INFORMATION REPORT INFORMATION REPORT

CENTRAL INTELLIGENCE AGENCY

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SOURCE EVALUATIONS ARE DEFINITIVE. APPRAISAL OF CONTENT IS TENTATIVE.

Attachment 1: report on the Petrovsk Metallurgical Plant describes the physical and functional layout of the plant as of 1953. A sketch and legend for the plant area are included. 25X1 access to all the buildings except the transformer plant was unrestricted. of no plans for construction.[1]

Attachment 2: A description of the physical and functional layout of the Petrovsk Metallurgical Plant as of 1956. Although the plant did not specialize in military material, it was said that some products (not further identified) were consigned to the Ministry of Defense. The plant's only underground installations were those servicing the old blast furnaces. New furnaces had been planned and may have been the object of construction under way in the vicinity of the already existing furnaces. Fairly detailed sketches and legends of the main plant area and its annex building are included.

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Attachment 3: A brief [redacted] report [redacted] on the locomotive repair plant (Dnepropetrovskiy Parovozno-Remontnyy Zavod - DPRZ) presenting sparse information on plant operations as of 1956. A legend and sketch for the plant area are included.

Attachment 4: A fairly detailed description of the physical and operational layout of the Lenin Pipe Plant as of 1956. Included are a sketch and legend of the plant area and a paragraph on dimensions of the standard pipe produced at the plant.

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Petrovskogo Plant in Dnepropetrovsk

Identification of the Plant

The Petrovskogo plant had no other name or numerical designation. It was subordinate to the Ministry of Metallurgical Industry.

Location of the Plant

The plant was located about three km west of the Dnepropetrovsk suburb Kaydak and about three km from the right bank of the Dnepr River. There was no street (sic). A streetcar line, the number of which source did not recall, passed the front of the plant, and between this line and the building ran the Dnepropetrovsk-Kiev RR. In front of the plant was a RR station with eight to ten tracks. (See overlay to Dept. on City of Dnepropetrovsk for location of the plant. See sketch on page 18 of plant layout.)

[redacted]

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Description of Plant

The plant area was about 3,000 m x 800 m, irregular in shape, and was enclosed by a two-m rubblework wall. There were four or five entrances for personnel and vehicles and one RR entrance.

[redacted]

the transformer plant was unrestricted,

[redacted] no subterranean installations.

25X1

[redacted]no plans for construction. The wire working shop was built in 1953 and the larger part of the rails and iron beam section was built after WW II.

Description of Shops and their Functions

(The numbers of the shops refer to the sketch of the plant layout on page 18 and were not actually assigned in the plant.)

1. Rail and beam shop, a one-story brick and cement building without basement 700 m x about 30 m in area and irregular in shape. The corrugated metal roof was supported by an iron frame resting on rows of iron columns along the walls and in the interior of the nave. In the center of the roof was a large glass skylight with lateral windows intended for the escape of gases as well as for lighting. There were several tunnels where part of the machinery was installed and where waste from the iron fell. The building was fireproof.

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Attachment

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The rail and beam shop contained the following sections:

a. Furnace section, consisting of about 20 gas furnaces or pits sunk in the earth with metal covers at ground level. They were of different types. In some a single steel ingot was introduced. These ingots were later made into rails and heated to 900°. In the other furnaces four steel ingots were introduced. The latter were made into beams, wires, sheets, etc. The ingots used were transported to the shop on rail flatcars from the Bessemer and Martin shops (Nos. 2, 3, and 6) and in smaller quantity from the Dneprodzerzhinsk metallurgical plant. After tempering, the ingots were removed from the furnaces by cranes and deposited on the block chain which carried it to the blooming section.

b. Blooming section, which had a large semiautomatic blooming mill. The machine had rollers with three phases for giving ingots three different sizes and different shapes. The ingots were originally shaped like the frustum of a quadrangular pyramid and measured 1.40 m in height and 0.40 m each side of the larger base. The steel of the blooms varied in hardness; those of better quality were used for rails and those of inferior quality were used in the production of beams.

c. Lathe section, which received the blooms which had been passed and slightly shaped like a rail or a beam. This section was equipped with three rolling mills, known as stan, which were different than the blooming mills although the work was similar. Two of these machines finished passing the blooms and shaping them like rails or beams. The other machine passed them into different shapes: square bars which were used for manufacturing wire in another building; cylindrical bars for producing pipes; and two other types of square bars, one used for the construction and chassis of vehicles and the other for making differentials.

d. Metal cutting section, where all the pieces worked on in the above sections were sent. Each piece was cut to a predetermined length. lengths:

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Standard rail for a narrow gauge railroad, 12.025 m long.
Rail, higher and narrower than the standard, to be used for narrow gauge railroads in mountainous zones, 12.025 m long.
Crane rail, stronger than the above, approximately six to seven m long.
Bars for wire, 50 cm long.
Bars for pipes, three m long.

25X1

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e. Tempering and drilling section, where the three kinds of rails and the beams were sent. The rails were straightened and their ends polished and drilled. The ends of the rails were later joined by fish plates. A length of three cm at the ends of the standard rails was tempered to prevent the wear caused by friction when the rails expanded. The beams were also straightened in this section.

f. Storage section, where the finished rails and beams were divided into the following three categories: 1) those for general railroad lines; 2) those for streetcar lines and rail sidings in stations; and 3) those for beams used in the construction of buildings. After being classified, the rails and beams were stored in an open air storage site which was a 300 m x 20 m prolongation of building No. 1.

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The rails for cranes were quite strong and were probably used for powerful cranes. They measured about 25 cm at the base and about 20 cm in height. They had the same plant markings as the other rails.

The beams for building construction were made in U or H sections. Their production was not constant and usually consisted of two or three two-week periods per year. Nevertheless, the capacity of production of construction beams was greater than that of the rails. The length of the beams 25X1
varied from ten to 18 m; the width was 25 cm; the thickness of the vertical section was four mm and that of the ends was less.

The machinery in this building was entirely of recent Soviet manufacture It was 25X1
in good condition and consisted of the following:

25X1

25X1

25X1

1 large rolling rod bloom mill, known as blumen, manufactured in the Urals, and seminew in 1953. It was in the blooming section.
20 gas furnaces for heating the steel billets which were to be worked.
3 rolling mills or lathes, known as stan, which completed the work of the blooming mill.
1 crane which served the rolling mill or stan.
2 saws which had a longitudinal and transversal movement, one for cutting rails and the other for cutting beams.
1 fixed saw for cutting the bars used for making pipes and wire.
1 guillotine cutter for cutting the stock into square bars.
1 crane for removing the bars cut by the guillotine and the fixed saw.
2 cranes for storing the products in the warehouses and for loading the trains.

The entire length of the building was occupied by rollers which served as a conveyor on which the products, in various stages of assembly, were moved along to the different shops. The products left the warehouse by train. 25X1
About 2,000 persons worked three shifts in this shop. 25X1

2. Bessemer shop, a one-story, brick and cement building, 200 m x 40 m, and 15 m high. The iron roof frame was supported by two rows of iron columns along the side walls. The entire length of the metal roof was occupied by two large lateral windows for the escape of gases from the two furnaces. The walls had openings, similar to door openings, for the entrance of light and air. 25X1
There were tunnels where the 25X1
pipes necessary for the operation of the furnaces were installed. There were no chimneys.

The Bessemer converter mixed molten steel with chemical substances. The molten steel came from the two Martin open hearth buildings (Nos. 3 and 6) and also from the foundry. The shop was equipped with two converters. During the mixing process, the molten steel was blasted with air. The blowing produced high orange flames. The converters poured the steel into the ingot molds, which were moved along mechanically on flatcars; the steel was then transported to the pit furnaces in building No. 1.

The Bessemer shop was equipped with the following machinery: a crane which was utilized only in case of a breakdown of the converters or other equipment and various devices which regulated the mechanical movements of the converters. Three hundred persons worked three shifts. the production of both 25X1
converters at about 300 ingots with a total weight of about 1,200 MT per day.

1200
3
3600
1

25X1

3. Scrap foundry or Martin shop, a one-story building, 200 m x 20 m and ten m high, without basement. It was fireproof and identical in construction to building No. 2 with lateral windows in the roof and large windows and doors. Between the railroad line and the building were two chimneys, one of brick which was 20 m high and the other of iron which was ten m high.

The foundry smelted metal waste products from this plant and from others. It was equipped with three open hearth Martin furnaces; they were old, but well-maintained and of Soviet manufacture. These furnaces were fired with gas supplied by the main foundry (see No. 8 in the sketch on page). Part of the steel production of this shop was sent in molten form to the Bessemer shop in building No. 2; the rest was sent as billets to building No. 1 to be turned into beams, sheet metal, and wire. The foundry also produced some small ingots which were sent to other plants 25X1
The products were transported by train, both to the other plants and to the shops.

The shop contained the following machinery:

1 machine which automatically charged the three furnaces with scrap and chemical mixtures.

2 cranes which extracted molten steel from the furnaces, moved the molds up, then filled and withdrew them. They also loaded the receptacles which transported the molten metal to the Bessemer shop.

The foundry was also equipped with several ventilators and draft tubes, as were the other shops of this type.

Three hundred persons worked three shifts per day. 25X1

4. Sheet steel shop, a one-story brick and cement fireproof building without basement, 200 m x 40 m and eight m high. The iron roof frame was supported by two rows of iron columns along the lateral walls and one or two more in the interior of the building. There were windows in the metal roof and in the walls. Between building No. 2 and building No. 4 there were four or five chimneys, one of brick and the others of metal, with an average height of ten m. They were intended for the escape of gases from the two buildings.

In the sheet steel shop, sheets of different kinds of steel, with different thicknesses and surfaces were worked. The sheets were for various applications, for example, ship construction. The thickness varied from 0.5 mm to four mm and sometimes more depending on the orders. The surface of the sheets was usually 5 m to 6 m x 1.5 m to 2 m. The larger sheets were thicker than

25X1

25X1

the smaller ones.

The shop was equipped with the following well-maintained, Soviet machinery:

3 furnaces fired with gas supplied by the main foundry (No. 8). One of these operated with a conveyor which passed through the 20-m long furnace. The other two furnaces were divided into two separate compartments, one about 20 m long and the other about 15 m. These furnaces were for heating the steel ingots from which the sheets were produced.

3 rolling mills for working the sheets. Two of the mills were older and smaller than the other and were probably of foreign manufacture. The third mill was of recent manufacture and was used for the largest and thickest sheets. By a system of rollers, it received the hot ingots or billets from the furnace which operated with a conveyor.

6 mechanical shears, two for cutting the thick sheets and four for cutting the finer ones.

4 medium capacity cranes which dominated the entire surface area of the building and carried out the interior transportation of all materials.

3 machines for straightening the sheets; one of them was for straightening the thickest sheets.

1 machine for corrugating sheets; one of the machines was for the thickest sheets.

10 ventilators and draft tubes.

The shop warehouse occupied one side of the building. The sheets left the warehouse by train and were shipped to other plants which source did not know.

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Two hundred persons worked three shifts per day.

25X1

the volume of production considered

25X1

important.

5. Wire mill, a one-story, brick and cement fireproof building, 200 m x 100 m, and eight m high. It was built in 1952 or 1953 and was of more modern construction than the other buildings. The iron roof frame was supported by two rows of iron columns along the lateral walls and had a large glass skylight. There were windows in the metal roof and in the walls. There was no basement, but there were many tunnels for the installation of complicated devices for the machinery.

The entire building was used for the elaboration of slightly steeled wire which had a uniform thickness of two or three mm. The mill contained the following new Soviet machinery:

25X1

2 cranes for loading and moving the wire and for lifting the machines in case of a breakdown.

1 rolling rod bloom mill which shaped the steel ingots into cylindrical bars which were made into wire by other machines. The mill received the hot ingots from the two shop furnaces.

2 automatic machines which made the wire; 25X1

2 furnaces which had conveyors and which were fired with gas supplied by the main foundry.

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The wire was shipped by train

Two hundred and fifty persons worked three shifts. 25X1

6. Martin or open hearth foundry, identical to building No. 3 in regard to the construction, furnaces, machinery, and number of personnel. It had two brick chimneys and one metal chimney of the same dimensions as those of building No. 3.

7. Repair shop, a one-story brick and cement building, 100 m x 15 m, six m high, and without basement. The iron roof frame was supported by two rows of iron columns along the lateral walls and another row in the center. The large glass skylight in the metal roof and the large windows in the walls resulted in a well-lighted interior.

The shop repaired all the plant machinery. It contained the following well-maintained Soviet machinery, some of which was old: fifty light and heavy tool machines of various kinds, such as lathes, horizontal and vertical milling machines, drills, and a steel-tempering apparatus which operated with oxygen and acetylene.

The repaired materials were usually transported on flatcars, but light trucks were also used for lighter parts. One hundred and fifty persons worked three shifts. The first two shifts required a full work force, but the third was usually less numerous and was for urgent repairs.

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8. Main foundry, consisting of three blast furnaces about 20 m apart and covered by a light roof with an iron frame from under which the furnaces projected. The furnaces were surrounded by a complex of pipes, devices, and stairways 25X1

Along side the furnaces was a small building in which were installed wash rooms, dining rooms, meeting rooms, and other facilities for working in the foundry. The furnace closest to this building was the largest (see sketch on page) and was

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perhaps built before the Revolution. It was about 25 m high and was well-maintained. The other two, which were identical, were installed in 1948 and 1951 and were 20 m high. The blast furnaces supplied the plant with cast iron as well as with the necessary gas. They also made cast iron ingots to be sent to other plants The furnaces were fired with 25X1
coke which came from another plant in Dnepropetrovsk. The molten cast iron was sent in large containers on flatcars to the Martin and Bessemer shops, and the iron ingots which went to other plants were transported by train. Five hundred persons worked three shifts. 25X1

9. Carpenter shop, a one-story brick and cement building, 100 m x 20 m, including a partially open lumber storage shed. 25X1
the roof was completely flat and consequently not visible. There were no columns in the building and no basement.

The carpenter shop supplied the plant with doors, windows, wooden floor boards for the shop offices, and wardrobes for the workers' clothes. It also constructed launches for a recreational wharf which the plant owned. This wharf was near the town of Kaydak, about four km above the plant on the Dnepr River and was equipped with 200 launches, four sailboats, and two motor boats.

The shop machinery was old and consisted of two disc saws, one planer, and one shovelling machine. 25X1

Sixty persons worked one shift.

10. Fire brick plant, consisting of a group of small buildings and furnaces with corresponding chimneys. The area was 300 m x 200 m. 25X1
The buildings produced various kinds of fire bricks which were for the exclusive use of the Petrovskogo plant. The saw (sic) and other materials necessary for making the bricks were delivered to the plant by train. The bricks were distributed on flatcars throughout the interior of the plant.

11. Administration building, a two-story structure with basement, 200 m x 10 m. It housed the principal plant offices, such as the administration of the Party, the Komsomol, the labor unions, the main library, and meeting rooms. The building also contained a small plant which made ice and carbonated water which were given without charge to persons working in the furnace shops.

25X1

12. Warehouse, a large brick and cement structure, 70 m x 15 m, without basement. It had a flat tile roof. 25X1
It had one main story and a small 25X1
second story in which the administration office for the warehouses was installed. The building was divided into two main zones consisting of various departments: One zone was for the storage of work clothes and shoes for new personnel, and the other was for the storage of spare parts and accessories such as screw products, lamps, guns, and electrical apparatus.

13. Infirmary, a small one-story brick structure. It was solely for emergency treatment and was attended by one doctor, two nurses, and one secretary.

14. Main dining room, a one-story, brick building with basement, about 30 m x 10 m. The food for supplying the dining rooms of each shop was stored in the basement.

15. Power transformer, a brick building, 20 m x 15 m, and 12 or 15 m high. the building 25X1
was restricted. It probably contained a supplementary generator for emergencies.

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19. Model making shop for the foundry, the production of which was sent to other plants 25X1

20. Warehouse for iron ore. In the same area there were several blast furnace chimneys.

21. Coke warehouse which supplied the blast furnaces.
22. Scrap metal warehouse which supplied the Martin shop in building No. 6.

23. Personnel office and control of the main entrance.

24. Railroad station, almost exclusively for the use of the plant.

25. Railway entrance.

26. Bridge which crossed over the railway tracks.

27. Entrance with stairs leading to a bridge (28) which also crossed the railway and the slope of a waterway.

Attachment I

29. Entrance and exit for vehicles.

30. Entrance and exit for the railway and vehicles; this led to a pond.

31. Pond or tank for cooling the slag from the foundries. The slag was later used for prefabricated construction.

Products

The rails produced by the plant were inspected and analyzed and then divided into three categories: 1) rails for the principal railroad lines; 2) rails for station sidings or streetcar lines; 3) 12-m long beams for building construction.

The other products were as follows:

Rails produced for narrow gauge railroads in mountainous stretches were made of an inferior class of steel and were 12 m long.
Rails for heavy cranes, six or seven m long.
H and U beams for construction, made in different sizes.
Round steel bars, which were sent to other plants for the production of tubes.
Square bars, which were sent to other plants for the production of angle beams.
Steel billets, which were sent to the Dnepropetrovsk Automobile plant to be made into differentials.
Steel billets, which were sent to other plants to be used for the manufacture of rails and other products.
Coils of steel wire, with an average diameter of two to three mm.
Steel sheets, with a thickness which varied from 0.5 to four or five mm and with different surface areas. the sheets were sent to plants for making automobiles and tractors, and to shipyards for the construction of ships.
Cast iron ingots, which were produced by the blast furnaces and sent to other plants.

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Raw Materials

Iron ore, for the blast furnaces; source did not know its origin.
Coke, which was the only fuel used for firing the blast furnaces and which came from the Dnepropetrovsk coke plant.
Chemical products, which source did not know, for smelting iron.
Stone for the brick plant.
Steel billets for rails; they came from the Dneprodzerzhinsk

(48-31N, 34-38E) foundry.

Grease for working the sheets.

Gas for firing the Martin, Bessemer, and other furnaces was produced by the blast furnaces.

Bottled acetylene and oxygen came from the city of Dnepropetrovsk 25X1

The raw materials arrived by train The daily supply of iron ore and coke required 25X1
one train of 40 to 60 cars each with a capacity of about 60 MT. 25X1
The plant did not use river transportation. Highway transportation was used only for light items, such as spare parts, greases, and bottled oxygen.

Water Supply

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There were a great number of gas pipes elevated on iron posts. Some pipes were more isolated and they carried water. The pipes were of 25X1
different sizes, the thickest being about 50 cm in diameter.

Power Supply

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it was furnished by the Dneproges hydroelectrico station. In the building where the power transformers were installed, the sound of a powerful motor was constantly heard 25X1

Transportation

All the transportation within the plant area was by rail. There was an entrance for only one railway line, although within the plant area, there was a complex system of lines. These standard gauge lines were connected with the Dnepropetrovsk-Kiev line. There were no platforms and the loading was carried out with cranes along the sides of the cars instead of at the ends. There were a great number of sidings for shunting the cars.

At both sides of the blast furnaces there was a kind of pit for the rapid unloading of the trains which delivered the coke and iron ore; the tracks were elevated by iron columns and frames.

The plant railroad equipment was well-maintained and consisted of the following:

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About 20 small locomotives, almost all steam operated and without tenders, and some diesel locomotives. These usually pulled four or five cars or flatcars.

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; the plant had at least 100 cars of different kinds.

Flatcars without sides.

Flatcars with two-meter-high sides and without roofs.

Metal cars which transported receptacles of molten iron or steel from one shop to another.

Closed cars for transporting foodstuffs, spare parts, clothes, or light items.

There was an almost constant entrance and exit of trains, but source could not calculate the length of the intervals. In general all materials, except for some unforseen necessity, entered and left the plant area by train.

Highways and Vehicles

Within the plant area there was a network of highways which connected all the buildings. Almost all of the highways were concrete, although some were paved with stone. They were usually two m wide except for the highway going from building No. 1 to building No. 6, which was five m wide. The highways were considered adequate and passable at all times of the year.

The plant was equipped with about ten ZIS trucks with a freight capacity of about three MT, except for one or two which were smaller. The trucks were all old models and were normally used for interior transportation only.

Storage

The products were stored next to the shops where they were produced. Next to building No. 1 there was a 300 m x 20 m open-air storage site for rails and beams. Usually only one or two days production was stored there as every day part of the stock was removed and loaded on several freight cars.

Next to building No. 4 was the warehouse for sheet steel which was only partially covered. It occupied the entire length of the shop and had a width of about ten m. the number of sheets stored was not very large because the sheets were constantly being loaded onto flatcars. 25X1 25X1

The warehouse for wire occupied a 25 m x 25 m area within building No. 5 and was covered. The wire coils were hung on a

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capstan or bundle holder and were then removed by cranes and loaded onto cars which had sides but were uncovered. There was a minimum of wire stored in the warehouse.

The iron ore and coke were stored separately along the sides of the blast furnaces. The storage site for iron ore was 300 m x 25 m; the coke was heaped in mounds next to some pit heads but source could not calculate the area.

The greases and chemical products were stored in the shops which used them.

The plant did not have its own fire department. Each shop was equipped with hoses, sprinkler heads, fire extinguishers, axes, picks, and sand. Every once in awhile there were lectures to train the workers in handling the fire fighting equipment.

Production System

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Plant Buildings.

Buildings Nos. 1, 4, and 5 had assembly line production. The general production system of the plant was as follows: The blast furnaces produced the cast iron. The molten iron was then transported by train to the Bessemer shop in building No. 2 and in lesser quantities to the Martin shops in buildings Nos. 3 and 6. In these shops the corresponding chemical mixtures were added to the molten iron to produce various classes of steel billets. The Bessemer shop produced the largest quantity of good-quality steel billets, almost all of which were used to make rails. The three shops sent steel billets and ingots to the rail and beam shop in building No. 4, and to the wire shop in building No. 5. The control apparatus was automatic.

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Plant Production Figures

the production figures for the rails was an average of 1,800 per day. The rails were divided into three categories, according to their grade of perfection; the first category was the best. Percentage of production was as follows:

1st category - 70 percent
2nd category - 20 percent
3rd category - 10 percent

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each year the plant increased production and it also made greater use of the scrap metal.

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Working Conditions

There were three shifts of seven hours each. Persons who worked in gangs alternated a half an hour of work with a half an hour rest period as they worked with hot elements and their work was very tiring.

The workers in the auxiliary shops, such as the administrative personnel, usually worked one eight-hour shift, except during periods when it was required to organize more shifts.

Vacations were staggered rather than in definite periods. Those who worked in the furnace shops had vacations of 30 working days and the rest had 15-day vacations. The average salary for those working in the furnace shops varied between 1,600 and 1,800 rubles each month.

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The sanitary conditions were good. Some years medical commissions visited the plant to inspect the ventilation, water facilities, and the general state of the working conditions. Upon starting work in the plant, personnel were given very thorough physical examinations and were assigned jobs depending on their state of health or any physical incapacities which they might have had.

Plant Security

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guards that patrolled the plant were plant employees. During the day, they did not carry weapons; at night they were armed with rifles. In order to enter the plant it was necessary to present the propusk. There were no precautions taken against aerial attacks.

Organization and Personnel

The organization of personnel in the rail and beam shop, building No. 1 was the following:

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1 shop chief, metallurgical engineer.
1 assistant, also an engineer.
1 chief mechanic, mechanical engineer.
3 foremen, metallurgical engineers; each one was in charge of the furnace, blooming, lathe, and metal cutting sections during one of the three shifts.
1 foreman, in charge of the three shifts in the tempering and drilling section and in the warehouse.
1 lathe section master.
1 furnace section master.
1 tempering and drilling section master.

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In the furnace section, 15 persons worked on each of the three shifts; they operated the cranes and were in charge of the furnaces.

In the blooming section, four persons worked each shift, three of them operated the blooming machine and the other watched the temperature of the metal.

In the lathe section, 12 persons worked each shift; there were four machine operators, one crane operator, and seven lathe operators.

In the metal cutting section, ten persons worked each shift; four were saw operators, one stamped the plant markings on the rails, and the others were assistants.

In the tempering section, three or four persons worked as temperers and ten others as drillers and straighteners on each shift.

In the warehouse, there were two crane operators, one attendant, and about 15 assistants on each shift.

Apart from those already mentioned, the shop employed the following:

1 brigade of electrical mechanics, composed of two persons for each shift.
1 brigade of mechanical fitters, with 15 persons working the first shift and two others acting as guards for each shift.
1 sanitary technician or intern for each shift.
About 15 controllers for each shift, who were distributed throughout the various sections and who inspected the entire shop production process. They belonged to the plant office of head engineers.
1 woman who checked the attendance of shop personnel for each shift.
3 cleaning women.
2 laborers.
1 secretary of the shop Party.
1 secretary of the shop Komsomol.
1 president of the shop labor union.

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the plant personnel numbered about 8,000. He thought that almost the entire work force consisted of specialized workers.

names of directors:

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Chighikov (fnu) - director, metallurgical engineer, member of the Party

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Velousov (fnu) - chief of the rail and beam shop, metallurgical engineer

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Until 1952 there were some German and Rumanian war prisoners

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Attachment 2

25X1

CONFIDENTIAL

25X1

working in the plant. There were four prisoners working in the rail and beam shop. In 1951 and 1952, there were some Poles working in the plant in order to learn how to operate the machinery, as a similar plant was to be built in Poland. 25X1

To encourage the workers, medals were awarded to individuals or brigades when they achieved certain exemplary production figures. Workers who received such awards were usually promoted to the next category. There were very few absences from work and these were almost always justifiable.

Deficiencies, Improvements, and Increases in Production

Efforts were made to increase production by means of socialist emulation which was carried out through shops, individuals, and brigades, and was directed toward the improvement of machinery and more efficient operation of the machines. 25X1

falsification of production figures considered impos- 25X1
sible because of the increasing number of controllers and their intransigent attitude. the plant could easily 25X1
change to war production without many modifications; for example the sheet steel and billets used for making pipes could be improved in quality and thus have other applications.

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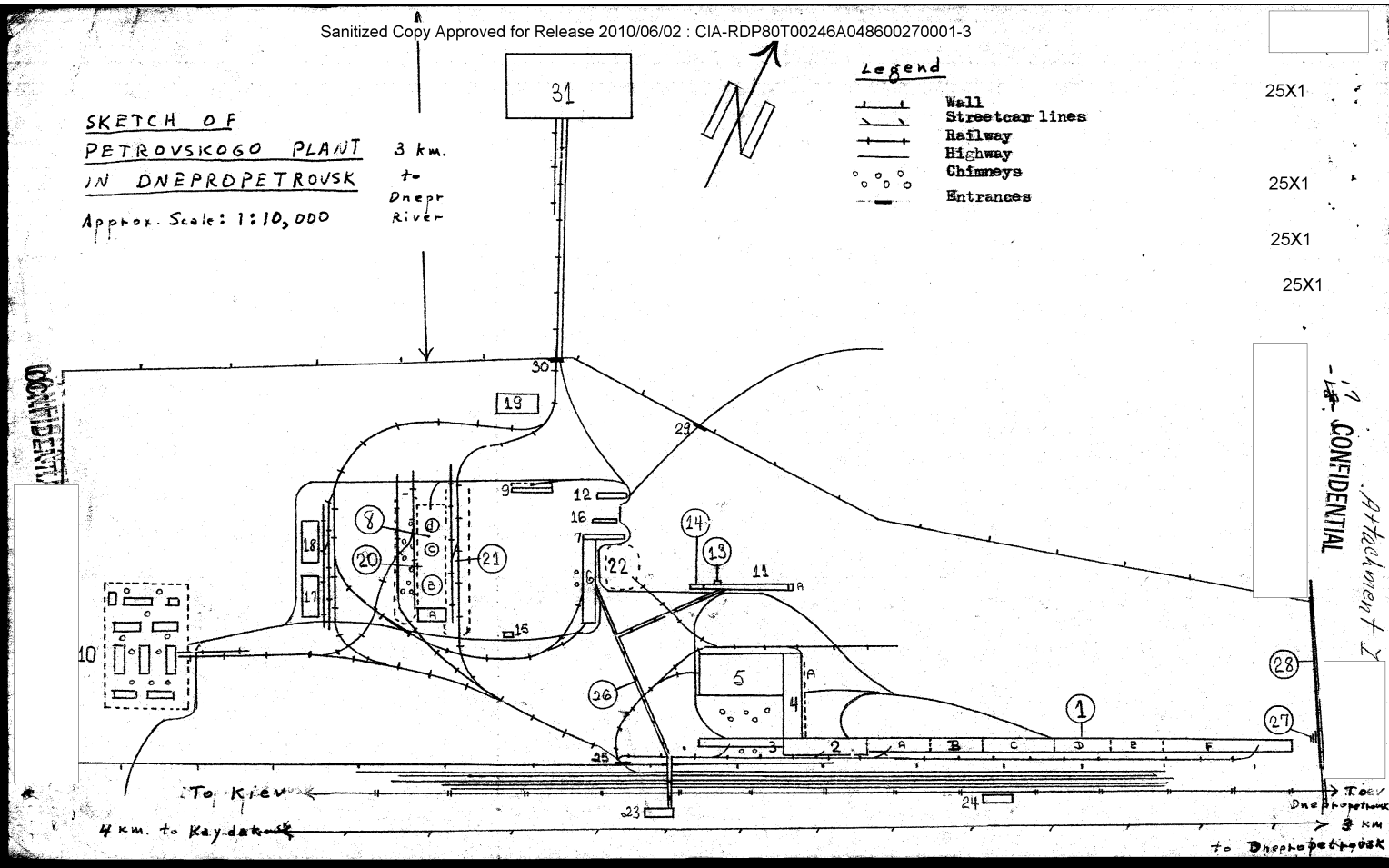
25X1



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Attachment X

25X1

PETROVSK METALLURGICAL PLANT IN DNEPROPETROVSK

Location

1. The Petrovsk Metallurgical Plant, subordinate to the Ministry of the Metallurgical Industry, was located in the Lenin district of Dnepropetrovsk (N 48-28, E 35-00) on the bank of the Dnepr River. 25X1 The plant was situated at the end of ulitsa Pushkina, which was an extension of Rabochaya ulitsa. The center of the plant was one kilometer from the river and one kilometer from the Chemical Coke Plant. It was near the Lenin Pipe Plant and approximately three to four kilometers from prospekt Karla Marksa. The plant was composed of a main plant area and an annex.

Main Plant Layout

2. The 7000 meter plant perimeter was surrounded by a 2.5 meter high, 25X1 reinforced, cinder-block wall. See sketch on pages 10 and 11, of layout of main plant area. Two railroad entrances were located on the west side of the plant. On the north side, and going from west to east, was a workers' entrance and a vehicle entrance. The entrance to the offices was to the east, and it was believed that workers could also enter here. On the south side, where the security office was located, was a workers entrance which led across a metal foot bridge over the railroad sidings and down a stairway to the various shops. The plant's only underground installations were those servicing the old blast furnaces. New blast furnaces had been projected and this may have been the object of the new construction that was under way in the vicinity of the already existing furnaces.

Plant Annex Layout

3. Some 500 to 600 meters to the south of the main plant area, and 25X1 between the plant and the Katherine railroad line, almost facing the blast furnaces, was the rectangularly shaped area of the plant annex. See sketch on page 12 showing the layout of the annex area. The annex employed approximately 180 workers and this section was devoted to the repair of pipe, boilers, and other plant repair work. These srticles were transported by rail and truck within the plant. The buildings of this annex were all one story, brick structures with sheet-metal roofs, or uralite roofs in the case of a few small buildings.. They were generally not fire-resistant and did not have basements. The machinery in this section was old, of Soviet-make, of good 25X1 quality and well-maintained. A new Soviet planer and drilling machine were located

 25X1

Plant Products

4. The plant produced billets, wrought iron, steel, rails, T-beams, I-beams, angle iron, small beams, ingots, various sizes of pipe, iron and steel sheet and plate, and in general the usual siderurgical products. Sheet iron was produced in thicknesses of from .5 millimeters to 15 millimeters; sheets up to 4 millimeters were produced for the plant's own use. The products carried the plant trademark, year, measurement, hardness and composition. The names of many of the plant products were unknown to source. Although the plant did not specialize in military material, it was said that some of the plant products, (not further identified), were consigned to the Ministry of Defense. During the last war, the plant produced military material and conversion to a war plant was believed possible with complete facility.

Production Quotas

5. The production capacity of the plant was said to be a million metric tons yearly. Production quotas were not met in 1949, but since that time the norms have been fulfilled except in the sheet metal shops and the foundry, where the standards were excessive. A constant effort was made to increase the level of production, and it was rumored that changes would be made in the plant to achieve that end. The usual difficulty in achieving the quotas was the fact that production was low the first days of each month with the result that production had to be speeded up later in the month to reach the norms. No falsification of production figures was known to exist 25X1
The operations in certain shops such as the sheet metal shops, the foundry and the blast furnaces, were automatic to the extent that they were controlled by mechanical devices and possibly, though not believed by source to be probable, by electrical devices.

Raw Materials

6. The raw materials used by the plant were the following: iron ore, said to come from Krivoi Rog (N 47-55, E 33-22); limestone; sand; scrap iron; petroleum; diesel oil; gasoline and oil from the Caucases, and from the large refineries in the region of the Volga River; wood from the Pechora River area; coke for the blast furnaces and the foundry and manufactured gas from the Chemical Coke Plant located nearby; natural gas came from 25X1
the Donbas; aluminum; copper; bronze, brass, nickel, paint, mainly red and white lead, varnishes, bakelite, synthetic fibers; tar; wax paper; coal; turpentine; acids; glass; leather for gloves; and protective breastplates for the workers in the foundry and welding shop, and those working with acids; asbestos; mica; cotton; soda; soap; alcohol; oxygen; and acetylene. All of these materials were believed to be of domestic origin. No great quantities of raw materials were kept in reserve but the plant used great quantities which were constantly brought into the plant.

Utilities

7. Water was supplied from the Dnepr River through underground pipelines. Source supposed that there must have been a pump house near the river to extract the water under pressure. There was also a 100 metric-ton capacity reserve storage of water. Electricity was believed to have come from a hydroelectric station near Zaporozhye (N 47-49, E 35-10).

There was a small building some 200 meters south of the plant offices and near the metal foot bridge; this structure was believed to house the transformers that supplied the plant's electricity. The supply was regular and adequate for plant needs.

Railroad Transportation

8. Raw materials were delivered to the plant principally by railroad. Two standard Soviet guage railroad sidings entered the plant on the west; one connected with the Kharkov-Moscow line, and the other led to the plant annex and to the Chemical Coke Plant. Within the plant area there was a vast network of railroad sidings, especially those serving the foundry, blast furnaces, and sheet-metal shops. The railroad sidings which crossed the plant area and terminated in the east portion, were lined with loading platforms. There were bridge cranes and light mobile cranes in the shops as well as outside in the plant area. Railroad cars were generally side-loaded although certain items such as rails and beams were top-loaded. The rolling stock was varied with hopper cars for the iron ore, 60-ton metal platform cars for rails and beams, and tank cars. The plant locomotives and the cars used for transporting sand and limestone were generally old. Iron ore, limestone, sand, and scrap iron were unloaded by cranes in the area where they were employed. Train traffic was intense and there were continuous deliveries of iron ore, coke, limestone, and scrap iron.

Road Transportation

9. Two streets which were paved with asphalt over a cobblestone base, and were all-season roads with good drainage, led to the plant. Trucks entering and leaving the plant used the road to the northwest while the 15-meter wide road to the south connected with the plant annex and the Avto Zavod. [redacted] this street was called Rabochaya ulitsa since the road going to the Avto Zavod was a northerly extension of this street. These roads were adequate for the traffic which was not intense. Only from 10 percent to 20 percent of the materials entering or leaving the plant were transported by truck. The materials ordinarily transported by truck were oxygen and acetylene tanks, carboys of acid, food products for the plant cafeteria, alcohol and oil and occasionally sand and fullers earth for the foundry. The plant used trucks of 1.5 and 5 ton capacity which were serviced and repaired in a garage located near the plant. 25X1

River Transportation

10. It was said that materials such as limestone, sand, and some iron ore and scrap iron were delivered by river transport and from the dock to the plant by railroad. Loaded barges and small passenger boats could be seen on the river travelling in the directiom of Kiev. Slag and other waste products were dumped in the river.

Working Conditions

11. The plant in general, worked two 8-hour day shifts and a 7-hour night shift daily although there were only two shifts [redacted] which employed 130 workers in the morning and 35 in the afternoon. Saturday shifts were only 6 hours [redacted] shifts have been reduced an hour [redacted] Fifteen days annual leave was given and employees could choose the time of year they wished to have their vacations. Sanitary conditions [redacted] 25X1 25X1 25X1

were not good due to old buildings, bad ventilation, and lack of sunlight. No strikes, complaints, privileges or absences were observed.

Security

19. The security force numbered approximately 100, including both men and women. This force worked on three shifts and security measures did not appear to be severe. There were carbine-armed guards at the vehicle and railroad entrances and the other guards sometimes carried pistols. Only the entrances were guarded during the daytime, but the guard was increased at night. Admission to the plant was controlled by a propusk bearing the worker's photograph and name of his shop, and entrances to and exits from the various shops were further controlled by badges. A worker could leave in case of necessity with permission of the shop or section chief. Movement within the plant was unrestricted.

Fire Precautions

20. A fire crew with the appropriate equipment was employed by the plant, and fire extinguishers, boxes of sand, and hydrants were located in the shops and storage areas.

Plant Executive Personnel

21. The director was a metallurgical engineer named Korovo (fnu),

The Pipe and Boiler Repair Shop Personnel Organization

22. The chief of the shop structural engineer named Ivan Ivanovich, The deputy shop chief was a foundry engineer named Gregorovich Mogovich

Plant Personnel

23. Of the approximately 10,000 persons employed in the plant, some 75 percent were specialists. No convicts or other foreigners were known to work at the plant, but it was visited by students and persons from other countries.

Legend to Sketch of Petrovsk Metallurgical Main Plant

1. Road along outside of plant north wall.

2. Vehicle entrance.

3. Open drainage canal carrying the waste products of the blast furnaces and other shops to the Dnepr River. Built of reinforced concrete, it measured approximately one meter deep, four meters wide, and 30 meters long.

4. Three-story brick office building which measured 40 x 150 meters.

5. Railroad entrance for the siding which connected the plant with the central line and led to the Lenina plant.

6. One-story warehouse measuring 50 x 100 meters where screws, bolts, and nails were stored.

7. One-story spare parts warehouse which measured 50 x 150 meters.

8. One-story sheet metal warehouse which measured 50 x 150 meters.

9. Part of the metal foot bridge roofed with uralite. Stairway of foot bridge.

10. Personnel entrance.

11. Fire house which measured 50 x 150 meters.

12. General warehouse which measured 50 x 150 meters.

13. Transformer station which measured 50 x 60 meters.

14. Coke storage dump which measured 65 x 150 meters.

15. Lathe and machine shop dedicated to plant repairs.

16. Covered iron-ore dump measuring 120 x 200 meters.

17. Covered sand and limestone dump which measured 150 x 250 meters.

18. Underground drains, conducting the wastes of the blast furnaces to the drainage canal.

19. Hot rolling mill which measured 50 x 150 meters.

20. and 20 a. Steel furnaces and adjoining scrap iron dump. This area measured 120 x 150 meters.

21. Ingot depot measuring 120 x 220 meters.

22. Sheet rolling mill for all types of sheet. This measured 120 x 200 meters.

23. Metal foot bridge over the railroad lines and stairway leading from bridge.

24. Rail, beam, and angle iron and other products depot. This area measured 150 x 350 meters.

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25X1

25. Railroad entrance for the siding which led from the plant annex and other plants in the area such as the Chemical Coke Plant.

26. Compressor shop which measured 50 x 100 meters.

27. Construction site believed to be for a blast furnace. This site measured 150 x 300 meters.

28. Two modern blast furnaces of 300-ton capacity.

29. Three old blast furnaces of 250-ton capacity.

30. Bessemer converters. This measured 100 x 150 meters.

31. Rolling mill for rails, beams, angle irons and other articles.

32. Level crossing of annex and central railroad lines.

33. Double-track central railroad line which ran between the plant and the road.

34. Street with streetcar line which led to the plant.

35. Plant entrance and security office.

36. Main railroad line station.

37. Approximate location of the plant annex.

38. Street leading to annex.

39. Plant clinic.

40. Streetcar line leading to center of city.

Legend to Sketch of Petrovsk Metallurgical Plant Annex

1. Oxygen supply shop. A 6 x 4 x 4 meter building where three workers installed oxygen tanks in a network of supply pipes that sent the oxygen to several shops for use in autogenous welding.

2. Water reservoir. This was an open pool 30 meters in diameter and six meters deep, with water from the Dnepr River, and connected to the various shops by underground pipes.

3. Vegetable warehouse. Vegetables and greens were stored in this 4 x 12 x 25 meter structure during the summer and other products in smaller quantities during the winter for the plant personnel. Eight workers, mostly women, were employed here.

4. Carbonation shop. A woman operated a machine to carbonate drinks in this shop which measured 8 x 15 meters.

5. Drawing section and electrical shop. Nine draftsmen were in this building, which also had a small section devoted to an electrical shop with three electricians working each shift. This measured 15 x 20 meters.

6. Forge. The forge was equipped with a drop hammer and employed nine workers per shift. It measured 15 x 32 x 7 meters.

7. Fitting and autogenous welding shop. One fitter and one welder worked in this shop. It measured 10 x 15 meters.

8. Machine shop. There were 10 machinists, six lathe operators, and one woman in charge of a planer in this shop which measured 15 x 40 meters.

9. Shop chief's office. The shop chief and two engineers occupied this office and there was another office with four women. It measured 10 x 15 meters.

10. Dining room and kitchen. Two or three women were employed in this 15 x 30 meter structure.

11. Vehicle entrance.

12. Electrical supply center for welding and offices. This was a two-story building with 16 workers who controlled the electric power for electrical welding on the first floor. Offices were located on the second floor where three persons were employed. It measured 5 x 6 meters.

13. Coal dump which measured 20 x 50 meters.

14. Water tank and adjoining small structure. One person on each shift was in charge of filling the nine mobile cranes which operated on steam power.

15. Workers entrance.

16. Branch of the security office.

17. Sheet metal, ingot, angle iron dump which measured 30 x 70 meters.

18. Parts repair shop. Two chiefs, an office worker, two foremen,

Attachment 2

and 30 workers were employed here. It measured 20 x 60 x 15 meters.

19. Sidings for railroad car repairs. Some 35 workers worked in the open air to repair the rolling stock. The area measured 25 x 100 meters.

20. Abandoned rolling stock repair shed and scrap iron dump. This structure had been abondoned because of its bad condition and was being used as a scrap iron dump. Renovation was planned. It measured 15 x 45 x 15 meters.

21. Tool storage. Three women worked in this tool and instrument warehouse. It measured 15 x 20 x 8 meters.

22. Baths and cloakrooms. It measured 10 x 15 meters. One woman was employed here.

23. Grease reclamation shop. This structure measured 5 x 6 meters and employed one worker.

24. Apprentices' shops. These were abondoned and almost in ruins.

25. Open courtyards. Materials were sometimes stored in these courtyards or vehicles were parked here.

26. Railroad entrance and point at which the annex joined the main plant.

Attachment 2

Sketch of Petrovsk Metallurgical Main Plant

Part I

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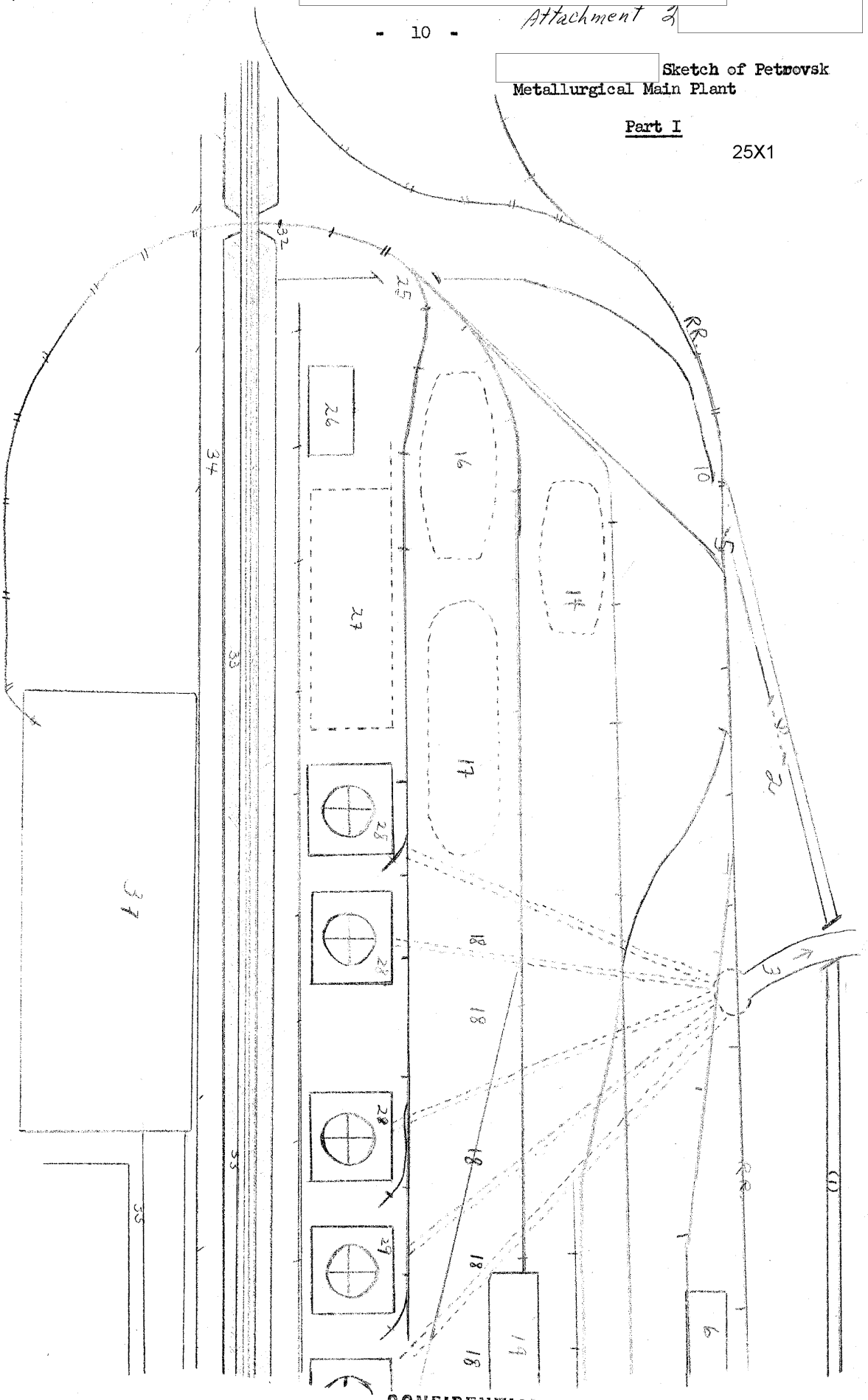

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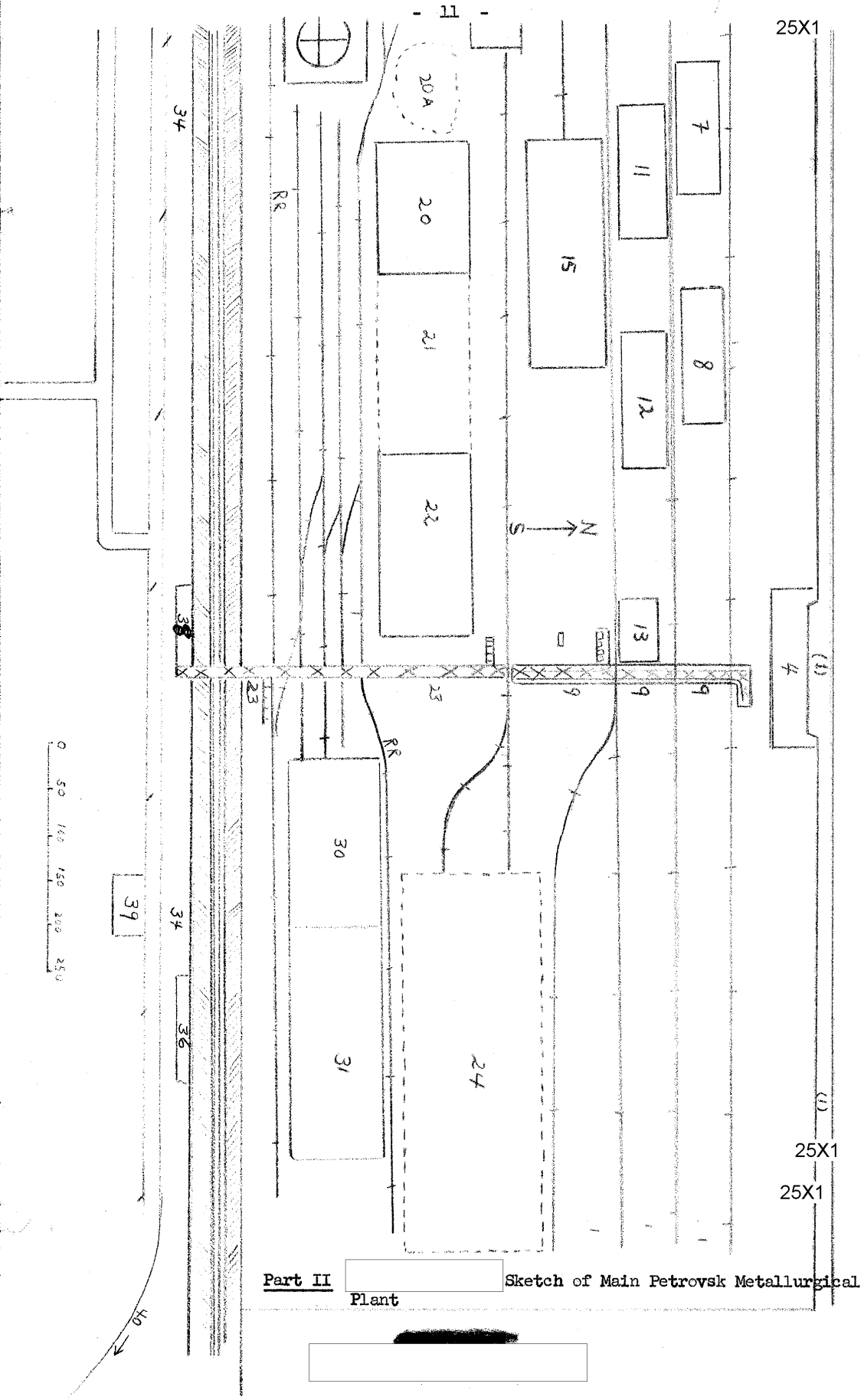
[redacted] Attachment 2



Part II [redacted] Sketch of Main Petrovsk Metallurgical Plant

[redacted]

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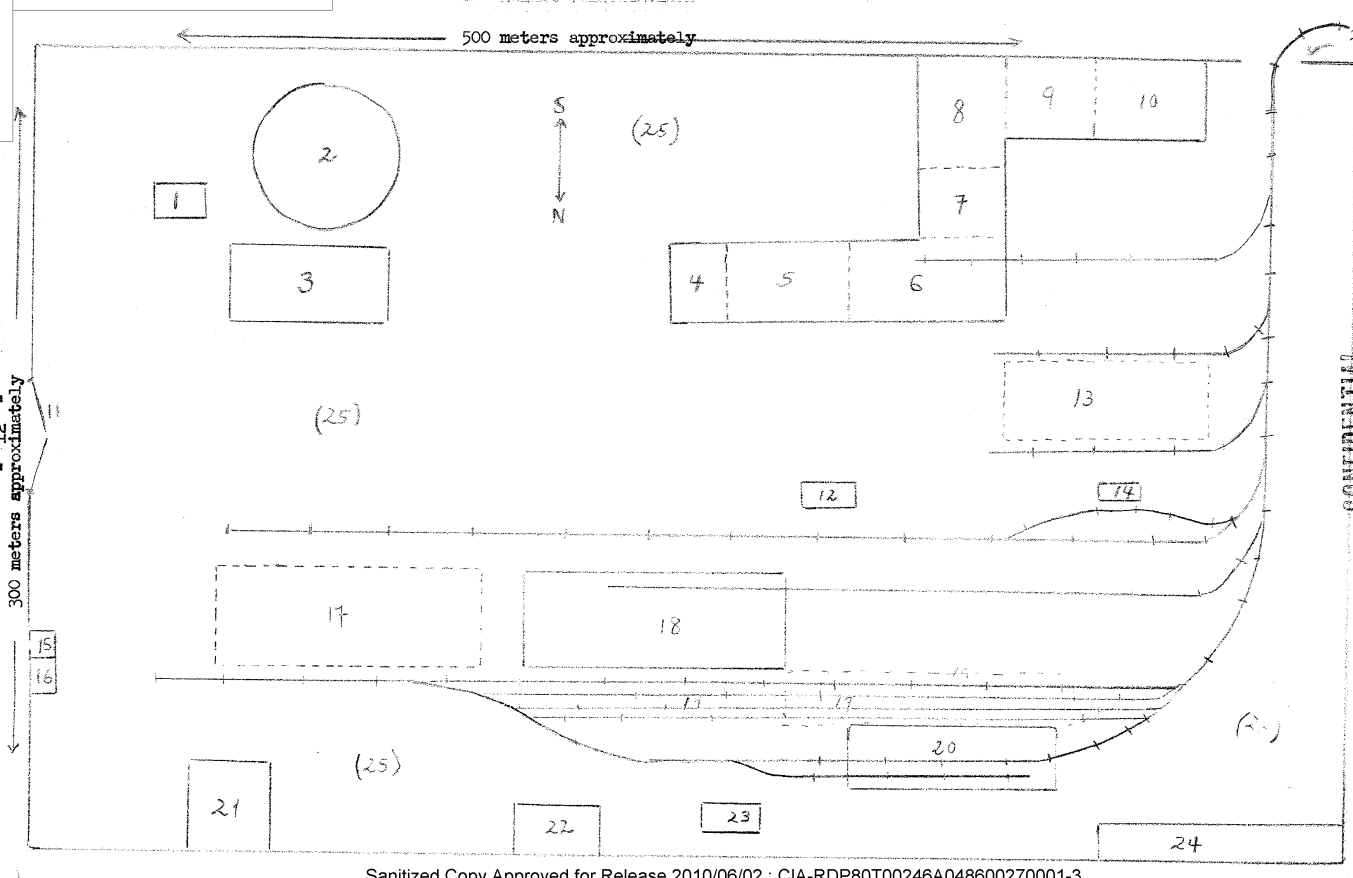
Sketch of Annex of Petrovsk Metallurgical Plant in Dnepropetrovsk



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Attachment 8

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SKETCH OF THE KRASIN PLANT IN LENINGRAD

Attachment 3

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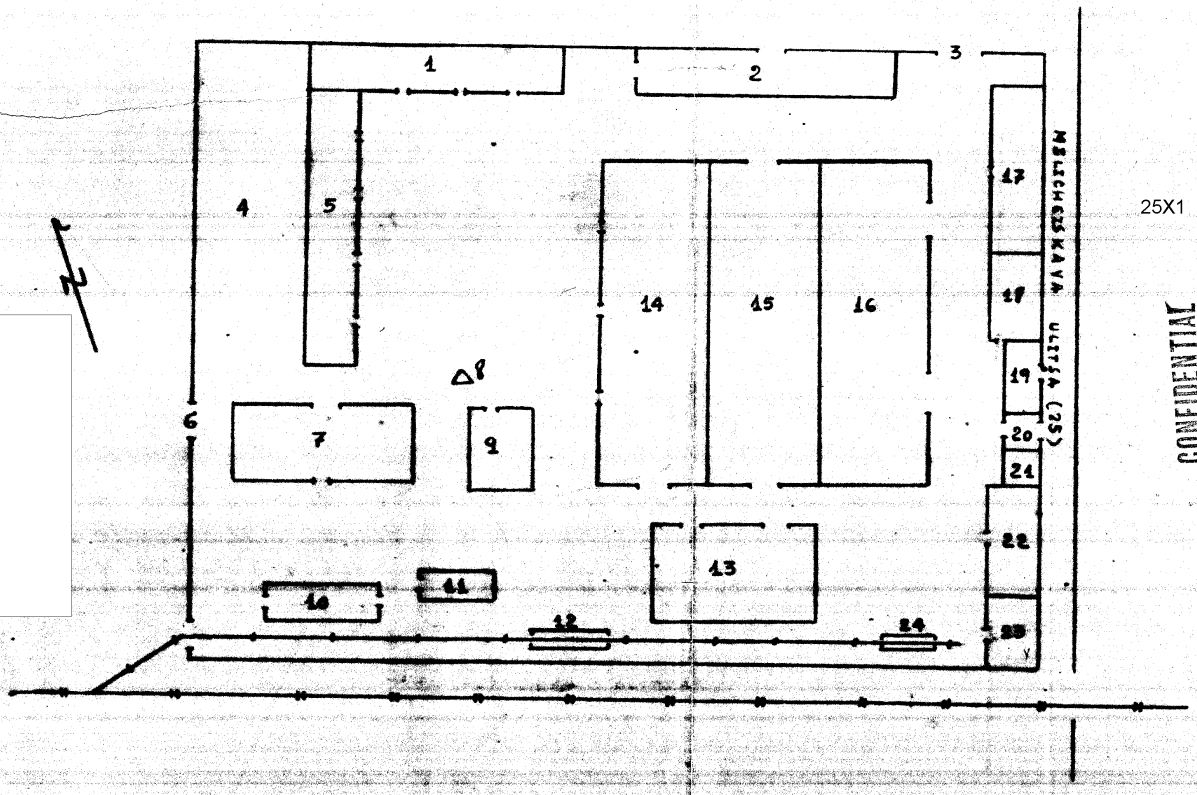

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25X1

KRASIN PLANT IN DNEPROPETROVSK 25X1

1. The Krasin Plant, which manufactured, on a small scale, spare parts for trucks, tractors, and locomotives, was located on Nizhni Dneprovsk on the right bank of the Dnepr River in Dnepropetrovsk. It was believed to be subordinate to the Ministry of Metallurgical Industry. Sometime in 1954 or 1955 it merged with the more important Dnepropetrovsk Parovzniy Remontni Zavod (D.P.R.Z.). The plant did not work raw material but used semi-manufactured products from other plants. It functioned in an auxiliary capacity and its role was to make up for deficiencies in and to level off the production of more 25X1 important plants. [redacted] the volume of production was small. There were no reserves, the products being absorbed immediately.

Water and Power Supply

2. The plant had a rudimentary water main system and utilized water from the Dnepr River. The electric power came from the Dneproges (Dnepr hydroelectric station) and [redacted] there was never 25X1 a shortage of electricity. The plant's power station was not in operation and a locomobile (sic) [portable unit ?] was used to produce steam.

Transportation Facilities

3. The plant was served by a branch railroad line which connected with the Odessa-Dnepropetrovsk-Moscow line, and almost all shipments were made by railroad. The tracks were the usual Soviet broad-gauge.

Organization

4. The plant was headed by a director and subordinate to him were the chief engineer and the chiefs of supply, sales, accounting, personnel, and the secret department (latter two are described in paragraph 5 below). The plant had a department for technical control of production; this department, headed by a chief engineer, was actually the central laboratory where the analysis and the chemical, physical, mechanical, and structural appraisals were made. Each shop, moreover, had one or more control employees to check measurements, quality, and other characteristics. The laboratory was small: the employees included a

chief, a chemical engineer, and an engineer-researcher at times functioned as assistant-director, and two women who performed the chemical analyses of the bronze and cast iron pieces during the various processing phases. The personnel in the other shops included a chief and various technicians under whom were one or more brigades. The majority of the workers were specialists such as lathe operators, skilled milling machine operators, finishers, and foundrymen.

5. Two departments in the plant were considered secret, namely, the personnel department and another so-called secret department which maintained a constant control to determine the spirit of the workers. The chiefs of both departments were members of the Security Administration. The personnel department maintained personal files on each worker, including character sketches and work histories. If an employee married during his period of employment, this fact was noted in his record. When a worker changed jobs, his character sketch was sent to the chief of personnel in the new plant. The secret department recorded each worker's utterances and made note of his intervention during meetings. No worker was permitted to make any entries in or to look at his record nor could he take any action concerning his record except through the plant's administrative section. This department also made up a black list of persons to be discharged each year on the pretext of a reduction in personnel. The chief of the secret department was a good psychologist, agreeable, correct in deportment, and appeared to be a good person.

Vacation Schedule

6. Most of the workers received 12 days annual vacation with pay and the majority of directors, 24 days. Some workers managed to obtain a subsidy from the plant's union bureau in order to spend their vacations at rest homes belonging to the plant, but the space was limited. High-ranking personnel, however, were able to sojourn in sanatoriums on the Black Sea. The rest homes were partly subsidized by money deducted each month from the workers' salaries, the amount depending on the worker's position. In other words, everyone paid, but only a few could go to the rest homes.

Attachment 3

Employee Welfare

7. The plant was rather unsanitary, with dirty shops and air filled with gases and siliceous metal and coal dust. Female workers, protected only with cotton mouth masks and goggles, cleaned cast iron parts in the courtyard by the sandblasting method. Silicosis, as might be supposed, caused considerable damage, although this was not shown in any statistics, since the lung disease was invariably diagnosed as tuberculosis. The plant's medical office was authorized to excuse workers from duty only when they had a temperature.

Security

8. The guard unit was under command of a retired, pensioned military man, and guards armed with automatic weapons were posted at the entrances and at points which were accessible from the fence. Workers entered and departed singly by means of a special device installed in the gates /turnstile ?/ and were obliged to show passes bearing their photographs to the guard when entering. The pass was transferable. No permit was needed to go from one shop to another within the plant. All workers were carefully searched on leaving the plant. The plant had a small fire crew.

Machinery

9. The plant had English, German, US, and Soviet made machinery. Although the machinery included some highly improved Soviet-made lathes, the best machinery consisted of the English, German, and US made machines in the instrument shop where the most important precision work was done.

Miscellaneous Information

10. At times the plant made contracts with the MVD when it had to do heavy grading works, laying of underground cables, etc. These works were performed by prisoners or, if they were not available, by the plant's female employees. Workers in the Soviet Union had no opportunity to organize strikes. [redacted] in

25X1

 25X1

the Soviet Union, under an extrernal appearance of equality, there were vast differences among people and that those who had Party cards held the most important posts and received the best salaries.

25X1

steel parts were blued or greased and other parts copper-coated when necessary. 25X1

Defense Setup

11. The plant had a defense organization under the command of the chief of guards, who assigned a specific mission and post to each employee in event of emergency. Sham battles or training maneuvers were held periodically and each person was expected to be at his designated post within a given period of time after the alarm was sounded.

25X1

Legend for sketch of Krasin Plant

1. Garage
2. Administration building
3. Vehicular entrance
4. Open storage area
5. Closed storage area
6. Vehicular entrance
7. Spare parts shop (differential and transmission gears, satellite pinions, axles, etc. were made in this shop)
8. Small fuel reservoir to supply plant vehicles
9. Central laboratory
10. Power plant
11. Local exchange
12. Loading platforms
13. Shop in which railroad car wheels were made
14. Foundry (The principal products made in the foundry were bronze bearings for tractors and other auxiliary cast iron parts.)
15. Shop in which railroad car wheel were made
16. Main machine shop) Nuts, screws, bolts, and other small
17. Machine shop) items were made in the machine shops.
18. Instrument shop
19. Union office
20. Workers' entrance (located at No. 1 Milicheskaya ulitsa)
21. Personnel office
22. Machine shop
23. Locomobile (sic)
24. Loading platforms
25. Milicheskaya ulitsa

Note: To the left of vehicular entrance No. 3 was another rarely used entrance for vehicles and personnel.

LENIN PIPE PLANT IN DNEPROPETROVSK

Location

1. The Lenin Pipe Plant, subordinate to the Ministry of the Metallurgical Industry, was located in the Leninskiy rayon in the northeastern section of the city of Dnepropetrovsk (N 48-28, E 35-00), some two kilometers from the Stalina railroad line. The plant was served by the number 2 streetcar line.

General

2. The plant occupied a rectangular-shaped area with some irregularities due to the formation of the ground, and the buildings of the Petrovsk plant which joined this plant on the eastern side. The 2200 meter plant perimeter was surrounded by a brick wall varying in height, from two and a half to four meters, with the higher sections located on the railroad side. The main plant entrance faced south and there were in all, four entrances; two for personnel and two for vehicles. There were no secret or underground installations, but such an installation 25X1 was under construction next to the machine shop in the pipe drawing machine section, where an electric power center was to be installed.

Plant Installations

3. The margin numbers in parenthesis below refer to the attached Ozalid sketch of the plant layout. 25X1

(1) Foundry.

a. Nine furnaces.

(2) Sheet-metal shop.

(3) Offices, club, dining room and kitchen. This was a three-story structure.

(4) Administration building. This was a two-story structure.

(5) Seamed pipe section. This was a 200 x 250 meter fire-proof, brick structure with a structural-metal framework supporting the sheet-metal roof. The building was originally of pre-revolutionary construction but had been enlarged several times. The southern section of the building was two-stories high. Some 250 workers were believed to be employed on each shift in the two separate shops in this section. The shops were further divided into departments, where, in addition to producing the seamed pipes, machinery was repaired. Two automatic machines with their respective furnaces for pipe manufacture were located here. The larger and more modern was a German machine called "Stifel" which had been brought to the USSR after WW II; while the smaller machine, of unknown origin, was less automatic and had been in the plant since before WW II. See 25X1 sketch of this section on page 10 .

25X1

(5a) Seamed pipe and cold drawn pipe section.

(a) Finishing shop.
(b) Machine shop.
(c) Lathe shop.
(d) Pipe drying room.
(e) Tempering ovens.
(f) Finishing shop.
(g) Machine shop.
(h) Underground installation for electric power center (under construction).
(i) Preparation of materials (not further identified).
(j) Pipe straightening ovens.
(k) Transformer station.
(l) Finishers (not further identified).
(m) Ovens.
(n) Material stores.
(o) Offices.
(p) Electrical repair shop.
(q) Warehouse for tools and short pipes.

(6) Pipe welding shop.

(7) Offices and dining room. This was a three-story structure.

(8) Electrical shop. This was a two-story structure.

(9) Casting shop.

(9a) Machine shop.

(10) Offices. This was a two-story structure.

(11) Coal dump and office.

(12) Warehouse.

(13) Acid storage.

(14) Tubed bed-frame shop.

(15) Main entrance.

(16) Compressors.

(17) Welding shop.

(18) Warehouse.

(19) Bearing shop.

(20) Pipe baths.

(21) Carpentry shop.

(22) Graded area belonging to Petrovsk Plant. Brick shops were located here.

(23) Vehicle entrance and level crossing.

(24) Railroad entrance.

25X1

(25) Coal dump. The workers bought coal from the company store.

(26) Footbridge over the railroad line and plant entrance.

(27) Bridge and railroad cranes.

(28) Railroad loading platforms.

(29) Stalina railroad line.

(30) Heating plant.

(31) Petrovsk plant area.

(32) Warehouse.

(33) Billet dump for foundry.

(34) Coal and scrap iron dump.

(35) Sheet metal dump.

Products

4. The plant produced rolled, drawn and extruded pipe and cast seamed pipe of varying specifications. The pipe was a normal iron color unless it had been through a bath which gave it a dark gray or brown color and the mouths of the pipe were painted a special color to indicate the type of iron or steel of which it was made. In addition the pipe was marked with a control number, another number indicating the package or bundle of pipe and the plant trademark.

Packing

5. Pipes were shipped out in from three to five ton tied bundles with a wooden plaque giving the number of the bundle, type and specification of the pipe and the destination. Pipe for exportation was manufactured and packed more carefully with a coating of black grease and was handled in a manner so as to avoid damage. The plant supplied pipe to bearing plants.

25X1

Military Production

6. [redacted] no special military material was produced at the plant although any of the plant products could be put to a military use. During the war, the plant had been devoted to military work and its conversion to such work was [redacted] easily accomplished.

25X1

Pipe Production

7. Standard pipe of the following dimensions were manufactured:

Diameter in Millimeters	Thickness in Millimeters	Length in Meters
38 and 42	4 and 4.5	4 and 6
32	4 and 4.5	variable
42 and 48	6 and 8	from 5 to 6
50 and 51	2.5	from 4 to 6
60	2.5 and 3	6

(continued)

Diameter in Millimeters	Thickness in Millimeters	Length in Meters
60, 70, and 80	3.5, 4.5, 5 and 6	variable
28, 28, and 30	2.5	up to 8
65	3.5	variable (drawn pipe)
42	3 to 6	variable
102, 108, 112, and 114	6 to 12	from 5 to 6

Special Pipe Production

8. The following special pipe was manufactured by the plant. A 51-millimeter in diameter pipe with 3 to 6 millimeter wall thickness was produced for use in boats and locomotives. Internally tin-plated pipe for use in aviation was produced in diameters of 42 and 48 millimeters with 4.5 millimeters walls and in from four to five meter lengths. The tin plate was carefully applied by a machine with a type of piston that entered the interior of the pipe and since it was difficult to plate perfectly the extremities of the pipe, the pipes were made longer than necessary and cut off after this process, leaving them perfectly plated. Internally tin-plated pipe called Guilsa were made some 50 millimeters in diameter with a wall thickness of 6 to 8 millimeters and an additional 3 millimeters of tin plate, and in two-meter lengths. These also were [redacted] to be used in aviation. Various sizes of rust-proof pipe were also produced [redacted] 25X1 25X1

Raw Materials

9. The raw materials utilized by the plant were scrap iron; steel bars; bronze; tin; chromium; nickel; lead; antifriction metal; brass; acid for the baths; stone; earth; sand for the foundry; large quantities of coal, believed to come from the Donbas, for central heating, for the locomotives, and for the workers' personal use as they could buy coal at the plant store; gas and fuel oil from the Petrovsk plant; mazute; paint; wood; cotton; leather; salt believed to be used in cleaning the interior of the pipes; and a type of bearing made up of a highly resistant compressed material called Textelite and used in the pipe rolling machines because of its resistance to heat. All of the raw materials were of domestic origin.

Storage

10. There were various small warehouses in the plant such; for example, the barrels of oil and the acids were stored in a small warehouse in the southern part of the plant. The largest storage area was the coal dump located in the eastern side of the plant near the railroad entrance. Scrap iron was stored in a covered area next to the foundry but not in large quantities. Other sites were set aside for the pipe awaiting shipment.

Production Process

11. After the billets of determined size were placed in the ovens which were a part of the pipe rolling process, a machine operated automatically, sent the red hot billets to the extrusion mill, passed through the rollers forming the pipes and then to machines for straightening, cooling, tempering, finishing, shearing, and such other operations as were required, such as the internal brass coating. The two hot rolling mills and their controls were automatic and there were several other automatic machines in the pipe-making production.

Each machine would produce pipe of given specifications each time it was set up; and as a general rule, pipe of the same specifications was produced by each machine during the entire day. Primary materials were subjected to high temperatures, pressures, and water sprays. Metals were alloyed in the foundry and processed to make them nonporous. Castings for the seamed pipe were also produced and further processed in the acid baths, sheared, threaded, and finished in the plant. A five millimeter margin of error was permitted in the length of the pipe. A smaller but unknown margin of error was permitted in the wall thickness.

Production Figures

12. The daily production norm of the seamed pipe section (5) was 60 tons, but a shortage of supplies during the first days of each month usually prevented this figure from being attained. As supplies became abundant toward the end of the month, work was intensified and production reached 100 tons thus achieving the required monthly norm. Rejects accounted for between five and eight percent of the production; production figures were not falsified. New machines were installed each year in an attempt to increase production and the installation of new ovens was anticipated to increase the production of straight pipe and eliminate other processes.

Railroad Transportation

13. Two standard Soviet-guage railroad tracks proceeding from the main Stalina line, formerly the Katherine line, crossed the plant area in an east-west direction; one crossed the northern plant perimeter, and the other crossed the southern perimeter. Within the plant, a network of sidings connected the northern and southern lines and sent sidings into the various buildings; the most important siding came from the west entrance and led to the pipe manufacturing sections. There were also sidings for the railroad cranes and narrow guage lines for the small railroad wagons which were used within the sections. The plant owned three small locomotives for intra-plant transportation on the standard guage lines and other smaller locomotives for the narrow guage lines. Railroad cars of many types and sizes entered the plant. [redacted] a long, four-axled, metal, flat-car used for transporting pipe. The car was some sixty to seventy centimeters high, and with a sort of opening in the center where the pipe was loaded. [redacted] sketch on page 11 of the flat-car. Loading and unloading was done by cranes and loading platforms were located throughout the plant especially in the area of the coal dump. Ninety percent of the ingoing and outgoing shipments were by railroad.

25X1

25X1

Highway Transportation

14. Two roads entered the plant area; one from the south crossing the main railroad line, and the other from the west near the railroad entrance. These were approximately six meters wide, stone-paved, well-drained, all-season roads. The roads, connected by way of the city streets to the main highways, principally the Dneprodzerzhinsk (N 48-31, E 34-38) highway. The roads were adequate for the small amount of traffic. The plant had only about ten three-ton trucks used for transporting workers who lived at a distance from the plant, and some plant transport, but almost never for shipments. A truck garage and repair shop was located outside the plant area, facing the security office.

Water and Electrical Supply

15. The plant used the regular city water supply. Adjacent to the machine shop were some water pumps in continuous operation which were believed to supply water under pressure to the older pipe-rolling mill. Electricity was used to power the plant machinery. There were occasional shortages in the summer when the prescribed consumption was exceeded. A small department in the pipe rolling section contained a small electric motor which powered a large wheel which turned another motor or dynamo which was said to drive the pipe rolling mill.

Security Measures

16. The plant security force consisted of approximately five armed guards who were stationed at the plant entrance. The southern part of the plant area was at a lower level than the surrounding terrain so that in order to enter the plant from this direction, one had to cross a metal fottbridge which led over the railroad tracks and then descend one of the several stairways which led down to the plant. To the east, the plant was bordered by the buildings of the Petrovsk plant. Workers had to present a propusk in order to enter the plant. There were no restricted areas within the plant. The neighboring Petrovsk plant serviced this plant which had the usual fife-fighting equipment, such as boxes of sand, fire hydrants, and manual, foam-fire extinguishers.

Working Conditions

17. The plant worked an eight hour day-shift and a seven hour night-shift. Since a normal shift was worked on Saturdays, the work week was 48 hours.

25X1

There were no strikes, complaints, or lack of work. CP members received preferred work and pay. Sanitary conditions were not very good because the buildings were old, dark, necessitating electric light during the day, and were inadequately ventilated.

Organization and Personnel

25X1

18. there was a department of plans and projects. No foreigners worked in the plant, and no prisoners or convicts were utilized.

25X1

25X1

Legend for the Sketch of the Pipe Rolling Sections of the Lenin Pipe Plant in Dnepropetrovsk (No. 5 and 5a on the general sketch of the plant layout).

(1) Seamed pipe section.

(2) Machine finishing section: Two floors with the dining room, wash rooms, and offices on the second floor.

(3) Entrance.

(4) Machine shop.

(5) Pipe drawing machines.

(6) Lathe shop.

(7) Pipe drying shop.

(8) Drop hammer and die press shop.

(9) Tempering shop.

(10) Pipe baths.

(11) Finishing shop (not further identified).

(12) Machine shop.

(13) Water pumps.

(14) Raw material dump. Materials were stored and prepared in this section which was equipped with presses.

(15) Underground installation under construction to be used for an electric power station.

(16) Old automatic hot rolling machine.

(17) Modern, German, automatic hot rolling machine.

(18) Pipe straightening ovens.

(19) Finishing shop (not further identified).

(20) Electrical transformer center.

(21) Pipe straightening and cutting machines.

(22) Ovens.

(23) Pipe storage.

(24) Materials warehouse.

(25) Office.

(26) Electrical repair shop.

(27) Tool and material storage.

25X1

(28) Pipe-cutting shop.

(29) Warehouses.

(30) Carpentry shop.

(31) Pipe baths.

(32) Bearings section.

(33) Compressor shop.

(34) Open-air meeting area with bulletin board.

(35) Graded area belonging to the Petrovsk Plant.

(36) Bridge cranes.

(37) Tall, brick smokestack.

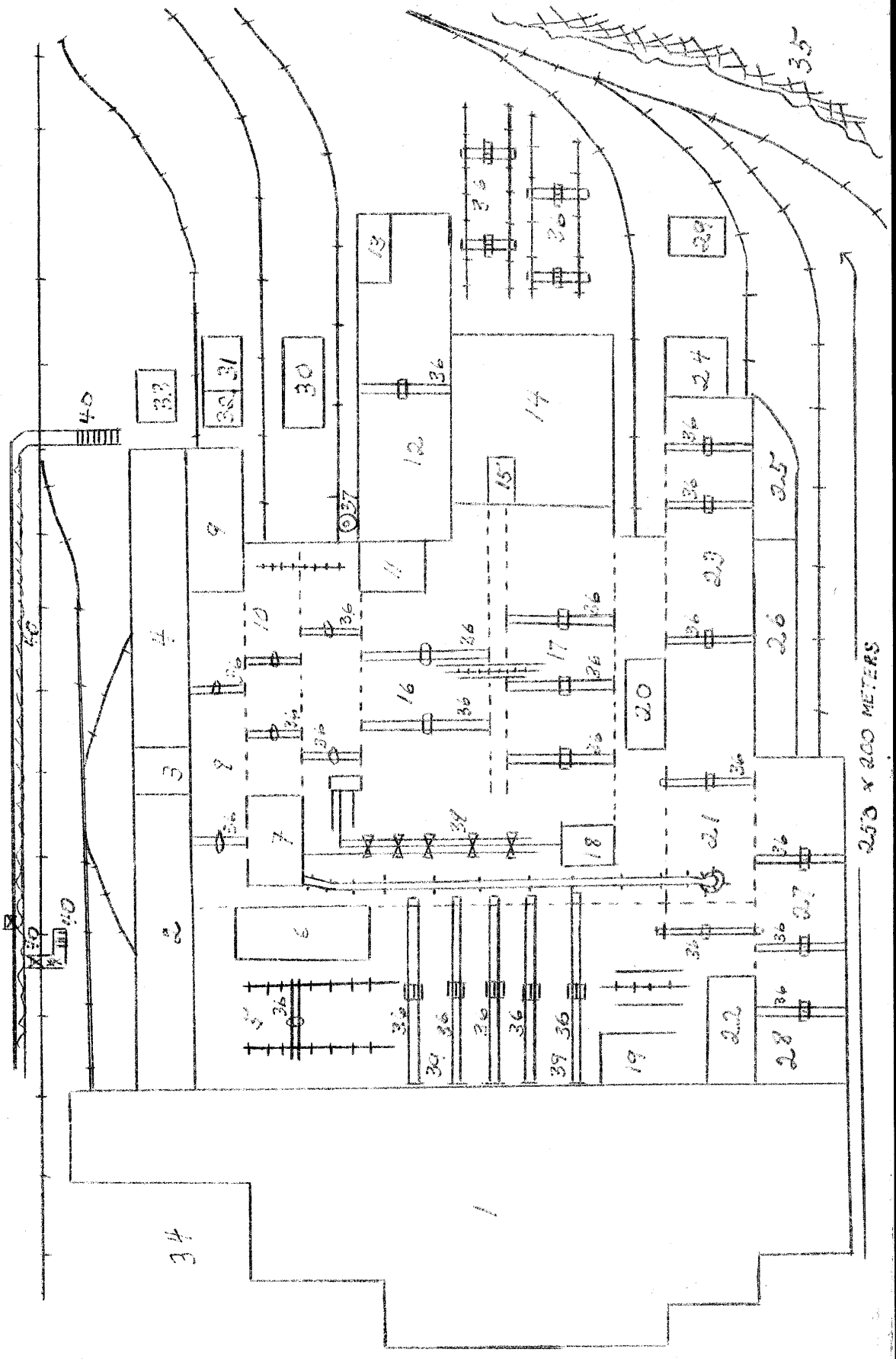
(38) Pipe conveyor.

(39) Cold rolling machine.

(40) Footbridge leading to plant area.

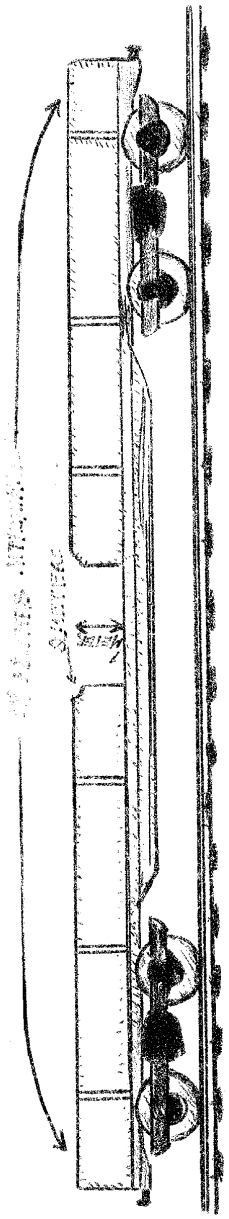
Sketch of the Pipe Rolling Sections of the Lenin Pipe Plant in Dnepropetrovsk

25X1



60-ton Platform Cars Used in the Lenin Pipe Plant in Dnepropetrovsk for loading pipe. Seen in plant between 1953 and 1956.

25X1



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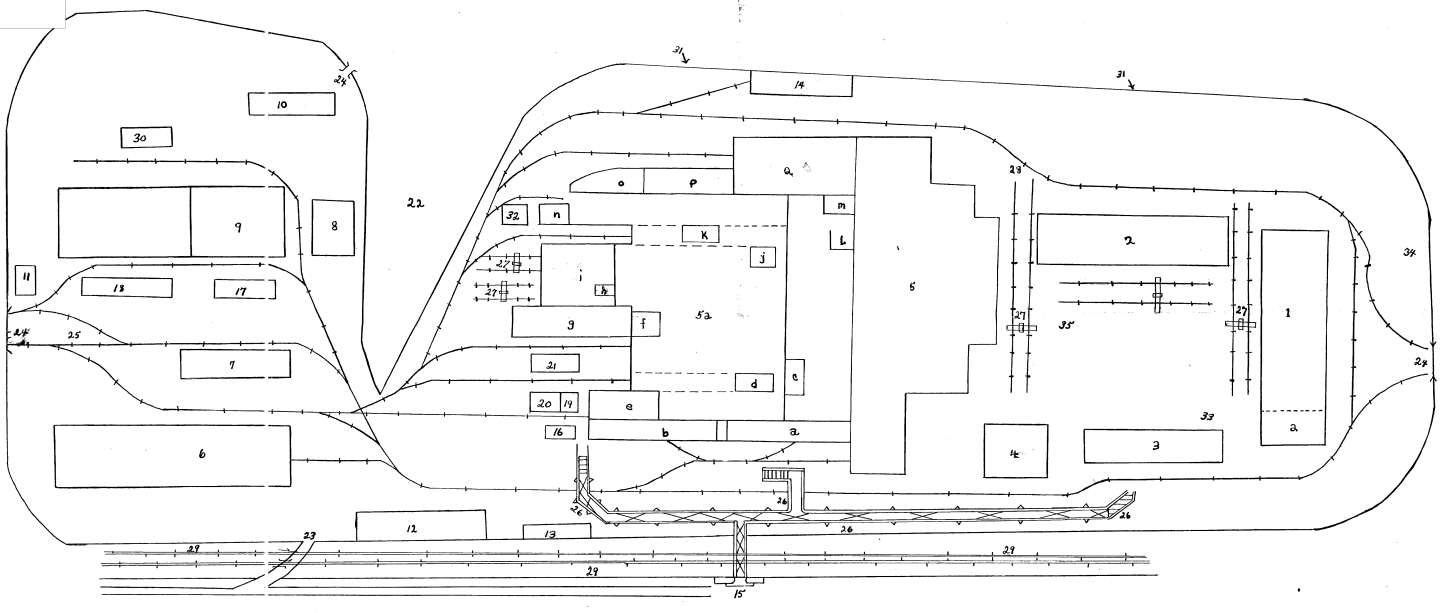

Sketch of the Lenin Pipe Plant in Dnepropetrovsk

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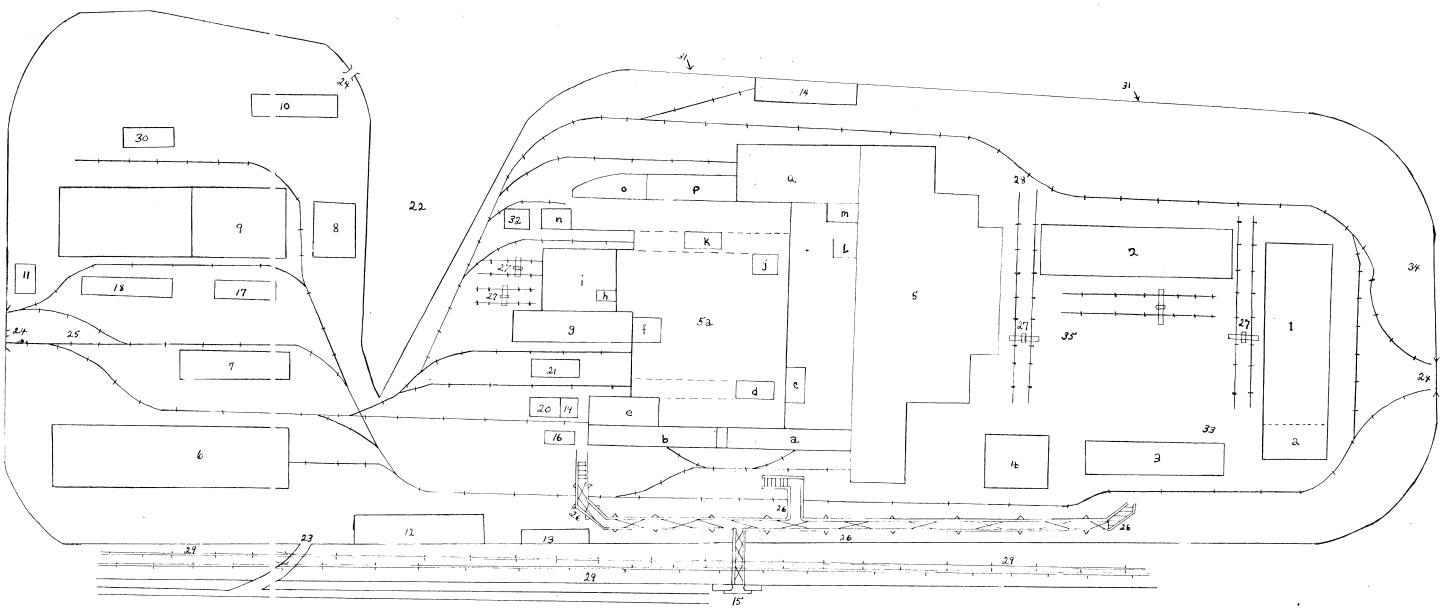

Sketch of the Lenin Pipe Plant in Dnepropetrovsk

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