

1. Jantai	4.2	8.0	12.2
2. Menovnoye	3.5	7.5	11.0
3. Mitrofanovka	7.3	12.0	19.3
4. Stepnoye	4.3	7.7	12.0
5. Uzunbulak	3.1	6.0	9.1
<u>Tarbagataisky district</u>			
1. Akjar	3.4	13.0	16.4
2. Bakai	3.5	12.0	15.5
3. Sholakarda	5.2	19.0	24.2
4. Sharga	3.9	14.0	17.9
5. Sariolen	3.4	13.0	16.4
6. Kizilkaiin	3.6	13.0	16.6

It is well known at present that the main aim of the Semipalatinsk nuclear test site staff was to investigate the early and late effects of radiation exposure in human beings, as radiation is believed to be one of the principal "defeat factors" in any "potential future nuclear war".

There are 3 different possibilities of radiation exposure of the resident population of the Semipalatinsk area due to the nuclear tests :

1. Acute external gamma-ray exposure from radioactive clouds coming over the populated areas. Such a "model" was rare. This type of exposure took place only in some populated areas where luckily there was no radioactive fallout.
2. Acute external gamma-ray exposure from radioactive clouds coming over the populated areas combined with fallout and subsequent chronic radiation exposure (internal type) from intake of radionuclides with food, water and inhaled air. This "model" was most often true for atmospheric nuclear explosions.
3. Chronic internal irradiation due to intake of radionuclides with food and water. This model of irradiation was usual for those residents who entered the exposed populated areas after a period of atmospheric nuclear explosions (after 1963).

After 1963, 2 additional atmospheric explosions, actually were made, despite of official declaration of prohibition of atmospheric testing. In January 1965, a so-called "underground" nuclear explosion with soil excavation was made near the confluence of 2 rivers, the Ashisu and the Chagan. The aim of this explosion was to make a crater and embankment for an artificial lake, a so called "experimental artificial reservoir". After this explosion a powerful radioactive cloud formed. Its altitude was low. Because of this cloud, vast territories of the Jana-Semeisky and Beskaragaisky districts were exposed to additional radiation. The doses on the surfaces of the ground in the populated areas of Znamenka, Isa, Sarapan, Terestambali, and Delbegetei were as high as 20-30 Roentgen. The dose equivalent of the population due to this explosion was from 10 to 20 rem (cSv). Documents remaining revealed that thousands of domestic animals (horses, sheep, cattle) were exposed to excessive doses, epilated and died of acute radiation sickness after this explosion. Cattle, horses and sheep were kept at places 1.5 - 2 kilometers from the hypocentre deliberately - in order to study the acute effects of radiation exposure.

A huge radioactive cloud also formed due to an accident that occurred at the time of the underground nuclear explosion in May, 1974. The doses of radiation the population of some areas were exposed to after this explosion were 5 to 10 cSv, and the doses received in the open were more than 10 - 15 Roentgen.

Together, these data allow us distinguish 4 different zones of radiation exposure (so-called "radiation risk zones"). A description of these zones is given below:

1. The zone of extreme radiation risk comprising 15 populated areas, where radiation doses in the open were more than 200 Roentgen and the dose equivalent was more than 100 cSv (502.4 cSv in Karakorik village, 447.4 cSv in Dolon village, 246.3 cSv in Sarjal, 242.2 cSv in Korosteli, 240.7 cSv in Solprom, 225.2 cSv in Tcheremushki and Mostik, 191.3 cSv in Jana-Kush, 179.0 cSv in Kanonerka, 162.7 cSv in Aktogai, 160.0 cSv in Isa, 150.0 cSv in