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INFORMATION REPORT INFORMATION REPORT
CENTRAL INTELLIGENCE AGENCY

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COUNTRY USSR REPORT [redacted]
SUBJECT Moscow and Minsk Bearing Plants DATE DISTR. 6 April 1960
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DATE OF INFO. [redacted]
PLACE & DATE ACQ. [redacted]

SOURCE EVALUATIONS ARE DEFINITIVE. APPRAISAL OF CONTENT IS TENTATIVE. 50X1-HUM

[Large redacted area]

Comparison of Production of Minsk Ball Bearing Plant No. 11 with that of Moscow Ball Bearing Plant 2. 50X1-HUM

- All shops of the Minsk Ball Bearing Plant No. 11 were open [redacted] bearings produced there. [redacted] the existence of secret shops at either the Moscow plant or the Minsk plant. Both plants were subordinate to the former Ministry of Automobile and Tractor Industry, however the Moscow plant was known to produce bearings for the SAF and other military branches of service. The Moscow plant was frequently visited by Air Force officers, whereas military officers (possibly armored) visited the Minsk ball bearing plant. 50X1-HUM
- Ball Bearing Plant No. 11, located near Mogilevskoye shosse, in Stalinskiy rayon, Minsk, was between eight and ten kilometers from the center of the city. [redacted]

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STATE	X	ARMY #	X	NAVY	X	AIR #	15	NSA	X	FBI		NIC	X	ORREX	<i>α</i>
(Note: Washington distribution indicated by "X"; Field distribution by "#")															

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[Redacted]

[Redacted] Smaller sized bearing balls were not produced at this plant. The material used was ShKh high-grade chrome steel. The plant also produced roller bearings (cylindrical and tapered) of no less than the above-stated size. All plant equipment was designed for the production of large size bearings.

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- 3. The final destination of the bearings was unknown, [Redacted] the tractor plant and the automobile plant in Minsk were consumer factories. [Redacted] the bearing products were largely produced for use in railroad cars and agricultural machinery. [Redacted]

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- 4. The Minsk plant had no air raid alarm system or air raid shelters. Civil defense instruction was limited to first-aid training and fire-fighting procedures. On various occasions employees were taken to an unknown firing range for rifle and revolver firing practice. [Redacted]

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- 5. The Moscow Ball Bearing Plant No. 2 produced ball bearings in standard sizes and in miniature sizes as small as three millimeters in diameter. The Air Force officers visited the production shops openly [Redacted] no secret sections existed at this plant [Redacted]

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Moscow Ball Bearing Plant No. 2

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- 6. An eight-page report describing the layout of Moscow Ball Bearing Plant No 2 as of 1956 [Redacted] (attachment 1). [Redacted]

[Redacted]

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[Redacted]

Attachment 1, copy 2

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BALL BEARING PLANT NO. 2 IN MOSCOW

1. Ball Bearing Plant No. 2 (Vtoroy Gosudarstvennyy Podshipnikovyy Zavod) in Moscow was not known by any other name and had no numerical designation. It was subordinate to the Ministry of Automobile and Tractor Industry.¹ The plant employed about 4,000 persons in three shifts. It was located at 45 ulitsa Shabolovka, Leninskiy rayon, in Moscow and faced west. The plant area was 500 x 400 meters and was surrounded by a wooden fence about 2.5 meters high except where the buildings marked the plant boundary. There were two underground shelters which were said to be intended for protection against atomic attack, one of which had been built in 1955 and the other in 1956. No new buildings were under construction.

2. Following is the legend for [redacted] sketch of the plant. The numbers in parentheses are keyed to those on the sketch. 50X1-HUM

- (1) Urban area outside plant area.
- (2) Konnyy pereulok.
- (3) Vehicular entrance.
- (4) Vehicular entrance.
- (5) Urban area outside plant area.
- (6) Four-story brick building with a sheet metal roof, measuring about 100 x 60 meters, and with a basement in which four boilers were installed in two sections. The boilers serviced the heating system and showers and supplied steam to heat the liquid degreasing agent, known as emulsiya, for the ball bearings. The building was not fireproof. Following is a description of the four stories.

A. The first floor contained the automatic lathe shop and the heat treatment shop. The automatic lathe shop, which produced the inside and outside rings of the ball bearings, contained about 60 automatic lathes with one, four, and six headstocks. 50X1-HUM

[redacted] Soviet lathes of the makes Conomatic, Gridley, Kiev, and Krasnyy Proletariy. The Conomatic lathes had four headstocks and the Gridley and Kiev lathes had six.

[redacted] There were about six machines of an unknown make for rough grinding of bars; these were built about 1900 and were in good condition. There were two Soviet machines to cut the grooves in which the ball rode in the inside ring of the bearing; these machines were built about 1940 and were in good condition. [redacted] this shop, which employed about 400 persons in the three shifts, produced between 40,000 and 50,000 rings daily with a permitted error of plus or minus one or two-tenths (sic). The rings were then sent to the heat treatment shop

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which tempered them as well as tools made for plant use. The balls were tempered in another shop. The heat treatment shop contained three small electric furnaces for tempering rings and other parts and two larger electric furnaces for a tempering process consisting of reducing the hardness of the metal by heating it to a certain temperature which varied according to the hardness, then letting it cool slowly in powdered carbon. This shop had a section which welded ceramic cutting tools. It employed about 50 persons in three shifts. The items in this shop went to the grinding shop.

- B. The second floor contained the ring grinding shop in which about 120 grinding machines were installed. Most of these were of Soviet make; two were Cincinnati make. All were in good operating condition. About 500 persons worked in this shop. Finished rings were sent to the fourth floor to a storehouse for completed parts.
- C. About one-half of the third floor was taken up by the automatic shop which contained about ten [redacted] lathes with four headstocks, built about 1900 and in fair operating condition, ten Soviet 50X1-HUM Krasnyy Proletariy screw lathes in fair condition, and five Soviet milling machines. Another part of the floor was an annex to the grinding shop and contained about 40 grinding machines in good condition although they needed periodic repairs because of their age. Also on this floor was the shop that made cardboard boxes for packing and the shop that produced and finished the retaining ring (separator). This latter shop contained about 15 drill presses and five turret lathes, all of Soviet make and in good condition. It employed about 50 persons.
- D. One-half of the fourth floor was taken up by the ball-bearing assembly shop; the other half contained the plant technical and administrative offices.
- (7) Packaging storehouse for finished ball bearings ready for shipping, a two-story brick building, about 15 x 20 meters, with a sheet metal roof and no basement. About 15 persons were employed here.
- (8) Wooden building in which metal scrap was shredded.
- (9) Underground storehouse for heavy oil for the automatic and heat treatment shops.
- (10) Urban area outside plant area.
- (11) Garage and repair shop for plant vehicles, a one-story brick building measuring about 20 x 30 meters with a sheet metal roof and no basement.
- (12) A one-story stone building housing a transformer not further identified. The building had a sheet metal roof, no basement, was not fireproof, and measured about 4 x 5 meters.
- (13) Approximate position of the entrance to the shelter built under point No. 14 below.
- (14) Garden measuring about 25 x 50 meters, under which a shelter from four to five meters deep had been built in summer 1955. All shelter walls, inside and outside, were brick; the shelter roof on which the garden rested was of reinforced concrete and measured more than half a meter in thickness. The shelter door was iron and closed hermetically.

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- (15) Stand selling mineral water and sandwiches.
- (16) A one-story stone building measuring about 20 x 8 meters that had a sheet metal roof and no basement. It was not fireproof. It was used to store work clothes for plant personnel and tools such as pickaxes, shovels, and paints.
- (17) Gasoline, oil, grease, and petroleum storage; an area surrounded by a wire mesh fence.
- (18) Plant personnel and vehicular main entrance.
- (19) Nursery for nursing babies, formerly a residence for women employed at the plant, a two-story brick building measuring about 30 meters square with a sheet metal roof; it was not fireproof.
- (20) A four-story building supplying housing for plant personnel and their families.
- (21) Garden.
- (22) A two-story brick building measuring about 15 x 10 meters that had a sheet metal roof and no basement. It was not fireproof. On the first floor was a heat treatment shop for shop No. 28, containing a furnace for tempering of the balls. This floor also housed the firehouse. The second floor was occupied in its entirety by trade union offices and the Party secretariat.
- (23) Ironworks, a one-story brick building with no basement, measuring about 15 x 10 meters.
- (24) Electrical shop for plant repairs, measuring about 15 x 10 meters.
- (25) Open-air storage for pipes and steel bars received at the plant.
- (26) One-story brick building with a sheet metal roof that measured about 10 x 8 meters and contained two circular saws for cutting piping to desired lengths. This shop employed about five persons.
- (27) Ulitsa Shabolovka.
- (28) A four-story brick building measuring about 100 x 400 meters; it had a basement in which four boilers feeding the showers and heating system were installed. It was not fireproof. Following is a description of the activities which took place on each floor.
- A. The first floor had a shop producing unpolished balls and a machinery repair shop. The ball shop had about 15 cold stamping presses for the manufacture of balls; 13 were Soviet made [redacted] All were in good condition. For rough grinding of stock, the shop had about 20 very old grinding machines in good operating condition. The shop also had about 30 very old machines in good condition for ball grinding, one large hot stamping press for the manufacture of balls which was old but in good operating condition, and one furnace for tempering the balls. The machinery repair shop repaired only plant machinery and had lathes, milling machines, gear cutting machines, grinding machines, and drill presses, all of Soviet make. About 500 persons worked in this shop.

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- B. On the second floor were showers and dressing rooms.
- C. The third floor had a tool and die-making shop, die-stamping shop, and ball-polishing shop. The tool and die-making shop produced all kinds of tools and dies for the plant and contained about 35 lathes, some of which were turret lathes, of Soviet and foreign makes; about seven milling machines; four planers; and about eight grinding machines, none further identified. About 200 workers were employed in this shop. The die-stamping shop produced the retaining ring. It had about 20 Soviet stamping machines not further identified and employed about 150 persons. The ball-polishing shop contained about ten very old Soviet-made polishing machines.
- D. The fourth floor did not run the entire length of the building but faced ulitsa Shabolovka and was entered by a stairway from this street. It contained the dining room, the meeting hall, the technical and literary libraries, and the workers' technical school which prepared workers to be shop masters or for matriculation in schools and tekhnikums.
- (29) Open-air pipe-cleaning area fenced with wire netting.
- (30) Drovyanaya ploshchad.
- (31) Urban area.
- (32) Shelter constructed in 1956 beneath a garden.
- (33) A three-story brick building measuring 30 x 40 meters with a sheet metal roof and a basement in which two boilers were installed to service this building and No. 28. On the first floor were welding, polishing, and plumbing shops. The second and third floors contained collective housing.
- (34) Pool measuring about 10 x 20 meters, to be used when necessary by plant firemen.
- (35) Infirmary with X-ray equipment, a wooden building measuring about 10 meters square.
- (36) Wooden building measuring about 10 meters square, used as housing for plant employees.
- (37) Stairway shaped like a bridge, giving access to a wooden gallery at the second-story level of No. 33, dedicated to collective housing.
- (38) A one-story construction materials warehouse with no basement, measuring about 10 x 5 meters.
- (39) Carpentry shop making crates and doing necessary plant repairs, a one-story brick building measuring about 15 x 30 meters with no basement.
- (40) Wooden building in which the watch dogs which guarded the plant at night were housed during the day.
- (41) Housing for plant personnel, a two-story building measuring about 25 x 20 meters.
- (42) Garden.

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- (43) Open area surrounded by a brick fence one meter high; unused for several years, this area had formerly been a coal dump.
- (44) Open-air coal dump.
- (45) Open-air lumber storage area for plant carpentry shop.
- (46) Nursery, a two-story building.
- (47) Urban area outside plant area.

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- 3. The plant's only product consisted of ball bearings with an outside diameter of from 15 or 20 millimeters to about 150 millimeters. The diameter of the balls was from one-fourth to seven-eighths of an inch. The plant trademark was 2-GPZ.

The finished product was packed in cardboard and wooden boxes; the latter bore the plant trademark. No military equipment was manufactured or repaired.

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- 4. The first operation in the manufacture of rings consisted of cleaning the bars and classifying them, transporting them to the automatic shop where they were rough turned to the necessary diameter for the outside ring, and then cut. They went to the automatic lathes where the inside and outside rings were rough turned and then they were inspected. Later they went to the machines for chamfering and for the cutting of the spherical channel in which the balls rode. Following inspection, they went to the automatic shop for tempering, then to the degreasing bath, following which they were inspected for hardness and strength by the "Dean" and "Rockwell" systems, then to the grinding shop where the outside ring had its outside and inside diameters and the inside ring, its inside diameter, ground to specifications, then to the polishers, following which they were inspected, and finally, they went to the assembly shop.
- 5. The rolls of wire went to the cold stamping presses, then to rough grinders which removed the ring left as a result of the stamping operation, then to the furnaces for tempering and cleaning, then to the rough grinders again, then to the precision grinders followed by inspection, then to the polishing machines, and finally, to the assembly shop.
- 6. The first operation on the retaining ring consisted of cutting steel sheeting into strips of the required measurements. These sheets went to the press which stamped the retaining ring which was then finished, the holes were drilled and the union made with a rivet, the piece was cleaned with sand blasting, and finally sent to the assembly shop.
- 7. The plant received the following raw materials: bars, pipes, and wire, all of steel, oil, coal, charcoal, gasoline, and greases. The bars and pipes bore the identifying trademark Sh-Kh-15 which denoted the chemical composition of the steel. All raw materials arrived at the plant by truck. The plant was not dependent on foreign imports.
- 8. Water was brought in via underground pipe from the Moscow water system. Electricity was supplied by the Moscow electrical system via underground cable at 220 volts. The supply was adequate.
- 9. The plant had no railroad installation. It had about 25 or 30 three- to five-ton ZIS and ZIM trucks.

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10. Only the main entrance was guarded. There were about 15 guards, armed with rifles and pistols. They were drawn from retired plant personnel, both male and female. The propusk was required to enter the plant. There were about ten firemen and two fire trucks, one of which was a tank truck.

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11. The plant director was Viktor Vakhvalov, a mechanical engineer, good organizer and technician, Communist Party member, who had been awarded the Stalin Prize for an invention related to the cutting of metallic materials. The deputy director was Viktor Nikol'yevich Ksenokratov, a technician, good organizer and orator, a Communist Party member, and very much respected by the workers because of his personal qualities. The chief of the automatic shop was Iosif Gindin, mechanical engineer, considered to be the best shop chief in the plant; he was constantly being sent to other shops to display his organizing talents. He was not a Party member. No prisoners, convicts, or foreigners worked at the plant. [redacted] no strikes, complaints, or special privileges. Absenteeism was not a problem.

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1. [redacted] Comment: From 1946 until 1947, this Ministry was called the Automobile Industry; from 1947 until 1953, it was known as the Automobile and Tractor Industry; from 1953 until 1954, the Machine Building Industry; and from 1954 until 1955, the Automobile, Tractor, and Agricultural Machine Building Industry.

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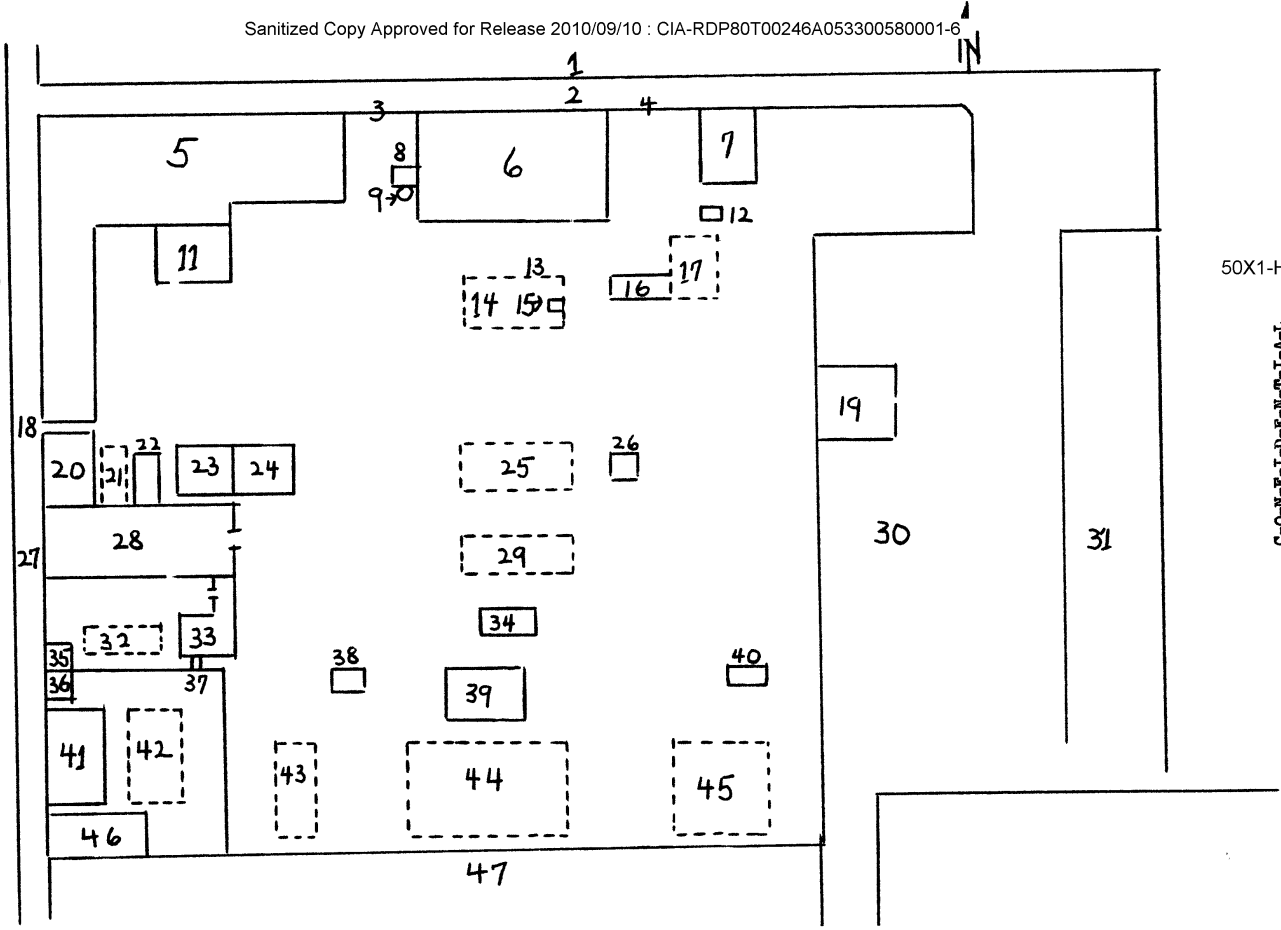
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Sketch of Layout of Ball Bearing Plant No. 2 in Moscow

Scale 1:2,500



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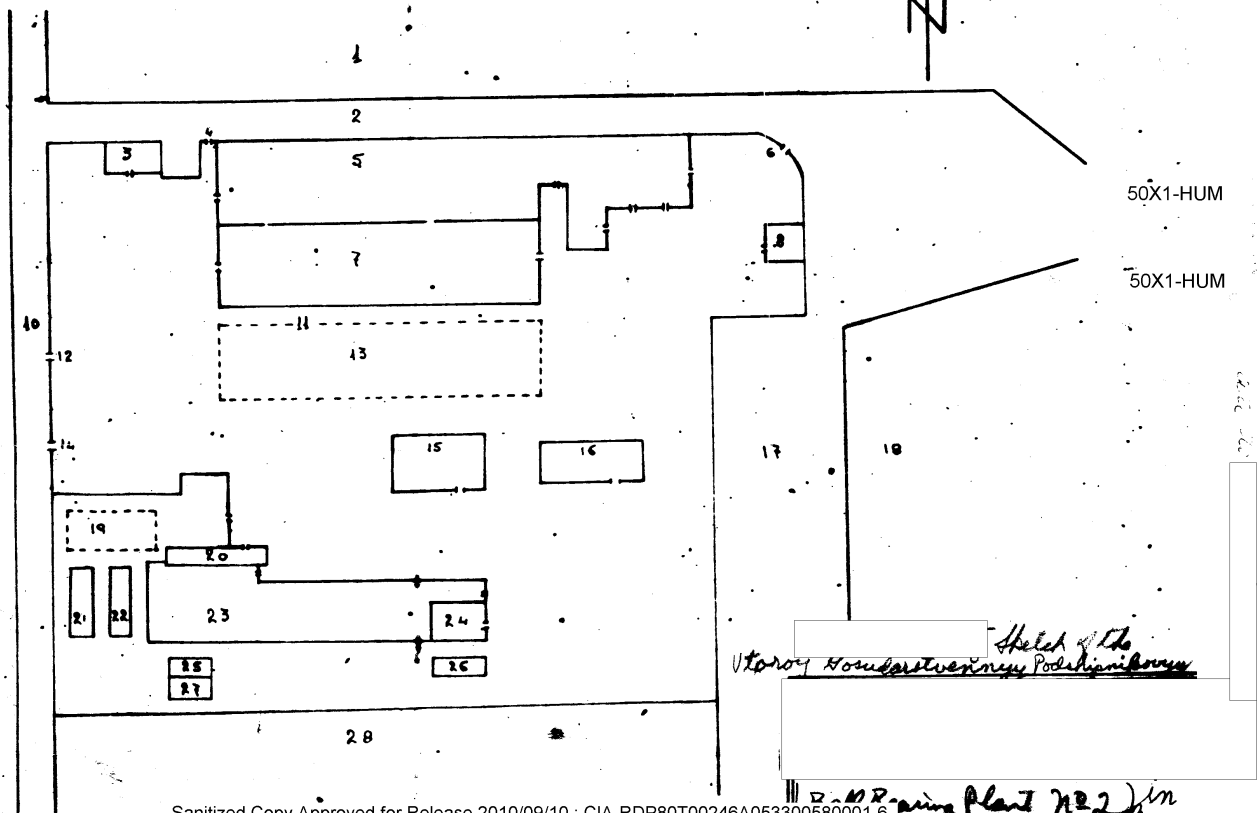
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Sketch of the Ustoy Gosudarstvennyy Podshchibovnyy

