

## **A Preliminary Study on Attitudes toward Nuclear Weapons and Nuclear Tests of the Residents of Kurchatov, Kazakhstan**

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### **SUMMARY**

The town of Kurchatov was a secret city newly built in the Semipalatinsk nuclear test site as the headquarters of the nuclear tests. The present paper is a pilot study, first, to explore how the current Kurchatov residents think and feel about nuclear weapons and

nuclear tests, and secondly, to compare the results of the survey with those of the similar survey near Semipalatinsk. Though the present study is based upon a small and limited survey conducted in the city, it is hoped that it will shed some new lights on the residents' attitudes toward nuclear tests and nuclear weapons.

It is shown that the negative attitudes toward nuclear weapons and nuclear tests of those exposed to radiation near Semipalatinsk which characterize the Semipalatinsk survey are shared by the majority of the respondents of Kurchatov, as well as the concerns about the adverse health effects of nuclear tests.

It is also shown, however, that there is a striking pro-nuclear minority in Kurchatov. Though the small and limit nature of our data does not allow us to confirm the existence of such a minority, our result suggests a possibility that there may be a certain pro-nuclear minority even in the region which have been severely affected by nuclear tests.

## Introduction

The Semipalatinsk<sup>1</sup> nuclear test site (SNTS) was by far the most important nuclear test site for the Soviet Union. More than 450 nuclear tests, that is, much more than half of the Soviet nuclear tests, were conducted in this test site during the Soviet time, as the table 1 below shows. These nuclear tests have affected people and environment of Kazakhstan. Some source says that more than one million people were affected by radiation caused by the tests (Arystanbekova 1998)<sup>2</sup>.

**Table 1 Nuclear Tests of the Soviet Union**

source: adapted from The Ministry of the Russian Federation for Atomic Energy (1996)

<b>Semipalatinsk Test Site</b>	<b>456</b>
Northern Test Site, Novaya Zemlya	130
subtotal	586
Russian Federation	91
European Part	59
Asian Part	32
Ukraine	2
Kazakhstan (excluding STS)	33
Uzbekistan	2
Turkmenia	1
subtotal outside Nuclear Test Sites:	129
<b>Total</b>	<b>715</b>

Since 2002, a joint research team of the Research Institute for Radiation Biology and Medicine, Hiroshima University and Kazakh Research Institute for Radiation Medicine and Ecology in Semipalatinsk has been conducting questionnaire surveys and interviews of those affected by radiation. The surveys (henceforth Semipalatinsk survey) contain an open-ended question asking the respondents to express their experiences and opinions freely concerning nuclear tests at SNTS (Kawano et al 2004: 68-69, Kawano et al 2006: 14-15). All the responses to the question (which we call testimonies) are published in English and Japanese translations and Russian and Kazakh originals in Kawano et al (2006).

One of our coauthors, Yerzhan Bektorov, conducted a similar, though much simplified and limited, survey at the city of Kurchatov near Semipalatinsk in 2005

(Bektorov 2006: 40). The survey contains the question asking respondents to express their opinions about nuclear tests and nuclear weapons. Kurchatov was a secret city specially built as the headquarters of the nuclear tests in SNTS. The survey in Kurchatov (henceforth, Kurchatov survey) was part of a preliminary study intended to explore the attitudes toward nuclear tests and nuclear weapons of the current Kurchatov residents. The Kurchatov survey also contains a question which asks respondents to express their feeling and attitude towards nuclear tests and nuclear weapons.

The present paper aims to make a preliminary comparison between the two surveys with respect to the respondents' attitudes toward nuclear tests and nuclear weapons. As we will see in detail below, it is of interest to explore the similarities and differences in attitudes toward nuclear issues between the Semipalatinsk and the Kurchatov surveys. It is, moreover, of particular interest to compare the responses of the two surveys, because the respondents of the Semipalatinsk survey are supposedly affected by radiation directly or indirectly, while the Kurchatov respondents are mostly not<sup>3</sup>).

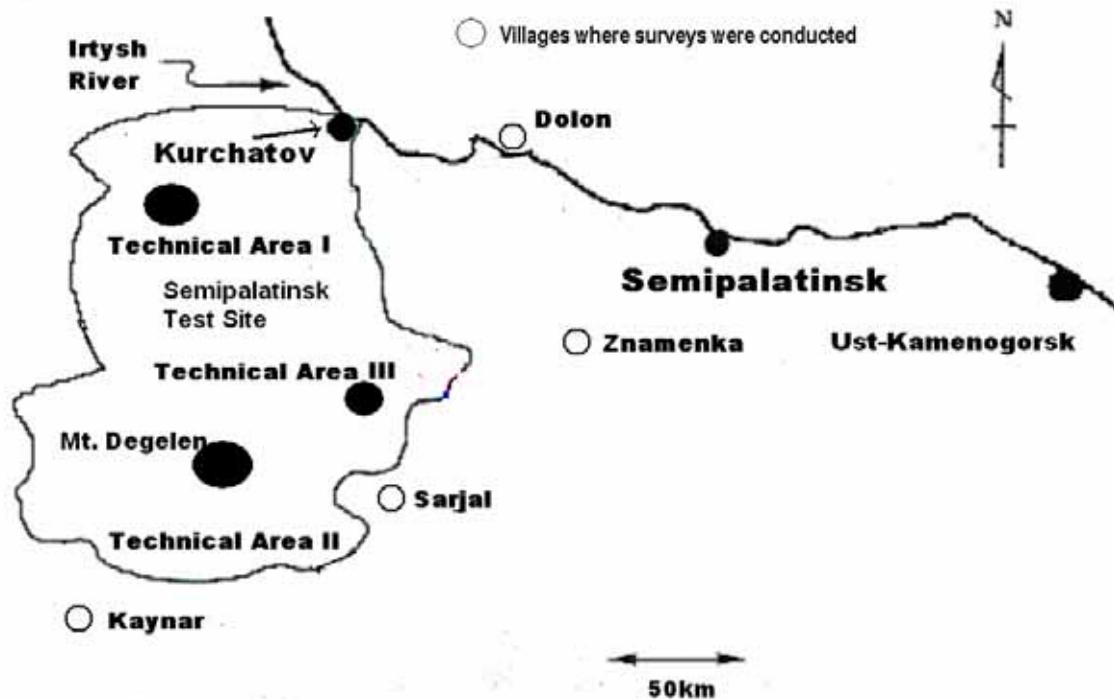
## **1 History and Function of Kurchatov City**

As we pointed out above, the Semipalatinsk nuclear test site was the most important nuclear test site in the former Soviet Union, and the city of Kurchatov was newly built for the specific purpose.

The history of nuclear tests at the Semipalatinsk test site began on August 29, 1949, when the Soviet Union set off a first nuclear explosion. However, a set of scientific and practical tasks was to be accomplished prior to the test. Selection of the nuclear test site (often referred to as the “proving ground” in the Soviet parlance) was one of the primary tasks. An area in the Kazakh steppe about 140 km west to Semipalatinsk was selected to be the nuclear test site. The area designated for transformation into a testing ground was a plain approximately 20 km in diameter. The selected spot was a sparsely populated plain located on the left bank of the Irtysh River and far from major industrial and administrative centers. (See Map 1). It was decided to expropriate the land and to relocate the area inhabitants for the purpose of state secret security and maximum population protection from the probable nuclear effect (Takibaev

2005).

**Map 1 Kurchatov and Semipalatinsk**



In 1947, construction of the nuclear test site commenced on the site (Boztaev 1998). On August 21, 1947, construction works towards the development of Kurchatov city began. In the autumn of 1947 research facilities started to arrive in the site to carry out a survey of nuclear explosion effect. All works on nuclear test preparation were carried out under top secrecy.

As a result, a small cozy town, which was not indicated on any maps of the world, emerged and started growing on the bank of the Irtysh River. The town was equipped with fountains, parks, playgrounds, schools, kindergartens, and streets lined with trees. This headquarters of SNTS was called by the code name as was the custom with the Soviet nuclear facilities. It was first called “Moscow 400” and in mid 1970s renamed “Semipalatinsk 21.” It is said, however, that the town dwellers called it “Nadezhda” (“Hope”). Now the city is renamed after Igor Kurchatov, the prime mover of the early Soviet nuclear development program, and usually referred as “Konechnaia” (“End Station”) or “Bereg” (“[River] Bank”) by local people.

At its height, its population was roughly 30.000, consisting of scientists,

engineers and their families. Distinguished scientists spent many years there to develop first atomic and then hydrogen bombs. Igor Kurchatov and Andrei Sakharov were among them. The first atomic bomb test was conducted in 1949, and the first hydrogen bomb test in 1953.

After the demise of the Soviet Union and the formal closure of the Semipalatinsk test site in 1991, the city was opened and turned to a research center of the independent Kazakhstan. For example, the National Nuclear Center of Kazakhstan was established in the city. It's population has been decreased to roughly 10,000 for an obvious reasons (Bektorov 2006: 37).

It seems natural that residents of Kurchatov had received heavy dose of radiation during the test period. According to various sources, the amount of the radiation dose received by the Kurchatov residents varies in the range of 2.0- 5.8 cSv. And it is reported that the current radioactive contamination level of the testing site's outside areas (perhaps including Kurchatov) is virtually the same as the global background level and does not hold any health risks for the population.(Bektorov 2006: 32-33)

These figures can be compared with those of the villages measured by various research groups. The following table, table 2, shows the estimated radiation doses in Sv in five villages (see Map 1).

**Table 2. The Estimated Radiation Dose of the Five Villages**  
source: Matsuo et al (2006)

Village	Estimated Radiation Dose (Sv)	
	Gordeev et al.(2002)	Rosenson et al.(1995)
Sarjal	1.51	2.46
Dolon	1.30	4.47
Kara-Aul	0.83	0.87
Kaynar	0.12	0.68
Znamenka	No Data	0.62

Among them, Sarjal and Dolon are usually considered highly exposed villages, while the other three villages lightly exposed. Note here that the radiation dose of 1.5 Sv is equivalent to the dose at 1.25km from the hypocenter in the case of Hiroshima. If we take the maximum estimate, the dose in Kurchatov is roughly 6 cSv, that is, 0.06 Sv.

This amount is much smaller than those in lightly exposed villages like Kaynar and Znamenka, though the small amount (even if it is accurate) does not guarantee the safety of the Kurchatov inhabitants.

## **2 Data and Data Collection**

The Semipalatinsk survey was conducted in villages indicated in the map 1 and in other villages since 2002, and it is still continued. The questionnaire survey contains an open-ended question which asks respondents to:

[Please] write about anything concerning the nuclear tests that cannot be forgotten, that still haunts you, that you regret, or any opinions about nuclear testing in detail in the space provided below. You may write about your experiences, or that of your family or your close neighbours. Also, if there is anything you wish to add or comment on the previous questions, please write them down here. (The original text is in Russian) (Kawano et al 2006: 14)

By the summer of 2004, we collected 468 responses for this question (Kawano et al 2006: 9). We call them testimonies. The numbers of male and female respondents are roughly the same, and their mean age is around 65 years old.

In contrast, the number of samples of the Kurchatov survey is very small, consisting of 36 responses. As we mentioned earlier, Bektorov conducted 36 interviews in Kurchatov in March and August 2005 (Bektorov 2006: 40). The characteristics, or the profiles, of the interviewees can be summarized in the following way. The average age is 37.4 years. But there are also people in their twenties. They have lived in Kurchatov for the average of about 13 years. It means that the majority of the respondents came to live in Kurchatov after the close of the nuclear test site in 1991. In fact, only one third (13 respondents) had lived in the city before the close. They are evenly split between the two sexes, though male respondents generally gave shorter answers than females. As table 3 shows, their occupations can also be divided into two main groups – namely medical staff and civil servants. It is because the survey was possible only where we had some personal connection.

**Table 3 Occupations of the Respondents**

	doctor	nurse	engineer	civil servant	others
female	6	6	5		1
male				13	5
Total	6	6	5	13	6

The survey asks the respondents the following six questions: All the responses to the questions are given in the appendix of Bektorov 2006, and the responses to questions 1, 2 and 6 are given at the end of this paper as an appendix..

- 1 What is your age, sex, and occupation?
- 2 How long have you been living in Kurchatov?
- 3 What have you been doing for a certain period of time?
- 4 What is the purpose of your arrival to Kurchatov?
- 5 Tell, please, about your daily routine, family, leisure, travelling.
- 6 What do you think about nuclear weapons and nuclear tests at present and in the past?

Of these, we will here limit our attention to responses to the last question. To be sure, the Kurchatov survey is only a preliminary and very limited one, but the comparison of the two surveys shows several interesting similarities and differences.

The survey does not probably fully represent the attitudes of the population of the city, as the number of the samples is too small and the occupational bias of the respondents is evident. But it still can give us a glimpse of what people who live in the area of nuclear test site think about nuclear weapons and nuclear tests.

### **3 Comparison and Findings**

Among the responses to the sixth question of the Kurchatov survey, we can observe four major themes, that is,

- reference to the bad health effects of nuclear tests
- opposition to nuclear tests
- opposition to (the possession of) nuclear weapons
- acceptance of the peaceful use of nuclear energy

The following table, table 4, shows the number of responses expressing these themes.



**Table 4 Attitudes to the Four Major Themes**  
(The figures show the number of the responses.)

	bad effect on health	oppose nuclear tests	oppose nuclear weapons	favor peaceful use of nuclear energy
female	14	10	4	3
male	6	3	8	1
Total	20	13	12	4

In what follows, we will divide the four themes into two groups, that is, health issues and nuclear issues, and examine attitude toward them separately.

### 3.1 Health Issues

As regards the concerns of the local population, people are mostly fearful of the damage to health from nuclear tests. They express their concerns not only about their personal health but also about the high incidence of cancer and short life-spans of their relatives, as the following testimonies attest.

All the nuclear tests have great influence upon our and children's *health* and (1)

... lived in Beskaragai region of maximum radiation. At present I am having a lot of serious *diseases*. I think they are the consequences of nuclear tests. (6) (Note: Beskaragai is a district near Kurchatov, and includes the Dolon village.)

... I consider the nuclear tests were the cause of the *death* of my parents and close relatives. (7)

I consider nuclear weapon is harmful for *health*. (22)

Note:

- (1) All the Kurchatov testimonies were originally in Russian. They were translated into English by Bektorov.
- (2) The figure in parentheses indicates the reference number to the respondent.
- (3) Emphases are all authors'.

Most of the Kurchatov respondents have no direct experiences of nuclear tests. Only one remembers the sight of flash and mushroom, and the shock wave (testimony 8). And very few of them seem to have suffered personally from radiation exposure effect. As more than half of the responses mention some concern about health, however, this concern about the health effects of the nuclear tests seems to constitute the core of the attitudes of the Kurchatov inhabitants.

They share this concern with those affected by radiation near Semipalatinsk. As is exemplified by the testimonies of villagers affected by radiation near Semipalatinsk in the Semipalatinsk survey (Kawano et al 2004: 5-8), this concern (including concerns for the health of future generation) “constitutes the core of the Semipalatinsk memory of the experiences of the nuclear tests” (Kawano et al 2004: 33 and Matsuo et al 2004: 83-84). What follow are some the testimonies cited in Matsuo et al (2004: 85 - 86).

... All of my diseases are related to the radiation. My sister is mentally *ill*, she lags behind her peers, and my two grandchildren have skin diseases. This all is a result of nuclear tests. ...Sarjal F 1940

... I worked as a cook of the haymaking parties. Contaminated air, water and food have certainly affected our *health*. My eyesight is poor. My parents died from heart diseases, I am also a hypertensive. ... Sarjal F 1939

... I think the consequences of the nuclear tests remain for the rest of our lives. Children are born disable or *ill*. Our children are grown-up, educated. They have graduated from college, but they are afraid to have a family. ... Dolon M 1948

(Note: Emphasis in the original citation. 1940 etc stands for the year of birth)

Besides being harmful to the health, the nuclear tests are perceived to have serious negative influence upon the Kazakh ecosystem. 6 interviewees show this concern, though their expressions are rather abstract as in “it led to the dysbalance in ecosystem”(testimony 18). And this is understandable because, with the deterioration of the environment, the quality of food, especially milk from livestock, also gets worse as the following testimony shows.

Changed *ecology* influences upon stock raising and agriculture. It leads to *poor quality of meat and milk products* etc. (11)

The concern about the environmental effects of the nuclear tests is also shared by those exposed to radiation near Semipalatinsk (Matsuo et al 2004: 89).

### 3.2 Nuclear Issues

Another issue important to the Kurchatov residents is the nuclear weapons and nuclear tests. Many respondents indicated that nuclear weapons are unnecessary or pose a threat to the world. We find clear expressions like;

Nuclear weapon is a *bad* thing. (20)  
 To my mind, nuclear weapon is *threat* (21)  
 I am *against* using nuclear weapon. It's not a joke.(33)  
 I am *against* testing nuclear weapon.(35)

The next table, table 5, summarizes attitudes of the respondents toward nuclear tests and nuclear weapons.

**Table 5 Summary of the Attitudes toward Nuclear Tests and Nuclear Weapons**

		breakdown	
negative	31	both	5
		weapons only	7
		tests only	7
		implicit <sup>(a)</sup>	12
		subtotal	31
positive	5	weapons <sup>(b)</sup>	4
		tests	1
		subtotal	5
total	36		

Notes:

- (a) Responses which mention negative health effects of nuclear tests without explicitly showing their attitudes towards nuclear tests or nuclear weapons are regarded as implicitly opposed to them.
- (b) One response which is opposed to nuclear tests but favors nuclear weapons is included here. But the response is not included in any of “negative” category above.

It is clear from the citations and the two tables above that the majority of respondents are against nuclear tests and nuclear weapons. This negative attitude toward nuclear weapons and nuclear tests (including wish for the prohibition of the nuclear tests and the abolition of the nuclear weapons) is shared by the majority of those (usually adversely) influenced by the nuclear tests in SNTS (Kawano et al 2004: 37-38).

Here, however, we may note that, to many of the respondents, nuclear tests (the use or existence of) nuclear weapons do not seem to be clearly distinguished. In most of cases, they seem to be interchangeable. It may be because what they have experienced directly or indirectly were test explosions of nuclear weapons.

The table below, table 6, shows the distribution of the mention of nuclear tests and nuclear weapons in the responses. It is clear that most of the respondents mention only one of them. To be sure, it can be interpreted as indicating the distinction made by

the respondents between nuclear tests and nuclear weapons. But, in our case, it should be viewed as a case where one category represents, as a kind of “mutual” metonymy, the other.

**Table 6 Mention of Nuclear Tests and/or Nuclear Weapons**

mentions both tests and weapons	6
mentions tests only	20
mentions weapons only	10
mentions neither	0
<b>total</b>	36

As we saw just above, the majority patterns of the Kurchatov responses are roughly the same as those of the Semipalatinsk survey. There is, however, a striking characteristic of the Kurchatov responses. Five respondents gave strikingly different answers, namely, that nuclear weapons are good.

I *support* the idea of having nuclear weapon. (23)

I *like* the idea of having nuclear weapon. (28)

I think nuclear weapon and nuclear tests *had their part* in our history, and at present the government should use it for peaceful aims.(36)

One respondent is opposed to nuclear tests, but support nuclear weapons.

I think nuclear weapon is *good*, on the one hand, but It will be *better not to be tested*, on the other hand.(19)

Probably, only tests are to be banned once weapons are acquired in this case.

In addition, there are those who favor the peaceful use of nuclear energy, usually with some reservations.

The Government made up the right decision to prohibit the nuclear test. At present I consider the development of atomic engineering to be promising and perspective for *peaceful aims*. (4)

The science must develop every time. We need a strict control at the working-outs of nuclear weapons, we should use atom for *peace reasons*. (17)

I think nuclear weapon is good for *peaceful aims*. (27)

This pro-nuclear attitude (whether for military or peaceful uses) is one of the peculiarities of the Kurchatov respondents. Though it is rather a minority opinion, such an attitude is in stark contrast with the results of the Semipalatinsk survey. At present, it is not clear whether the pro-nuclear minority attitude in Kurchatov is due to the nature of the city we have described and/or the city residents, or due to other factors (for example, post-nuclear test generation differences, occupational characteristics of the respondents.)

## **Conclusion**

The town of Kurchatov was once a forbidden military zone, not appearing on maps and frequently changing its name. It was a secret city newly built on the edge of the Semipalatinsk nuclear test site for the specific purpose of functioning as the headquarters of the nuclear tests. We conducted a small preliminary survey in the city concerning the residents' attitudes toward nuclear tests and nuclear weapons. In the present paper, we attempted, as a pilot study, first, to clarify how the current Kurchatov residents think and feel about nuclear weapons and nuclear tests, and secondly, to compare the results of the survey with those of the similar survey near Semipalatinsk.

We showed that the negative attitudes toward nuclear weapons and nuclear tests of those exposed to radiation near Semipalatinsk which characterize the Semipalatinsk survey are shared by the majority of the respondents of Kurchatov, as well as the concerns about the adverse health effects of nuclear tests.

Nevertheless, we also found that, though the majority opinion share the attitudes with other Semipalatinsk people, there are a striking pro-nuclear minority in Kurchatov. Since our survey is too limited and biased, we cannot decide whether this pro-nuclear attitude is really peculiar to Kurchatov or whether it is due to other factors such as differences in generation, occupation, experience of radiation effects of tests and so on. It does suggest, however, a possibility of the existence of such a minority even in the regions severely affected by radiation caused by nuclear explosions. Thus, it is our next task to conduct much larger and representative survey, and to explore the attitudes of Kurchatov people toward nuclear issues.

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## Notes

- 1 Semipalatinsk is the Russian name of the city and the region. It is now called Semey in the Kazakh language. In this paper, however, we will use the more popular and conventional name of Semipalatinsk.
- 2 The vastness of the affected and suffering people was partially due to the fact that, before the conclusion of the Partial Test Ban Treaty in 1963, the tests were “surface” ones, that is, conducted on the ground or in the air, as the following table shows.

### Nuclear Tests at the Semipalatinsk Test Site, Kazakhstan

Source: Grosche 2002; 53

	number
ground	<b>25</b>
air	<b>86</b>
underground	<b>345</b>
Total	<b>456</b>

Notes: The first test was on the 29th of August, 1949 (ground).  
After 1963, no ground or air tests were conducted.

Even the promoters of the tests wrote in later years that “it would have been better if those tests had never been conducted at all!” as far as surface tests are concerned. It is because “[the] fiery cloud rose upward, carrying the lethal danger far away from the ground and then dispersing the fallout over a vast area” (Mikhailov 1996).

- 3 As we see below, only one respondent refers to the direct experience of nuclear tests, and just a few mention their own diseases presumably caused by radiation.

## References

Arystanbekova, H.E. Ms. Akmaral Kh. (Kazakh Ambassador to the United Nations) (1998), Speech made at United Nations, 19 October 1998.  
[http://www.un.int/kazakhstan/sa\\_10198.htm](http://www.un.int/kazakhstan/sa_10198.htm) (accessed September 2003)

- Bektorov, Yerzhan (2006), *The Rise and Fall of a Secret City: Kurchatov City as the Product of the Soviet Nuclear Program*, Master thesis, Graduate School of International Development and Cooperation, Hiroshima University
- Boztaev, K.B. (1998), *29-ye Augusta. (August 29, . Almaty: Atamura. 1998 (in Russian)*
- Gordeev, K.I., Vasilenko, I., Lebedev ,A., Bouville, A., Luckyanov, N., Simon, S.L., Stepanov, Y., Shinkarev, S., Anspaugh, L. (2002), "Fallout from nuclear tests: dosimetry in Kazakhstan," *Radiat. Environ. Biophys* 41, 61-67.
- Grosche, B. (2002), "Semipalatinsk Test Site: Introduction," *Radiat Environ Biophys*, 41, 53 - 55
- Kawano, Noriyuki et al (eds.) (2004), *Report on the Actual Conditions of the Radiation Exposed Residents near the Former Semipalatinsk Nuclear Test Site*, Hiroshima: Research Institute for Radiation Biology and Medicine, Hiroshima University and Hiroshima Peace Science Consortium, Hiroshima University
- Kawano, Noriyuki (2006), *An Attempt at the Reconstruction of Nuclear Radiation Effects in Semipalatinsk, Kazakhstan: An Analysis of Questionnaire Surveys*, IPSHU Research Report 36 (Institute for Peace Science, Hiroshima University) (in Japanese)
- Kawano, Noriyuki et al (eds.) (2006), *Collection of Testimonies of Those Affected by Radiation in Semipalatinsk,. Kazakhstan*, Hiroshima: Hiroshima Peace Science Consortium, Hiroshima University and Research Institute for Radiation Biology and Medicine, Hiroshima University (in Japanese and English, and original Russian and Kazakh translations of testimonies are given together with Japanese and English translations)
- Mikhailov, Viktor Nikitovich (1996), *I Am a Hawk: Memoirs of Atomic Energy Minister Mikhaylov*, Edinburgh: Pentland Press
- Rosenson, R.I., Tchajjunusova, N.J., Gusev, B.I., Katoh, O., Kimura, A., Hoshi, M., Kamada, N., Satow, Y. (1995), "Late effects of exposure to ionizing radiation; studies of the resident population in the Semipalatinsk area," *Proc. Hiroshima Univ. RINMB* 36: 177-253.
- The Ministry for Atomic Energy and the Ministry of Defense of the Russian Federation (eds.) (1996), *USSR Nuclear Weapons Tests and Peaceful Nuclear Explosions 1949 through 1990*, Russian Federal Nuclear Center- VNIIEF
- Takibaev, Zh.S. (2005), *Semipalatinsk Nuclear Test Site. Radiation Legacy and Problem of Nonproliferation*. Kurchatov, Kazakhstan (in Russian)

## Appendix Results of the Kurchatov Survey

The survey was conducted in March and August 2005 at the Municipal Hospital in the city of Kurchatov. The questions asked were as follows.

- 1 What is your age, sex, and occupation?
- 2 How long have you been living in Kurchatov?
- 3 What have you been doing for a certain period of time?
- 4 What is the purpose of your arrival to Kurchatov?
- 5 Tell, please, about your daily routine, family, leisure, travelling.
- 6 What do you think about nuclear weapons and nuclear tests at present and in the past?

Of these questions, only responses to the questions 1, 2, and 6 are given below. All the responses were originally in Russian. Responses to the question 1 is given in the order of age, sex, occupation.

### No. 1

1. 37 years, female, electric maintenance man
2. Since 1977
6. All the nuclear tests have great influence upon our and children's health and I'm glad that nuclear range isn't used in this way.

### No. 2

1. 47 years, female, engine-driver
2. Since 1990, for 15 years
6. It's too bad. My parents were ill with cancer. They died because of it. We are having this disease. And our children are sick, too. At present nuclear tests are prohibited and we must never do it again

### No. 3

1. 47 years, female, hospital nurse
2. Since 1992
6. This is a very dangerous region for people's health. I'm thankful for prohibition of nuclear test and I wish all such places were closed.

### No. 4

1. 47 years, female, chemist-engineer
2. Since 1980, 25 years already
6. The Government made up the right decision to prohibit the nuclear test. At present I consider the development of atomic engineering to be promising and perspective for peaceful aims.

### No. 5

1. 48 years, female, laboratory assistant of drinking water
2. Since 1972
6. It goes without saying, we are all mothers and people. I hope everybody thinks about peace in the world without any nuclear explosion and weapons. I wish people and children laugh always and believe in good things. Our government must protect his citizens form terrorism and war. I'll say "No!" to the nuclear weapons



**No. 6**

1. 53 years, female, hospital nurse
2. Since 1977
6. I've never thought of it. Let our government think of it, though I was born in Semipalatinsk, and lived in Beskaragai region of maximum radiation. At present I am having a lot of serious diseases. I think they are the consequences of nuclear tests.

**No. 7**

1. 50 years, female, hospital nurse
2. Since 1983
6. I have a negative attitude to it. I consider the nuclear tests were the cause of the death of my parents and close relatives.

**No. 8**

1. 55 years, female, pensioner
2. Since 1977
6. I was a witness of the nuclear tests in my childhood. Since that time I remember a bright flash, We all were lying in the steep bank and saw the rising big fungus. There was a clash, after the shock wave, the ground was getting away under my feet. I consider the nuclear tests to be very harmful for population health. My father died because of cancer of lungs, My mother died from heart attack. And I am suffering from different diseases: sterility of the 1st degree, diffusion-nodal goitre, arthritis, high blood-pressure.

**No. 9**

1. 30 years, female, neuro-pathologist
2. Since March 2001.
6. I find the nuclear tests to be very harmful for health of our population. Nowadays oncological diseases are increasing.

**No. 10**

1. 57 years, female, endocrinologist and dermatologist
2. Since 1988
6. The nuclear tests had great influence upon people's health and our generation. I think the influence of radiation on human beings and ecology isn't investigated in our country. Even if it takes place, we don't know. Being an endocrinologist, I am sure to say the increasing of endocrinological pathology, diabetes, and diseases of thyroid gland are connected with radiation

**No. 11**

1. 40 years, female, juvenile doctor
2. Since 1994
6. Nuclear weapons and nuclear tests are harmful for ecology and our health. They cause the increasing of oncological diseases. There are 80-90% of children suffering from anemia, 20-40% suffering from malignant blood disease in our region. There are cases of innate anomaly and deformity among children born from healthy parents. Changed ecology influences upon stock raising and agriculture. It leads to poor quality of meat and milk products etc.

**No. 12**

1. 29 years, female, physician
2. Since 1999
6. I think the consequences of nuclear tests influence on people's health living in this region.

**No. 13**

1. 47 years, female, district pediatrician
2. Since 1981
6. I consider nuclear weapons shouldn't be used in the world. The production of such weapons must be prohibited. On account of nuclear tests the surrounding atmosphere is affected heavily, and the number of cancer diseases is increasing.

**No. 14**

1. 38 years, female, senior hospital nurse
2. Since 1994
6. We all have seen the consequences of nuclear tests till nowadays. The number of cancer diseases, heart attacks, gastric diseases, lung cancer among adults and children!!

**No. 15**

1. 37 years, female, pediatrician
2. Since 2001
6. I consider the consequences of nuclear test are very negative ones, they'll influence our environment and health of our generation further on.

**No. 16**

1. 27 years, female, top-specialist
2. Since 2003
6. I find nuclear testing to be very harmful for people's health. I'm very glad it to be closed.

**No. 17**

1. 38 years, female, nurse
2. Since 1994
6. The science must develop every time. We need a strict control at the working-outs of nuclear weapons, we should use atom for peace reasons.

**No. 18**

1. 21, male, civil servant
2. I've been living in Kurchatov for 21 years.
6. At present nuclear weapon is not put to the test. At that time it was tested to modernize our army. As the result of such actions it led to the dysbalance in ecosystem.

**No. 19**

1. 21, male
2. I've been living in Kurchatov for 14 months.
6. I think nuclear weapon is good, on the one hand, but it will be better not to be tested, on the other hand.

**No. 20**

1. 26, male
2. I've been living here for 5 years.
6. Nuclear weapon is a bad thing.

**No. 21**

1. 30, male
2. I've been living here for 2 years.
6. To my mind, nuclear weapon is threat.

**No. 22**

1. 32, male, civil servant
2. I've been living for 10 years.
6. I consider nuclear weapon is harmful for health.

**No. 23**

1. 24, male, civil servant
2. I've been living for 2 months.
6. I support the idea of having nuclear weapon.

**No. 24**

1. 32, male, civil servant
2. I've been living in Kurchatov for 3 years.
6. I think nuclear weapon is an unnecessary thing.

**No. 25**

1. 29, male, civil servant
2. I've been living here for 6 years.
6. To my mind nuclear weapon is not necessary.

**No. 26**

1. 38, male, civil servant
2. I've been living in Kurchatov for 9 years.
6. I think nuclear weapon is not necessary.

**No. 27**

1. 30, male, civil servant
2. I've been living for 10 years.
6. I think nuclear weapon is good for peaceful aims.

**No. 28**

1. 28, male, civil servant
2. I've been living for 28 years.
6. I like the idea of having nuclear weapon.

**No. 29**

1. 23, male, civil servant
2. I've been living for 5 months.
6. At that time nuclear weapon was a powerful and threatening weapon. A lot of people suffered because of nuclear tests. Now the government has stopped testing nuclear weapon, but at any moment it is ready to use nuclear weapon.

**No. 30**

1. 37, male, civil servant
2. I've been living in Kurchatov for 4 years.
6. To my mind, nuclear weapon is threat for the whole world.

**No. 31**

1. 27, male, civil servant
2. I've been living for 2 years.
6. Nuclear tests are harmful for people.

**No. 32**

1. 39, male, worker
2. I've been living in Kurchatov since 1999.
6. I consider nuclear tests to be harmful for health.

**No. 33**

1. 24, male, civil servant
2. I've been living here for 7 years.
6. I am against of using nuclear weapon. It's not a joke.

**No. 34**

1. 34, male, civil servant
2. I've been living for 2 years.
6. At present nuclear weapons are not tested. Long ago it was put to the testing and it led to the dysbalance of ecosystem.

**No. 35**

1. 55, male, manager
2. I've been living here since 1974.
6. I am against of testing nuclear weapon. Nowadays Kazakhstan doesn't have the State Managing Office of Nuclear Weapon.

**No. 36**

1. 51, female, nurse
2. I've been living here since November of 1974.
6. I think nuclear weapon and nuclear tests had their part in our history, and at present the government should use it for peaceful aims.