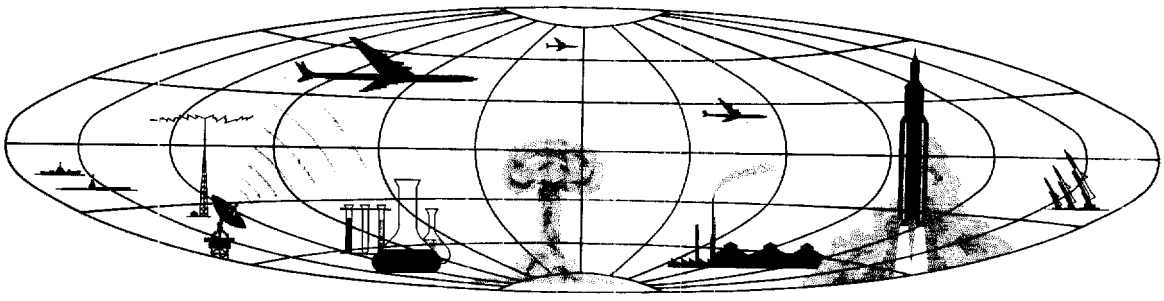
PIC/R-1004/61
May 1961

PHOTOGRAPHIC INTELLIGENCE REPORT

DNEPROVSKIY TITANIUM-MAGNESIUM FACTORY

ZAPOROZHYE, USSR

Published and Disseminated by
CENTRAL INTELLIGENCE AGENCY
PHOTOGRAPHIC INTELLIGENCE CENTER



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PREFACE

This photographic intelligence report has been prepared to answer a request for a determination of the extent, characteristics, and probable types of production of the magnesium-titanium plant at Zaporozhye, USSR. It was felt that the plant might be connected with zirconium production for the Soviet atomic energy effort. The report is based primarily on [redacted] aerial photography since [redacted] photographs are of little value for purposes of this requirement and also because of the scarcity of collateral information on this plant.

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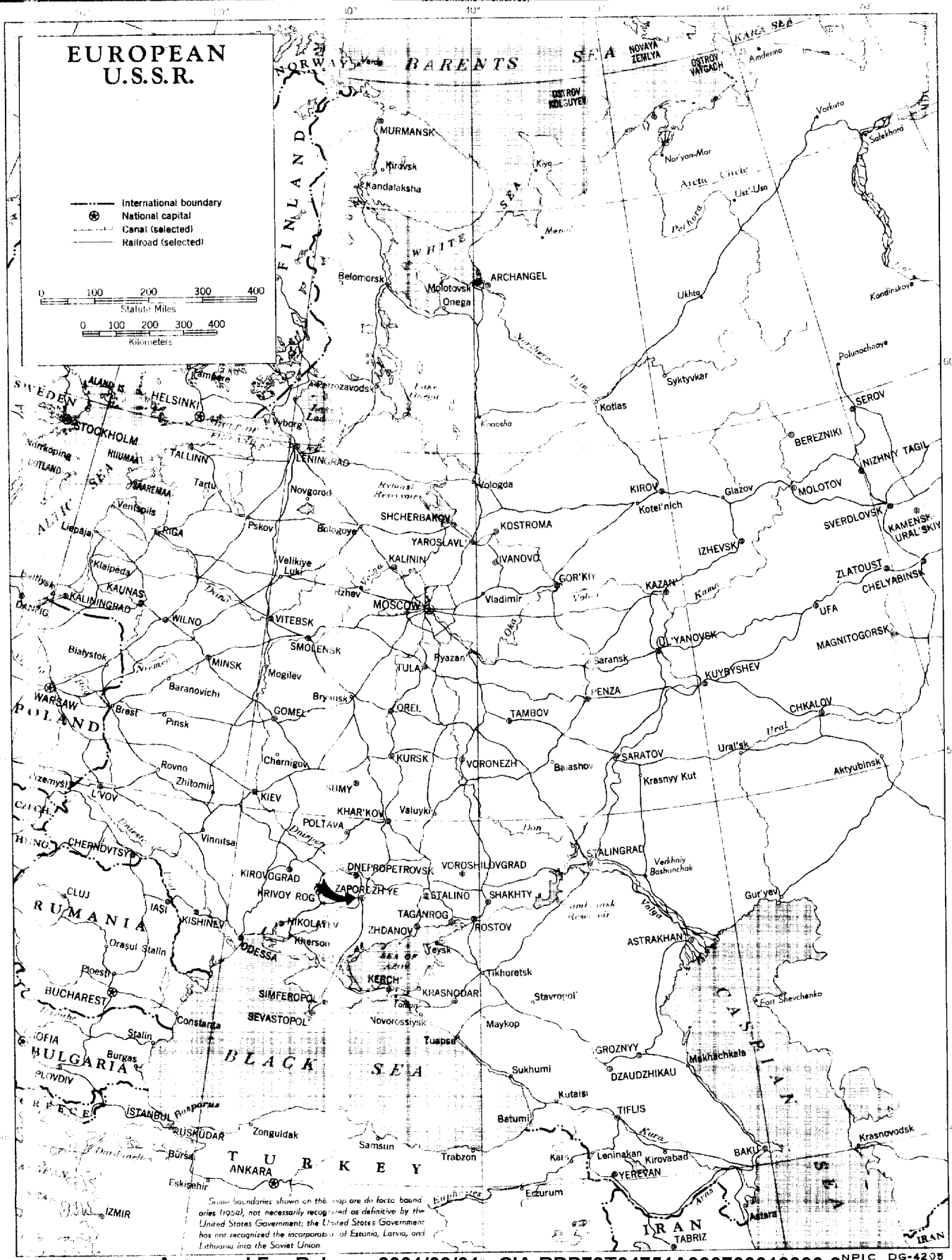

Base 13268 10-54 NPIC DG-4205

PIC/R-1004/61

INTRODUCTION

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The Dneprovskiy Titanium-Magnesium Factory has been located on [redacted] photographs of Zaporozhye, USSR, on the left bank of the Dnieper, 45 miles south of Dnepropetrovsk (see location map).

The factory is located to the north of the city at 47-53-30N 35-12-00E near the village of Srednyy Veselyy. Road and railroad facilities connect it with Novyy Zaporozhye which is just to the southwest.

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The photographic coverage of this factory in [redacted] is of fair to poor quality with the installation appearing on the oblique frames (see Figure 1). There was snow on the ground at the time of the photography. There is also some [redacted] photography available, but the plant was destroyed during the war, and vast changes have taken place

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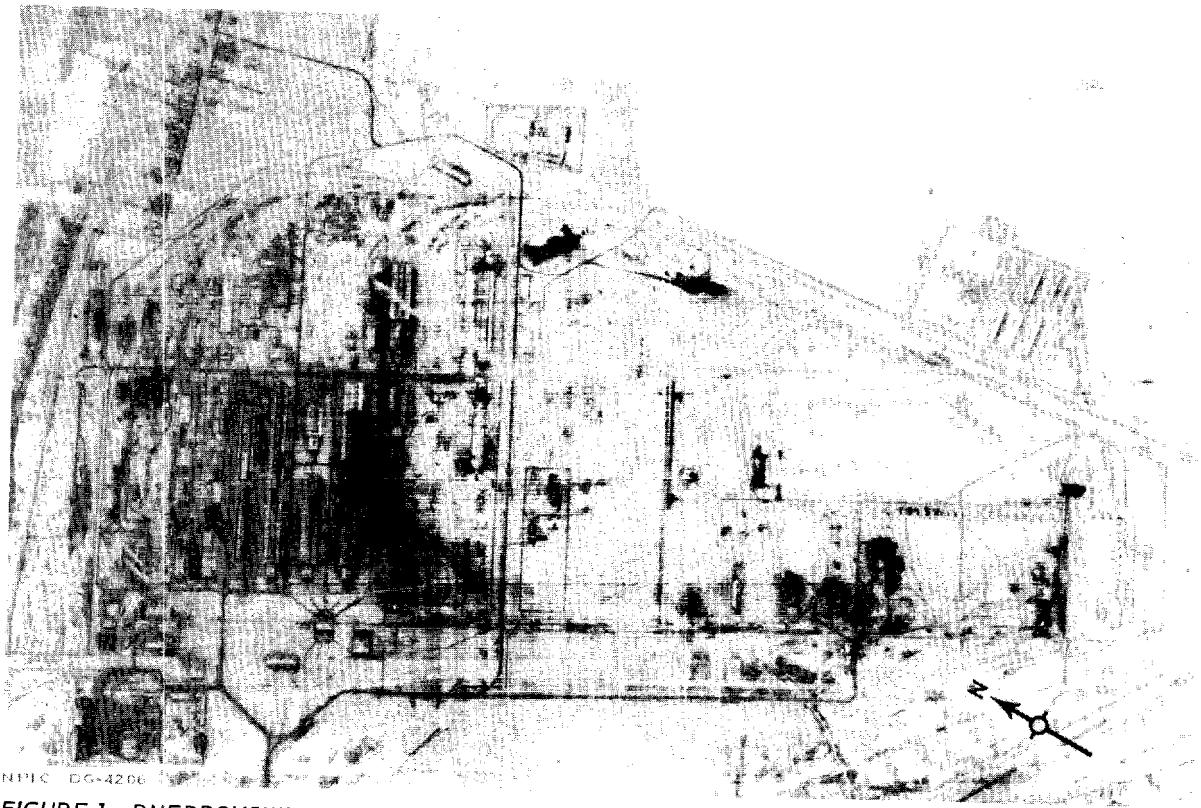

FIGURE 1. DNEPROVSKIY TITANIUM-MAGNESIUM FACTORY. This factory is located to the north of the city of Zaporozhye at Srednyy Veselyy (date of photography [redacted])

since that time so that it is practically a new plant altogether. It is reported that construction on the new plant may have begun in 1955. 1/

DESCRIPTION

The factory proper is a fenced installation approximately 2,600 feet square with the main entrance and administration building on the west side. Security measures appear to be consistent with those at other Soviet chemical plants. The numerous buildings are laid out in a congested array which is also typical of chemical plants. Many of the buildings are rail served.

An unusual feature at this plant is the striking length of certain of the processing buildings in the center of the factory. One of these (No. 2, Figure 2) measures 1,175 by 90 feet and appears to be connected to another (No. 1) just north of it which measures 1,050 by 90 feet and seems to be in the process of being extended. There is a tall stack located between these two buildings.

25X1C [redacted] has described some of the processing buildings in the factory, 1/ but an attempt to correlate 25X1C [redacted] sketch of these facilities with the actual buildings seen on the photography was not successful. Nevertheless, these are the buildings and facil- 25X1C ities [redacted] described:

1. Reactors for the Kroll process.
2. Vacuum electric-arc furnaces for converting titanium sponge to metal.
3. Chlorinators making titanium tetrachloride.
4. Building for the production of titanium slag.
5. Two buildings under construction for making magnesium metal.

25X1C [redacted]

June 1961

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ERRATUM FOR PIC/R-1004/61

Dneprovskiy Titanium-Magnesium Factory

Zaporozhye, USSR

The overprints on page 7, (Figure 2, NPIC DG-4207) of PIC/R-1004/61 are incorrect. This page should be replaced by the accompanying sheet, which bears the correct overprints.

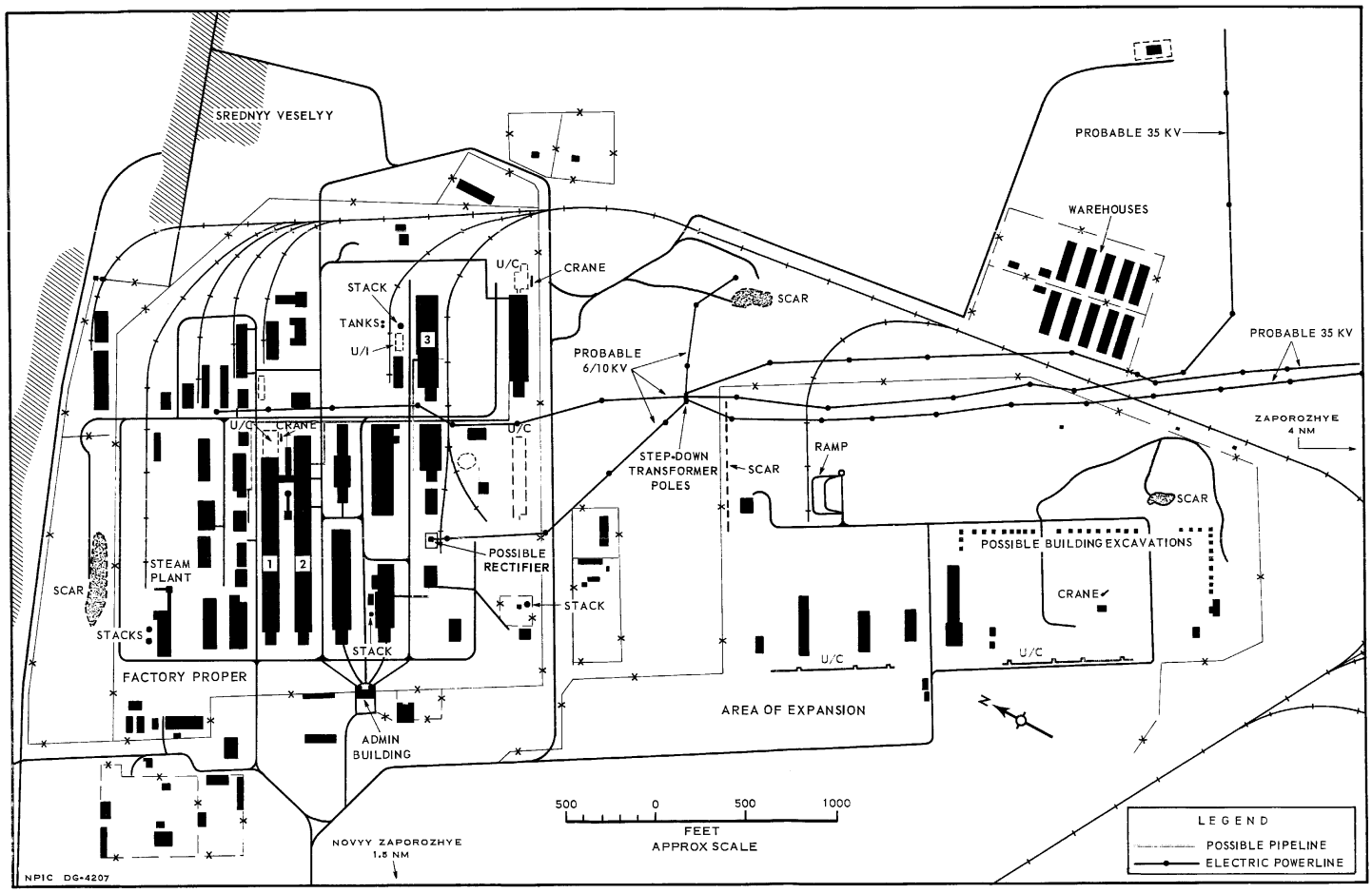

FIGURE 2. DNEPROVSKIY TITANIUM-MAGNESIUM FACTORY. The large buildings in the center of the factory proper are monitor-roofed processing buildings producing titanium and magnesium.

Jul 12, 1961

June 1961

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ERRATUM FOR PIC/R-1004/61

Dneprovskiy Titanium-Magnesium Factory

Zaporozhye, USSR

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[redacted]

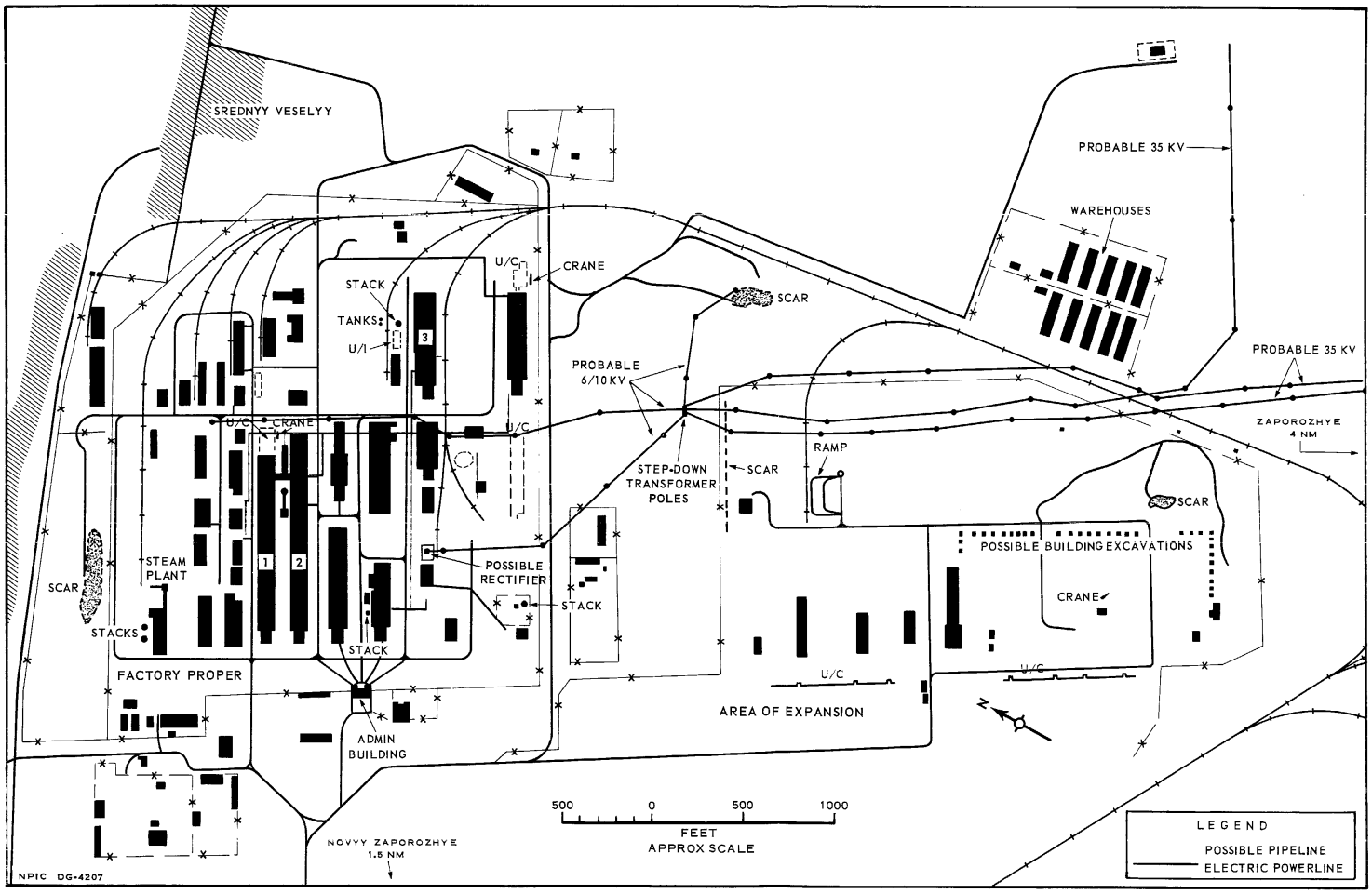

FIGURE 2. DNEPROVSKIY TITANIUM-MAGNESIUM FACTORY. The large buildings in the center of the factory proper are monitor-roofed processing buildings producing titanium and magnesium.

All of the major buildings in this factory have monitors on the roofs for light, ventilation, and/or overhead cranes. In the northwest corner of the installation there is a steam plant with two adjacent stacks and a conveyor system. Coal is brought in along the rail spur which serves the steam plant from the east. The buildings along the several other rail spurs in the north section of the installation probably have storage functions.

There is a rather prominent building (No. 3) with an adjacent stack located between two rail spurs in the southeast section of the factory. This building has a long, towerlike section which occupies the middle of the central portion of this building as indicated in Figure 2. This section could house extraction columns such as those used in the production of zirconium by the Kroll process in the United States. However, the rest of the building and especially the adjacent tall stack cannot be compared to the facilities at [redacted] 25X1A

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A pipeline system has been identified on the photography as indicated in Figure 2. Many of the process buildings are connected by these unidentified pipelines, and it is quite likely that there are other pipelines which cannot be seen due to smoke or shadows on the photographs.

Electric power lines serve the Dneprovskiy Titanium-Magnesium Factory from the southeast. A line, probably 35 kilovolt (kv), from a small transformer station at 47-53N 35-14E, and two probably 35 kv lines from a primary transformer station at 47-61N 35-13E, converge just southeast of the factory at what appear to be transformer poles. At this point the 35 kv is probably stepped-down to 6/10 kv for use at the factory as indicated in Figure 2. Here again, photo quality precludes identification of all the power lines within the installation itself. However, there is evidence of a possible rectifier located in the south section of the factory.

AREA OF EXPANSION

Just to the southeast of the factory proper there is a triangular area measuring approximately 4,400 by 4,000 by 2,600 feet overall. Some of this area, as previously indicated, is utilized in providing rail and electric power service to the titanium-magnesium plant. But the rest of this area appears to be under construction and may very well represent an expansion effort. Several large buildings have already been constructed (see Figure 2), and at least a partial perimeter fence has been erected. The 10 large warehouses located outside of the fence appear to be more directly associated with the factory proper than with the area of expansion.

PRODUCTION

25X1C [redacted] estimated that in the fall of 1956 the Dneprovskiy Titanium-Magnesium Factory was producing 4,000 tons of titanium chloride and 1,000 tons of titanium metal sponge annually. 1/ 25X1C [redacted] 25X1C [redacted] that the plant was only 40 percent completed at that time and that in the future it would also produce magnesium metal. It is not possible to determine from the photography if any other metal, such as zirconium, is being produced here for the Soviet atomic energy program. The processes for producing zirconium are known to be similar to those for producing titanium or magnesium. If additional security measures are to be expected for zirconium production, they seem to be lacking within the factory itself. However, it is possible that the area of expansion is being constructed for production of something other than titanium or magnesium and that it will be separately fenced.

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PIC/R-1004/61

REFERENCES

25X1D [redacted]

MAPS OR CHARTS

25X1A ACIC. US Target Complex Mosaic, Series 25 [redacted]
2nd ed, Jun 52, Scale 1:25,000 (S)

DOCUMENT

25X1C [redacted]