

INFORMATION REPORT INFORMATION REPORT

CENTRAL INTELLIGENCE AGENCY

This material contains information affecting the National Defense of the United States within the meaning of the Espionage Laws, Title 18, U.S.C. Secs. 793 and 794, the transmission or revelation of which in any manner to an unauthorized person is prohibited by law.

C-O-N-F-I-D-E-N-T-I-A-L

COUNTRY	USSR (Uzbek SSR)	REPORT	[Redacted]	50X1-HUM
SUBJECT	Photographs and Pamphlet on The Cascade System on the Chirchik River	DATE DISTR.	// July 1962	
		NO. PAGES	2	
		REFERENCES	RD	

DATE OF INFO.	[Redacted]	50X1-HUM
PLACE & DATE ACQ.	[Redacted]	

THIS IS UNEVALUATED INFORMATION. SOURCE GRADINGS ARE DEFINITIVE. APPRAISAL OF CONTENT IS TENTATIVE.

[Redacted]	50X1-HUM
------------	----------

1. [Redacted] English-language pamphlet, The Chirchik-Bozsu Multi-Purpose Scheme, Moscow, 1961, published by the USSR Ministry of Agriculture. The pamphlet is illustrated and outlines the Seven-Year Plan proposals to develop the water power and irrigation potentials of the Chatkal River, the main tributary of the Chirchik River. When detached from covering report, the pamphlet is FOR OFFICIAL USE ONLY.

2. The following photographs: [Redacted]

	<u>Title</u>	50X1-HUM
[Redacted]	Gazalkent. Chirchik River upstream from dam.	
[Redacted]	Gazalkent. Chirchik River. Three-part panorama of dam and sand traps.	
[Redacted]	Gazalkent. Chirchik River below the dam area.	
[Redacted]	Gazalkent. Dam on Chirchik River.	
[Redacted]	Gazalkent. Sand trap at dam.	
[Redacted]	Gazalkent. Slide of dam.	

C-O-N-F-I-D-E-N-T-I-A-L

GROUP 1
Excluded from automatic
downgrading and
declassification

5
4
3
2
1

STATE	X	ARMY	X	NAVY	X	AIR	X	NSA	X	OCR	X	NIC	X	DIA	X
(Note: Washington distribution indicated by "X"; Field distribution by "#")															

INFORMATION REPORT INFORMATION REPORT

34

C-O-N-F-I-D-E-N-T-I-A-L

50X1-HUM

-2-

Title

Gazalkent. Entry and diversion canals downstream from the sand traps.

Gazalkent. Detailed view of sand traps at dam.

Komsomolsk. Hydroelectric central Komsomolsk.

Komsomolsk. Turbine room at hydroelectric central Komsomolsk.

Komsomolsk. Power lines and canal at hydroelectric central Komsomolsk.

Near Chinaz. Syr-Darya River from bridge southwest of city.

Portion of Kirov Canal.

C-O-N-F-I-D-E-N-T-I-A-L

50X1-HUM

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 : CIA-RDP80T00246A063200340001-2
The USSR National Committee on Irrigation and Drainage

CONFIDENTIAL USE ONLY

**CHIRCHIK-BOZSU
MULTI-PURPOSE SCHEME**

CONFIDENTIAL USE ONLY

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 : CIA-RDP80T00246A063200340001-2

The report is compiled by engineers
Moisseev B.Y. and Nikolaev I.K. by
the materials of the Institute
"Sredazgidroenergostroi"

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 : CIA-RDP80T00246A063200340001-2

In the Chirchik Valley, one of the biggest cascades of hydropower plants was constructed during the period 1926 to 1953 in the Uzbek Republic enabling the improvement and extension of irrigation and land development in this basin.

The completion of the Bossu hydropower plant, the first of its kind in the Soviet Union, was the dawn of a new era in the development of such cascades. The Bossu hydropower plant played an important role in future construction of similar plants in the republic and particularly in the development of cascade projects.

In 1953 the 16-th stage of the flight, new Bossu hydropower plant No.6, was put into operation and additional units were installed in the two upper previously constructed stages, Tavak and Komsomolskaya.

Hydropower development on the Chirchik River was stipulated by the possibility of complex utilization of its water resources both for generation of cheap power and for covering irrigation and industrial development.

1150000
The Chirchik River basin lies in the territory of three republics: Uzbek, Kazakh and Kirghiz. Its catchment area is 11.5 thous.sq.km. The length of the river with its tributary Chatkal is 360 km, the difference in elevations between source and mouth being 2,100 m.

Annual river flow depending on water flow years varies from 3.7 to 10.1 bill.cu.m, and discharges correspondingly vary from 25 to 2,100 cu.m per sec., their main annual value was 230 cu.m per sec.

Water resources of the Chirchik River basin were studied in detail. On the Chirchik and Chatkal Rivers sites for the big highhead units were investigated and planned, defining the technical potential of power resources of these rivers. The most effective cascades within the boundaries of the Chirchik River basin are Chirchik and Chatkal cascades, their specification is given below in Table 1.

Item	Parameters of river	Length of river	Total length of river	Number of stages	Rate of flow in sq.km	Power capacity, in thous. kw
Chatkal cascade		179	1,500	2	17	900
Chirohik cascade		206	619	20	16	960

The Chirohik cascade was completely developed in the lower reaches of the river by constructing the Chirohik-Bossu power and irrigation canal.

Table 2

Item	Length of section, in km	Total length of river, km	Number of stages	Power capacity, thous.kw	Notes
<u>Chirohik cascade</u>					
Middle Chirohik	40	198	3	625	to be constructed
Chirohik-Bossu					
a) Chirohik	27	104	3/		constructed
b) Bossu	45	185	8/	335	" "
c) Lower-Bossu	94	132	5/		" "

The Chirohik-Bossu section of the cascade is fed from a dam-type water intake structure; it has a system of irrigation and power outlets and irrigation escapes.

Flow discharges of the canal provide for irrigation of 150 thous.ha and water supply of settlements in the Chirohik Valley.

The dam foundation is composed of conglomerates and pebbles. Its headworks include a concrete gated dam having 5 spans each 14 m long; an earth dam adjoining the concrete dam form-

the sedimentation tank having 6 chambers 155 x 18 in size, adjoining the concrete dam on the right bank. The head on dam is 8.5 m. This structure provides for sediment control and supply of water to the diversion canal, maximum discharge being 280 cu.m per sec.

The first stages of the Tavak hydropower plant and Komsomolskaya hydropower plant are similar in their impounded head (35 and 31 m) and capacity (87 and 74 thous.kw); they consist of a reservoir, 4 steel penstocks, a power house and an idle floating ice escape. 4 units with radial axial turbines are installed in the power house.

The third stage of the Chirchik cascade is Ak-Kavak hydropower plant. Its head is 37 m, its capacity being 35 thous.kw. Irrigation canal Zakh takes off from the reservoir of the hydropower plant. At present the canal provides for irrigation of 30 thous.ha and in future more than 70 thous.ha.

Ak-Kavak hydropower plant is the last stage of the Chirchik cascade.

Tail water from this hydropower plant enters the Bozsu canal which in the past being only an irrigation canal had its own semi-engineered water intake from the Chirchik River.

This canal is the main right-bank irrigation canal which runs in the vicinity of Tashkent and through the town itself. Such canals as Karasu, Salar, Kalkaus, etc. are fed from the main canal, the total irrigated area being 80 thous.ha.

The Bozsu River gradient of 185 m, the length being 45 km, is fully utilized by 8 relatively small hydropower plants.

The tailrace water from the last stage of the Bozsu cascade, Aktepinskaya hydropower plant discharges into the Lower-Bozsu canal, which is the continuation of the main canal.

The Lower-Bozsu escape canal flows into the Syr-Darya River near the village of Chinaza. Its total length is 94 km and its gradient is 132 m. It is fully utilized by 6 hydropower plants with power capacities varying from 5 to 20 thous.

The cascade of lower-Bozsu hydropower plants
during the period 1934 to 1953. This period is characterized with the introduction of new irrigation structures and designs. For example, for the first time in irrigation practice dams were constructed by the hydraulic fill method.

Chirchik-Bozsu power irrigation canal has a varying demand on the Chirchik River flow throughout the year. In order to increase the water supply of the hydropower cascade, to provide further irrigation development in the river basin, and to get additional power capacities the Charvak reservoir is planned to be constructed during this Seven-Year period. This reservoir will provide for seasonal flow regulation of the Chirchik River.

The Charvak reservoir, with storage capacity of 1.5 bill. cu.m will increase winter non-regulated discharges 2-4 times, and more efficient utilization of equipment at the existing cascade of hydropower plants will also help to increase power 25 per cent in winter.

Moreover, the construction of the Charvak reservoir and mighty power plant will facilitate the control of daily discharges within a wide range to cover peak demands for the local power scheme.

On account of the Charvak reservoir it is possible to guarantee water supply to an area of 340 thous.ha of the existing irrigable area and to extend the new territory under gravity irrigation to 15 thous.ha.

The site of the Charvak hydropower plant is situated not far from the existing dam which is the main headworks of the Chirchik-Bozsu cascade.

According to the proposals the bed of the river channel will be dammed by a structure of combined type which is to be constructed of local materials, its height being 150 m and volume 16 mill.cu.m.

The main tributary of the Chirchik River is the Chatkal River. It is of great importance for complex use of water

stages makes its capacity equal to 900 thous.kw. The upper hydropower plant, Barkauk, has a reservoir of long-term regulation with a storage capacity of 5 bill.cu.m. It will make it possible to increase discharges during the vegetation period in mean and low flow years. In future the irrigated area shall be increased to 700 thous.ha.

The complex of power irrigation development in this densely populated region is one of the necessary means of future cotten development in Uzbekistan. It can be achieved through increasing areas with gravity and pumping irrigation and through cheap power generation for production of chemical fertilisers to increase yields.

Каскад
Чаткал-Чирчик-Бозсуйских гидроэлектростанций

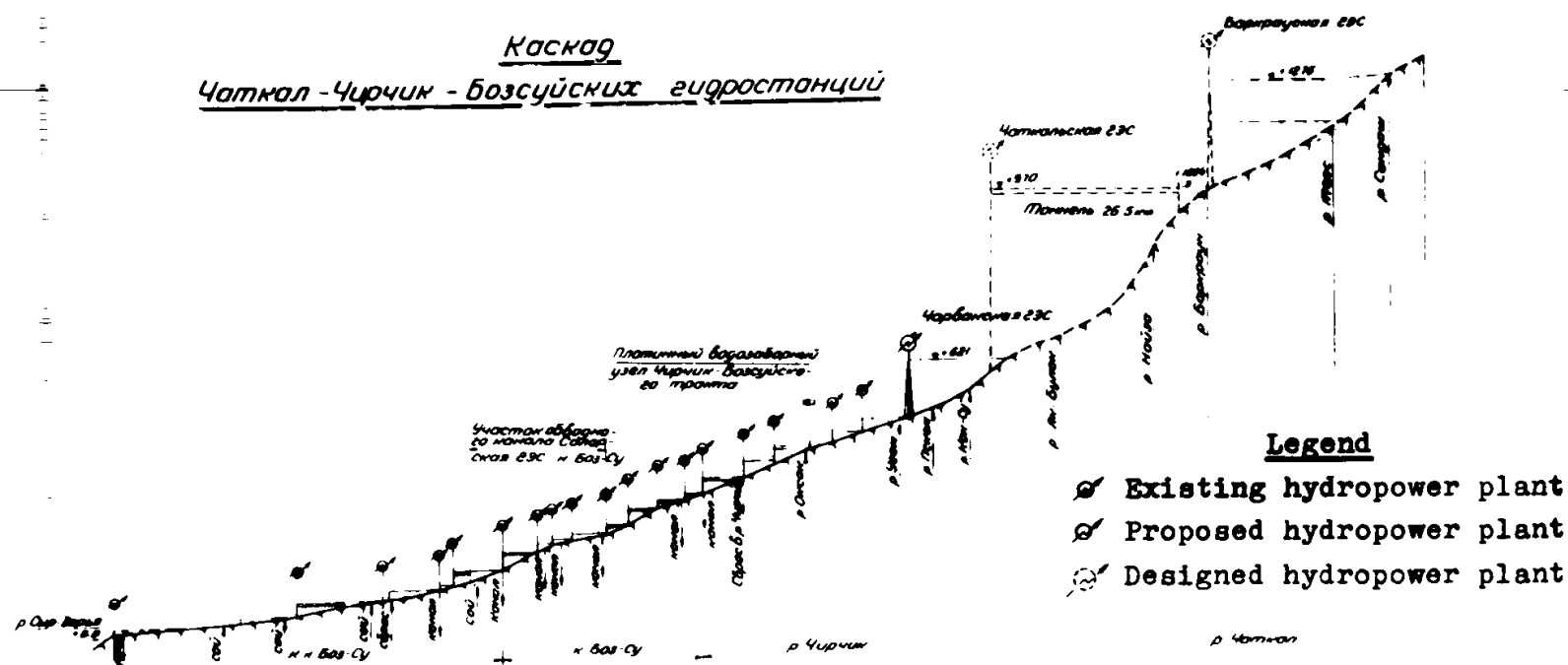


Fig.1 Scheme of cascade of Chatkal-Chirchik-Bozsu hydropower plants

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

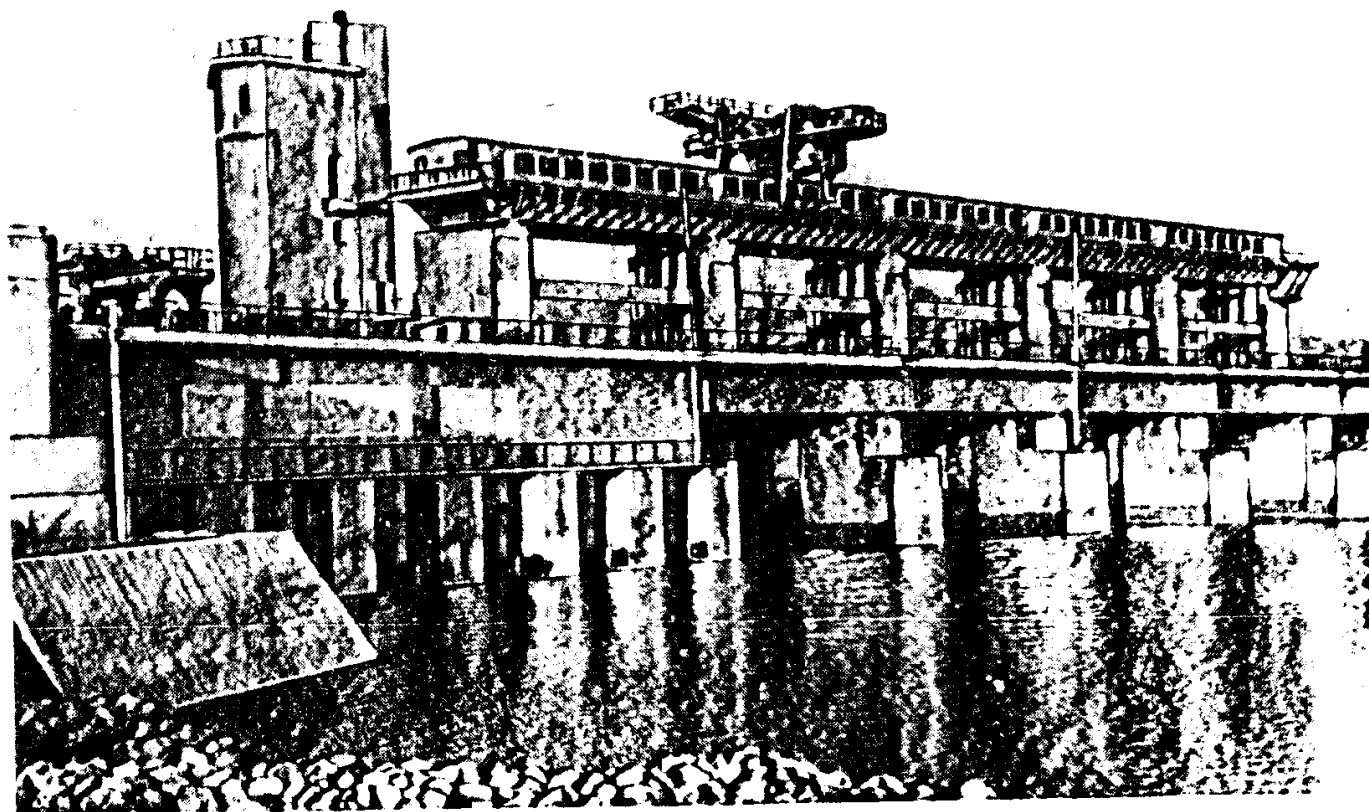


Fig.2 Headworks of cascade on the Chirchik River

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

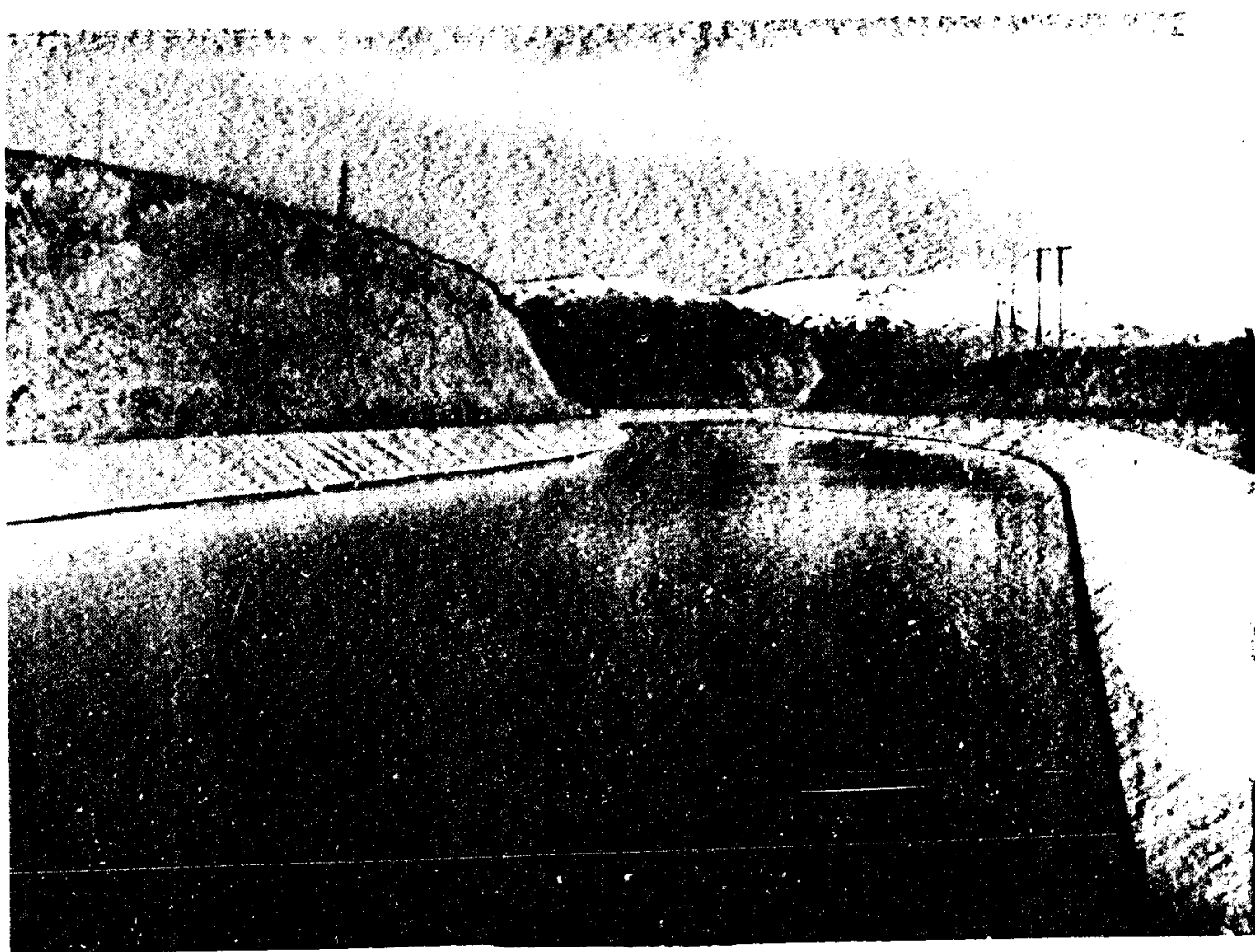


Fig.3 Derivation canal of cascade

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

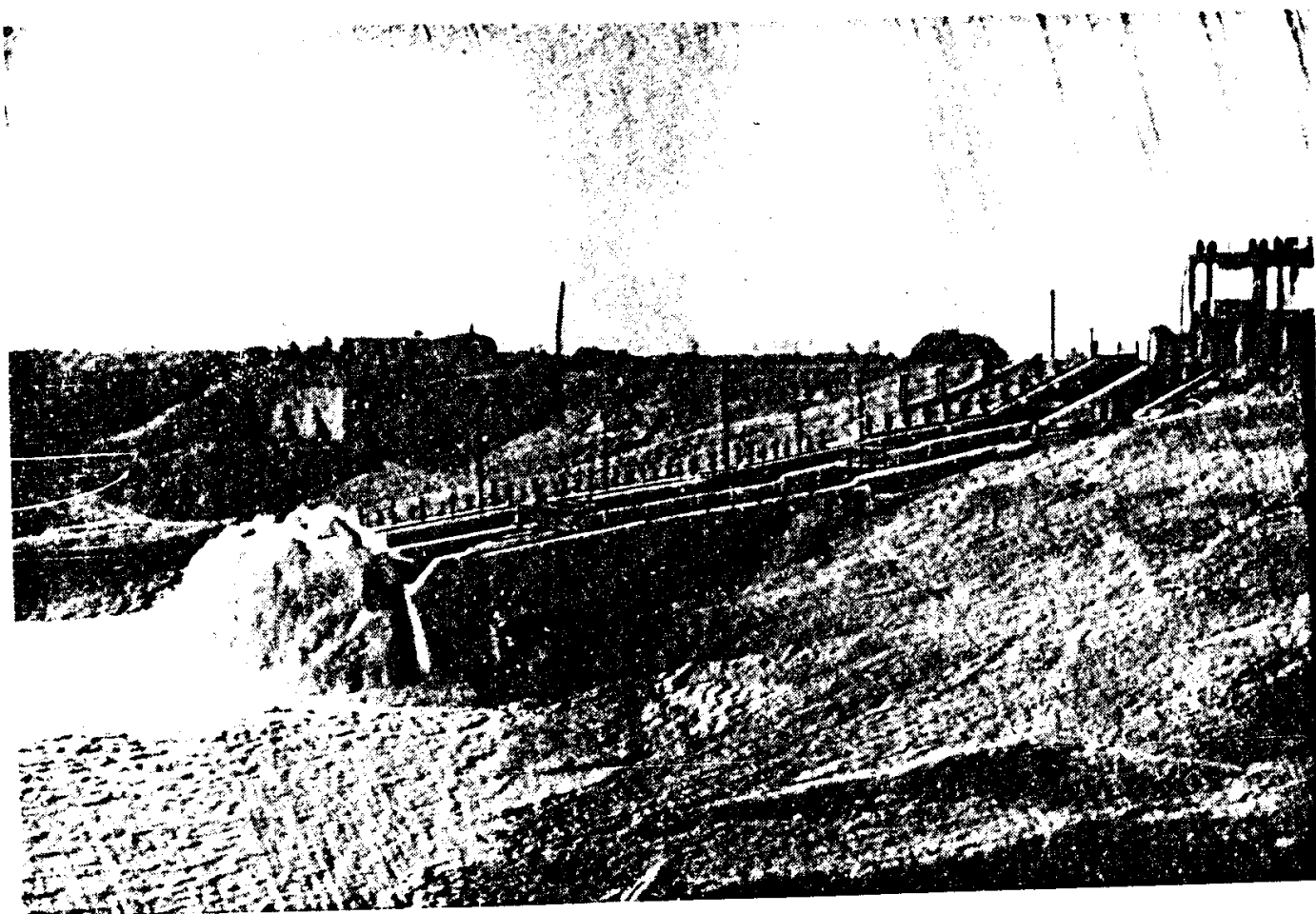


Fig.8 Yalamin escape to the Syr-Darya River at the end of cascade

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

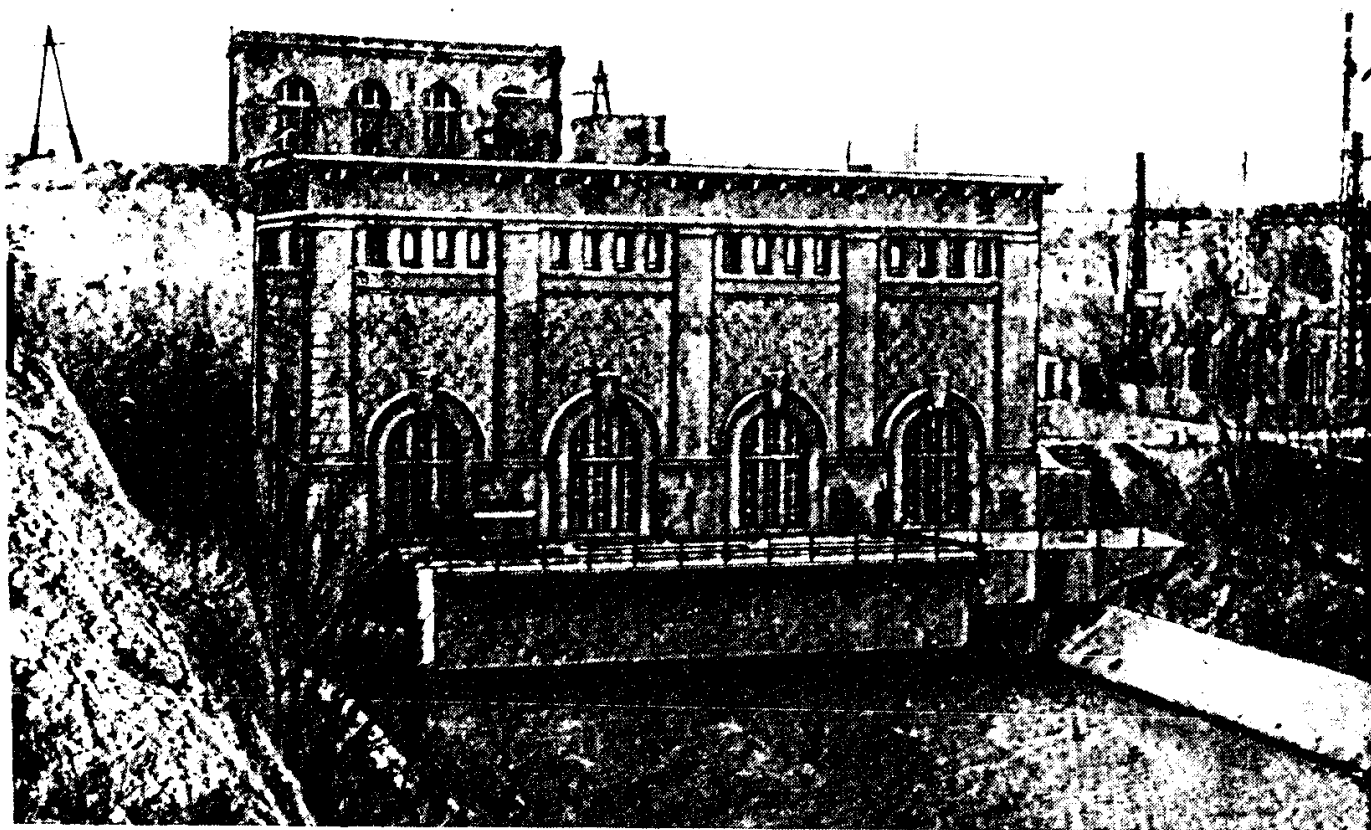


Fig.7 Lower-Bozsu hydropower plant No.3

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

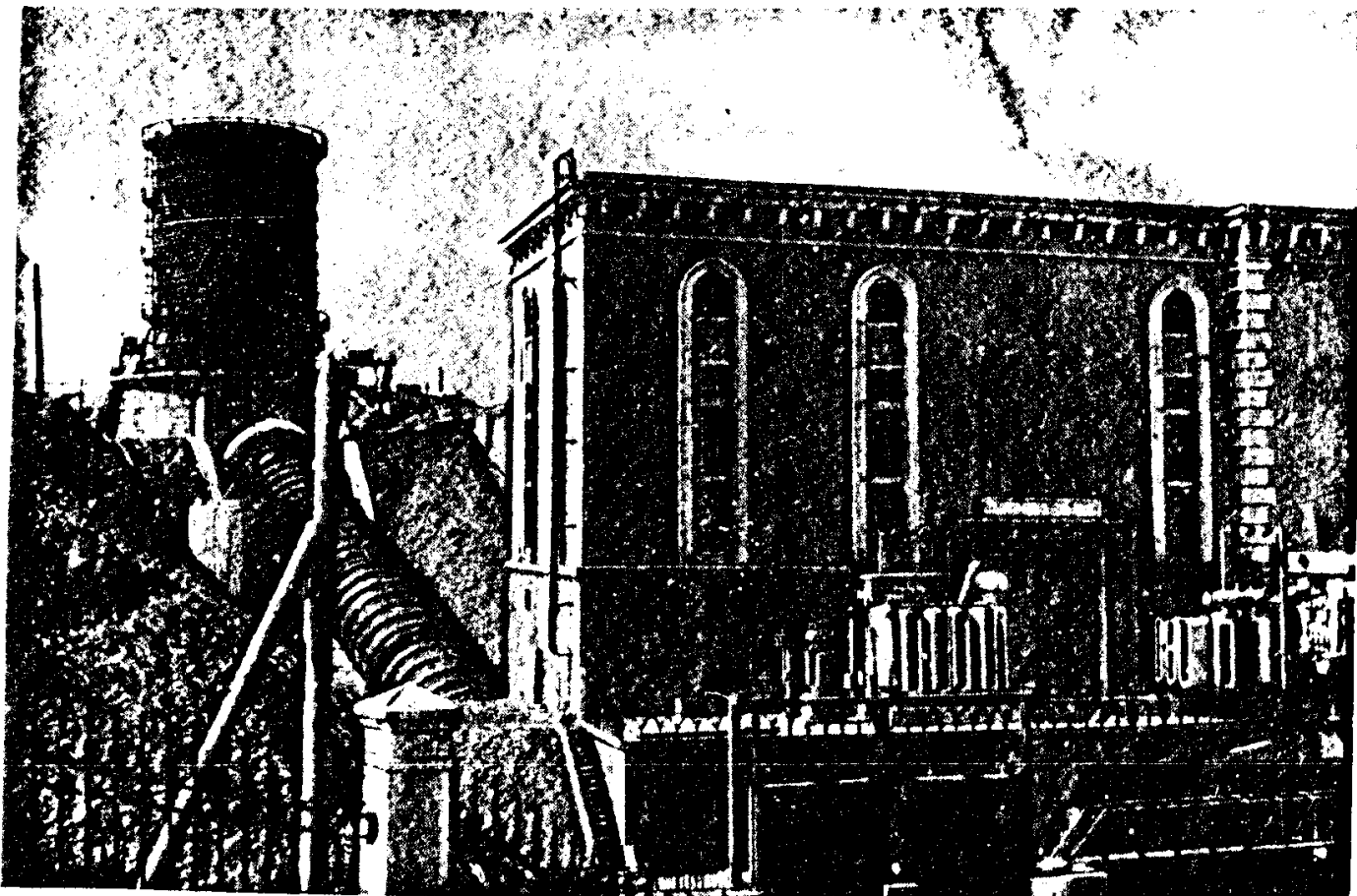


Fig.6 Ak-Kavak hydropower plant No.1

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

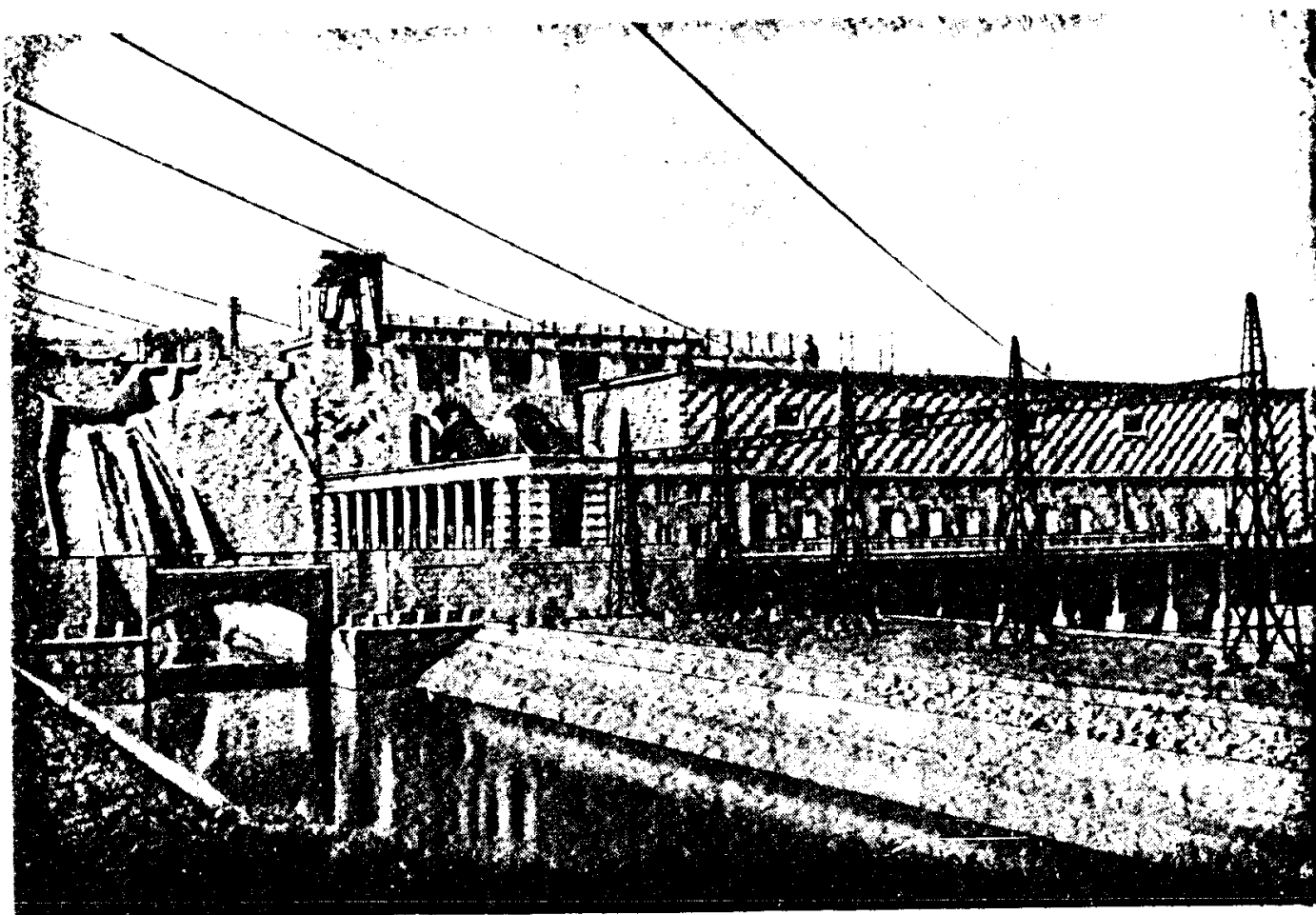


Fig.5 Komsomol'skaya hydropower plant

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

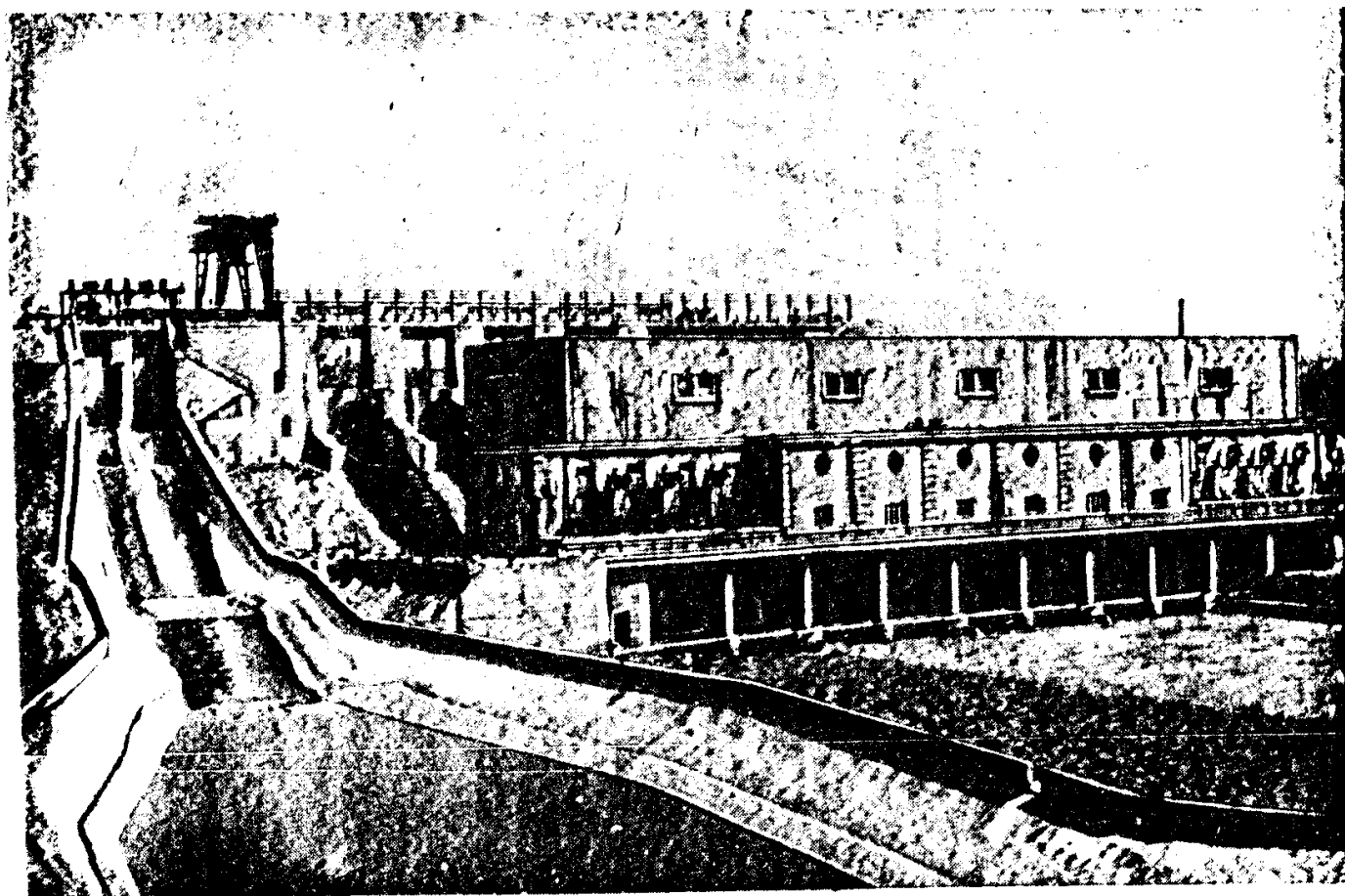


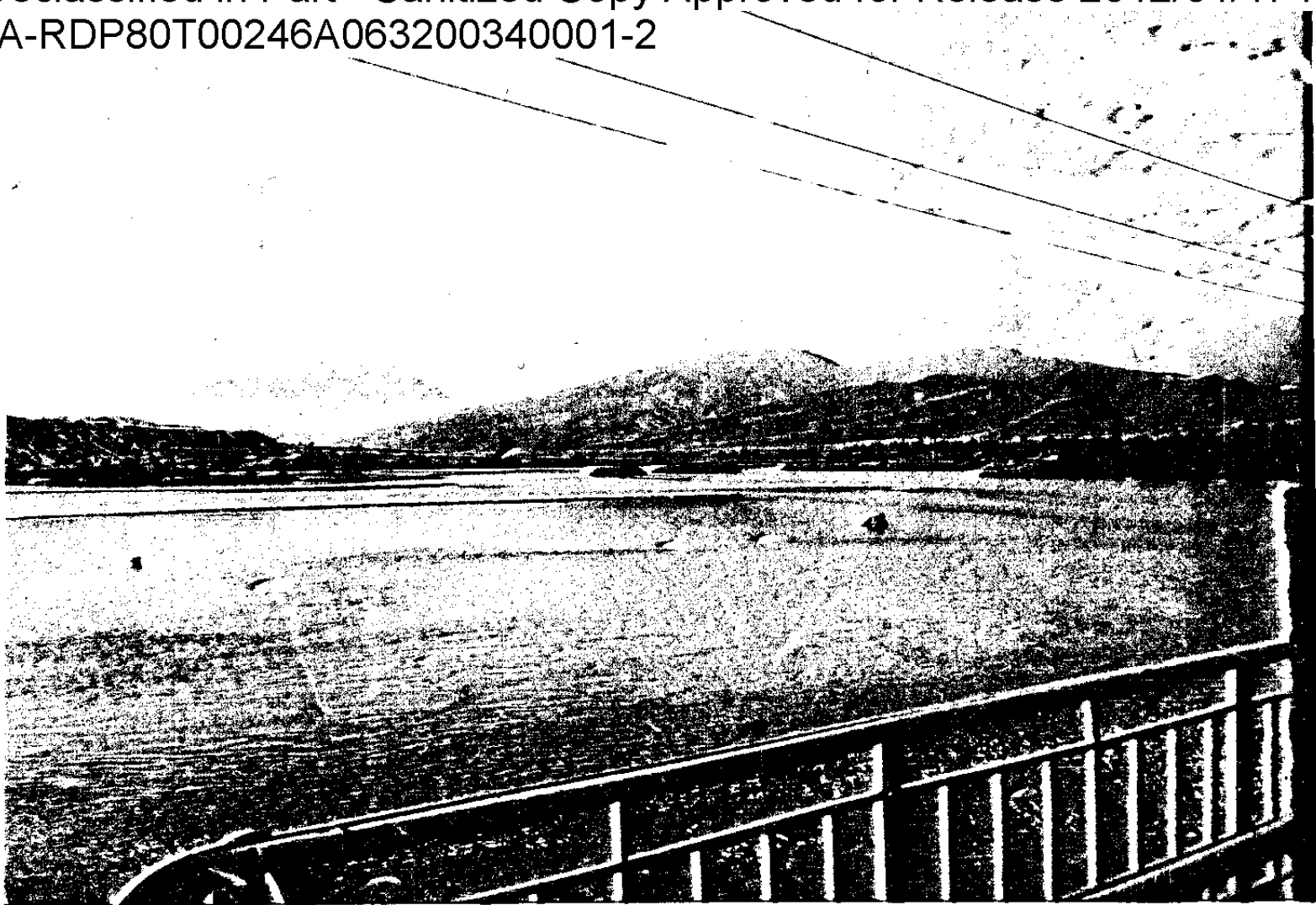
Fig. 4. Tavak hydropower plant

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

USSR WAC 328D GAZALKENT 41 33 N 69 45 E
CHIRCHIK RIVER UPSTREAM FROM DAM.

50X1-HUM

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

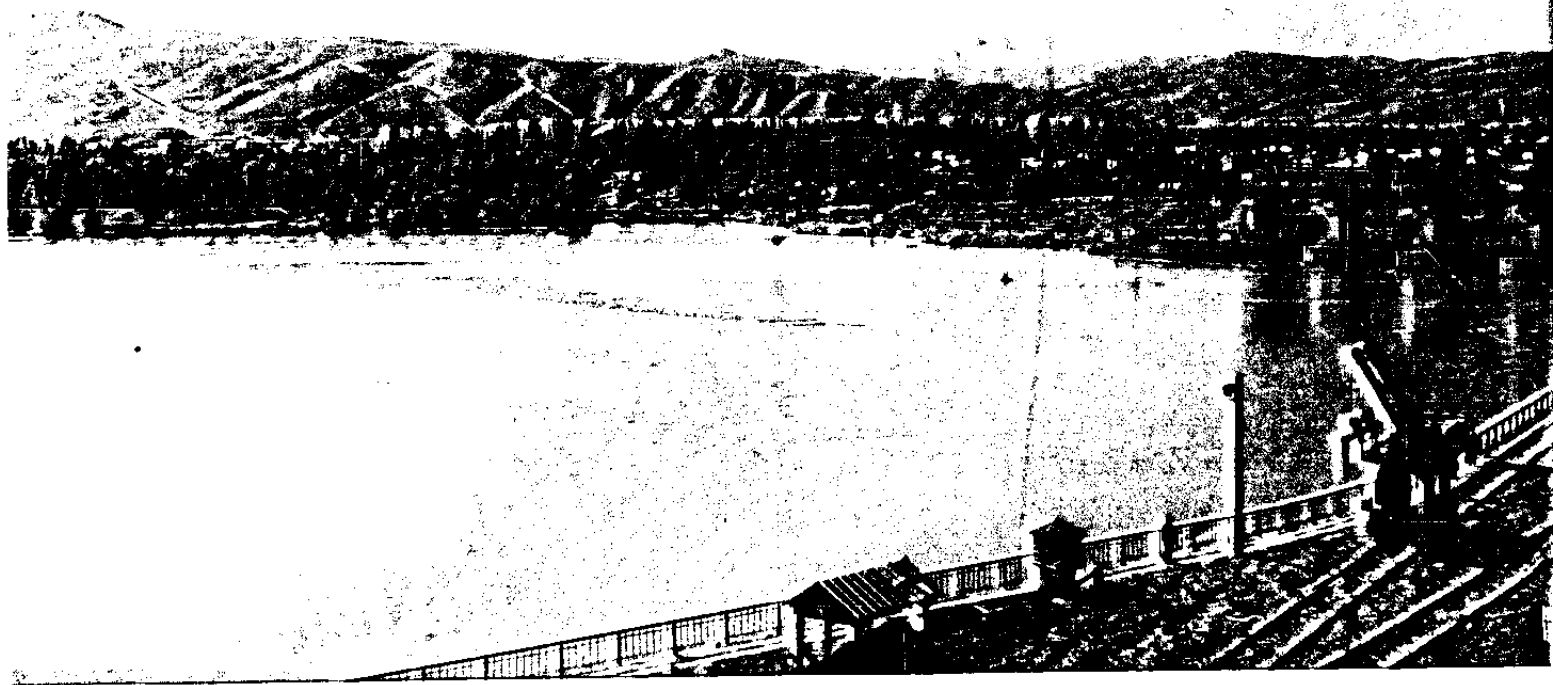


Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

50X1-HUM

USSR WAC 328D GAZALKENT 41 33 N 69 45 E
CHIRCHIK RIVER. DAM AT RIGHT. PT 1 OF 3 PT PAN.

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

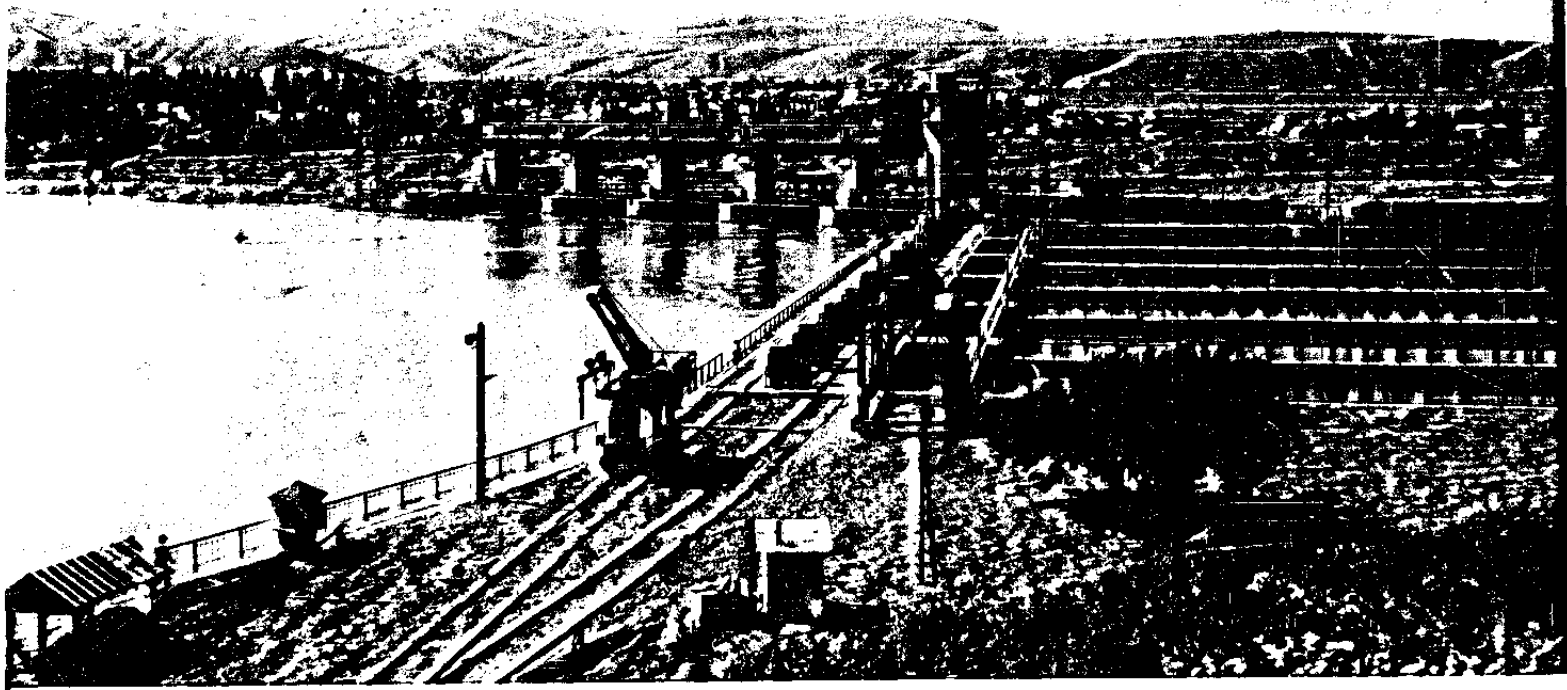


Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

50X1-HUM

USSR WAC 328D GAZALKENT 41 33 N 69 45 E
DAM AT CENTER, SAND TRAPS AT RIGHT. PT 2 OF 3 PT PAN.

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

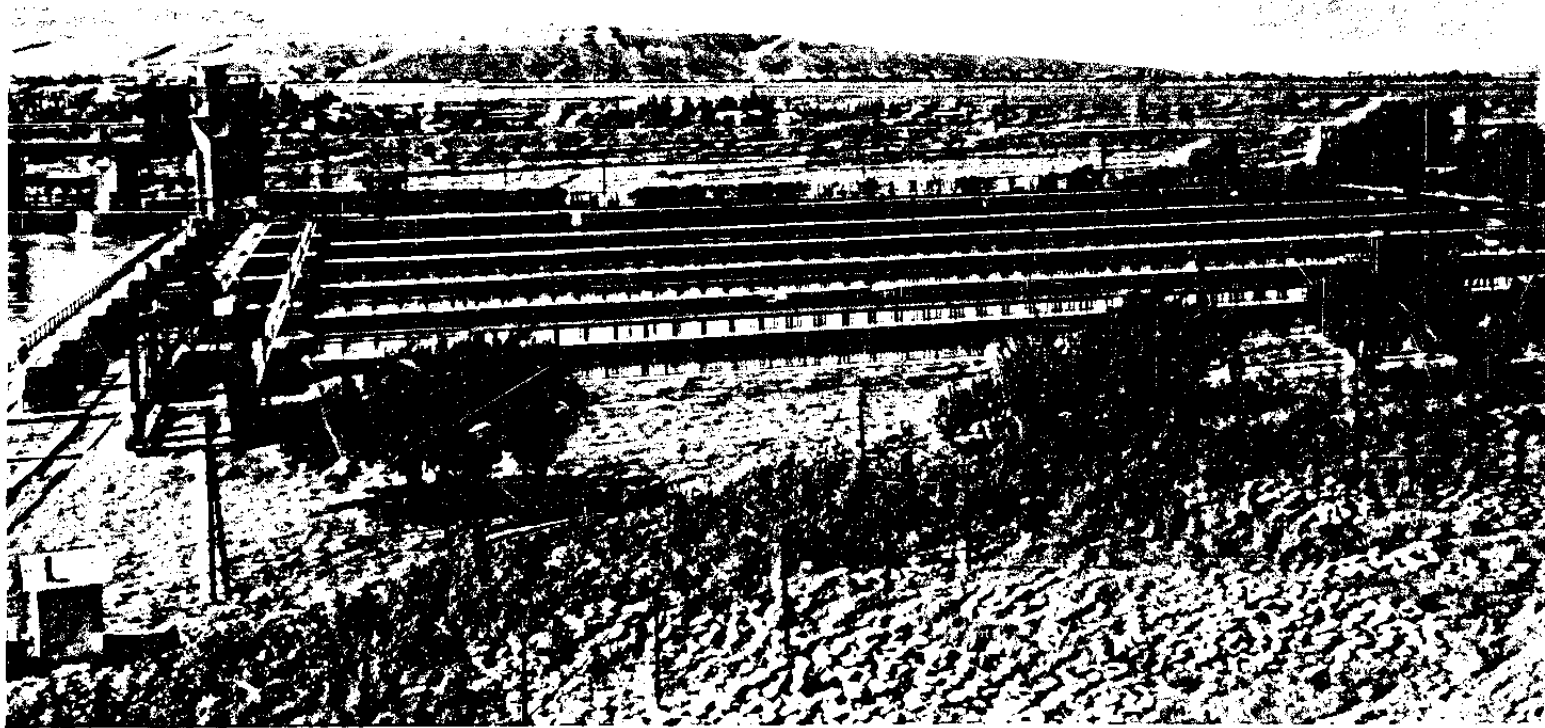


Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

50X1-HUM

USSR WAC 328D GAZALKENT 41 33 N 69 45 E
DAM AT LEFT, SAND TRAPS IN FOREGROUND. Pt 3 OF 3 PT PAN.

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2



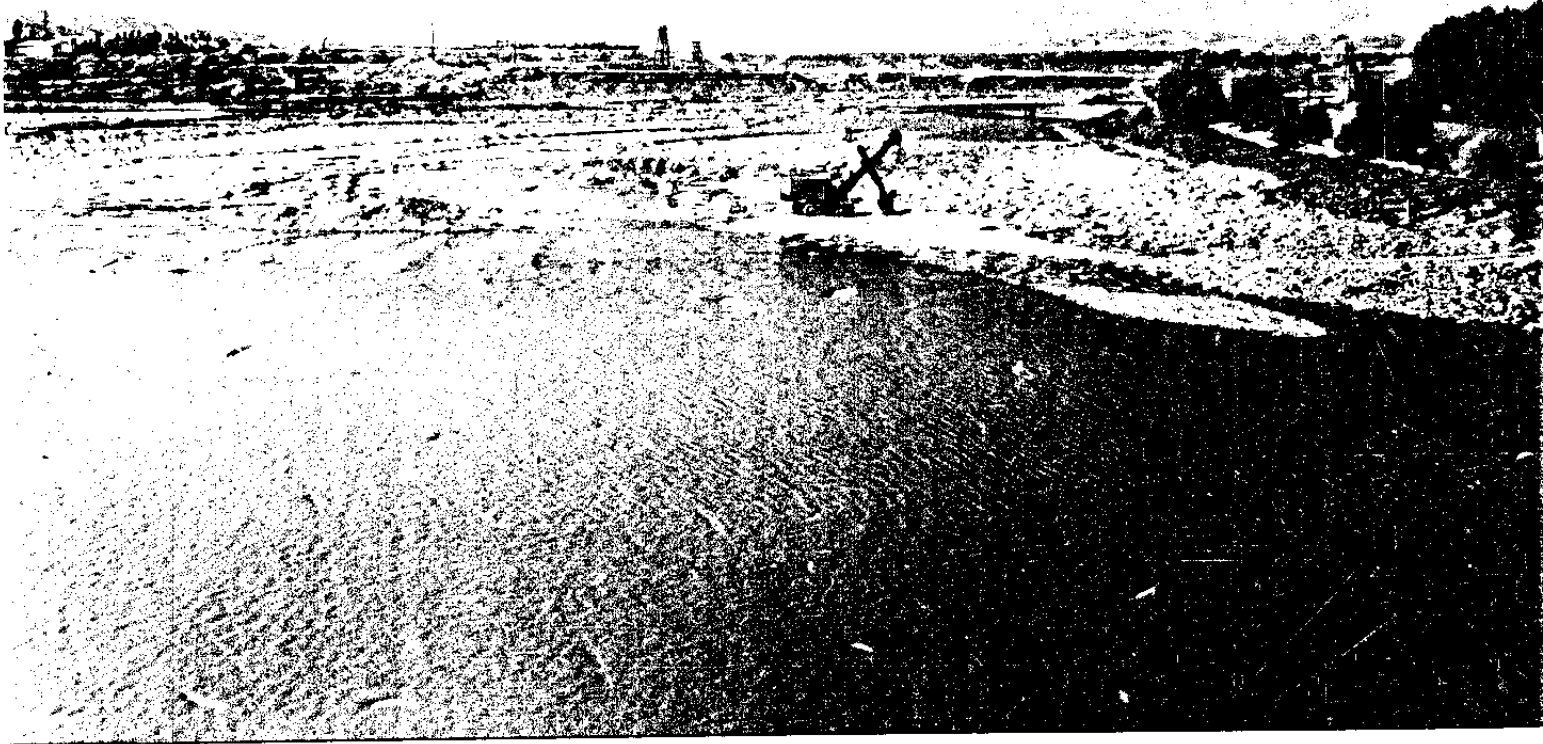
Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 : CIA-RDP80T00246A063200340001-2

50X1-HUM

USSR WAC 328D GAZALKENT 41 33 N 69 45 E
CHIRCHIK RIVER BELOW THE DAM AREA.

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

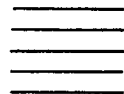


Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 : CIA-RDP80T00246A063200340001-2

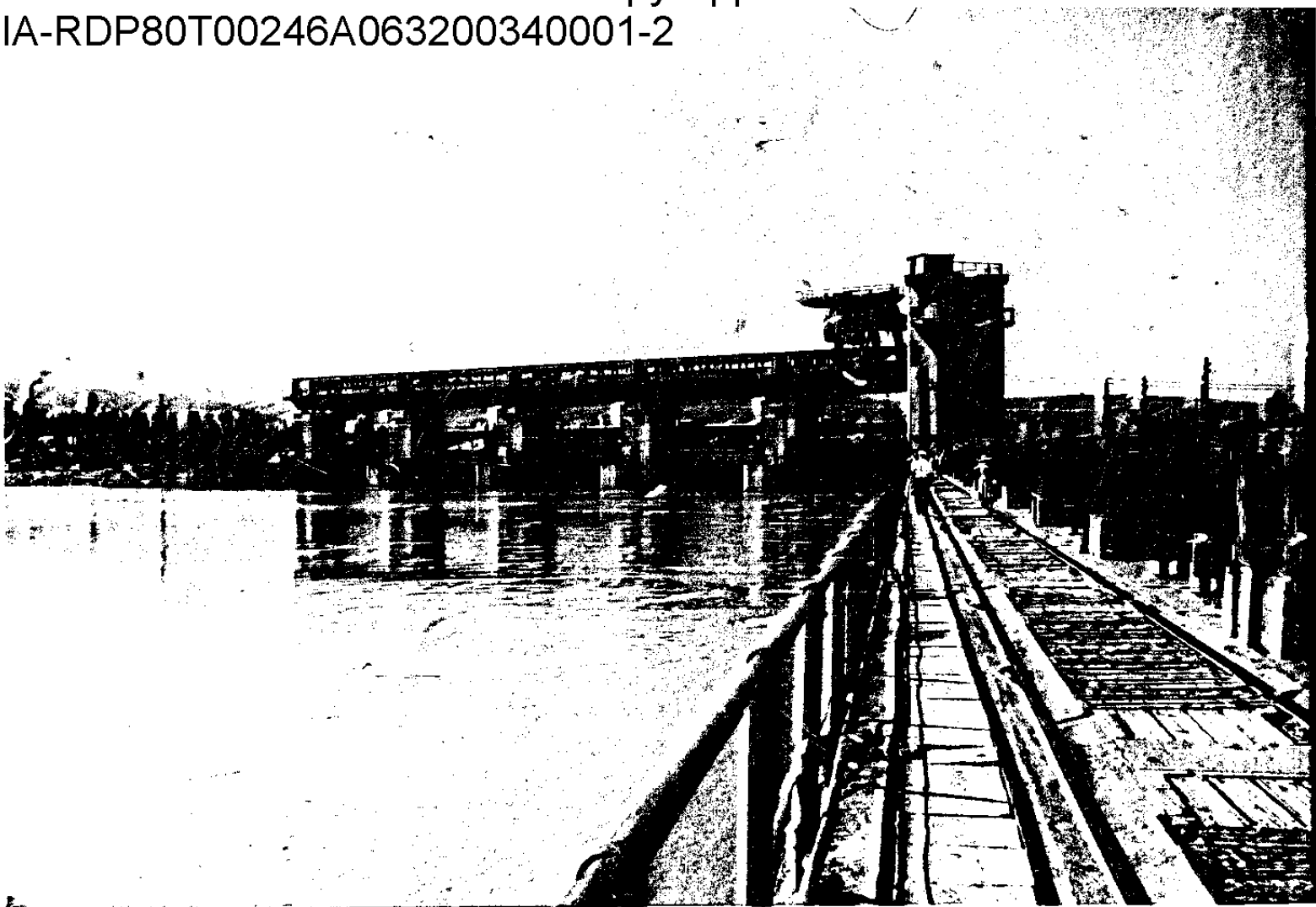
50X1-HUM

USSR WAC 328D GAZALKENT 41 33 N 69 45 E
DAM ON CHIRCHIK RIVER.



Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 : CIA-RDP80T00246A063200340001-2

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2



Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

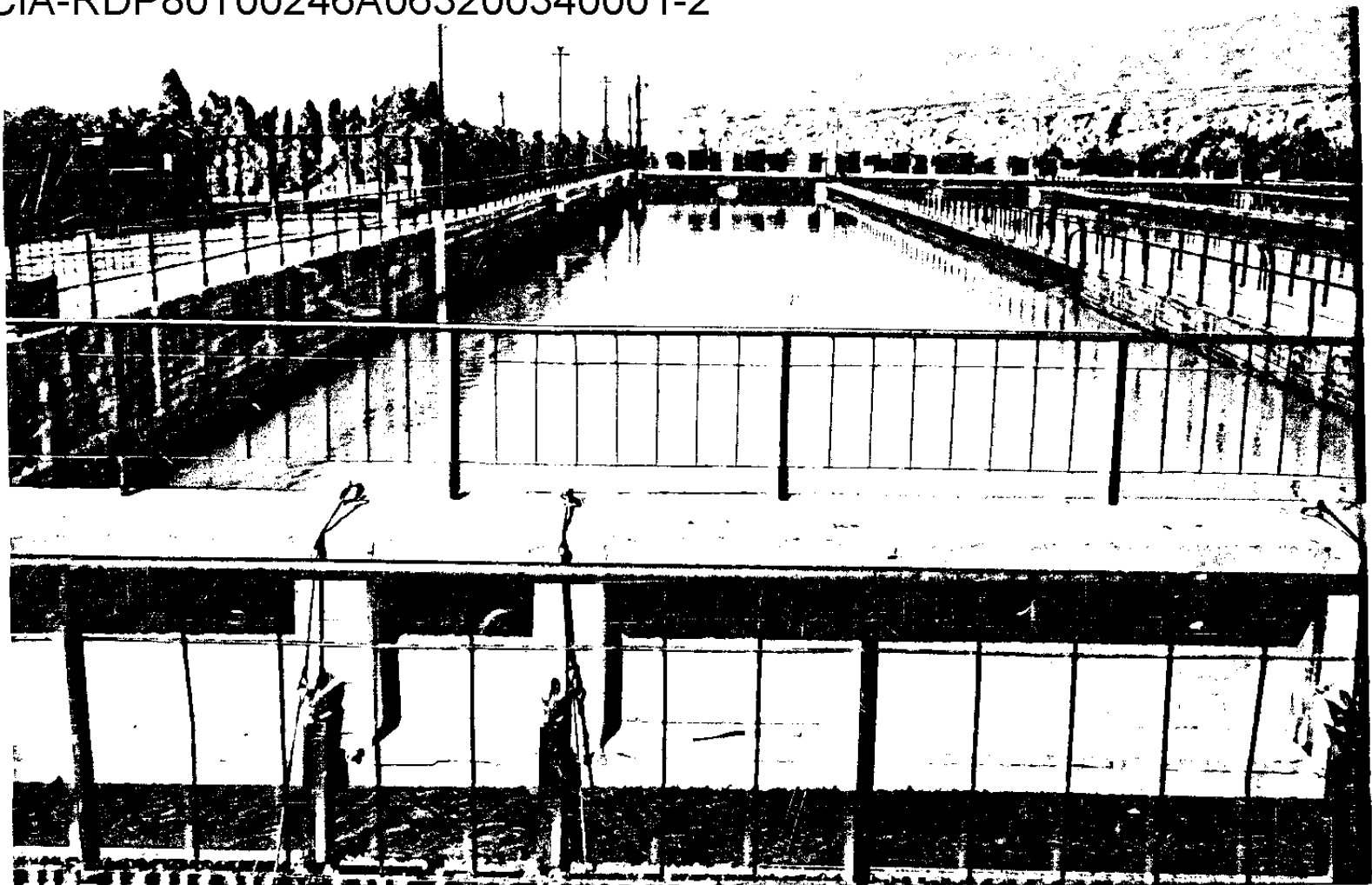
50X1-HUM

USSR WAC 328D GAZALKENT 41 33 N 69 45 E

SAND TRAP AT DAM.



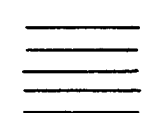
Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2



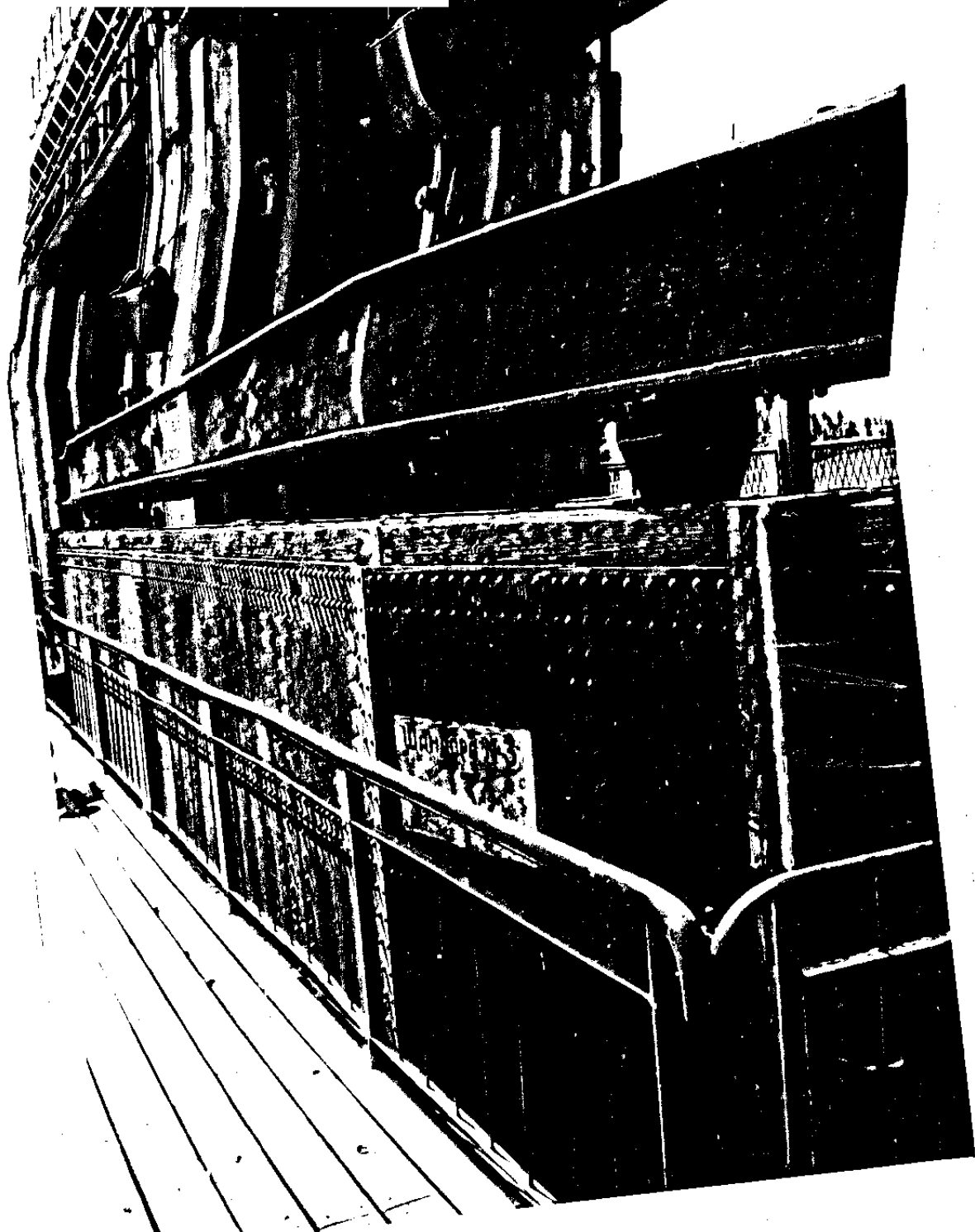
Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

50X1-HUM

USSR WAC 328D GAZALKENT 41 33 N 69 45 E
SLIDE OF DAM.



Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2



Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

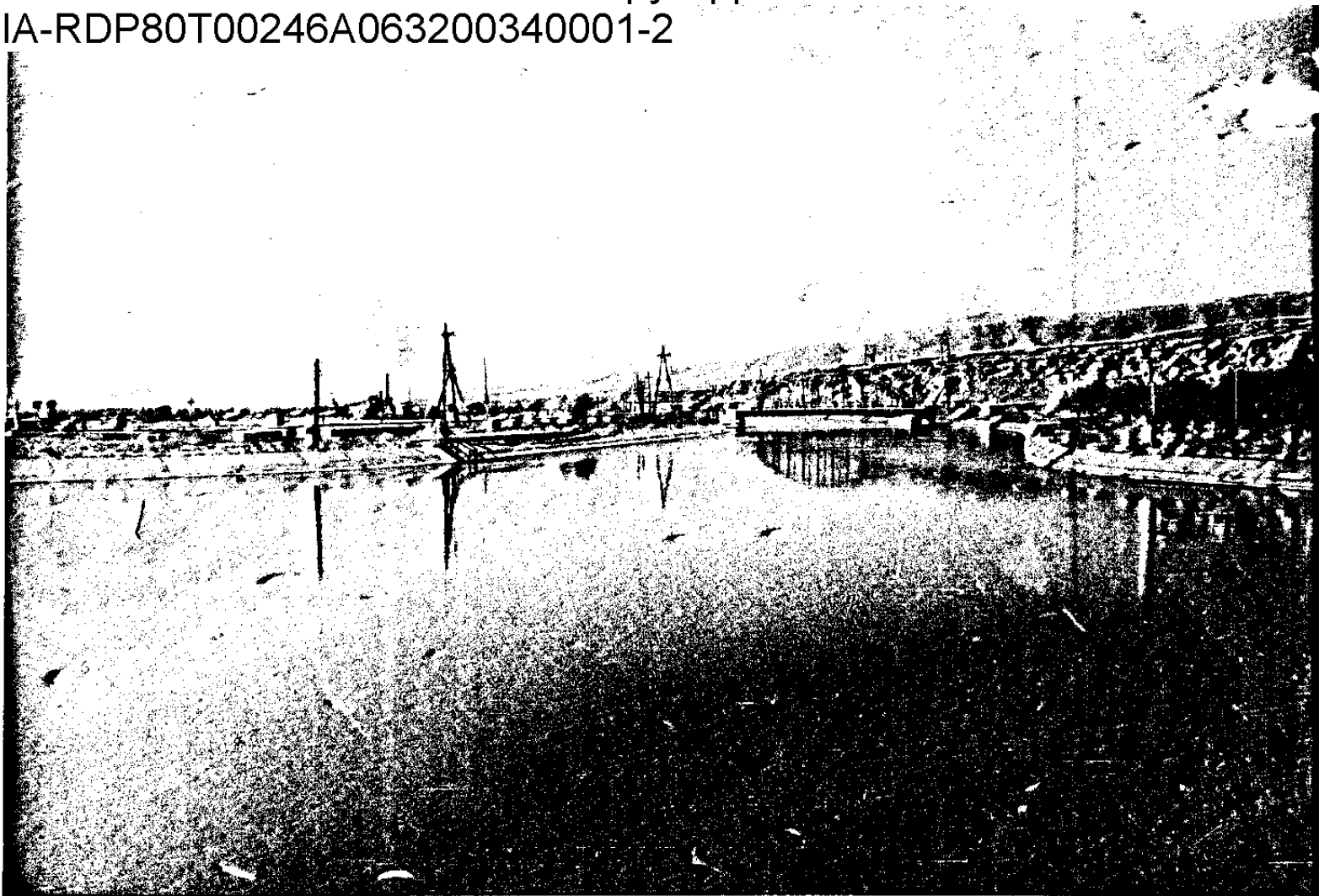
Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 : CIA-RDP80T00246A063200340001-2

USSR WAC 328D GAZALKENT 41 33 N 69 45 E
ENTRY AND DIVERSION CANALS DOWNSTREAM FROM THE SAND TRAPS.

50X1-HUM

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 : CIA-RDP80T00246A063200340001-2

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

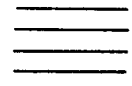


Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

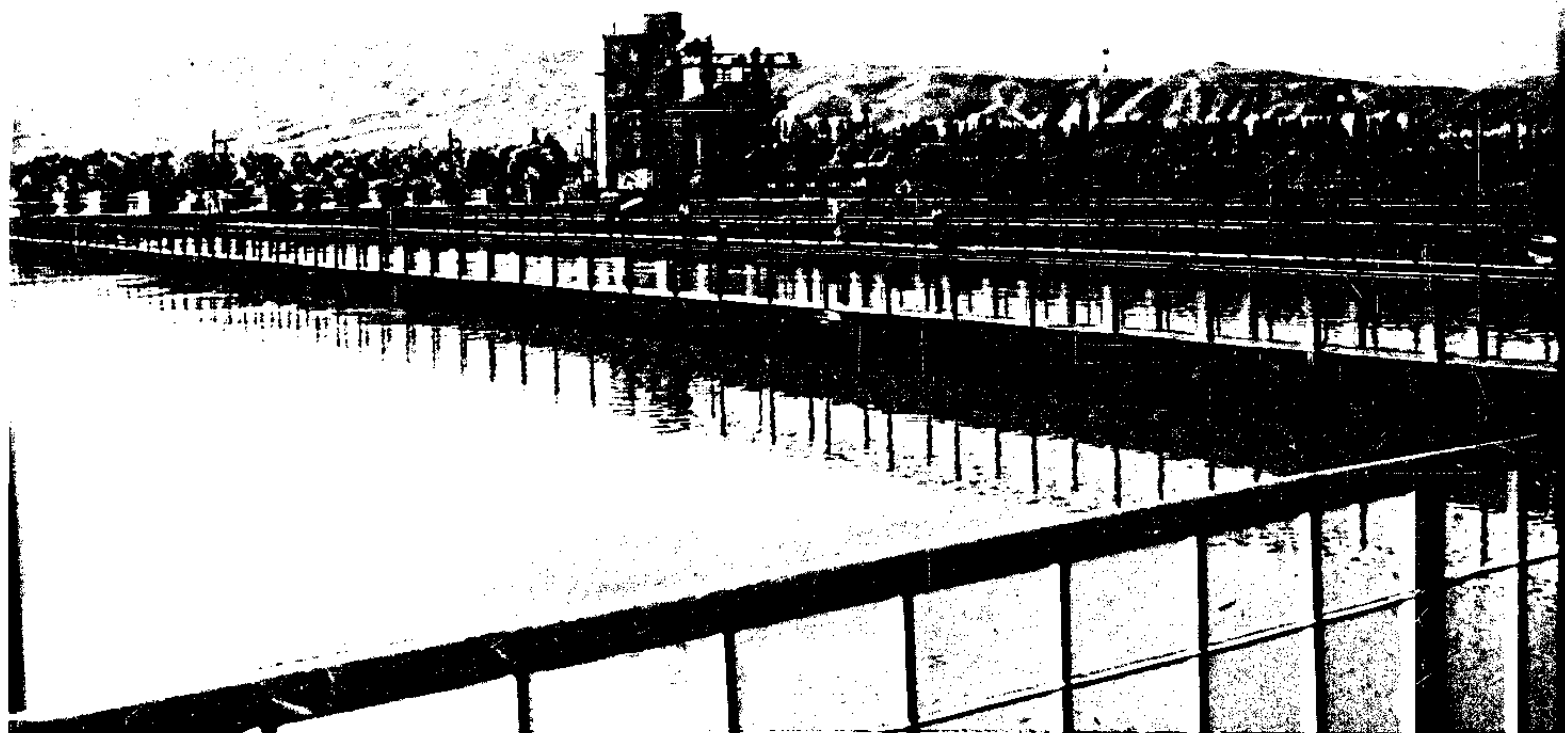
50X1-HUM

USSR WAC 328D GAZALKENT 41 33 N 69 45 E

DETAILED VIEW OF SAND TRAPS AT DAM.



Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2



Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

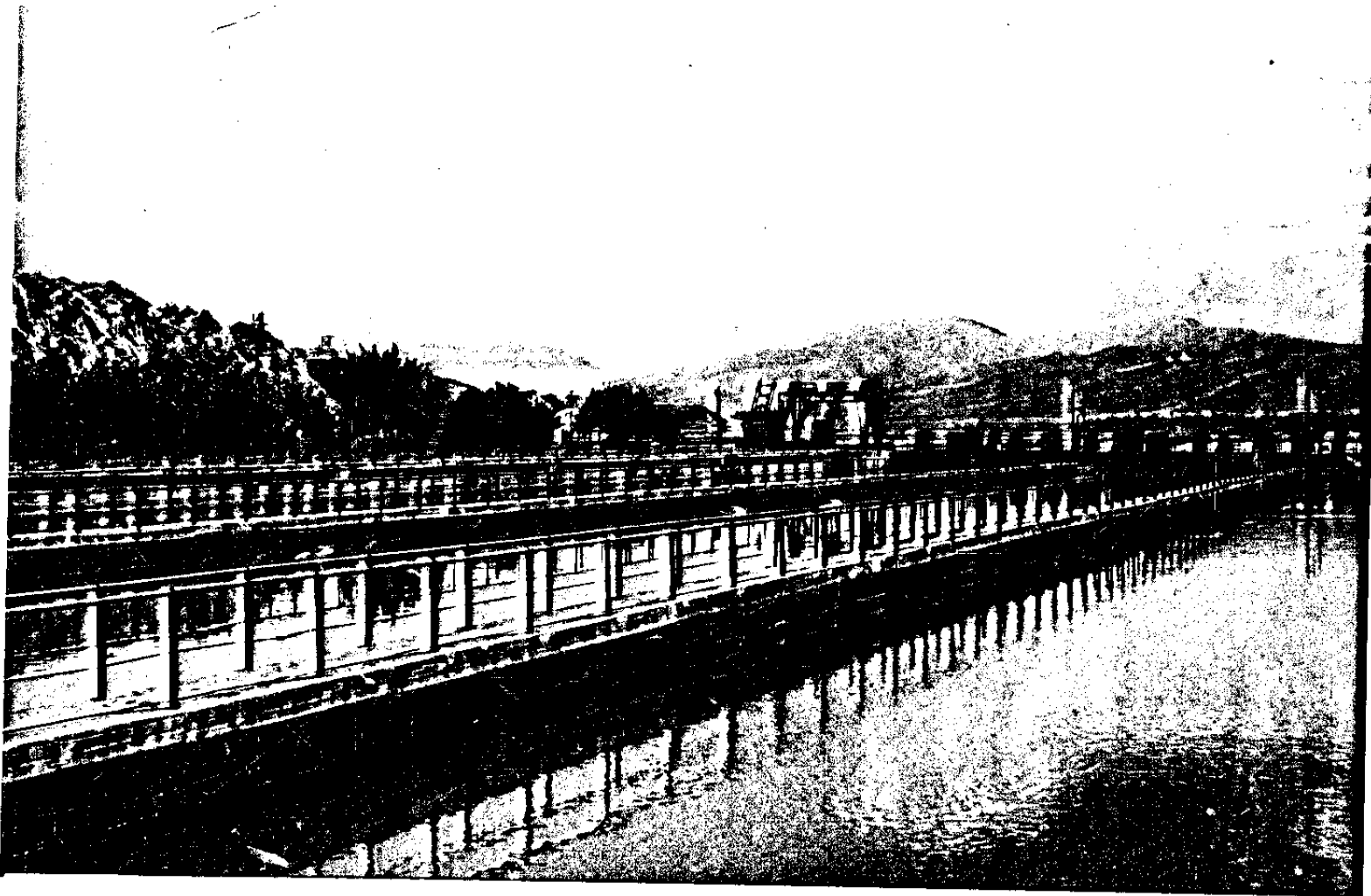
50X1-HUM

USSR WAC 328D GAZALKENT 41 33 N 69 45 E

DETAILED VIEW OF SAND TRAPS AT DAM.



Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2



Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 : CIA-RDP80T00246A063200340001-2

50X1-HUM

USSR WAC 336A KOMSOMLSK 39 36 N 67 05 E
HYDROELECTRIC CENTRAL KOMSOMLSK.

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2



Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

50X1-HUM

USSR WAC 336A KOMSOMLSK 39 36 N 67 05 E
HYDROELECTRIC CENTRAL KOMSOMLSK.



Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

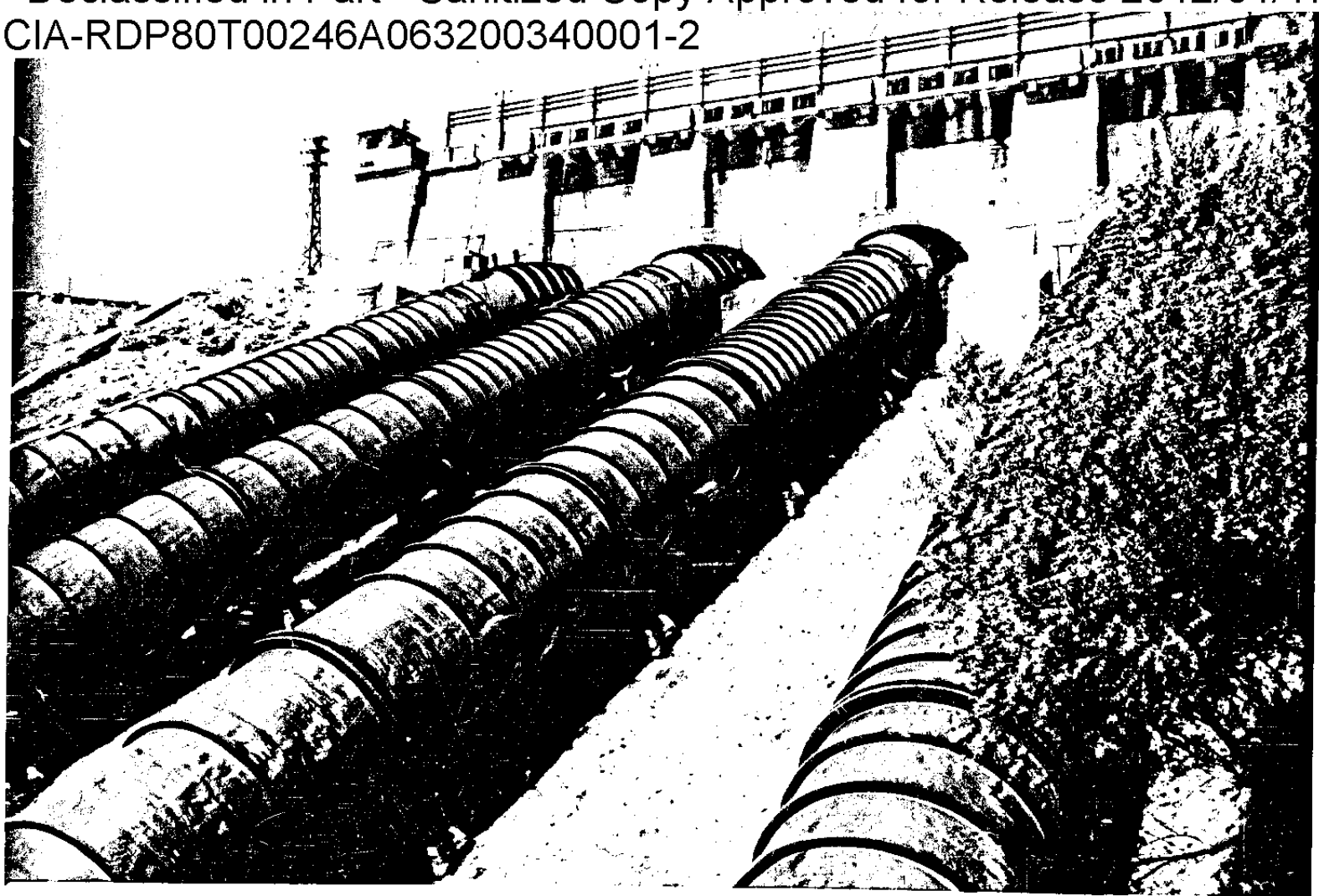


Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

50X1-HUM

USSR WAC 336A KOMSOMLSK 39 36 N 67 05 E
HYDROELECTRIC CENTRAL KOMSOMLSK.

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

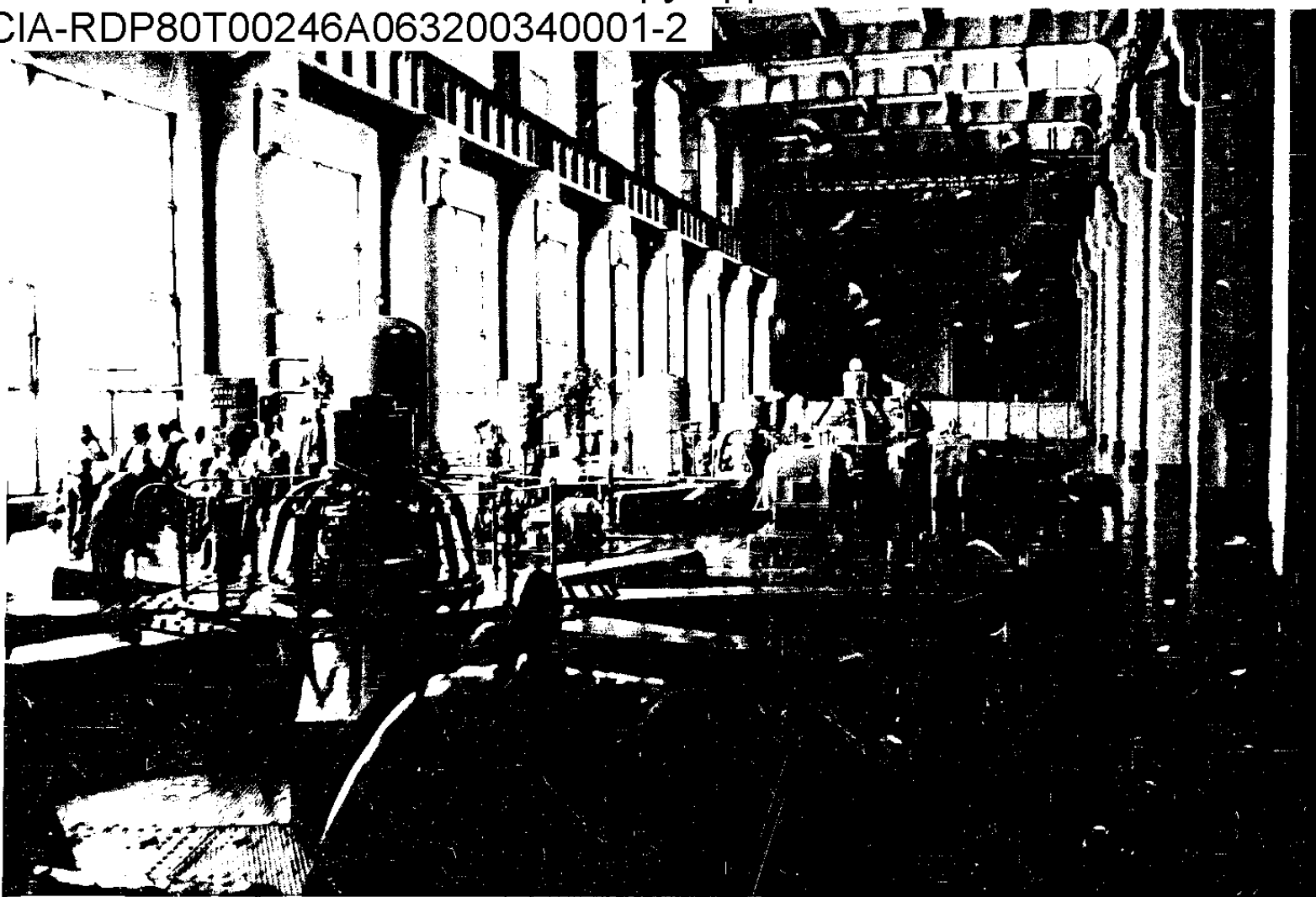


Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

50X1-HUM

USSR WAC 336A KOMSOMOLSK 39 36 N 67 05 E
TURBINE ROOM AT HYDROELECTRIC CENTRAL KOMSOMOLSK.

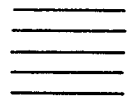
Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2



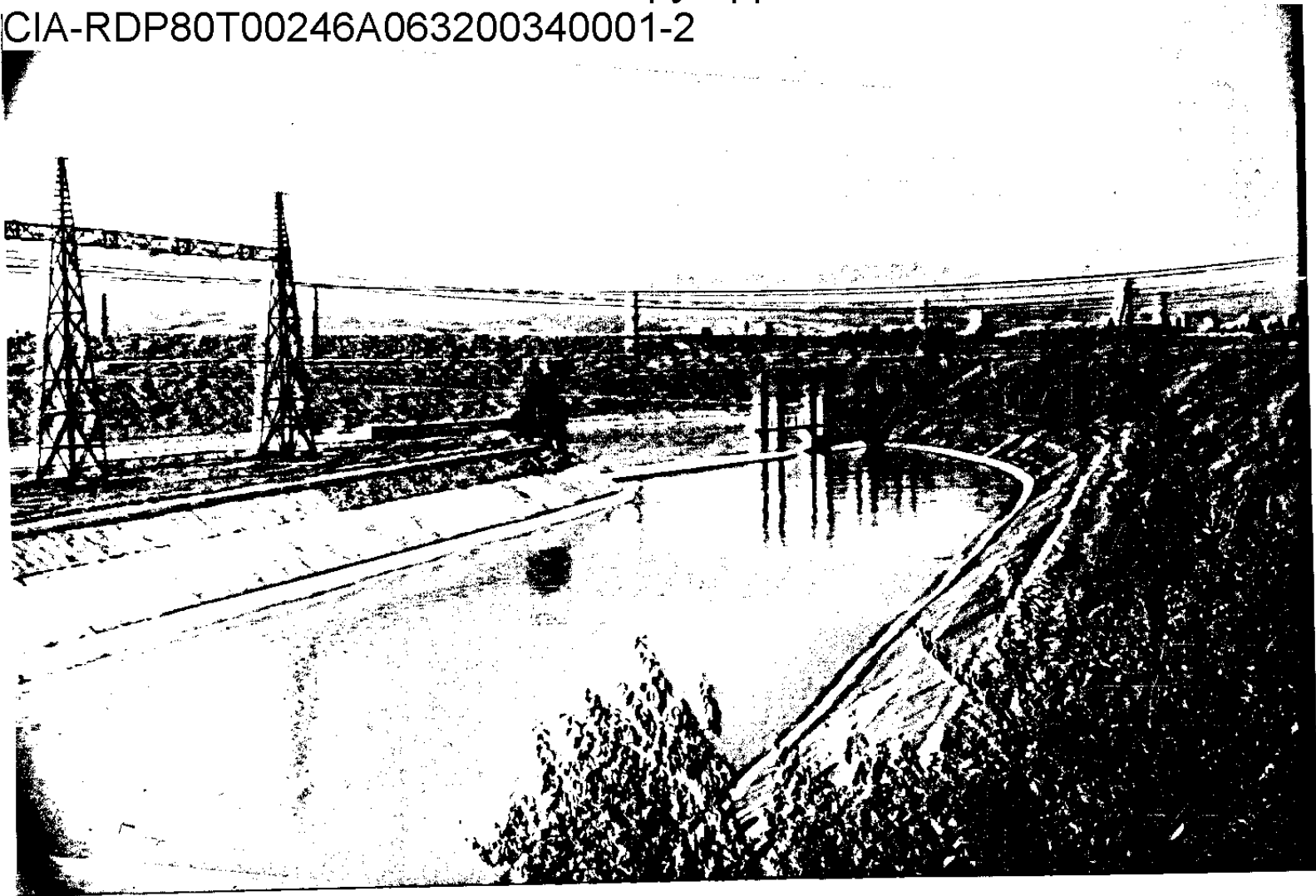
Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

50X1-HUM

USSR WAC 336A KOMSOMOLSK 39 36 N 67 05 E
POWER LINES AND CANAL AT HYDROELECTRIC CENTRAL KOMSOMOLSK.



Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2



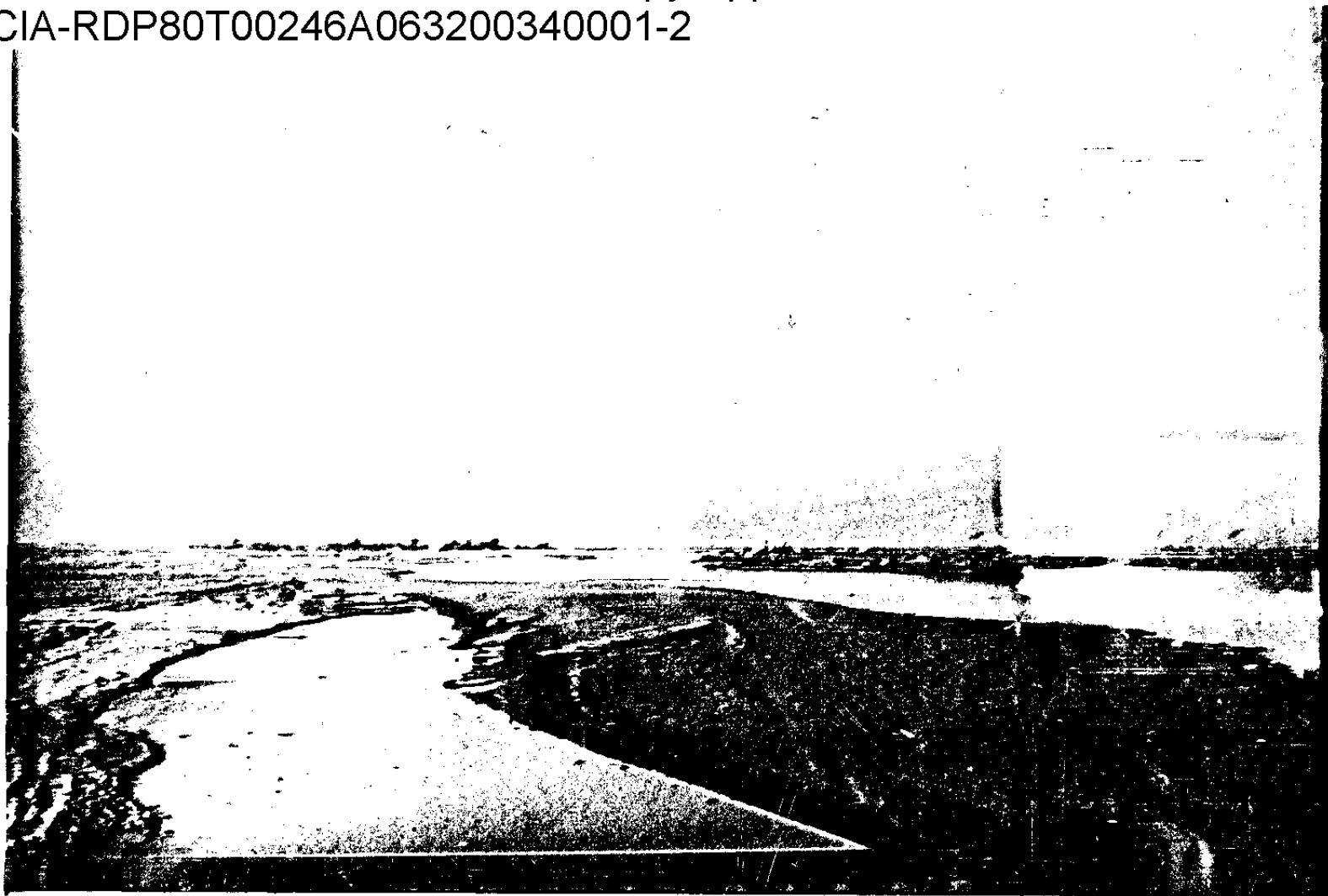
Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

50X1-HUM

USSR WAC 328D CHINAZ (NR) 40 56 N 68 45 E

SYR-DARYA RIVER FROM BRIDGE SOUTHWEST OF CITY.

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2



Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

50X1-HUM

USSR WAC 328D CHINAZ (NR) 40 56 N 68 45 E
SYR-DARYA RIVER FROM BRIDGE SOUTHWEST OF CITY.

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2



Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2

50X1-HUM

USSR WAC 328D⁰⁰ BEGOVAT (PROB NR) 40 13 N 69 14 E
PORTION OF KIROV CANAL.

Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2



Declassified in Part - Sanitized Copy Approved for Release 2012/01/17 :
CIA-RDP80T00246A063200340001-2