Ministry of Metals Industry:

History:

1. In early days following the Liberation in 1945, the Industry Bureau of the North Korean People's Committee had one laboratory which performed analysis of test mineral pieces from metal and coal mines under the control of the Industry Bureau. The purpose of the analysis was to obtain guides to directions of future drifting operations as well as to judge the components of the minerals of the mines. In addition to this category of analysis, the laboratory performed analysis required in the course of geological surveys which were conducted sporadically. However, the capacity of the laboratory was believed to have been relatively limited because of the meager facilities and the limit of experience of the specialists. In 1946, when the Cabinet was organized it was proposed to establish in the Ministry of Heavy Industry a separate analysis laboratory for mineral mines and metals industry enterprises, but it proved to be abortive because of the shortage of specialists. In its place a laboratory in the name of Analysis Department was established in the Mining Research Station which was under the control of the Ministry of Heavy Industry. During the Korean War the Analysis Department did not move to safety along with the Mining Research Station, but

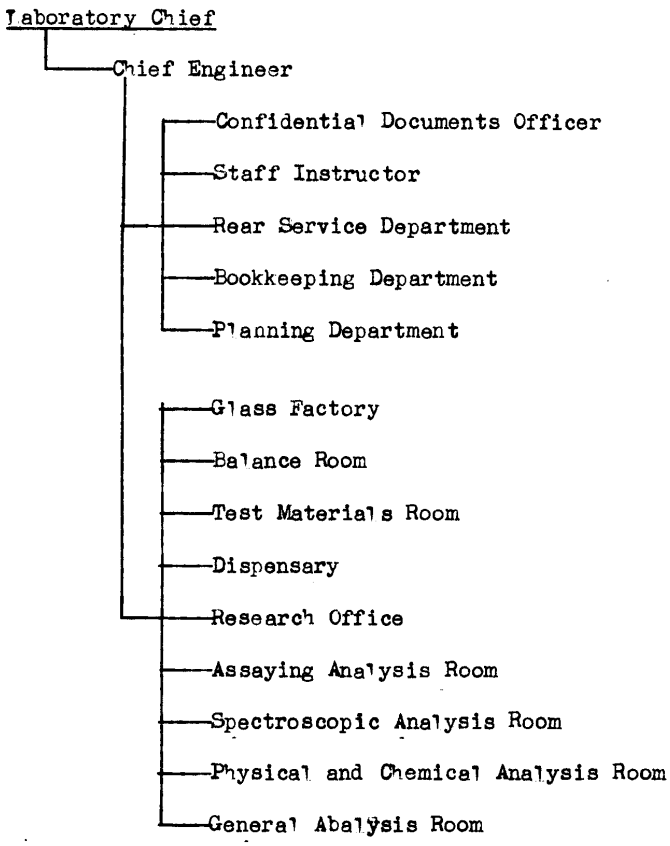
remained together with the Geological Survey Group which was under the control of the Geological Survey Management Bureau, Ministry of Heavy Industry, performing analysis of test mineral materials at the latter's request. In the meantime, the Mining Research Station, which was not under the control of the Geological Survey Management Group but was under the control of the Technical Bureau of the same ministry, gave priority to analysis of concentrated test mineral materials and neglected the analysis of test materials requested by the survey branch. The Geological Survey Management Bureau desired to have its own laboratory but no analysis specialists were available. The bureau brought the problem to the Ministry, which broke up the Analysis Department of the Mining Research Station into two branches: one for analysis of concentrated test mineral materials and the other for analysis of test materials for geological surveys. After the Ministry of Heavy Industry was reorganized into the Ministry of Metals Industry and Ministry of Coal Industry, the above two branches remained in juxtaposition in the Mining Research Station, only analysis of coal being transferred to the Coal Research Station which was under the control of the Ministry of Coal Industry.

2. In the spring of 1956 when geological surveys became active and its work load remarkably increased, the branch for analyses of test materials for geological surveys borrowed a separate building in the Mining Research Station and started independent operation, although salaries and wages and other support were provided out of the budget of the Mining Research Station. The operation of the Mining Research Station entirely depended on government budget. However, the account settlement for its Analysis Department's analyses of test materials for mines and enterprises was very complicated because of the government budget system and, for this reason, the Analysis Department had collected its analysis charges directly from customer enterprises. Thus the Mining Research Station was operated with government budget, while its Analysis Department was carrying on profitable business. In order to rectify this all the analysis work of the Mining Research Station was transferred to a new laboratory under the control of the Ministry of Metals Industry in December 1956, and the new laboratory performed analyses of test materials mainly for geological surveys. Thus the laboratory was completely separated from

the Mining Research Station and [redacted] became an enterprise of independent accounting system. Outwardly it was under the direct control of the Ministry of Metals Industry, but it became an establishment virtually for exclusive use by the Geological Survey Management Bureau. As a result it had an adequate amount of analysis work during the period of April through October each year when geological survey activities were on, but during the remaining period of the year it had no analysis work and its operation on independent accounting system became difficult. The laboratory was renamed the Ministry of Metals Industry Analysis Station and began to perform analyses for iron works, steel mills, and mines as well as for geological surveys. However, this plan also proved not to be very effective because of the shortage of customers. The NK Academy of Sciences proposed to establish the Central Analysis Station with this laboratory as its parent body. However, this plan was opposed by the Geological Survey Management Bureau which insisted on the importance of geological surveys and the necessity of timely analyses for the surveys. As a result in 1958 the laboratory was made an establishment half on government budget system and half on independent accounting system, and it was provided with financial support from the government during winter. Thus the Ministry of Metals Industry Laboratory emerged the largest and best laboratory in NK, although it performed analyses mainly for geological surveys under the direction of the Geological Survey Management Bureau. In February 1960 when the Heavy Industry Committee was founded, it was planned to incorporate the Ministry of Metals Industry Analysis Station and the analysis laboratory of the Coal industry branch into a larger scale central analysis station, but up to March 1960 the Korean Labor Party had not ratified the plan. In order to prevent confusion with the Academy of Sciences Central Analysis Station, this laboratory was called the Heavy Industry Committee Analysis Station.

Organization and Functions:

3. As of 1959 the Ministry of Metals Industry Laboratory was located in the vicinity of YD 424316 (N39-06, E125-49), Sonkyo-ri, Sonkyo-guyok, P'yongyang-si and was in the following setup:



4. The functions of the individual posts were as follows:

A. Laboratory Chief:

The position of the Laboratory Chief had been vacant up to the spring of 1959. As a result the Chief Engineer's time and efforts were torn between the administrative and the technical branches, and the laboratory freqently failed to produce in time results of its analyses requested by the Geological Survey Group. The Chief Engineer came to be under severe criticism, and finally, brought the problem to the higher echelon for a solution. In the spring of 1959 YI Song-hui (2621/nta/nta), a layman and a former geological survey team leader, was appointed the Laboratory Chief. As a rule, the Laboratory Chief was to control both the administrative and the technical branches but, for lack of knowledge about analysis, his duties became to be limited to the administrative branch, entrusting the Chief Engineer with supervision of the technical branch.

B. Chief Engineer:

Theoretically the Chief Engineer was subject to the supervision of the Laboratory Chief. However, in reality, he independently directed and

supervised the whole technical branch.

C. Bookkeeping Department:

The Bookkeeping Department consisted of one Chief Bookkeeper and unknown number of bookkeepers. It controlled the entire finance of the laboratory; investigating the amounts and quantities of all necessary facilities, equipment, and chemicals used; collecting analysis charges; computing and paying salaries, wages, and bonuses; and keeping custody of precious metals including gold and platinum.

D. Rear Service Department:

In the Rear Service Department there were seven clerical workers who were supervised by one Department Chief. However, the stipulated number of personnel of this department was four; three analysts were borrowed from the various Analysis Rooms. The primary mission of the Rear Service Department was to insure the livelihood of the employees. Its functions included: procurement of rear service goods such as chemicals for analysis, instruments and facilities; grain distribution; procurement of side dish food; supply of goods for workers working under noxious conditions; and sales of glass instruments produced at the Glass Factory of the laboratory.

E. Planning Department:

The Planning Department was headed by one Department Chief who supervised two clerks who were hired with the budget for analysts, one evaluation clerk, and one organizational instructor. The Planning Department functioned as the Staff Office of the Laboratory: organizing all the projects; issuing work directions; sending out results of the Laboratory's analyses to customers; and inviting requests for analyses from various geological survey teams. For these functions the planning department convened an administrative committee two times a month: once at the beginning of the month to receive reports on activities scheduled for the month from the head of each post and to adjust them, and adapting the final versions of their plans, and another time at the end of the month to review the status of execution of the plans, and to examine and adjust the budget for each post. The administrative committee also

made plans of the contract systems and the bonus systems for the management by the Bookkeeping Department and transmitted them to the latter, prepared accounts of contract-system wages and bonuses by computing the work volume of each employee and transmitted them to the Bookkeeping Department. In order to promote the mutual understanding of the administrative and technical branches the Planning Department convened a technical council usually simultaneously with the administrative committee. The purpose of the technical council was to promote smooth coordination between the administrative and the technical branches. The Evaluation Clerk measured with a stop watch the work volume of the most capable and conscientious worker of each type of job and grade, and with the measurements as criteria set the quotas for other workers. He composed a work evaluation committee, through which he consulted the standard worker of each type of job and grade for computation of the most reasonable standard work volumes.

F. Staff Instructor:

For the personnel administration of the laboratory one staff instructor was assigned to the laboratory from the Ministry of Metals Industry Staff Department. The staff instructor directed and supervised the personnel administration of employees hired at the discretion of the laboratory and kept personnel documents of staff members who were appointed and assigned by the Ministry. He made reports on the capacity and dutifulness of all the employees to the Ministry Staff Department. He issued identification cards for employees, and recommended employees for medals and citations.

G. Confidential Documents Officer:

One confidential document officer was responsible for sending, reception, and custody of all the classified documents. He kept the official seal of the laboratory. He played the role of a secretary to the Laboratory Chief.

H. General Analysis Room:

The General Analysis Room played the leading role at the laboratory, performing chemical treatment and analyses of various test materials

requested. This Room had a total of about 60 employees including four analysis engineers, and unknown numbers of assistant engineers and apprentices. Previously, the analysis branch had been divided into the General Analysis Room and the Special Analysis Room: the former for analyses of test materials which could be analyzed easily, in large quantities, and contained no obstructive element, and the latter for analyses of test materials which required higher technical skill and could not be analyzed in quantities. In the summer of 1958 the above two analysis rooms were incorporated for convenience' sake. The existing General Analysis Room was so called for the old system, but in reality it would have been more pertinent to call it the Chemical Analysis Room. Up until 1958 analysts at the General Analysis Room worked on individual basis in proportion to their analysis ability. Thereafter, however, the analysts were divided into teams, each consisting of three to four skilled workers and two apprentices and performing stream line operation. In a word, when a material for analysis was received by a member, all the analyzing processes were not taken by the member alone, but by also others. A team was divided into three subteams, and then each subteam undertook respective analysis work. Therefore, an analyzing subteam performed only analyzing work, and other processes were made by other subteams. At the General Analysis Room were handled those materials that could be analyzed chemically, and the contents that were analyzed from materials were as follows: Lead (Pb), zinc (Zn), iron (Fe), sand (SiO2), boron (B), barium (Ba), Cobalt (Co), nickel (Ni), bismuth (Bi), tungsten (W), magnesium (Mg), calcium (Ca), aluminum (Al), stannum (Sn), antimony or stibium (Sb), sulfur (S), manganese (Mn), copper (Cu), molybdenum (Mo), arsenic (As), titanium (Ti), chromium (Cr), phosphorous (P), hydrargyrum (Hg), iodine (I), natrium-kalium (Na, K).

I. Physical and Chemical Analysis Room:

Under the supervision of two analysis engineers, about 20 technical workers and apprentices were engaged in the physical analyzing of the test materials that were treated chemically. They chiefly analyzed test materials by using a polarograph, a chromatograph, and a colorimeter. However, since

there were contained much obstructive elements in the test materials, they were sometimes unable to analyze some contents with the above instruments. For some contents they solved the problem of eliminating obstructive elements, but for some other contents they could not eliminate obstructive elements due to the lack of standard materials. When a material was required much analyzing expenses, the material was analyzed chemically to reduce expenses, though physical analysis was available. As of March 1960, materials analyzed with the polarograph were cadmium (Cd), zinc, copper, lead, etc.; with the photoelectric colorimeter were barium, titanium, oxidizing tungsten (WO_3), nickel, copper, phosphorous, cobalt, etc.; but the chromatograph itself was still being studied for its use was not yet known to NK technicians.

J. Spectroscopic Analysis Room:

This Room maintained three analysis engineers and approximately 30 technicians and apprentices. Using spectrum analyzing apparatuses, they engaged in qualitative analysis. Due to lack of techniques, they could not make quantitative analysis. Much of the spectrum analyses were made to provide preliminary analyzation data for the test materials for determining excavating directions of mines, for exploiting mines, and for determining the range of geological distribution. Quantitative analyses with the spectrum analysis method have been in the course of experimentation so far.

K. Assay Analysis Room:

One analysis engineer and five technicians and apprentices were engaged in analyzing gold and silver by using the dry method.

L. Research Office:

Approximately 30 analysis engineers and technicians were engaged in studying as well as finding out the technical difficulties faced by the above-mentioned analysis rooms, in developing better analyzing methods, and in introducing new analyzing methods of foreign countries. To perform such tasks, the members of the office were divided into teams and were made to make researches on given subjects in a fixed period or to handle other analyzing tasks that were presented to them occasionally. For the elements they could still not analyze or the analyzing methods they could still not utilize such as radioelement analysis, water analysis, gas analysis,

etc., they have so far been making research activities.

M. Test Materials Room:

This room maintained three test material keepers and five test material crushing workers. The latter three crushed test materials in accordance with the requirements made by each analysis room. Materials were usually crushed until they could pass through the sieves of 120 to 200 meshes. As crushing instruments the room kept a large crusher, a small crusher, a ball mill, and a roll mill. For crushing materials to powder, the room kept a hammer mill and a Mane-type stamp.

N. Dispensary:

This dispensary maintained one engineer and four technicians, who all engaged in compounding reagents to be used by each analysis room, in counting the required amount of chemicals for supply in accordance with test material analysis methods, and in maintaining powerful medicines. They decided the factor of titration solutions, supplied the solutions to each analysis room, recollected the solutions, and then redecided the factors.

O. Balance Room:

This room maintained six technicians, who took charge in keeping various balances and in weighing test analysis materials as well as analyzed materials.

P. Glass Workshop:

This workshop maintained a total of 12 technicians who all engaged in producing various glass instruments to be used at the laboratory as well as to be sold to other chemical laboratories. They chiefly turned out beakers, and other instruments were produced on request.

Facilities:

5. As of March 1960 the laboratory maintained the following analysis facilities.

Item	Quantity:
Chromatograph, USSR-made, arrived in NK in 1959	2
Polarograph, made in East Germany, Hungary, Czechoslovakia, and the USSR, arrived in NK in 1957	4

Spectroscopes, ASP-type, USSR-made, arrived in NK in 1954	2
Ion exchange resin, anion and cation, arrived in NK in 1958.	
Electroanalysis instruments, USSR-made	2
Colorimeters, two USSR-made ones and two East German-made ones	4
Photoelectric colorimeters, three USSR-made ones and two East German-made ones	5
Crushers, USSR-made, large and small ones	2
Ball mills, USSR-made	2
Balances	15
Electric balances	3
Electric drying furnaces, four USSR-made ones and two East German-made ones	6
Mapro (Russian term), three USSR-made ones and three East German-made ones	6
Electronic calculator, USSR-made	1
Electronic micronic microscopes, five USSR-made ones and four East German-made ones	9
Vacuum filter pump, USSR-made	1
Oil pump, USSR-made	1

Labor Force and Technical Level:

6. The laboratory maintained a total of approximately 200 workers, of whom about 20 were clerical workers. Other workers consisted of 20 college graduates, about 60 chemical professional school graduates, and about 100 junior and senior middle school graduates. The college graduates respectively held the engineer's title, and they played the main role in performing various technical work in the laboratory. Professional school graduates were made to work as technicians, and middle and senior middle school graduates as apprentices. Since they have so far gained much experience in analysis work, learning about as well as receiving training on their work for many years, many of them are now able to perform general analysis work alone. Between 1956 and 1957 they had been trained technically by three Russian female technicians named A.D. Sergend, V.A. Wdnya, and Natali. At present, they feel no difficulty in performing analysis work for geological

survey operation, in deciding excavation directions for mines, and in deciding the contents of NK export minerals. However, as mentioned in the foregoing, they have still been unable to explore the special field of analyzing radioactive materials, water, and gas. In general the technicians of the laboratory have been trying to promote their analyzing techniques through scientific books of advanced nations, but they have not been able to apply the techniques they learned through books to their daily practice due to the lack of standard materials as well as required analysis instruments. Even if they could succeed in a special analysis, no reliance could be placed on its result judging from their lack of experience.

7. The engineers of the laboratory received no particular training for the promotion of their techniques, though they constantly studied on their work through books at their library in leisure hours. Whenever they encountered an obstacle during their study, they solved it by contacting the Chemical Laboratory of the NK Academy of Sciences and other research offices. In the meantime, they, being regarded as the highest authority in the analysis field, gave technical assistance to analysis rooms as well as workers of industrial factories, who were sometimes brought to the laboratory for training. To give technical training to apprentices, the laboratory operated a night chemical professional school of which lecturers were the technicians of the laboratory. Each year the school recruited approximately 60 junior middle school graduates and trained them for three years. Graduates were each given a technician's title.

Basic Task and Business Data:

8. As stated in the foregoing, the basic task of the laboratory was the supporting of the operations of the Metals Industry Ministry Exploitation Management Bureau, which conducted various geological survey business, underground resources exploiting business, and excavation directions deciding business, all over the NK territory. The secondary task of the laboratory was the conducting of various analysis work for iron works, steel mills, refineries, smelters, and other metals factories; the deciding of the contents of NK export minerals; and the discriminating of counterfeit money at the request of judicial courts.

Annually, the laboratory analyzed approximately 100,000 ingredients in total.

9. The test materials analyzed by the laboratory were mostly composed of the ones that were sent to it from the geological survey teams that were in operation throughout the NK territory. The ingredients to be analyzed were always designated by the requesting side. Generally, each survey team first distinguished the primary ingredients of a test material with the naked eye, then requested the laboratory to analyze some of the ingredients they wanted to have assayed. When, in the course of analysis, other ingredients were found to have more prospective content than the ones being requested for analyzing, the laboratory notified on the fact to the requesting team as well as asked the team whether it wanted to have additional analysis data for the remaining ingredients. As a rule a team that just began test drilling sent a test material to the laboratory for complete analysis. In such a case, since the team had to pay for every ingredient to be analyzed, the team preferred to have spectrum analyses of which charges were cheap. When every ingredient was identified, the team selected the ingredients they needed and then put them to further analyzation. Beginning 1956 every survey team sent its analysis workers to the laboratory for training, set up its own analysis room, and solved most of its analysis work by itself. However, survey teams still sent their analysis materials to the laboratory whenever they felt difficulty or when they wanted to confirm whether or not their analysis data were correct.

10. Besides geological survey teams, industrial factories under the Ministry of Metals Industry also sent to the laboratory those test materials that they could not analyze by themselves. The most frequent customer factories of the laboratory were the Hwanghae Iron Works, Kimch'aek Iron Works, Sŏngjin Steel Mill, and Kangsŏn Steel Mill, all of which sent to the laboratory such test materials as manganese, calcium, iron, silica, aluminum, phosphorus, etc. Another customer factory the Namp'o Smelter sent to the laboratory such analysis materials as lead, tungsten, phosphorus, sulfur, [illegible] germanium and gallium contained in chimney soot, and [illegible] selenium, gold and silver contained in slag. Most of the minerals exported by the NK regime were attached with analysis tables drawn up by the laboratory. However, export minerals were

reanalyzed by the importing nations. When the reanalyzed results were identical with the contents of the attached analysis tables, money was paid accordingly; but when the reanalysis values were lower than those of the laboratory, the laboratory analyzed again the minerals in question. In case the laboratory gained the same analysis values as before, it notified on the results to the importing nations and advised them to analyze once more. Thus reanalyzation was repeated between the laboratory and importing nations until identical results were gained. When the reanalysis data of an importing nation were higher than those of the laboratory, the NK regime received payment in accordance with the former's data. Those export minerals analyzed by the laboratory were gold, silver, lead, zinc, copper, boron, tin, antimony, cobalt, nickel, etc. On the other hand, monazite and other minerals containing germanium (Ge), niobium (Nb), tantalum, titanium (Ti), gallium (Ga), thorium (Th), selenium (Se), cesium (Cs), etc. were exported without being analyzed by the laboratory because it could not analyze them, and the NK regime received money for the above export minerals from importing nations in accordance with their analysis data of the minerals. Besides mineral analyzing, the laboratory discriminated counterfeit money at the request of judicial courts or banks, but such a case had been rare in the past.

11. For analyzing test minerals or test materials furnished by geological survey teams, mines, or metals industry factories, the laboratory collected from them analysis charges. Analysis charges were imposed not on each test material but on each material's every ingredient that was requested for analyzation. For an ingredient analyzed three NK won was charged; but 30 NK chon was charged for the spectrum analyzation of an ingredient. To speak again, chemical or physical analysis charge was three NK won per ingredient; and spectrum analysis charge 30 chon per ingredient. Therefore, when three ingredients such as iron, copper and aluminum of a test material were analyzed chemically, the analysis charges would be nine won; or when analyzed spectrally, the charges would be 90 chon.

Budget and Investment:

12. The laboratory was operated on the basis of self-supporting accounting system, but its annual budget was controlled by the National Planning Committee.

Each year the laboratory submitted its annual budgetary plan to the National Planning Committee, and the committee gave its approval when the plan was considered to be correct. In accordance with the annual budgetary plan of the laboratory, the planning committee sent monthly expenditures to the laboratory, which paid them back with its analysis incomes. In fact, the laboratory received its monthly expenditures from the committee at the beginning of each month, and repaid them at the end of each month. Every November the laboratory submitted a list of the analysis instruments and reagents it required, to the above planning committee. Since the items required by the laboratory were mostly foreign goods, the committee imported them, along with other items required by other agencies, from abroad. Import items did not arrive at a time but did arrive occasionally throughout the following year. The laboratory paid for the imported items it received at the end of the year with its own money. It had imported reagents worth 1,500,000 won in 1957, worth 1,500,000 won in 1958, and worth 1,000,000 won in November 1959, all counted in NK won of pre-currency reform that took place in NK in February 1959. The reason for the decrease in 1959 was that a considerable quantity of import reagents were replaced with NK-made ones. Most of the imported reagents were those made in the USSR. The laboratory had also imported analysis instruments worth 2,000,000 won in 1957, worth 2,500,000 won in 1958, and worth 4,000,000 won in November 1959, all counted in NK won of pre-currency reform. The reason for the amount jumping up to 4,000,000 won in November 1959 was that the laboratory was to enlarge its size by importing special analysis instruments, one unit each for analyzing radioactive materials, for analyzing precious metals and for extracting precious metals, from the Lomonosov Laboratory, USSR, which was equipped with the above instruments. The analysis instruments imported in 1957 or 1958 were mostly imitative ones of those facilities installed in a model mineral analysis office set up in Ukraine, USSR. The ordered analysis instruments of November 1959 did not arrive in NK from the USSR as of March 1960.

13. The kind, quantity, and source of supply of the reagents consumed annually by the laboratory were as follows:

Item	Symbol	Source of Supply	Amount per Year
Sulfuric acid	H_2SO_4	Hungnam Fertilizers Factory	1,500 kg
Hydrochloric acid	HCl	Ch'ongsu Chemical Factory	5,000 kg
Nitric acid	HNO_3	"	3,000 "
Acetic acid	CH_3COOH	"	800 "
Oxalic acid	$H_2C_2O_4$	USSR	5 "
Sodium acetate	CH_3COONa	"	100 "
Potassium permanganate	$KMnO_4$	"	10 "
Potassium dichromate	$K_2Cr_2O_7$	"	150 "
Potassium manganate	K_2MnO_4	"	13 "
Natrium nitrate	$NaNO_3$	"	15 "
Potassium nitrate	KNO_3	"	15 "
Potassium chloride	KCl	"	15 "
Potassium sulfate	K_2SO_4	"	1 "
Natrium sulfate	Na_2SO_4	"	10 "
Natrium arsenide	Na_2AsO_4	"	100 "
Sodium arsenite		"	100 "
Alum		"	10 "
Sodium carbonate	Na_2CO_3	Pon'gung Chemical Factory	500 "
Potassium carbonate	K_2CO_3	USSR	10 "
Calcium chloride	$CaCl_2$	"	100 "
Cobalt chloride	$CoCl_2$	"	11 "
Aluminum sulfate	$AlSO_4$	"	small
Chrome oxide	Cr_2O_3	"	15 "
Sodium hydroxide	NaOrl	Pon'gung Chemical Factory	1,000 "
Potassium hydroxide	KOrl	USSR	10 "
Magnesium oxide	MgO	"	300 "
Anhydrous sodium carbonate	Na_2CO3	"	500 "
Zinc oxide	NnO	Namp'o Smelter	300 "
Nickel nitrate	$NlNO_3$	USSR	13 "
Copper sulfate	$CuSO_4$	Hungnam Fertilizers Factory	10 "
Ammonium hydroxide	NH_4OH	"	20 "

Analysis Ability:

14. The laboratory analyzed annually approximately 100,000 elements on the average, and it analyzed monthly as follows:

Element	Symbol	Frequency: Non-Colorimeter Analysis	Frequency: Colorimeter analysis
Trivalent iron	Fe^{+++}	130	
Copper	Cu	100	180
Lead	Pb	80	
Zinc	Zn	80	
Cobalt	Co	180	
Molybdenum	Mo	80	
Tungsten oxide	WO_3	180	
Manganese	Mn	180	80
Phosphorous	P	180	80
Arsenic	As	50	80
Bismuth	Bi	120	
Magnesium	Mg	60	
Calcium	Ca	60	
Sodium kalium	NaK	50	
Barium	Ba	----	
Boron	B	50	
Tantalum	Ta	50	
Niobium	Nb	50	
Selenium	Se	50	
Titanium	Ti	50	
Silver	Ag	50	
Gold	Au	50	
Germanium	Ge	50	
Gallium	Ga	50	
Thorium	Th	50	
Chromium	Cr	80	
Sand	SiO_2	80	
Sulfur	S	80	
Zirconium	Zr	50	

Bivalent iron	Fe++	80	
Nickel	Ni	80	180
Platinum	Pe	50	
Cesium	Cs	50	
Aluminum	Al	80	
Mercury	Hg	80	
Iodine	I	80	

Treatment:

15. The laboratory, with its monthly incomes, paid monthly salaries to its employees, whose grades and wages were as follows:

Grade	Job Title	Daily Wages
7	Engineer	1.86 NK won
6	Technician	1.70 "
5	"	1.64 "
4	"	1.48 "
3	Apprentice	1.32 "
2	"	------
1	"	------

Basic monthly salary of each employee was decided by multiplying the number of days he worked in a month by his daily wages. An employee worked 26 days a month on the average. Besides the basic wages, employees earned some additional wages by performing some contract work that required urgent results. Furthermore, workers received prize money when they carried out their work quotas in excess. Engineering college graduates were given respectively an engineer's qualification. In addition to their basic salaries, engineers received respectively an additional monthly pay that amounted to 8 won if one's service period at the laboratory was one to three years, 10 won if one's service period was four to five years, and 12 won if one worked five years or more. Every employee of the laboratory received a service allowance which amounted to certain fixed percentage of the basic salary. Those who engaged in dangerous work were each given monthly 600 grams of soybean oil, four kilograms of fish, one kilogram of meat, two masks, cloth for making two pairs of working clothes, etc. for free of charge. Each engineer received

cloth for one pair of summer clothes once a year, cloth for one pair of winter clothes once in two years, and cloth for one overcoat once in three years, for which price they paid.

16. [redacted] Information: 50X1-HUM

1) a. Name: CH'OE Chae-yon (1508/0961/6647)

[redacted]

b. Rank and Position: Research Engineer, Research Room, Laboratory, Ministry of Metals Industry.

[redacted]

2) a. CH'OE Yun-song (1508/nta/nta)

[redacted]

b. Technician, Physical Analysis Room, Laboratory, Ministry of Metals Industry.

[redacted]

3) a. HO Hyang-kyong (6079/0686/2529)

[redacted]

b. Engineer, Research Room, Laboratory, Ministry of Metals Industry.

[redacted]

4) a. HWANG Kwi-im (7806/6311/0117) (Female)

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b. Technician, Research Room, Laboratory, Ministry of Metals Industry.

5) a. KIM Ku-mun (6855/nta/nta) (F)

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6) a. KIM Won-kun (6855/nta/nta)

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7) a. KIM Yol-ok (6855/nta/3768) (Female)

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8) a. MUN Song-kum (2429/2646/6855) (F)

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9) a. PAE Kyong-cha (5992/0079/1311) (F)

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b. Engineer, Laboratory, Ministry of Metals Industry.

10) a. PAK Son-nyo (2613/0103/1166) (F)

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b. Engineer, Research Room, Laboratory, Ministry of Metals Industry.

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11) a. C'I'A Kyun-song (3947/0971/2052)

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b. Chief Engineer, Laboratory, Ministry of Metals Industry.

12) a. YI Ch'un-ok (2621/2504/3768)(F)

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b. Engineer, Chemical Agents Preparation Room, Laboratory, Ministry of Metals Industry.

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13) a. YI Tui-yun (2621/1213/3387) (F)

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b. Engineer, Spectrum Analysis Room, Laboratory, Ministry of Metals Industry.

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14) a. YI Son-ch'ung (2621/0810/1813)

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b. Technician, Laboratory, Ministry of Metals Industry.

15) a. YI Son-pun (2621/nta/nta) (F)

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b. Technician, Laboratory, Ministry of Metals Industry.

16) a. YI Song-hui (2621/2052/3556)

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50X1-HUM

b. Chief, Laboratory, Ministry of Metals Industry.

17) a. YI Tan-ch'un (2621/4551/2504) (F)

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[redacted]

18) a. YIM Sun-chong (2651/nta/nta) (F)

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b. Technician, Laboratory, Ministry of Metals Industry. 50X1-HUM

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