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25 JUN 1965

MEMORANDUM FOR: Deputy Director for Science and Technology

SUBJECT: Assessment of Photography Quality in Mission 1020

REFERENCE: (a) Memorandum dated 21 June 1965, "Preliminary Assessment of Mission 1020, 10-16 June 1965, "[redacted]

1. Reference (a) states "poor image quality" prevented detailed interpretation, etc. This remark set off a careful evaluation by this office which indicates that while the photographic interpretation suitability is below the usual for CORONA missions, it is a threshold loss as compared to other missions. Five independent PIs have measured the ground resolution at 12.5 feet. This is near normal.

2. A background examination reveals that the preflight resolution checks for the instruments on 1020 gave low contrast resolution of 107 l/mm for the master and 102 l/mm for the slave (90 l/mm is acceptance limit.) Mission 1017, generally considered to be a good mission, has instruments rating 120 l/mm and 113 l/mm respectively. Mission 1020 had an MIP rating of 80 vs. 85 for 1017. Mission 1020 was within acceptance tolerances in this parameter but left the pad with enough defiency vs. 1017 to account for the MIP differences as indicated.

3. Several other factors may have contributed to the slightly less than usual quality of Mission 1020. A recent technical directive installed natural flare baffles on the pan instruments. Mission 1020 had an old recycled instrument, the last without flare baffles. The lack could contribute to loss of fine detail in the pressue of high earth flare.

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SUBJECT: Assessment of Photography Quality in Mission 1020

4. Mission 1020 was subject to the extended hold condition at R-1 which caused such corrosion on the barrels. During the extensive hold the pad airconditioning equipment failed, permitting the instrument section to breathe wet, salty and dirty air through the Agena. The instrument had to be dissassembled and cleaned - this fact could have contributed. Subsequent to this event, a technical directive has been initiated to provide separate baffling for the payload to preclude dumping of Agena air into that section.

5. Additionally, the orbit for this mission was so much lower than nominal over target areas that most of the time the scan rate drive was on the limiter and image motion could not be adequately compensated. Additional blur could be the result.

6. The conclusion drawn from this investigation follows:

a) There was a loss of information content but it was slight in comparison to missions generally accepted as good. The characterization of "poor image quality" is deemed too strong.

b) The loss was due to factors which can be plausibly explained.

c) No configuration changes need be made prior to next flight solely on the basis of Mission 1020 results.

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Attachment
Reference (a)

[redacted]

[redacted]

[redacted]
Copy [redacted]
21 June 1965

MEMORANDUM*

SUBJECT: Preliminary Assessment of Mission 1020, 10-16 June 1965

1. Mission 1020--a two-package KH-4 operation--provided some useful intelligence on the USSR and China. However, poor image quality prevented a detailed interpretation of many targets covered by the first package, and no useful photography was obtained from the second package due to equipment malfunction. In addition to coverage of the USSR and China, photography was obtained on portions of Africa, Cuba, Indonesia, Afghanistan, and Pakistan.

Highlights of the Mission

2. Several new ICBM single silo launchers were identified, and a new area of construction was detected at the Tyuratam missile test center. Additional construction was seen at the Moscow and Cherepovets ABM/SAM installations, and a new SAM site was found at the Chinese missile test center. The Chinese nuclear test site at Lop Nor was photographed twice, but poor photographic quality prevents a full assessment of the effects of the 14 May nuclear test.

ICBMs

3. This mission provided full or partial coverage of 13 of the 25 ICBM complexes. So far, three new single silos have been identified: two small silos at Perm and one large silo at Imeni Gastello. Seven suspect areas--possibly comprising

*Prepared by representatives of the DDI and the DDS&T with photographic support by CIA/PID.

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part of a fourth group of ten small silos started late last year--were also identified at Tatishchevo. A few small single silos may have been started in 1965 to fill out existing groups, but so far no new groups are known to have been started this year. About a dozen large silos have been identified which were started in 1965.

Defensive Systems

4. Coverage of the SAM or ABM complex at Cherepovets showed considerable construction progress since March and made it further evident that this installation will be similar to the complex at Tallinn. Work is well under way at each of the five launch sites, and several of the suspected electronics sites are being developed. No electronics or communications facilities have yet been identified, however.

5. At Moscow, excavations for what appears to be another triad of electronics buildings were discovered at an SA-1 site northwest of the city. This brings the number of Moscow SA-1 sites with triad installations to five and the number of triads to eight (three sites having dual triads). The first four triad sites formed a rough rectangle around Moscow. The new one breaks this pattern and suggests the possibility of further triad deployments around the outer SA-1 ring. However, corresponding SA-1 sites in the adjacent and opposite sectors were either cloud covered or not covered on this mission. If the triads have an ABM role, concentration of them to the north and west of Moscow would be consistent with the direction of the US ICBM threat. However, the triads have not been confirmed as part of an ABM system, and they might be associated with an improved antiaircraft system instead. None of the triads are finished yet. The most advanced one, located at the original northwest site, still had its cap off when photographed by Mission 1020.

6. Construction continues on the huge Dog House radar southwest of Moscow, though no significant new details were evident. The role of this installation remains uncertain, but it is suspected of having an ABM or space tracking function.

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7. Mission 1020 revealed that the Soviets are expanding their training facilities for SA-2 crews. Three new sites were found at the Kordon SAM training area, bringing the total to 13.

Missile Test Ranges

8. Tyuratam was the only Soviet test range covered by usable photography on this mission. Little activity was noted on the launch pads, although the gantry remains up on G-5, one of two pads apparently intended for a small ICBM. The missiles or missile components observed on G-2, G-4, and G-6 on photography of 28 May were not present on this coverage. Only two missile operations were detected at Tyuratam between 28 May and this coverage on 15 June: a Lunar launch on 8 June, and the launch of a photographic reconnaissance satellite on 15 June. It is possible that at least one of these launches involved the G complex although we believe this is unlikely. Space operations have been associated with other areas at Tyuratam.

9. A new area of construction activity was identified on the east end of the range. Scarring is apparent inside a double security fence. It is too early to determine the intended function of this area, and it could be either a storage/support area or a launch facility.

10. This coverage of Tyuratam also shows that three of the larger ICBM single silos--those at A, B, and I--are externally complete. The areas around these silos have been cleaned up since the last coverage in late May, and the silos probably are ready for use.

11. A new SA-2 site with four launch positions and a central guidance area was detected at Shuangcheng-tzu, the Chinese missile test center. The site was not present on 30 March. It is the second site located outside the SAM R&D area and apparently is intended to provide additional protection for the range.

Atomic Energy Facilities

12. Coverage of Lop Nor was poor although the area was covered twice on this mission. There is no

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evidence of ground scarring from the second Chinese nuclear test, and an assessment of the damage to equipment in the test area is not possible because of the quality of the photography. The absence of any apparent thermal effect from the fireball of the 14 May test indicates that the nuclear device exploded not less than 1,000 feet above the ground. There is no evidence of preparations for a third test.

13. Construction activity continues on the nuclear reactor at Yumen, China. The floor of the reactor hall building and the outer shells of two of the six cooling towers appear complete, and work on several new buildings is well along.

Soviet Naval Coverage

14. More than 100 Soviet submarines were detected on this mission--nearly all of them in the Northern Fleet--but identification of types was hampered by poor image quality. Coverage of a shipyard in the Leningrad area provided the first photographic evidence that J-class cruise missile submarines are being constructed in this area. A probable J-class diesel-powered submarine was identified in the water at the Baltic Shipyard--one of several in the Leningrad area. A shipyard at Gorkiy has been producing J-class submarines, although none of these units was identified when Gorkiy was covered on this mission. The continued construction of J-class submarines probably reflects Soviet concern with US carrier task forces, which are believed to be the main targets of the J- and E-class cruise missile submarines.

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