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TCS No. 2205/64-KH
IB No. 226/64
26 May 1964
Copy No. 1

MEMORANDUM FOR: Chief, Resources Division, ORR

ATTENTION : ██████████ 25X1A

THROUGH : Chief, Requirements Branch, Reconnaissance Group, CGS

FROM : Chief, CIA/PID (NPIC)

SUBJECT : Yen-kuo and Liu-chia Hydroelectric Power Plants,
Communist China

REFERENCES : (1) ORR Requirement - ORR 41/63
(2) ORR Requirement - ORR 131/63
(3) CIA/PID Projects C 760/63, C 761/63 and C 770/63

1. This memorandum is forwarded in answer to your above referenced requirements of the Yen-kuo and Liu-chia Hydroelectric Power Plants located near Lan-chou, Communist China.

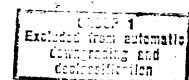
25X1D 2. A search and scan was completed from all available photography covering these facilities for this study. These facilities have been included in one memorandum because of their close proximity to each other and probable influence one will have on the other. Photography from all of the missions having good readable quality was selected for graphics in this memorandum. Although a chronological line of development beginning in ██████████ to the present period was requested, the earliest overflight photography available over these sites was obtained in the late summer period of ██████████. The graphics included herein, for both facilities, 25X1D have been arranged in a chronological order. Pertinent measurements and annotations are included on overlays accompanying figures 5 and 9, which deal with the Yen-kuo and Liu-chia sites respectively. The requested information for both facilities is given separately in the following paragraphs.

3. The Yen-kuo Hydroelectric Power Plant:

a. Location - The dam was constructed across the Huang Ho approximately 30 nautical miles west of Lan-chou at geographic coordinates 36 04N - 103 13E.

Declassification Review by NIMA/DOD

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b. Size of Structure - The overall length of the dam at the top is 1070 feet; the height is approximately 200 feet (for other measurements see Figure 5).

25X1D c. Construction and expansion - Construction on the dam probably started in [REDACTED]. Since then the rate of construction appeared to be slow, but active. Activity and progress noted by date is as follows:

25X1D (1) [REDACTED] (See Figure 3) - Construction of the generating portion of the dam appeared to be well along; the spillway portion was in very early stages of construction.

25X1D (2) [REDACTED] - (See Figure 4) - The main dam structure appeared complete. Work on the generating portion and spillway portion was in mid-final stages.

25X1D (3) [REDACTED] - (See Figure 5) - Work was underway on the two large spillway sections. A coffer dam and walkways connected the generating portion and the spillway portion to the concrete batching area located on the west bank of the river. The height of the dam was measured from this photography.

25X1D (4) [REDACTED] - (See Figure 6) - All of the spillways were in use; the walkways were located in the generating portion, between the generator hall and the spillways.

25X1D

25X1D (5) [REDACTED] - (See Figure 7) - The dam and associated features appeared essentially the same as it did in [REDACTED] except that two of the four rectangular openings in the dam structure were covered at this time. The buildings that were under construction in the concrete batching and construction materials area now appear complete. Also, the reservoir and the river appeared to be higher than noted before on previous photography

4. The Liu-Chia Hydroelectric Power Plant:

a. Location - The dam is under construction across the Huang-Ho approximately 28 nautical miles west southwest of Lan-Chou at geographic coordinates 35 59N - 103 16E.

b. Size of Construction - This dam has been progressing at a very slow rate. It is being built in a high narrow gorge. The gorge is estimated to be 350 - 400 feet high, approximately 600 feet across the top and 300 feet wide at the base (from river level). Activity was noted on all of the enclosed photography.

c. Construction and expansion - The construction site was active on all photography. Activity and progress as noted by mission and date is as follows:

(1) [REDACTED] (See Figure 8) - Work had not begun on the dam, however;

25X1D

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preliminary work was underway on both sides of the gorge. The activity included grading, gully filling, aggregate storage and building construction. The tunnel for river diversion, located at the base of the gorge on the left bank, was probably still under construction at this time.

25X1D

(2) [REDACTED] (See Figure 9) - Considerable progress was noted between this photo-mission and the one mentioned above. The tunnel was completed and operating; a coffer dam was constructed; work on the base of the dam had begun, the width of the base is approximately 200 feet; a batching area was being assembled; large amounts of aggregate and building materials were stored in the open; and building ramps were in use. The unusual structures on both sides of the gorge are probably directly tied into the dam construction and service equipment similar to that seen at the San-Men Gorge Hydroelectric Power Plant is present. 25X1D

25X1D

(3) [REDACTED] - (See Figure 10) - The construction sites appeared similar to that seen on the [REDACTED] photography. Construction work was progressing on the dam.

25X1D

(4.) [REDACTED] - (See Figure 11) - The dam construction was masked from view by the gorge top due to obliquity. Three or four possible towers are located on the right bank, these may be supporting cables suspended across to gorge to supply concrete to the dam construction. The batching plant appeared completely assembled.

25X1D

(5.) [REDACTED] - (See Figure 12) - This KEYHOLE Mission, 10 days after the previous mentioned mission, revealed the amount of construction completed on the dam. It appeared to be at least one third up the gorge. The long linear structure on the right side of the gorge appeared to line up with the dam, and will probably tie into it when completed.

25X1D

(6.) [REDACTED] - (See Figure 13) - The dam structure is located in the shadow. The only change is that the coffer dam appears to have been removed or was washed away; the river is flowing between the dam and the right bank of the gorge.

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5. The analyst assigned to these requirements was [REDACTED] who may be contacted on extension 2607 should you have any questions concerning this memorandum. This memorandum and its attachments completes these requirements.

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Enclosures:

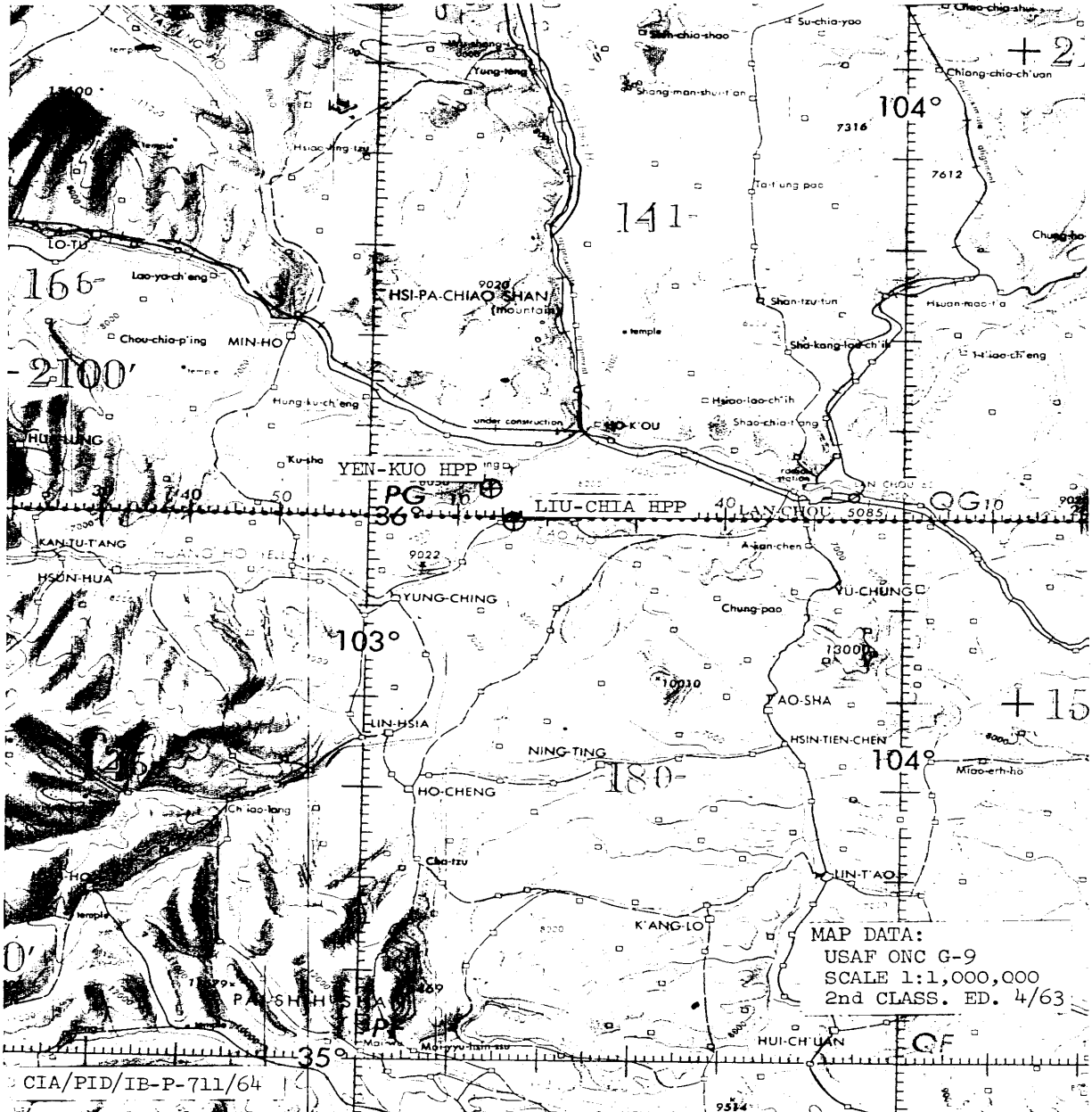
- 1 - Annotated Map (CIA/PID/IB-P-711/64)
- 12 - Annotated Photo Enlargements (CIA/PID/IB-P-712/64 thru P-723/64)

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MAP DATA:
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CIA/PID/IB-P-711/64

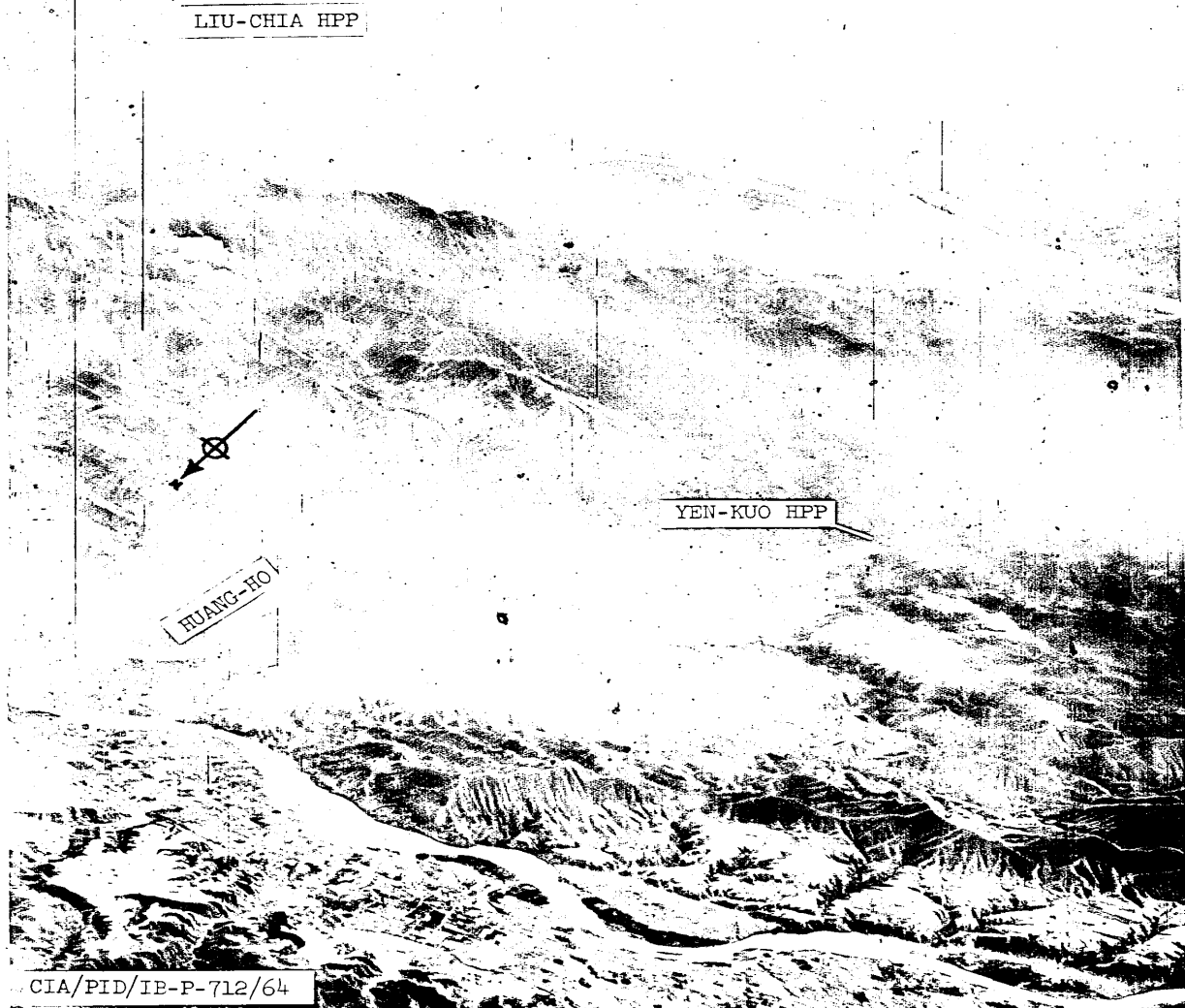
FIGURE I. LOCATOR MAP.

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CIA/PID/IB-P-712/64

FIGURE 2. OBLIQUE PHOTOGRAPHY SHOWING LOCATION OF THE YEN-KUO AND LIU-CHIA HYDRO ELECTRIC POWER PLANTS. PHOTO DATA: MSN [REDACTED]

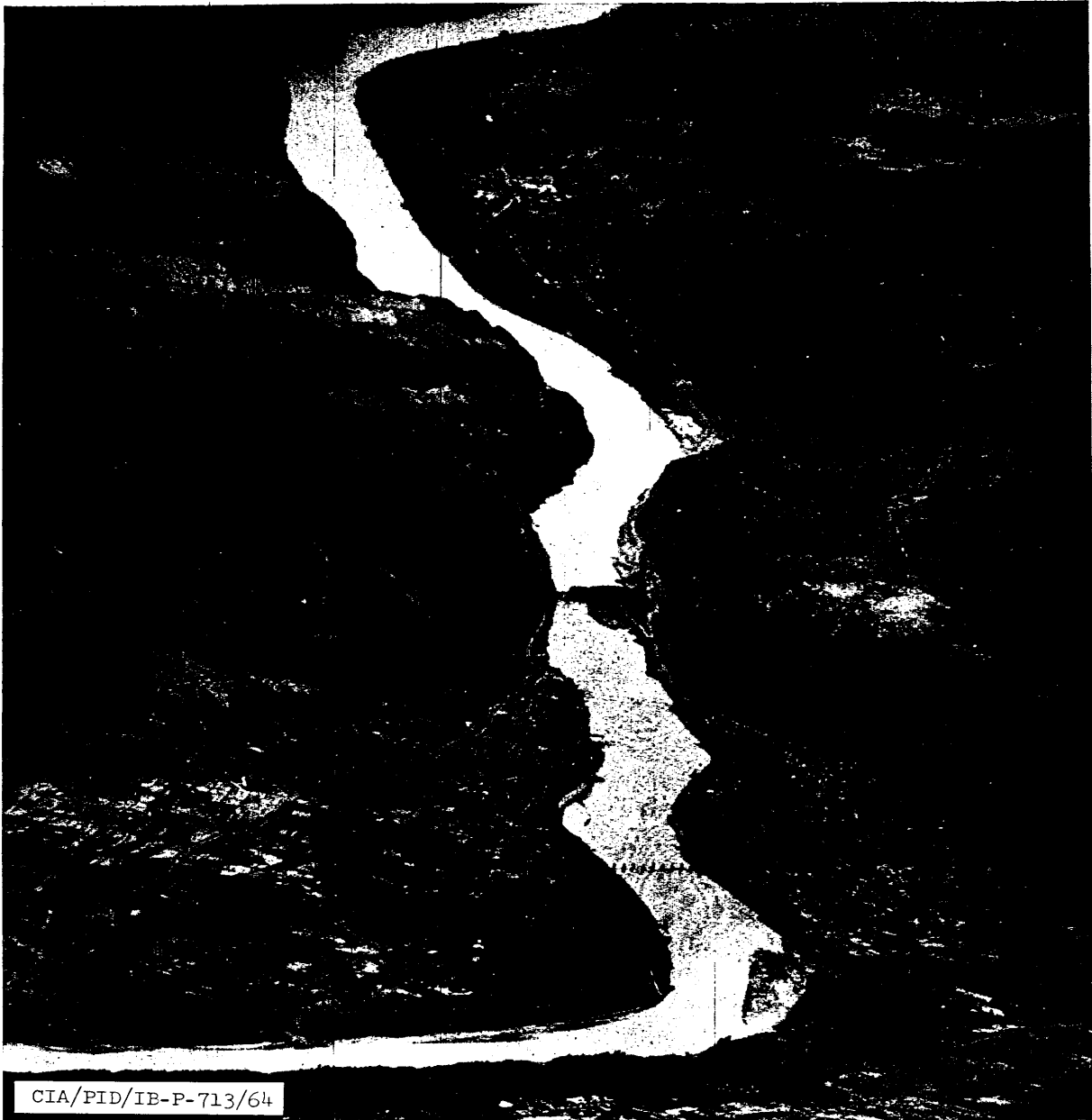
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CIA/PID/IB-P-713/64

FIGURE 3. YEN-KUO HPP. PHOTO DATA: [REDACTED]

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TOP SECRET - CHESS - RUFF

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FIGURE 4. YEN-KUO HPP. PHOTO DATA:

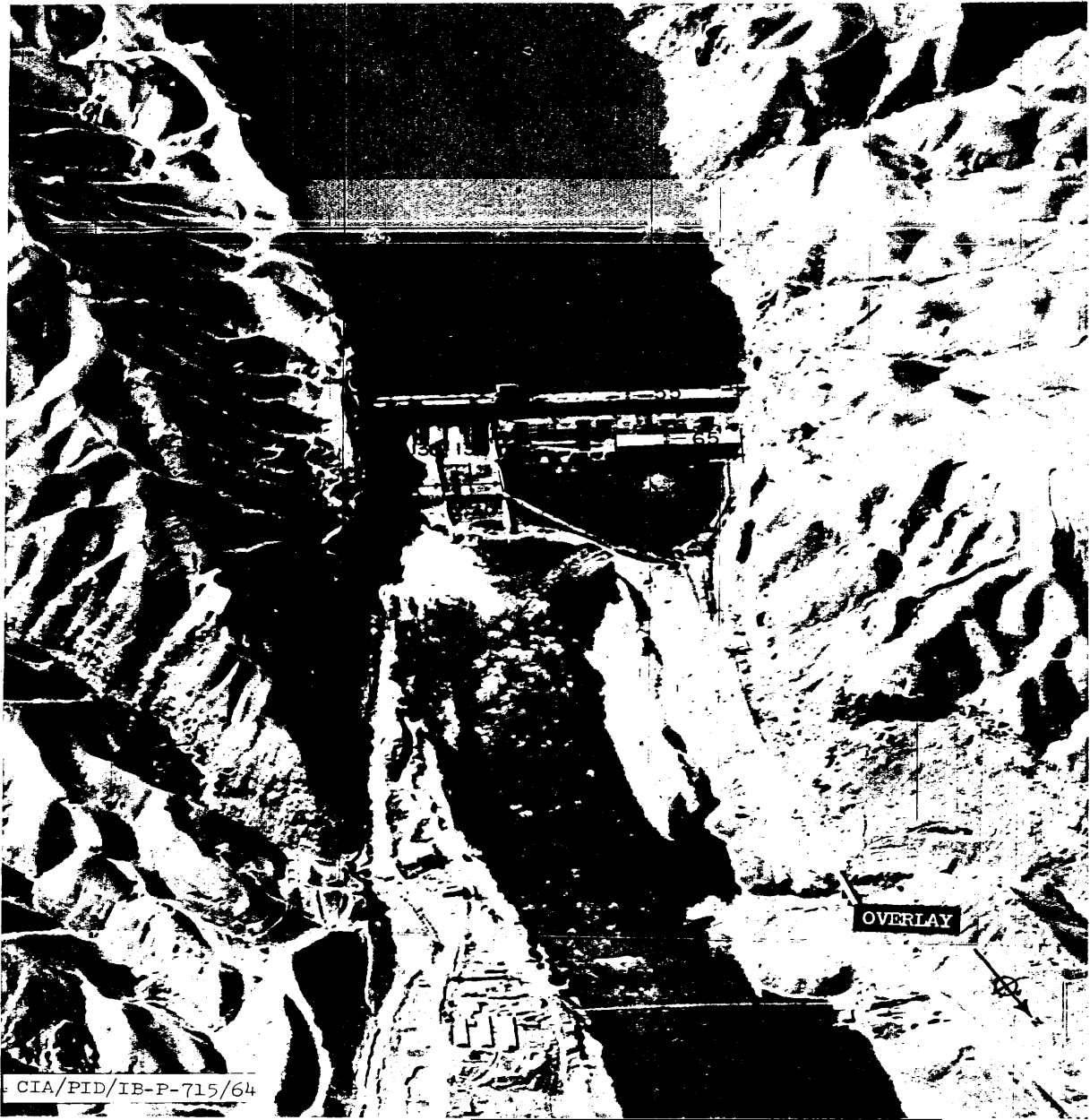
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FIGURE 5. YEN-KUO HPP. PHOTO DATA: [REDACTED]

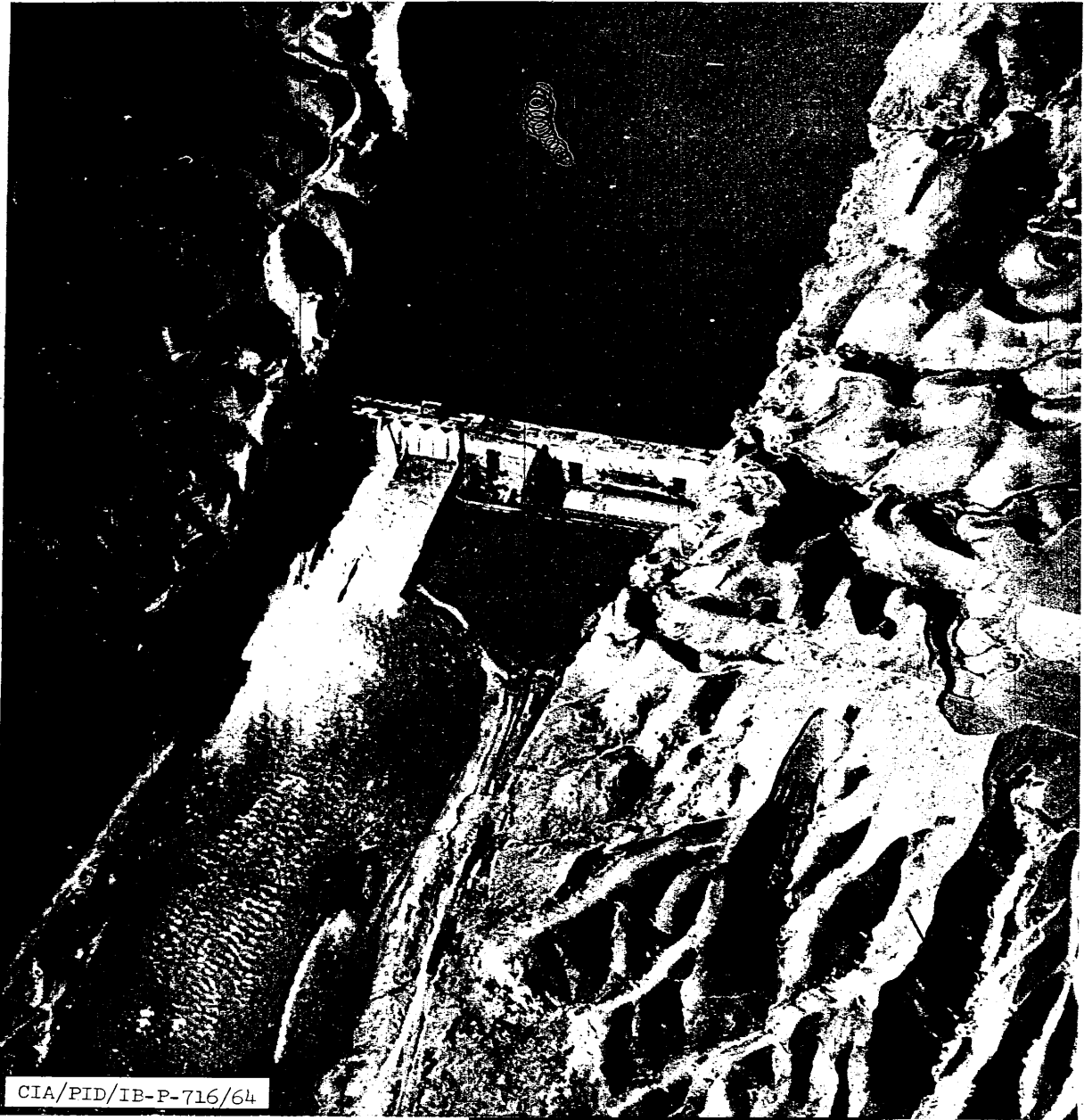
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FIGURE 6. YEN-KUO HPP. PHOTO DATA: [REDACTED]

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TOP SECRET-CHESS-RUFF

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CIA/PID/IB-P-717/64

FIGURE 7. YEN-KUO HPP. PHOTO DATA: [REDACTED]

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CIA/PID/IB-P-718/64

FIGURE 8. LIU-CHIA HPP. PHOTO DATA:

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CIA/PID/IB-P-719/64
FIGURE 9. LIU-CHIA HPP. PHOTO DATA:

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CIA/PID/IE-P-720/64

FIGURE 10. LIU-CHIA HPP. PHOTO DATA:

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FIGURE 11. LIU-CHIA HPP. PHOTO DATA: [REDACTED]

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FIGURE 13. LIU-CHIA HPP. PHOTO DATA:

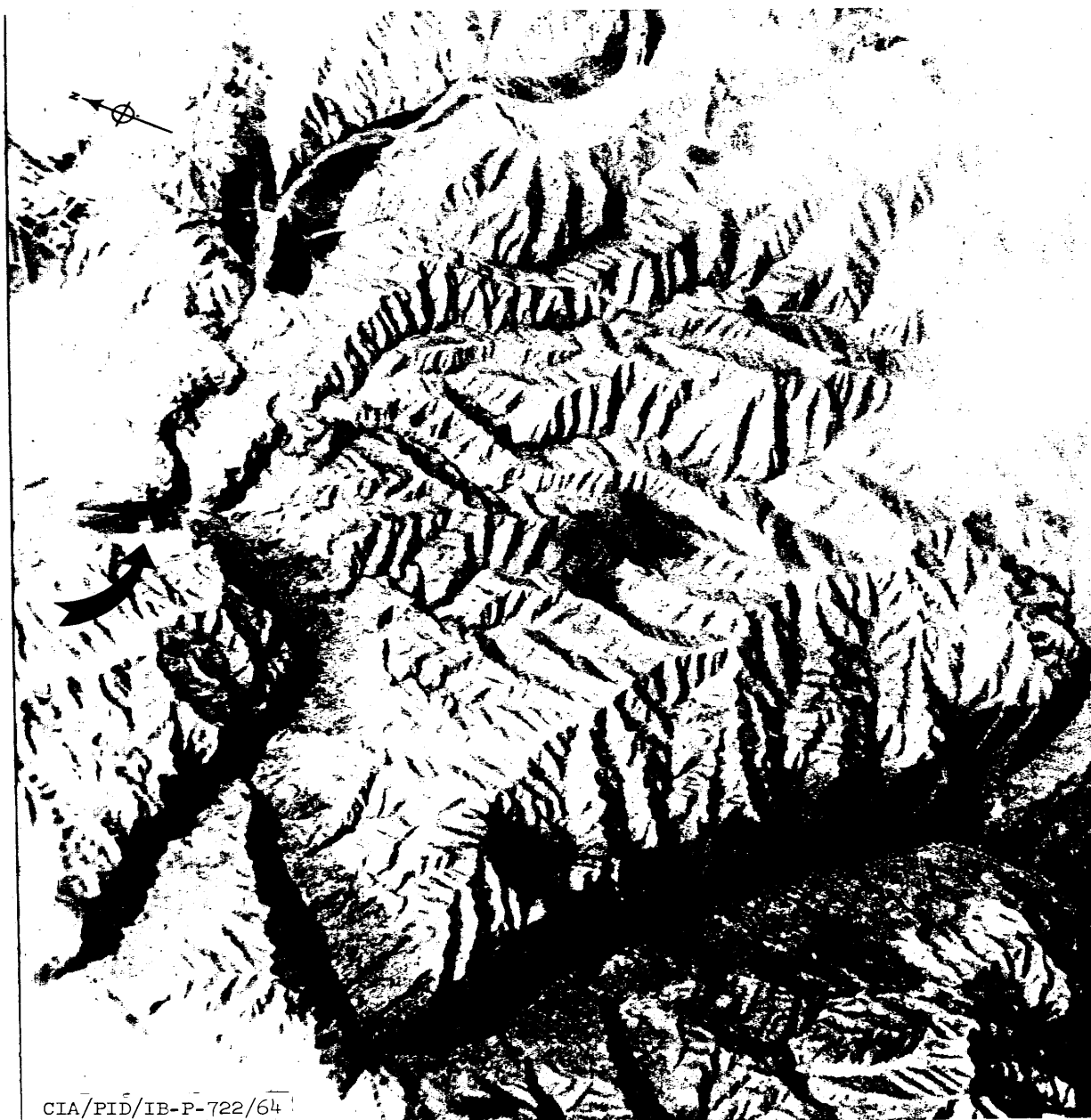
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FIGURE 12. LIU-CHIA HPP. PHOTO DATA:

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