		CONFIDEN	TIAL			
					50X1	50X1
	COUNTRY USSR				DATE DISTR.	In Nov. 5
	SUBJECT The Meta	al Testing Workshop o	f the		NO. OF PAGE	•
50X1	Noril's	k Nickel Combine				
					NO. OF ENCLS (LISTED BELOW)	3.
0X1					SUPPLEMENT REPORT NO.	то
A T						
	The state of the s		•			
		THIS IS UNEVALUATED IN	FORMATION			5
0X1 X1	N 69-20, E 88-0 In smelting and OMTs technicians carried out by t from time to time.	ng Workshop (Opytnyy most of the Norm of the Norm of was an experiments for testing of various made periodic tests the various plants and tests in the Works	ril'sk Nich al shop for as metals a of the pro a factories arious inst	kel de and oduc of all	Combine in veloping nealloys. ts of operations of attions of attions of the combinations of the combine the combin	Norilis www.metho tations ⁵⁰ ne, and the Com-
0X1 X1	N 69-20, E 88-0 In smelting and OMTs technicians carried out by t from time to time.	of the Nor 06/ was an experiments for testing of various made periodic tests the various plants and the technicians from various	ril'sk Nich il shop for is metals a of the pro l factories irious insi	kel de and oduc of all	Combine in veloping nealloys. ts of operations of attions of attions of the combinations of the combine the combin	Noril's www.metho ations ⁵⁰ ne, and the Com-
0X1 X1	/N 69-20, E 88-0 In smelting and OMTs technicians carried out by t from time to tim bine would condu Metal Testing Wo sketch of ment found in ea week, and a skel	of the Nor of the Nor of was an experiments for testing of various made periodic tests the various plants and technicians from value tests in the Works of the Metal Testing Workshop. See Annex A the Metal Testing Workshop was maintain Workshop was a Russ	ril'sk Nich land shop for the productions institute the contractions in the contraction of the contraction o	r de and oduc s of sall vari	Combine in veloping malloys. ts of oper the Combinations of our material and 2) list of the shifts six s. At the who	Noril's ew metho ations 50 ne, and the Com- e equip- days a head of
0X1 X1	/N 69-20, E 88-0 In smelting and OMTs technicians carried out by t from time to tim bine would condu Metal Testing Wo sketch of ment round in ea week, and a skel the Metal Testin	of the Nor of the Nor of was an experiments for testing of various made periodic tests the various plants and technicians from value tests in the Works of the Metal Testing Workshop. See Annex A the Metal Testing Workshop was maintain Workshop was a Russ	cil'sk Nicht shop for a metals a of the production of the production of the production with a circumstance of the production of the produc	r de and oduces of sall	combine in veloping nalloys. ts of operations of cous material and 2) list of the shifts six s. At the who the time.	Noril's ew metho ations 50 ne, and the Com- e equip- days a head of



CON	TEST	TENT	TΔT

50X

50X1 **Nor**

3.

50X1:

50X1

50X1

50X1

50X1

50X1 50X1

50X1

50X1

50X1

50X1

50X1

50X1

50X1

50X1

Noril'sk Nickel Combine

a. Seventy-five free workers and thirty prisoners were employed by OMTs in the Large Analytical Laboratory (Bol'shaya analiticheskay laboratoriya).

- b. Twelve free workers and eight prisoners worked for OMTs in the Coal Concentration Laboratory (Ugle-obogatitel 'naya laboratoriya).
- c. Three free workers and two prisoners worked for OMTs at a laboratory in BAF. /
- d. Five free workers and five prisoners were employed by OMTs in the laboratory at the Large Electrolytic Factory (Bol'shoy elektrolitnyy tsekh).

From Plant No. 25 (Zavod No. 25) the Metal Testing Workshop received several rubber-lined wooden barrels containing a dark green-gray solution. This solution ate clothes quite readily but did not seem to burn the skin

was heated by passing steam through lead coils which were immersed in it. After heating the solution for three or four days at about 100° C, during which time no chemicals were introduced, it was drained into a rubber-lined, restangular tub, about two meters long by one meter wide and 80 cm. deep, to a level of about 60 cm., and permitted to cool. While it was cooling, the specific gravity of the solution was tested about every hour. After several days, crystallization occurred to a depth of about 15 cm. and on the sides of the tub. The solution, which remained a dark green-gray color, was then drained off. The crystals, which were the size of salt and a light green-gray in color, were then placed in a vat over a canvas-like filter. Suction was applied under the filter for several hours to dry the crystals further. After this, 150 to 200 kg. of crystals were thoroughly mixed with 8 to 10 kg. of sulphur and 30 to 40 kg. of a cocoacolored powder. Several batches of this mixture were placed in an oven; each batch was heated at a different temperature, from 600° to 900° C, for various periods of time, from five to eight hours. When removed from the even, the mixture, in each case, was a cocoa-colored powder which seemed to weigh more than it did before being heated. This powder did not burn the clothing or skin. It was then packed in iron barrels and returned to Plant No. 25, where a similar process was also conducted.

4. The Metal Testing Workshop also received from Plant No. 25 a black earthlike substance which was either cobalt or platinum in some form. It was very expensive and all workers handling it were cautioned not to waste a single gram. This substance was mixed with water and a white powder and then placed in a stove as a "kriptolovaya" stove. See Annex B for sketch of this stove.

5. Numerous other tests were also conducted, some lasting a few days and others over a period of weeks.



Declas	sified in Part	- Sanitized Copy	Approved for Release	@ 50-Yr 2013/06/04	: CIA-RDP82-0	0046R000200340008-4

5	0)	(•
_	_	•	•	

50X1 50X1

50X1

- from time to time slag was received from the Large
 Smeltery It was melted in a stove and permitted
 to cool. It was then proken into pieces and various samples taken
 for testing purposes.
- b. Other experiments included adding various amounts of manganese to copper and to nickel.
- 6. Generally speaking, the work of both prisoners and free workers working with the various stoves was performed in a slipshod manner. This was due to several factors: indifference on the part of the workers, lack of experience, and, at times, to the necessity of fulfilling a planned production quota. Following are two illustrations which are rather typical of the manner in which work was performed in the Metal Testing Workshop:
 - smelting copper shavings for a period of three months.

 The copper shavings were outdoors and, since it was very cold, one worker would watch for the foreman while another took prepared copper anodes and placed them in the stove instead of going outdoors for the copper shavings. Later, when the anodes were detected missing, quite a furor was raised, but they could not be accounted for. During this operation one batch of copper was supposed to be produced in one eight-hour shift. Since the workers were more interested in fulfilling this quota than in producing good quality copper, 70% of the copper turned out during this three month period was declared to be inferior and not useable. A shop foreman and a free worker were accused of being responsible for this and given jail sentences.
 - b. On several occasions, in the eagerness to fulfill production quotas, stoves were permitted to be used until the bricks gave way and the molten metal flowed out onto the floor. This caused a delay in production until the stoves were repaired and the floor cleared of molten metal.

Annexes:

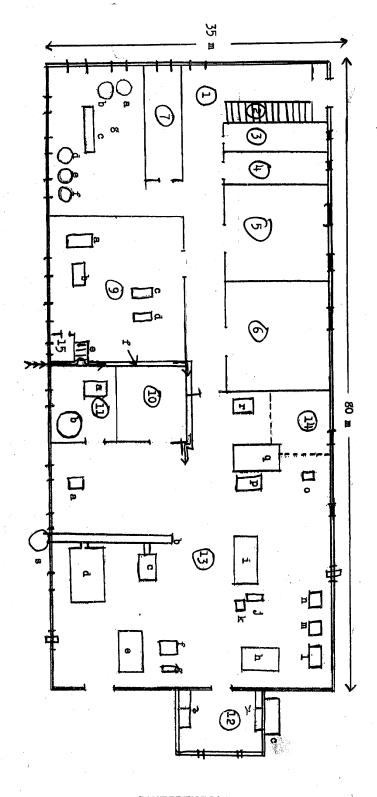
50X1	A, Sketch	1:	sketch of the first floor of the Metal Testing Workshop.
50X1	A, Sketch	2:	sketch of the second floor of the Metal Testing Workshop.
50X1	B:		sketch of the "kriptolovaya" stove in the Metal Testing Workshop.
50X1	G:		sketch of the Reverberatory Stove in the Metal Testing Workshop.
50X1	D:		sketch of the Arc Furnace found in the Metal Testing Workshop.



4

50X1

Annex A, Sketch 1: sketch of the first floor of the Metal Testing Workshop



CONFIDENTIAL



-5-

Legend to Annex A, (Sketch) 1, | First | Floor Metal Testing Workshop

- 1. Hallway.
- 2. Staircase.
- 3. Men's toilet.
- 4. Women's toilet.
- 5. Room for OMTs foremen (mastera).
- 6. Room for mechanics and an expeditor.
- 7. Storage room for the electrical repair shop; also contained the controls for the water system.
- 8. Experimental shop, containing the following equipment:
 - a. Experimental vat; wooden and rubber-lined, $1\frac{1}{2}$ m. high x 1 m. in diameter.
 - b. Experimental vat; wooden and rubber-lined, $l^{\frac{1}{2}}$ m. high x 1 m. in diameter.
 - c. Mixing cylinder; iron and rubber-lined, 4 m. long by 25 cm. in diameter; I saw crystals being mixed here.
 - d. Experimental vat, similar to the other two described. 50X1
 - Experimental vat, similar to the other two described.
 - f. Experimental vat, similar to the other two described.

Various solutions and liquids were tested in this room,

New processes were initiated here before being put into wide-scale operation.

plants and factories of the Combine were tested here. This room was not always in operation and would stand idle for one to one and a half months at a time. When operating, there were two workers and a foreman (master) on each shift.

- Repair shop servicing the Metal Testing Workshop, containing the following equipment:
 - a. A very old milling machine which did not work well and which broke down frequently.
 - b. A very old lathe which was, however, fairly reliable and serviceable.
 - Air compressor which serviced all of the Metal Testing Workshop.
 - d. Air compressor which serviced all of the Metal Testing Workshop.
 - e. Warm air blower for Room 13.
 - f. Warm air duct, 20 cm. x 20 cm., leading from the warm air blower.
- 10. Electrical mechanic's repair shop.
- 11. Petroleum storage, containing the following:

CONFIDENTIAL

50X1

50X1



	2 TT T T	T3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	T A T
E 2 F	NFTD	H.N.	

50X1

-6-

Annex A, Sketch 1 (Cont'd)

LEGEND

- a. A steel oil drum with a 100 lit. capacity.
- b. A steel oil drum with a 300 lit. capacity.
- 12. Electrician's shop, containing:
 - a. Electrical controls for the stoves in Room 13.
 - b. Electrical controls for the stoves in Room 13.
 - c. Electrical transformer just outside.
- 13. Furnace room (Pechnoy zal) containing the following equipment:
 - a. Air compressor for the converter (c) and the reverberatory stove (d).
 - b. Stovepipe.
- c. A converter similar to, but smaller than, the one found in the Large Smeltery (Bol'shoy plavil'nyy tsekh) / and capable of temperatures up to 1,200° C. Not a very good converter and there being little need for it, it was used only one or two months a year.
- d. A reverberatory stove, the only one ______in the Noril'sk Nickel Combine, and capable of producing temperatures up to 1,200° C. It was not always needed and was used only about three months a year. See Annex C for ______sketch of this stove.
 - e. An arc furnace (dugovaya pech'), capable of producing temperatures up to 1,400° C, but used only a week or two during the year. See Annex D for sketch of this furnace.7
 - f. An electric stove which was used frequently; capable of producing temperatures up to 1,600° C.
 - g. A small ammeter for stoves (e) and (f).
- h. The smaller of two stoves, each of which was known as a "kriptolovaya" stove; capable of producing temperatures up to 1,400° C. \(\subseteq \text{See Annex B for } \) sketch of this \(\frac{50 \text{X}}{200} \)
 - 1. The larger of two stoves; known as a "kriptolovaya" 50X1 stove; capable of producing temperatures up to 2,000° C.
 - j. A small transformer for stove (i).

k. A sifter of US make, and fairly new.

It had several levels of sieves, with openings ranging in size from 65 to a square centimeter to 200 per square centimeter. It was used to sift granular metal for sifting analysis. Samples of granular metal were taken at each level for some kind of tests.

CONFIDENTIAL

Declassified in Part - Sanitized Copy Approved for Release @ 50-Yr 2013/06/04 : CIA-RDP82-00046R000200340008-4

50X1 50X1

50X1



50X1 5

-7-

Annex: A) Sketch 1 (Cont'd)

LEGEND

- 1. A ball mill for granulating various substances.
- m. A crusher (drobilka).
- n. A roller crusher (rolikovaya drobilka).
- o. An oxyacetylene welder and an arc welder.
- p. A compartment kiln (kamernaya pech!).
- q. A muffle stove (mufel'naya pech').
- r. A compartment kiln.
- s. Ventilators.
- 14. A section of the furnace room where a Chinese made bottles out of burned-out light bulbs.



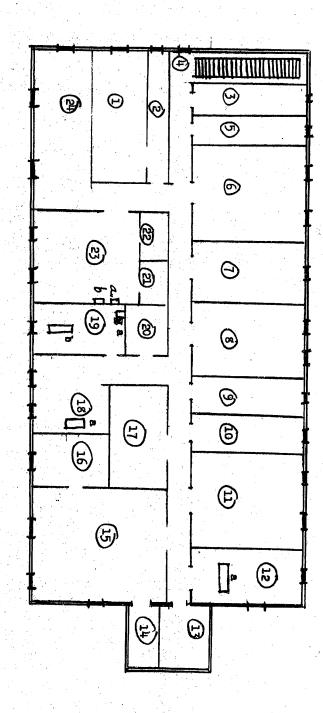
-8-

Annex A, Sketch 2:

50X1

sketch of the second floor of the Metal Testing Workshop

⁴50X1





Declas	ssified	in Part - Sanitized Copy Approved for Release @ 50-Yr 2013/06/04 : CIA-RDP82-00046R000200340008-4
	•	CONFIDENTIAL
		-9-
	Leg	end to Annex A, Sketch 2, Second Floor, Metal Testing Workshop
	1.	Director's office.
	2.	Office of the director's secretary.
	3.	Shower and wash room.
	4.	Hallway.
	5.	Carpenter's shop (stolyarnaya).
	6.	Bookkeeping office.
	7.	Office of the Chief Engineer and Assistant Director.
	8.	Library.
	9.	Workshop for engineer-constructor and drafting.
	10.	Workshop for engineer-constructor and drafting.
	11.	chemical equipment and chemicals, including liquid oxygon, also had numerous small electrolysis baths which measured approximately 10 cm. long by 8 cm. wide by 6 cm. deep.
50X1 50X1	12.	(a) which measured about 2 m. long by 12 m. wide by 12 m. high cost 10,000 rubles. when in operation there were
50X1		sparks and a small red flame. tested the structure of metals.
	13.	
	14.	of anodes in small glass containers for use in Room 17.
50X1 50X1	15.	also some barrels containing some kind of solution. this laboratory conducted tests with
50X1		nickel, copper, and, platinum.
**	16.	
	17.	chemical equipment, and protective clothing were stored here.
50X1	18.	Office of the chief of the furnace room on the first floor. this room had several analytical balances and an apparatus (a).

tus which was referred to as a magnetic analysis apparatus (a).

19. This room contained the following equipment:

50X1

a. Metal polishing and buffing machine.

was a combination of a photographic and A device which microscopic apparatus.



Declassified in Part - Sanitized Copy Approved for Release @ 50-Yr 2013/06/04 : CIA-RDP82-00046R000200340008-4

CONFIDENTIAL

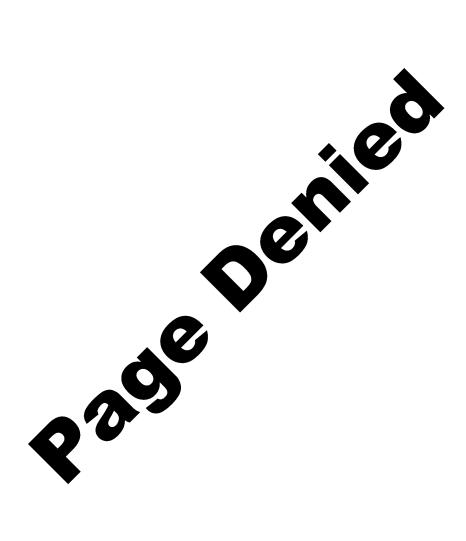
50X1

-10-

Annex A, Sketch 2 (Cont'd)

LEGEND

- 20. Photography dark room.
- 21. Dressing room for laboratory workers.
- 22. Storage room for acids and other chemicals.
- 23. Analytical laboratory, containing chemical equipment and two small electric stoves (a and b).
- 24. Office of the chief of the analytical laboratory.



50X1

CONFIDENTIAL

50X1

-11-

sketch of the "kriptolovaya" stove in the Metal Testing Workshop Graphite Electrode 8 Magnesite Brick CONFIDENTIAL

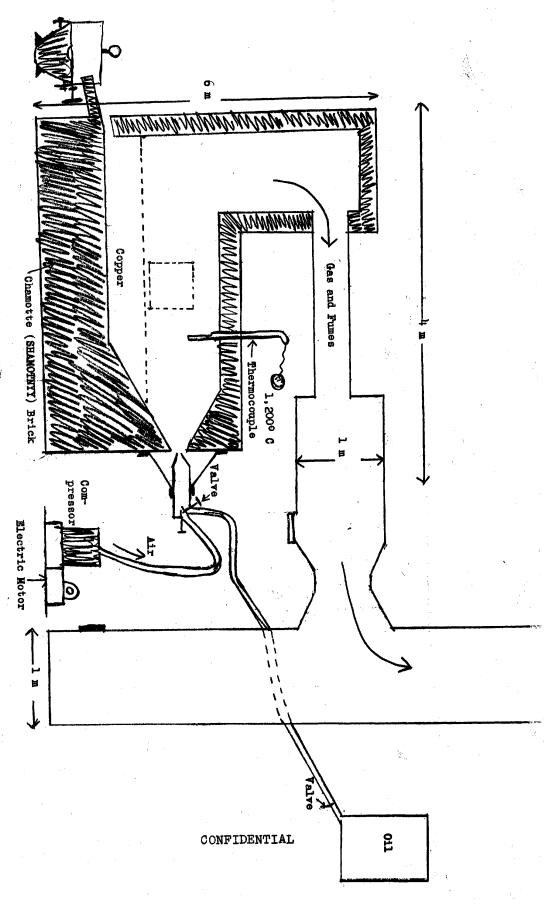


50X1

-12-

50X1

Annex C: sketch of the Reverberatory Stove in the Metal Testing Workshop





50X1

-13-

50X1 Annex D:

sketch of the Arc Furnace found in the Metal Testing Workshop

