Air Drop Marker 1 [redacted] and adjacent to Shuangchengzi SSM Tracking Facility 22 [redacted] [redacted] Both SHIP WHEEL radars at the apex site and a seven-van-truck telemetry/tracking vehicle set were observed at this site (Figure 7). This equipment was most likely deployed at the same time as the rest of the telemetry/tracking equipment (items 24, 35, and 39; Chart 1), but limited coverage had prevented earlier identification. There was some evidence of activity suggesting participation in monitoring these missile launches at Shuangchengzi Tracking Facility 1, Tracking Facility 5 [redacted] Tracking Facility 22, Tracking Facility 24 [redacted] and Luyang SSM/Space Tracking Facility [redacted] (Figures 1 and 2).

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32. (S/D) The Chinese government announced the reopening of the closure area on [redacted] and the naval task force was reportedly en route back to China. Telemetry/tracking equipment that had earlier been deployed at the many facilities throughout China was no longer deployed by [redacted] (items 24, 35, and 39; Chart 1).

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REFERENCES

IMAGERY

(S/D) All applicable satellite imagery acquired from [redacted] was used in the preparation of this report.

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MAPS OR CHARTS

SAC, US Air Target Chart, Series 200, Sheet 0287-16, scale 1:200,000 (UNCLASSIFIED)

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2. NSA. Cable, 3/00/14919-80, Summary of Chinese Preparations for a CSS-X-4 Launch to an Ocean Impact Area (TSC), 1908Z 26 Mar 80 (TOP SECRET [redacted])
3. DIA. Cable, 3/00/24449-80, PRC' BOA Task Group Operations Continue (TSC), 2140Z 15 May 80 (TOP SECRET [redacted])
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7. DEFSMAC. Cable, S-DQ-0299-80, PRC' Announces Reopening of the Pacific Ocean Closure Area, 21 May 1980 (S) 1813Z 21 May 80 (SECRET)

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REQUIREMENT

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

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