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PHOTOGRAPHIC INTERPRETATION REPORT

NPIC/R-188/64
March 1964

ANCILLARY FACILITIES, UTILITIES, AND TRANSPORTATION NETWORKS, KYSHTYM ATOMIC ENERGY COMPLEX, USSR,

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NATIONAL PHOTOGRAPHIC INTERPRETATION CENTER

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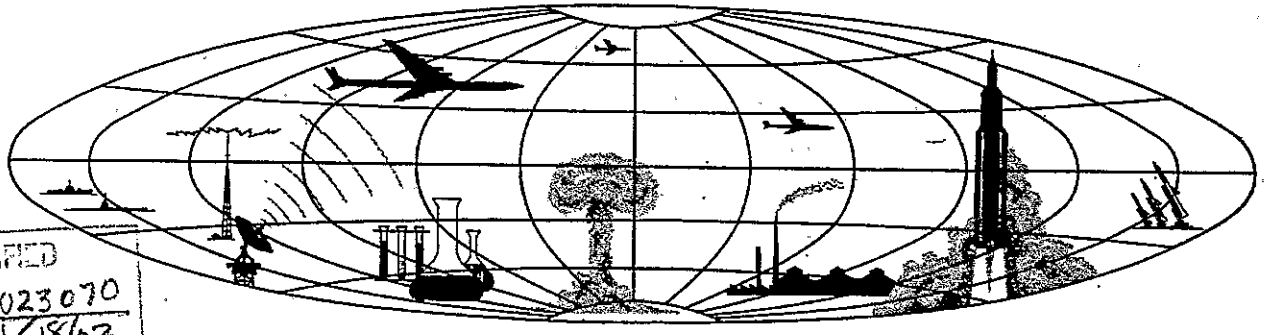

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PHOTOGRAPHIC INTERPRETATION REPORT

ANCILLARY FACILITIES, UTILITIES, AND TRANSPORTATION NETWORKS, KYSHTYM ATOMIC ENERGY COMPLEX, USSR,

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INTRODUCTION

This report updates and revises all previous information 1/ 2/ on ancillary facilities, utilities, and transportation networks serving the Kyshtym Atomic Energy Complex (Figure 1). It is based primarily on all [redacted] photography of the complex up to and including that of [redacted] This is the final report on the complex prepared by NPIC under project number J-220/63. Other detailed reports have been published under this project number on the following principal areas within the complex: Reactor Areas I, II, III, the Chemical Processing Area (all of which are located in the Main Production Area), the Tatysh Production Area, and the Argayash Thermal Electric Power Plant (Argayash TETS). 3/

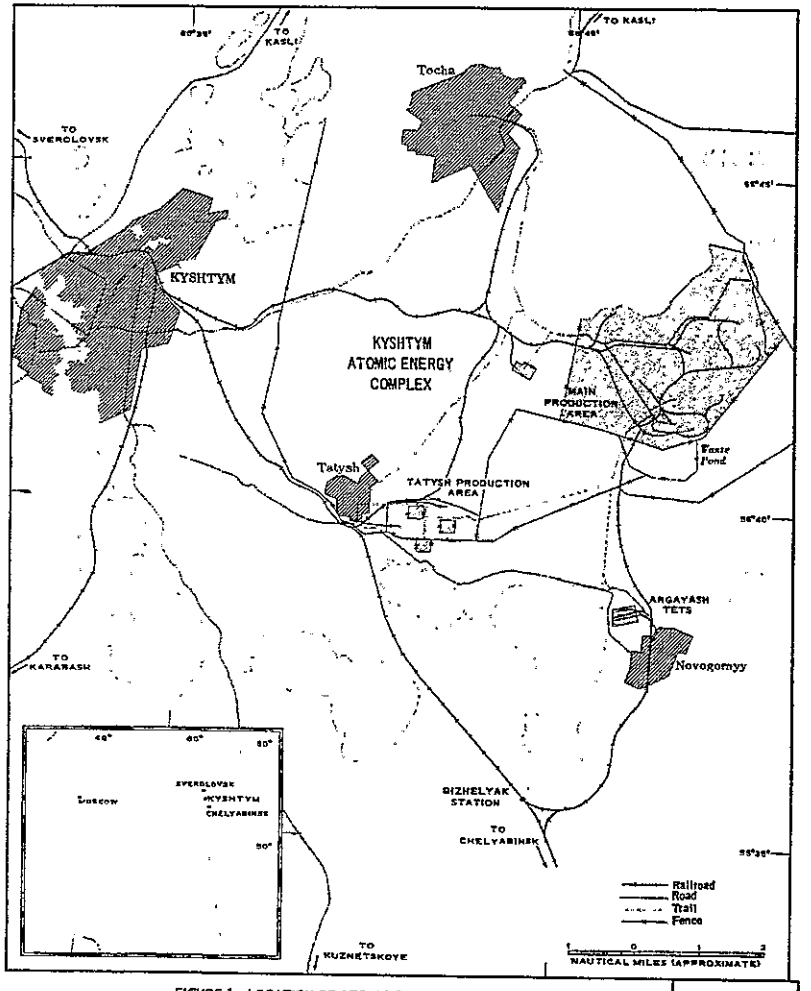

FIGURE 1. LOCATION OF ATOMIC ENERGY COMPLEX, KYSHTYM, USSR. [redacted]

The excellent quality of the [redacted] photography provides details not previously discernible and permits an analysis of changes which have occurred in the ancillary facilities (Figure 2). Newly identified facilities include a waste processing facility north of Reactor Area III and a pumping station (W) on the southern shore of Lake Kyzyltash. The previously reported Possible Storage Facility and the Filtration Plant can now be identified as a probable fabrication facility and a processing and storage facility, respectively.

ANCILLARY FACILITIES

Waste Processing Facility. A newly identified waste processing facility is located north of Reactor Area III in the northeast corner of the Main Production Area (Figures 3 and 4). This facility was first observed on [redacted] photography and was previously reported as an unidentified activity. 2/ It contains three buildings connected by overhead conduits or pipe galleries and five tanks. The buildings resemble three buildings observed in the probable pumping station north of the Possible Fuel Element Fabrication Facility in the Tomsk Atomic Energy Complex. 4/ Two tanks (about 40 feet in diameter) located on the north side of the largest building may contain acid used in waste treatment. An uncovered sunken tank (85 feet in diameter) northeast of the buildings was not visible in [redacted] but construction activity in the vicinity of the tank was observed in [redacted] A probable underground pipeline connects this tank to two uncovered sunken tanks (85 feet in diameter) approximately 1,600 feet northwest of the buildings. Although security precautions at the facility were not completely discernible, a fence and a guardhouse were observed in the vicinity of the three buildings. Eight abandoned buildings, an unidentified area, and an abandoned construction camp are located southwest of the facility.

Two probable emergency retention basins are situated on the southeast shore of Lake Kyzyltash about 0.5 nautical miles (nm) northwest of the Waste Processing Facility (Figures 3, 4, 10, and 11). The area occupied by the basins covers approximately 15 acres. No pipeline connections between the basins and the facility are visible. A probable buried pipeline extends from a possible control valve point north of Reactor Area III to the southern tips of the basins. Drainage from the basins is visible, and efforts have been made to contain it by means of a probable drainage ditch southeast of the basins. A dam prevents drainage from these basins from flowing into the nearby hot water channel.

[redacted]

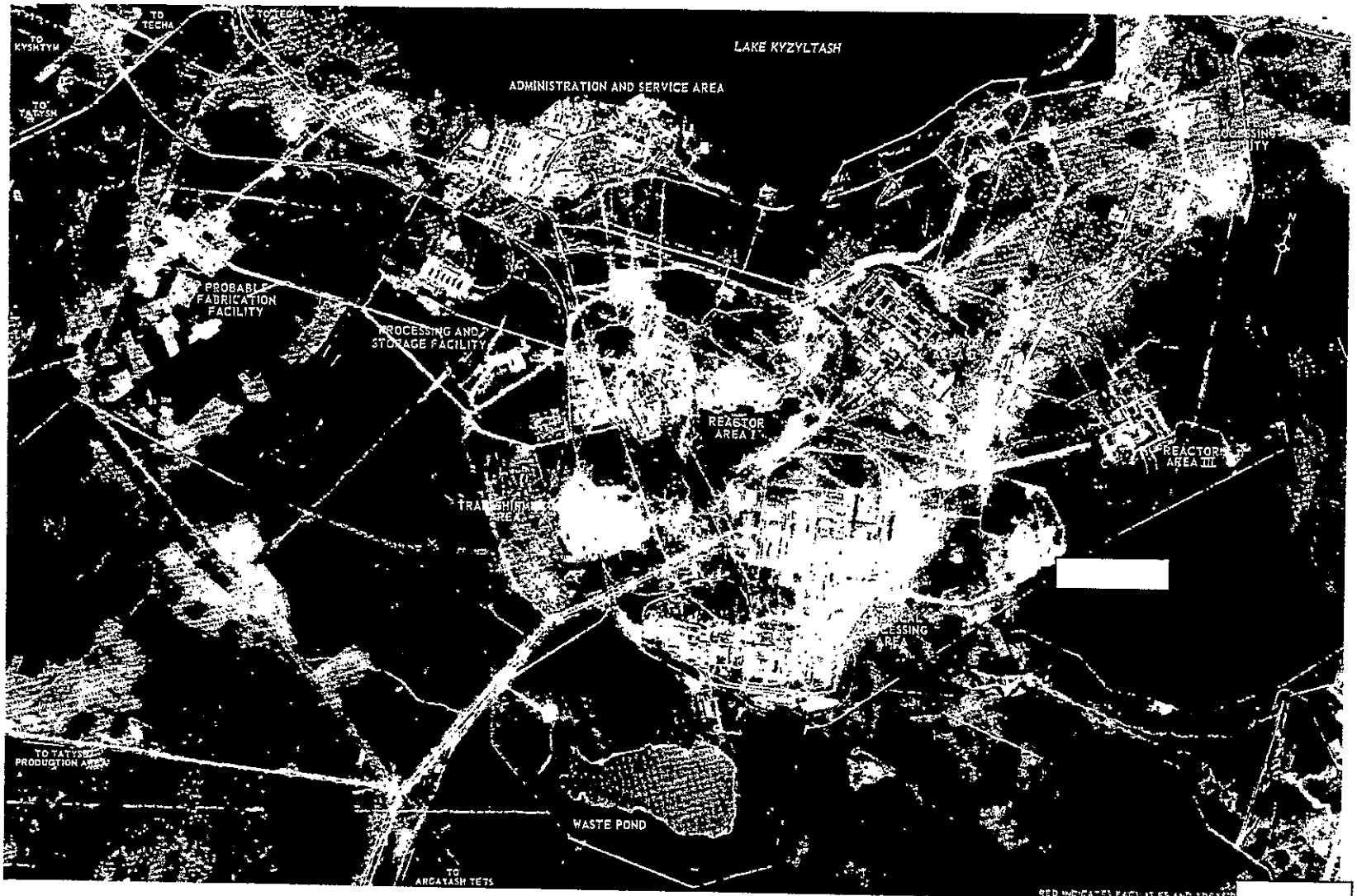

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FIGURE 2. MAIN PRODUCTION AREA, KYSHTYM ATOMIC ENERGY COMPLEX [redacted]

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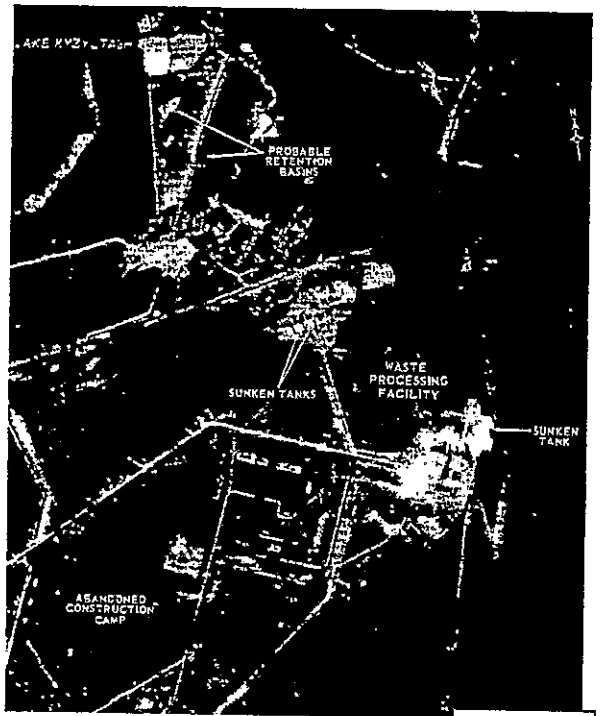

FIGURE 3. WASTE PROCESSING FACILITY.

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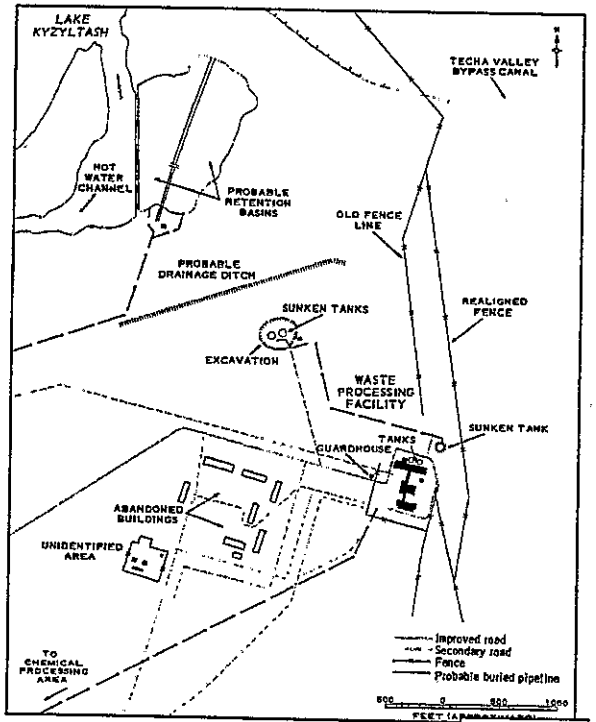

FIGURE 4. WASTE PROCESSING FACILITY.

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Probable Fabrication Facility. Identification of a stack and two large fabrication/processing-type buildings now makes it possible to identify the previously reported Possible Storage Facility 2/ in the western part of the Main Production Area as a probable fabrication facility (Figure 6 and Table 1). (Building numbers are keyed to Figure 6.) This facility is fenced and road and rail served. It contains approximately 12 buildings, the most prominent of which are two fabrication/processing-type buildings (buildings 6 and 7). Building 6 has a lower extension on the north side and is rail served. A newly identified stack 130 feet high is connected to building 10 by a short flue. A possible buried tank 80 feet in diameter is visible in the northeast corner of the facility. A separately fenced probable security and administration building (building 1) is located outside the main entrance to the facility, and an unidentified trace which parallels the road terminates in the vicinity of this building.

A possible motor pool, an unidentified area, and a small clearing were observed in the vicinity of the Probable Fabrication Facility in [redacted] (Figure 6). The unidentified area about 1,600 feet northeast of the facility may be secured and contains a mound of earth and a small building. A small clearing containing two rectangular buildings (buildings 14 and 15) is visible approximately 900 feet southwest of the Probable Fabrication Facility and is connected to it by a well-traveled road.

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Processing and Storage Facility. The [redacted] photography revealed that the previously reported Filtration Plant 2/ 1.5 nm west of Reactor Area I is actually a processing and storage facility (Figure 7). This facility contains 15 buildings and is separately secured. The most prominent structures in the facility are six rail-served warehouses (each 165 by 60 feet) connected by a long loading platform. Two additional warehouses are situated north of the

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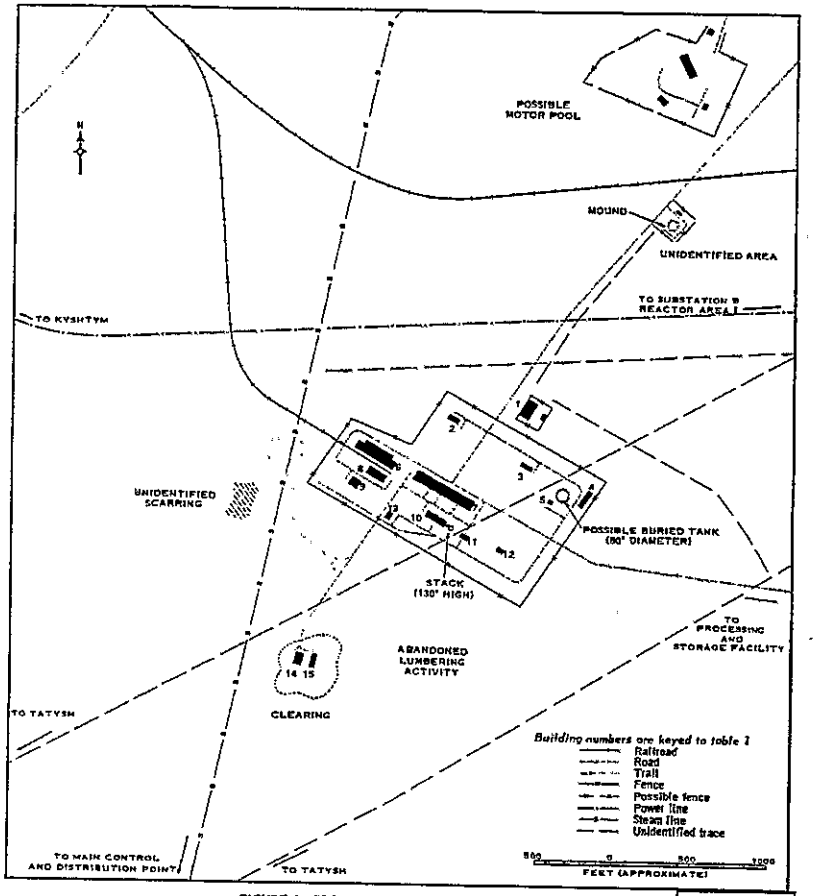

FIGURE 6. PROBABLE FABRICATION FACILITY.

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Table 1. Dimensions of Buildings in and near the Probable Fabrication Facility (Building numbers are keyed to Figure 6)

Building No	Dimensions (ft)	Building No	Dimensions (ft)
1	115 x 75	9	65 x 55
2	70 x 30	10	140 x 35
3	85 x 25	11	60 x 30
4	120 x 30	12	30 x 30
5	35 x 25	13	45 x 45
6	295 x 80	14	75 x 50
7	410 x 65	15	85 x 30
8	135 x 55		

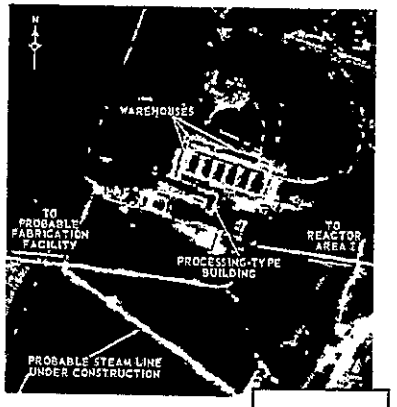

FIGURE 7. PROCESSING AND STORAGE FACILITY

loading platform and measure 295 by 50 feet and 200 by 50 feet, respectively.

An irregularly shaped processing-type building in the southern part of the facility is also rail served and measures 590 by 95 feet overall. An improved road connects the facility to the Probable Fabrication Facility. No pipeline traces are discernible in or near the Processing and Storage Facility, but a probable steam line under construction enters the southwest corner of the facility.

Administration and Service Area. The southern shore of Lake Kyzyltash is the principal administration and service area for the Kyshtym Atomic Energy Complex (Figures 8, 10, and 11). Administration facilities include a main administration building and eight buildings which may be used for housing or as offices. Approxi-

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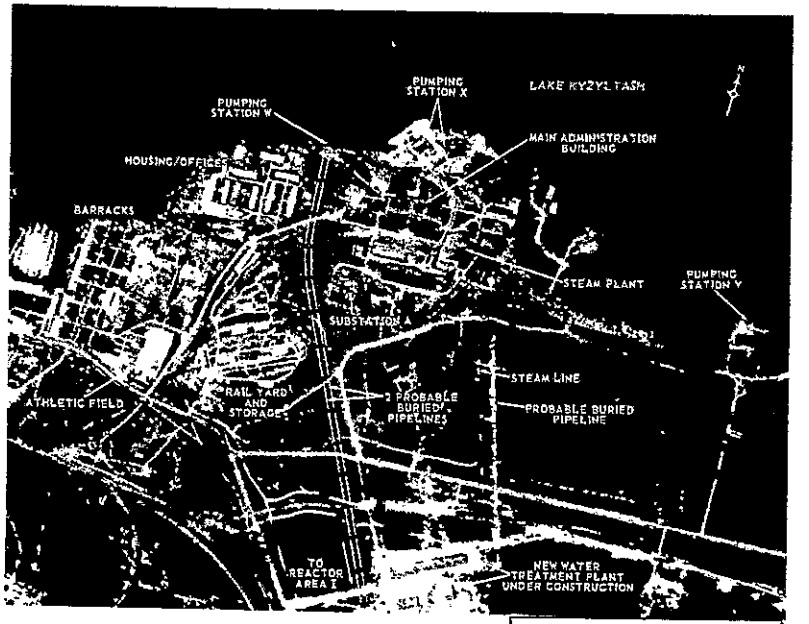

FIGURE 8. ADMINISTRATION AND SERVICE AREA

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mately fifteen two-story barracks, possibly for security troops, and an athletic field are situated in the western portion of the area. Service facilities in the area include a steam plant, Pumping Stations W and X, and substation A. These facilities are discussed in detail under UTILITIES.

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Facilities in Techa. The [redacted] photography of Techa provides the best coverage of the town to date and reveals the precise location of such facilities as the steam plant, a substation, a sewage treatment plant, and a probable brickyard (Figure 9). The main housing facilities for the Kyshtym Atomic Energy Complex are located in Techa.

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FIGURE 9. FACILITIES IN THE SOUTHEASTERN PORTION OF TECHA, [redacted]

UTILITIES

Electric Power. Further study of the [redacted] photography necessitated minor revisions in the photo interpretation of electric power in Reactor Areas I, II, and III and in the Tatysh Production Area (Figures 10 and 12 and Table 2). The substations supplying power to the complex handle a maximum of 110 kilovolts (kv). Whether any electric power is now being generated by the steam plant in the Administration and Service Area cannot be determined from the photography. Circuitry outside the complex is confirmed and inside the complex, probable, except where noted. Argayash TETS will be considered a part of the complex for the analysis of electric power only.

Water. The Main Production Area is supplied with water from Lake Kyzyltash through Pumping Stations X, Y, Z, and newly identified Pumping Station W, all of which are located on the southern shore of the lake. The probable flow of hot and cold water is indicated in Figure 10. Pumping Station W serves Reactor Area I, and the scars of two probable buried pipelines can be traced from this station to the vicinity of the old water treatment plant in that area. 3/ Pumping Station X (previously described as suspect) 2/ has been expanded since [redacted] and a new pumping station is under construction 180 feet north-northwest of station X. This station supplies water to the steam plant near the southern shore of Lake Kyzyltash, probably to the old water treatment plant in Reactor Area I, and probably to the new water treatment plant under construction north of that reactor area. Pumping Station Y is the principal source of water for Reactor Area II. Pumping Station Z did provide water for Reactor Area III at one time; however, the operational status of this area and of the buried pipelines between Pumping Station Z and the area cannot be determined from the photography. 3/ It is possible that station Z may now supply Reactor Area II with water.

The [redacted] photography revealed the presence of vapor over the hot water channel along the southeastern shore of Lake Kyzyltash. 25X1

Steam. The Kyshtym Atomic Energy Complex is supplied with steam by two sources: the steam plant in the Administration and Service Area, the older of the two sources, and Argayash TETS 3 nm south of the Main Production Area, the principal source of steam for the complex (Figure 10). 3/ The visible network of steam lines, most of which are aboveground, indicates that both plants definitely supply steam to the Main Production Area and to the Tatysh Production Area. The steam plant on the southeastern edge of the town of Techa supplies steam only to the town and its local industries (Figure 9). However, if necessary, this plant could provide steam to the atomic energy complex through a steam line extending from Techa to the Main Control and Distribution Point southwest of the Main Production Area. 25X1

TRANSPORTATION FACILITIES

The Kyshtym Atomic Energy Complex is rail served by three branch lines off the main north-south Ural railroad (Figures 1 and 11). One line extends from the town of Kyshtym to the Main Production Area and to Techa; the second passes through the Tatysh Production Area, extends northward, and intersects the first branch line at a wye junction; the third line extends from Bizhelyak Station southwest of Lake Ulagach, serves Argayash TETS, and enters the southern

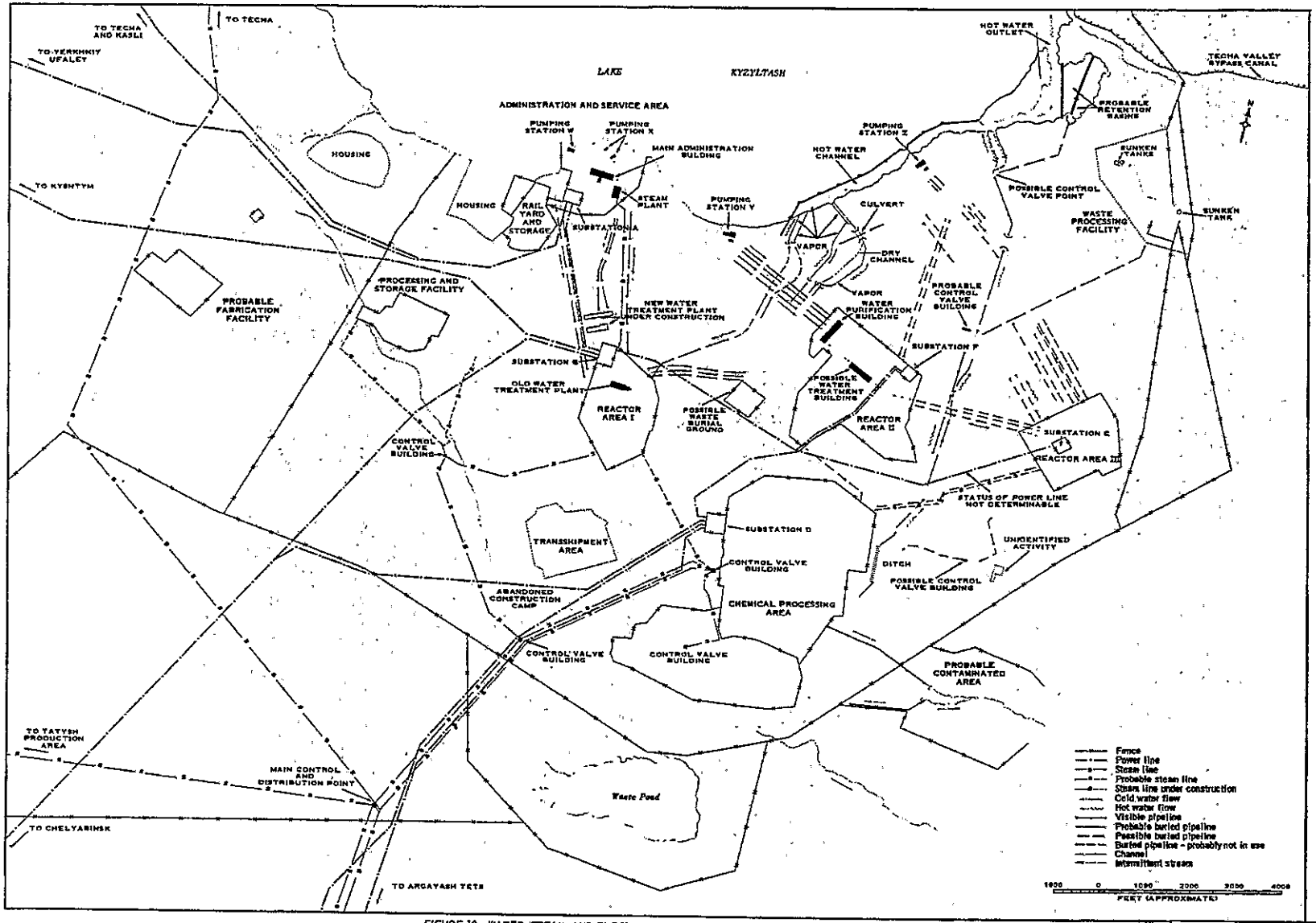

FIGURE 10. WATER, STEAM, AND ELECTRIC POWER SERVING THE MAIN PRODUCTION AREA.

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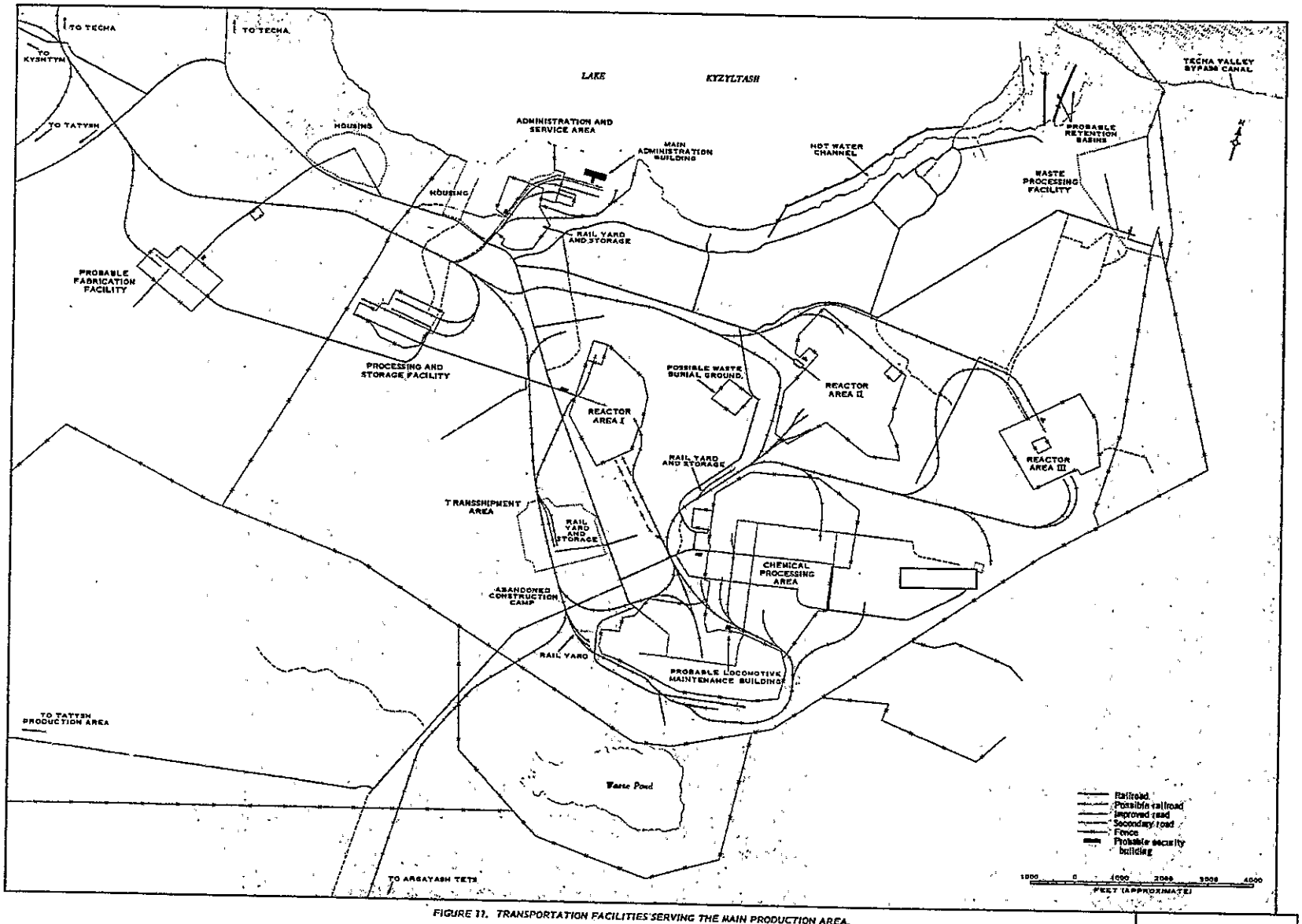

FIGURE 11. TRANSPORTATION FACILITIES SERVING THE MAIN PRODUCTION AREA.

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portion of the Main Production Area. Within the complex, most facilities and areas are served by spurs, sidings, and turnarounds which facilitate the handling and transportaion of nuclear materials. A newly identified turnaround now serves Reactor Area III. Four rail yards are discernible inside the Main Production Area: one in the Administration and Service Area; a second in the Transshipment Area south of Reactor Area I; a third just outside the northwest corner of the Chemical Processing Area; and a fourth yard at the southwest corner of that area. Three of the yards contain warehouses and maintenance shops.

The entire complex is served by a network of good roads. Due to security requirements, each of the three reactor areas has one secured main entrance.

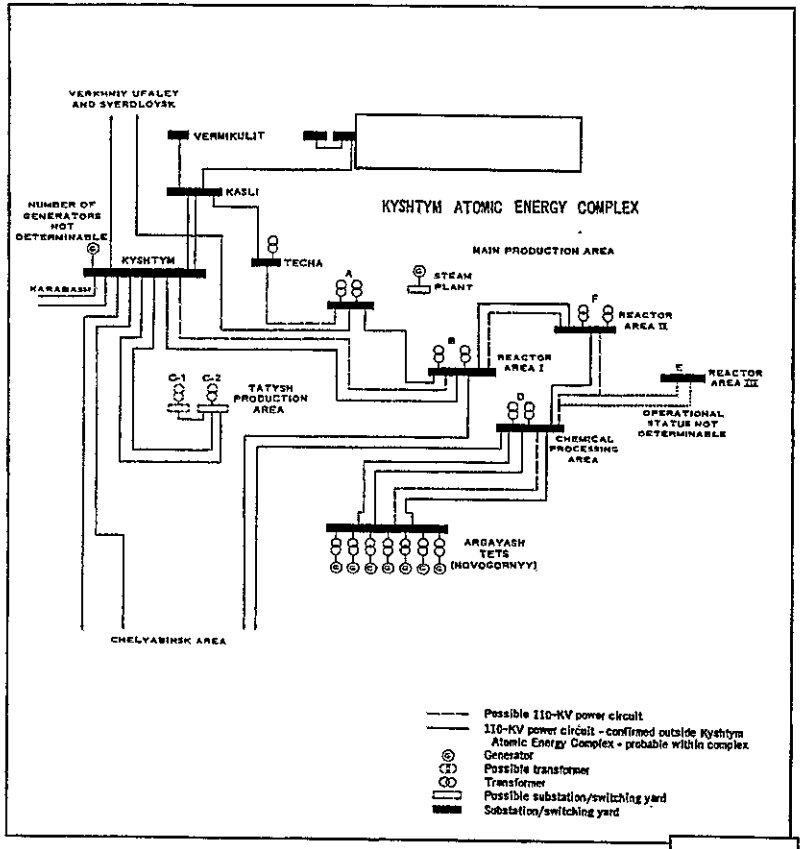

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FIGURE 12. POWER CIRCUITRY SERVING THE KYSHTYM ATOMIC ENERGY COMPLEX. [redacted]

Table 2. Electric Power Facilities Serving the Kyshtym Atomic Energy Complex (Figure 12)

Facility	Location	Remarks*
		Outside the Complex
Kyshtym substation	N section of city of Kyshtym	Transformer & switching substation; tied into principal N/S 110-kv power line between Sverdlovsk & Chelyabinsk; 2 circuits (1 probable, 1 possible) tied to substation B; 2 circuits serve Tatysh Production Area
		Inside the Complex
Techa substation	S section of town of Techa	Transformer substation; tied to single-circuit 110-kv power line from city of Kasli & to substation A by single-circuit 110-kv power line
Argayash TETS switching yard	N of generator hall	At least four circuits (3 probable, 1 possible) supported on two 2-circuit power lines probably tied to substation D; previous connections to Kyshtym substation & substations A & B probably dismantled
Substation A	Admin & Service Area in Main Production Area	Transformer & switching substation; 2 step-down transformers; receives power over single-circuit 110-kv power line from Verkhniy Ufaley; terminus of single-circuit 110-kv power line from Kasli; tied by a probable single-circuit 110-kv power line to substation B
Substation B	Reactor Area I	Transformer & switching substation; 2 step-down transformers; receives power from Kyshtym substation over a 1-, possibly 2-, circuit power line & over 1 of 2 circuits from Cholyabinsk power line; probably tied to substation F by 1, possibly 2, circuits; connections to substation E cannot be determined from 63 photography
Possible substation C-1	Facility A, Tatysh Production Area	Possible transformer substation (1 possible transformer); receives power from Kyshtym substation through possible substation C-2 over a single-circuit power line
Possible substation C-2	Facility B, Tatysh Production Area	Possible transformer & switching substation (1 possible transformer); receives power from Kyshtym substation over a 2-circuit power line
Substation D	Outside NW corner of Chemical Processing Area	Transformer & switching substation; 2 step-down transformers; receives power over 3, possibly 4, circuits from Argayash TETS & over 1 circuit of a 2-circuit power line from Chelyabinsk; tied to substation F by 1, possibly 2, circuits; connections to substation E not determinable from [redacted] photography
Substation E	Reactor Area III	Operational status not determinable from [redacted] tography; if in service, probably tied to substations D & F
Substation F	Reactor Area II	Transformer & switching substation; 2 transformers; tied to substations B & D by a 1-, possibly 2-, circuit power line each; connections to substation E not determinable from [redacted] photography

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*All circuits are 110 kv.

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REFERENCES

[redacted]

MAPS OR CHARTS

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2. NPIC. R-103/63, Atomic Energy Complex, Kyshtym, USSR, [redacted] Jun 63 (TOP SECRET [redacted] 25X1

3. NPIC. R-248/63, Reactor Area I, Kyshtym Atomic Energy Complex, USSR, [redacted] Oct 63 (TOP SECRET [redacted] 25X1 25X1

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REQUIREMENT

CIA. C-SI8-80,369

NPIC PROJECT

J-220/63

[redacted]

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