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CENTRAL INTELLIGENCE AGENCY

REPORT NO. [redacted] 25X1

INFORMATION REPORT

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COUNTRY USSR (Chelyabinsk Oblast)

DATE DISTR. 17 March 1952

SUBJECT Abrazivny Grinding Wheel Plant in Chelyabinsk

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NO. OF ENCLS. (LISTED BELOW) 1 (2 pages)

[redacted] gust 1949

SUPPLEMENT TO REPORT NO.

[redacted]

THIS IS UNEVALUATED INFORMATION 25X1

[redacted]

1. The "Abrasiv" Plant was located at the northeastern outskirts of Chelyabinsk (61°25'E/55°10'N), Chelyabinsk Oblast, about 600 meters southeast of a large power plant. * The plant designation "Abrasiv" was the name used in the PW camp. **

2. The plant produced light-gray grinding and abrasing wheels of the types listed below. The so-called Kyrasinki stone, a light gray stone, was the best and hardest stone available.

Total Diameter	Shaft hole diameter	Face width of wheel	Approximate Weight Wet:	Dry:	Percent of Total Production
30 cm	10 cm	10 and 20 cm	27 kg	18 kg	15 %
50 cm	30 cm	15,20, and 25 cm	35 to 55 kg	25 to 40kg	15 %
60 cm	30 cm	15 cm	45 kg	32 kg	15 %
75 cm	30 cm	10 and 15 cm	55 to 80 kg	50 to 55kg	15 %
90 cm	30 cm	4 and 15 cm	35 to 120kg	25 to 85kg	10 %
110 cm	30 cm	10 cm	80 kg	55 kg	5 %

The remaining 25 percent of the wheels produced were special small abrasive wheels in five designs, including conical wheels which were 7 cm in diameter on top, 11 cm in diameter at the bottom, shaft hole 2 cm in diameter with walls 7 mm thick; saucer-shaped wheels, 15 cm in diameter, shaft hole 2 cm in diameter, thickness 3 to 6 mm. The plant also produced abrasive cloth, 40 x 40 cm, which was packed in bales.

3. The plant name was stamped into the abrasive stones. The word "Chelyabinsk", the total and shaft hole diameters, and the degree of hardness were painted on the finished products in the shipping department. Only one-tenth of the production was shipped by factory-owned trucks. The bulk was shipped by rail to Kharkov, Odessa, Stalingrad, Minsk, and a considerable amount was shipped to Leningrad. The destination was written on the boxes containing the small parts and on the shipping labels of the railroad cars. 25X1

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4. Ten to 15 x 60-ton railroad cars of bauxite arrived daily, and an average of one or two 60-ton railroad cars of quartz arrived every week. Another raw material supplied to the plant was a flour-like stuff. Soviets said that the bauxite came from Hungary. The monthly production figures were published at the plant gate. The production averaged 3,600 tons of finished products per month.

5. Each smelting furnace was charged with about 2 cubic meters of iron shavings. Electrodes, 12 cm in diameter, were inserted into the furnace and switched on. As soon as the iron shavings glowed, the bauxite was slowly and automatically charged. The process lasted 24 hours at a temperature of 1,200 to 1,500 degrees centigrade. The furnaces were water-cooled. After the liquid hardened the cylindrical casings were removed and the corundum block was pushed into the next room for cooling. Soviets said that such a block weighed 27 to 30 tons. After cooling, the blocks were crushed and ground. Elevators carried the dust to the vats where it was mixed with other components, including water-dissolved dextrine. PWs and Soviets ate small quantities of the dextrine. The liquid was automatically stirred, weighed and poured into various presses. The formed stones dried for a day and a half. About 350 to 500 pieces were simultaneously roasted in coal furnaces for a period of seven days at a temperature of 2,200 to 2,400 degrees. [redacted] 25X1
25X1 [redacted] The smaller stones were roasted for three days in an oil-burning furnace. This furnace was equipped with trucks which held the grinding stones during the roasting process. The roasted stones were shaped to one millimeter precision. The percentage of scrap was 1 or 2 percent. Laborers had to pay for any stones they damaged. The large ones, 60 to 75 cm in diameter, cost 850 rubles.

6. During late 1948 and early 1949 some of the machines were replaced by new ones. The new machines included four new presses of English origin, six new German lathes, four new American lathes, and three new Soviet test stands. The old machines were shipped away.

7. The plant had a work force of about 2,500 civilians, 70 percent of whom were women, and an additional 100 Soviet forced laborers and 130 PWs, working in three shifts.

8. The "Abrasiv" plant produced all kinds of grinding stones, with various degrees of hardness. PWs said that the grinding material was made of bauxite from Hungary or Yugoslavia. The bauxite was put into large funnel-shaped containers together with tar stone, anthracite, and steel shavings and was smelted by large electrodes. During the glowing and smelting process, which lasted about 24 hours, the furnaces were sprinkled with water. The molten bauxite mixture was poured into forms. The completed stone was very hard and could not be crushed by hammers. It was said that only two other abrasive plants existed in the U.S.S.R., one of which was in Leningrad and the other one in Tashkent.

25X1 * [redacted] Comment. This is presumably the important "KheGRES I" Power Plant located at the northern edge of Chelyabinsk on the right bank of the Mias River, in an angle formed by the railroad line to Kopeisk and the track leading to Plant No 78 "Ordzhonikidze".
25X1 ** [redacted] Comment. For layout sketch of this plant, see Annex.

1 Annex: Sketch of the layout of the plant.

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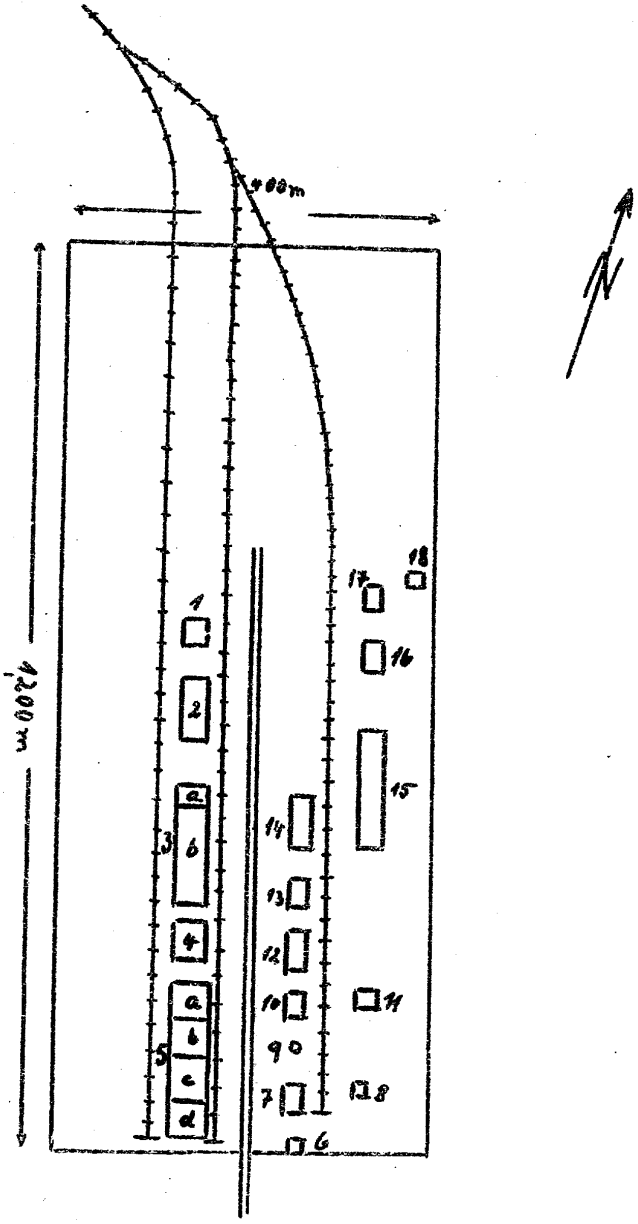
Layout of the Abrasiv Plant for Grinding Wheels in Chelyabinsk



Legend: See next page.

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Legend:

1. Repair shop, concrete building, 30 x 25 x 6 meters.

2. Fitting shop, slag-stone building, 100 x 30 x 8 meters equipped with 10 to 15 machine tools. Half of the building was vacant.

3. Workshop, concrete building, 200 x 40 x 15 meters.

   a. Seven electric roasting furnaces for bauxite, 2.5 meters in diameter, 3.5 meters high, mounted on iron plates, 3 x 3 meters, which in turn were mounted on trucks. The cylindrical furnace casings were suspended by steel cables from the steel roof.

   b. Cooling room for corundum, connected with the furnace department by a sliding door. The corundum blocks were crushed by three 5-ton hammers.

4. Corundum mill, concrete structure, 60 x 40 x 15 meters, with six electric grinding machines.

5. Main building, concrete structure, 250 x 50 x 15 meters.

   a. Pressing shop with six vats and 12 to 14 pressing machines.

   b. 12 roasting furnaces, fire clay structures, 6.5 x 3.5 x 3.5 meters, burning hard coal, and one oil-burning furnace 120 x 4.50 x 3.5 meters, with trucks, 2 x 120 meters.

   c. Polishing shop with 25 grinding machines and 6 to 8 test stands.

   d. Shipping department.

6. Plant entrance and guard house.

7. Office and canteen, 40 x 20 x 12 meters.

8. Carpenter shop, 15 x 10 x 6 meters, brick building.

9. Smokestack, 40 meters high.

10. Small mill, slag-stone building, 25 x 15 x 10 meters.

11. Boiler house, brick building, 30 x 20 x 15 meters.

12. Warehouse, concrete building, 60 x 20 x 12 meters.

13. New building, 30 x 20 x 12 meters, still vacant in April 1949.

14. Bauxite warehouse concrete building 80 x 30 x 18 meters.

15. New bauxite warehouse under construction, 200 x 30 meters.

16. Workshop, 40 x 25 x 8 meters, used for production of abrasive cloth.

17. Stable, 30 x 15 x 6 meters.

18. Repair shop, wooden structure, 20 x 15 x 6 meters.