

PUE “INSTITUTE OF RADIATION SAFETY “BELRAD”

APPROVED

Director of PUE “Institute of Radiation
Safety “Belrad”

_____ A.V. Nesterenko

“ ____ ” _____ 20__

SHORT REPORT

**UNDER THE CONTRACT No. 36 (ATLAS-2) DATED TO JUNE 25, 2008
(STAGES 7 AND 8)**

Deputy director
for international cooperation

_____ V.I. Babenko

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MINSK

2010

According to the Contract No. 36 dated to June 25, 2008 following actions given in the table 1 were performed in framework of the stages 7 and 8.

Table 1 – Data on the number of measurements and the quantity of the preparation VITAPECT given in framework of the stages 7 and 8 to the Contract No. 36.

Settlement	Date	Number of measurements			Quantity of VITAPECT		Note
		expected	all	expected	all	expected	
Buynovichi secondary school and kindergarten of Lelchitsy district of Gomel region	27.01.2010	174	137	117	348	-	
	16.02.2010	-	-	-	-	348	
	18.03.2010	174	138	125	-	-	
	19.05.2010	-	169	153	-	-	Control measurement
Lelchitsy secondary school No.1 of Gomel region	09-11.02.2010	580	576	526	1160	-	
	16.02.2010	-	-	-	-	1160	
	10-11.03.2010	580	588	548	-	-	
Lelchitsy kindergarten No.3 of Gomel region	17.02.2010	-	81	56	-	-	
	13.05.2010	-	74	60	-	-	
Lelchitsy kindergarten No.4 of Gomel region	11.02.2010	72	109	88	144	-	
	16.02.2010	-	-	-	-	144	
	11.03.2010	72	115	111	-	-	
Lelchitsy kindergarten No.5 of Gomel region	17.02.2010	54	89	70	108	108	
	11.03.2010	54	80	79	-	-	
TOTAL:		1760	2156	1933	1760	1760	

Hereafter there is a statistical data processing.

BUYNOVICHI

Characteristics	Value	Source
¹³⁷ Cs contamination density of the territory	1.66 Ci/km ²	Dose catalogue of the Ministry for Public Health Services of the Republic of Belarus, 2004
Number of inhabitants	908 persons	Buynovichi village council, dated to 01.01.2010
External dose	0.20 mSv/a	Dose catalogue of the Ministry for Public Health Services of the Republic of Belarus, 2004
Internal dose	0.50 mSv/a	-----«-----
Cumulative dose	0.70 mSv/a	-----«-----

According to the data dated to May 2010 in the Buynovichi secondary school there are 144 children, 29 teachers and 22 persons of another staff.

Children from following settlements go to the Buynovichi secondary school and kindergarten: Buynovichi, Buda-Sofiyevka, Chapayevsky, Sinitzkoye Polye, Krasnoberezhye, Pervomaysk, Krupka.

January 27, 2010

The first measurement of children in the Buynovivhi secondary school and kindergarten of Lelchitsy district of Gomel region was performed in the school building. A total of measured persons was 137 persons (117 children and 20 adults).

Average ^{137}Cs specific activity in the whole group (n = 117): $(36.9 \pm 2.5) \text{ Bq/kg}$.

Average specific activity in the critical group (n = 15): $(93.0 \pm 10.6) \text{ Bq/kg}$.

Median value in the whole group: 29.8 Bq/kg.

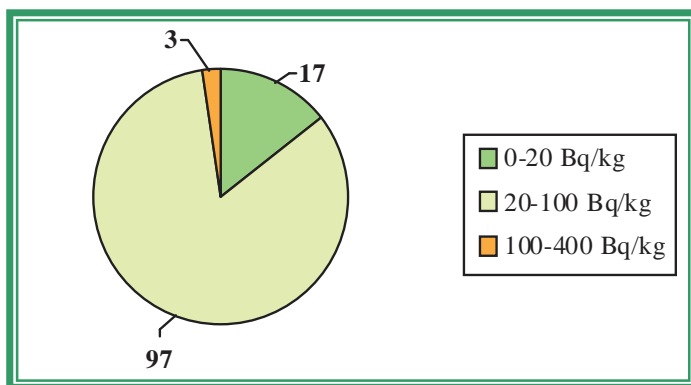
Median value in the critical group: 76.7 Bq/kg.

The table 2 demonstrates the maximal levels of ^{137}Cs specific activity (the critical group) according to the results of measurements dated to January 27, 2010.

Table 2

No.	Surname Name Patronymic	Occupation	Sex	Weight, kg	Year of birth	Sp. activity, Bq/kg
1.	B.A.O.	SCHOOLBOY	M	55	1994	225.8
2.	B.A.O.	SCHOOLBOY	M	42	1997	130.2
3.	V.M.A.	SCHOOLGIRL	F	47	1995	114.9
4.	N.A.A.	SCHOOLBOY	M	43	1998	91.4
5.	V.N.A.	SCHOOLGIRL	F	21	1999	86.7
6.	Ch.A.V.	SCHOOLBOY	M	63	1996	86.6
7.	L.V.S.	SCHOOLBOY	M	57	1995	86.6
8.	B.I.G.	SCHOOLGIRL	F	50	1996	76.7
9.	P.D.N.	SCHOOLBOY	M	53	1994	76.0
10.	B.O.Yu.	SCHOOLGIRL	F	26	2001	75.9
11.	S.O.N.	SCHOOLGIRL	F	66	1993	74.6
12.	K.M.A.	SCHOOLBOY	M	35	1996	71.3
13.	K.S.G.	SCHOOLGIRL	F	50	1993	66.8
14.	V.A.L.	SCHOOLGIRL	F	35	1999	65.9
15.	M.P.A.	SCHOOLBOY	M	33	1999	65.1

The figure 1 contains the diagram of the interval ^{137}Cs specific activity distribution in pupils in the Buynovivhi secondary school and kindergarten of Lelchitsy district of Gomel region in accordance with the results of measurements dated to January 27, 2010.



←Figure 1 – Diagram of the interval ^{137}Cs specific activity distribution in pupils in the Buynovivhi secondary school and kindergarten of Lelchitsy district of Gomel region in accordance with the results of measurements dated to January 27, 2010

On February 16, 2010 348 packings of the pectin preparation VITAPECT were given for children.

March 18, 2010

The second measurement of children in the Buynovivhi secondary school and kindergarten of Lelchitsy district of Gomel region was performed in the school building. A total of measured persons was 138 persons (125 children and 13 adults).

Average ^{137}Cs specific activity in the whole group (n = 125): (23.9 ± 1.1) Bq/kg.

Average ^{137}Cs specific activity in the critical group (n = 15): (48.0 ± 4.6) Bq/kg.

Median value in the whole group: 22.3 Bq/kg.

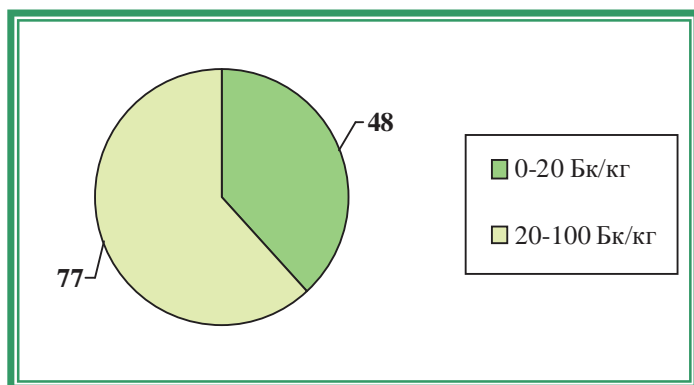
Median value in the critical group: 39.4 Bq/kg.

The table 3 demonstrates the maximal levels of ^{137}Cs specific activity (the critical group) according to the results of measurements dated to March 18, 2010.

Table 3

No.	Surname Name Patronymic	Occupation	Sex	Weight, kg	Year of birth	Sp. activity, Bq/kg
1.	B.Yu.A.	SCHOOLBOY	M	59	1993	91.2
2.	B.A.O.	SCHOOLBOY	M	60	1994	79.1
3.	Ch.A.V.	SCHOOLBOY	M	63	1996	70.5
4.	M.K.A.	CHILD PRESCHOOL AGE	F	15	2007	50.1
5.	P.A.S.	CHILD PRESCHOOL AGE	F	13	2006	49.5
6.	P.D.N.	SCHOOLBOY	M	54	1994	43.9
7.	M.M.D.	CHILD PRESCHOOL AGE	F	17	2006	42.7
8.	L.R.S.	CHILD PRESCHOOL AGE	M	20	2005	39.4
9.	M.A.M.	CHILD PRESCHOOL AGE	F	16	2005	38.6
10.	V.E.M.	CHILD PRESCHOOL AGE	M	19	2004	37.0
11.	P.D.S.	CHILD PRESCHOOL AGE	M	20	2004	37.0
12.	P.K.M.	CHILD PRESCHOOL AGE	F	33	1999	36.1
13.	Sh.V.S.	SCHOOLBOY	M	54	1999	35.0
14.	V.M.A.	CHILD PRESCHOOL AGE	F	50	1995	34.7
15.	M.V.V.	CHILD PRESCHOOL AGE	M	21	2004	34.5

The figure 2 contains the diagram of the interval ^{137}Cs specific activity distribution in pupils in the Buynovivhi secondary school and kindergarten of Lelchitsy district of Gomel region in accordance with the results of measurements dated to March 18, 2010.



←Figure 2 – Diagram of the interval ^{137}Cs specific activity distribution in pupils in the Buynovivhi secondary school and kindergarten of Lelchitsy district of Gomel region in accordance with the results of measurements dated to March 18, 2010

To demonstrate the efficiency of the effects of pectin preparations there are comparative data on interval distribution of the specific activity of ^{137}Cs in children having taken VITAPECT and having passed two WBC measurements (on January 27, 2009 and March 18, 2010). This group consists of 86 children.

January 27, 2010

March 18, 2010

The first measurement of children in the Buynovivhi secondary school and kindergarten of Lelchitsy district of Gomel region was performed in the school building. A total of measured persons was 137 persons (117 children and 20 adults).

The second measurement of children in the Buynovivhi secondary school and kindergarten of Lelchitsy district of Gomel region was performed in the school building. A total of measured persons was 138 persons (125 children and 13 adults).

The data of statistical processing of the results of measurements of the group of children having passed two WBC measurements and having taken VITAPECT-T (86 children).

Average specific activity of ^{137}Cs :

after the first measurement: (34.4 ± 3.1) Bq/kg,

after the second measurement: (24.5 ± 1.2) Bq/kg.

Decrease of average specific activity of ^{137}Cs was 29%.

Increase of specific activity: in 24% children.

The same level of specific activity: in 14% children.

Reduction of specific activity: in 62% children.

The evaluation of the scientific significance according to T-Student criterion ($n = 86$): $t=4.21$. The received criterion $t > 1.96$; $p < 0.01$.

Median value after the first measurement: 28.1 Bq/kg.

Median value after the second measurement: 22.6 Bq/kg.

Decrease of median value of specific activity of ^{137}Cs was 20%.

The figure 3 contains the diagram of the interval ^{137}Cs specific activity distribution in pupils in the Buynovivhi secondary school and kindergarten of Lelchitsy district of Gomel region in accordance with the results of measurements dated to January 27, 2010 and March 18, 2010.

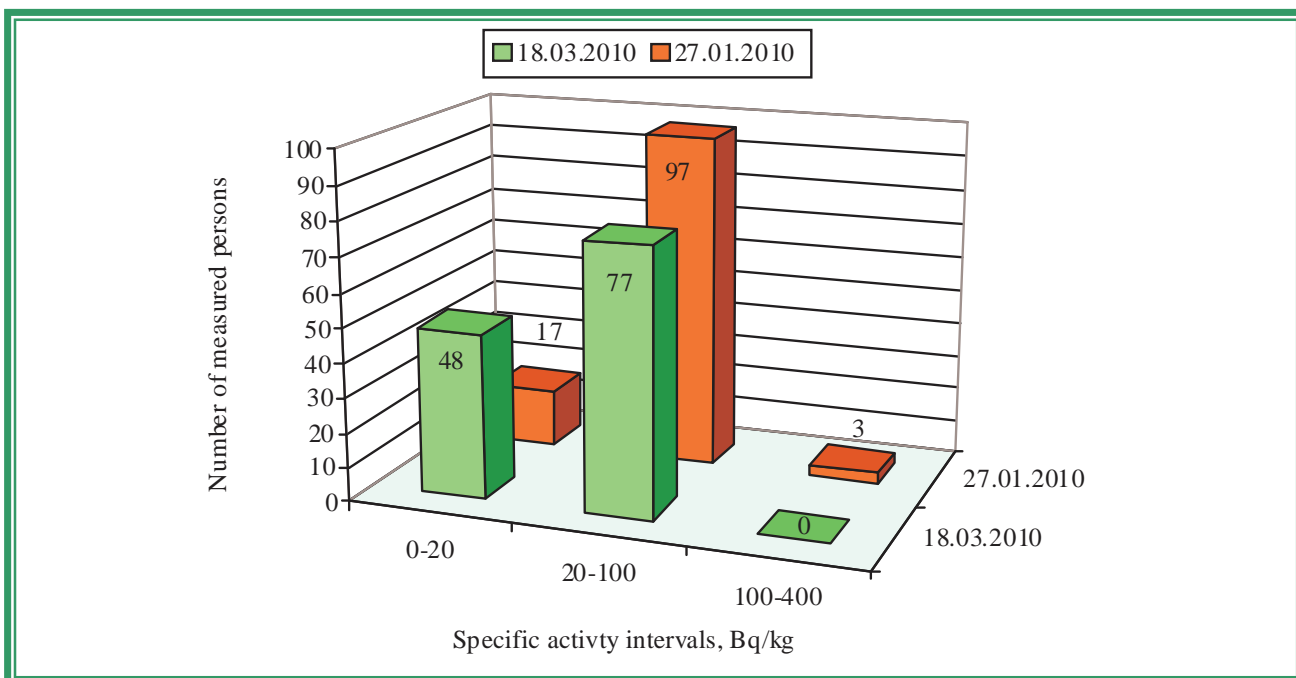


Figure 3 – Diagram of the interval ^{137}Cs specific activity distribution in pupils in the Buynovivhi secondary school and kindergarten of Lelchitsy district of Gomel region in accordance with the results of measurements dated to January 27, 2010 and March 18, 2010

May 19, 2010

The control measurement of children in the Buynovivhi secondary school and kindergarten of Lelchitsy district of Gomel region was performed in the school building. A total of measured persons was 169 persons (153 children and 16 adults).

Average ^{137}Cs specific activity in the whole group ($n = 153$): (16.5 ± 0.8) Bq/kg.

Average ^{137}Cs specific activity in the critical group ($n = 15$): (33.8 ± 2.5) Bq/kg.

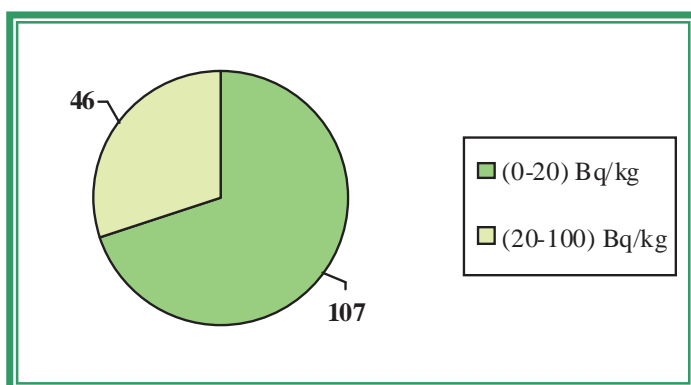
Median value in the whole group: 17.2 Bq/kg.

Median value in the critical group: 28.8 Bq/kg.

The table 4 demonstrates the maximal levels of ^{137}Cs specific activity (the critical group) according to the results of measurements dated to May 19, 2010.

No.	Surname Name Patronymic	Occupation	Sex	Weight, kg	Year of birth	Sp. activity, Bq/kg
1.	A.A.M.	SCHOOLGIRL	F	42	1995	61.3
2.	V.M.L.	SCHOOLBOY	M	19	2001	45.4
3.	N.I.V.	SCHOOLBOY	M	61	1994	40.2
4.	L.V.S.	SCHOOLBOY	M	61	1995	40.0
5.	N.A.A.	SCHOOLBOY	M	42	1998	38.0
6.	B.A.Yu.	SCHOOLBOY	M	40	1998	32.7
7.	S.V.Yu.	SCHOOLBOY	M	68	1992	30.9
8.	Ch.A.A.	CHILD PRESCHOOL AGE	F	18	2004	28.8
9.	M.V.V.	CHILD PRESCHOOL AGE	M	22	2004	28.6
10.	B.O.Yu.	SCHOOLGIRL	F	23	2001	27.8
11.	S.A.Yu.	SCHOOLBOY	M	47	1996	27.6
12.	E.K.N.	CHILD PRESCHOOL AGE	F	21	2004	27.5
13.	L.R.S.	CHILD PRESCHOOL AGE	M	20	2005	26.3
14.	K.A.M.	SCHOOLGIRL	F	28	2000	26.2
15.	B.V.N.	SCHOOLBOY	M	67	1995	25.7

The figure 4 contains the diagram of the interval ^{137}Cs specific activity distribution in pupils in the Buynovivhi secondary school and kindergarten of Lelchitsy district of Gomel region in accordance with the results of measurements dated to March 19, 2010.



←Figure 4 – Diagram of the interval ^{137}Cs specific activity distribution in pupils in the Buynovivhi secondary school and kindergarten of Lelchitsy district of Gomel region in accordance with the results of measurements dated to March 19, 2010

To demonstrate the efficiency of the effects of pectin preparations there are comparative data on interval distribution of the specific activity of ^{137}Cs in children having taken VITAPECT and having passed two WBC measurements (on March 18, 2010 and May 19, 2010). This group consists of 110 children.

March 18, 2010

May 19, 2010

The first measurement of children in the Buynovivhi secondary school and kindergarten of Lelchitsy district of Gomel region was performed in the school building. A total of measured persons was 138 persons (125 children and 13 adults).

The control measurement of children in the Buynovivhi secondary school and kindergarten of Lelchitsy district of Gomel region was performed in the school building. A total of measured persons was 169 persons (153 children and 16 adults).

The data of statistical processing of the results of measurements of the group of children having passed two WBC measurements and having taken VITAPECT-T (110 children).

Average specific activity of ^{137}Cs :

after the first measurement: (23.8 ± 1.0) Bq/kg,

after the second measurement: (16.7 ± 0.9) Bq/kg.

Decrease of average specific activity of ^{137}Cs was 30%.

Increase of specific activity: in 20% children.

The same level of specific activity: in 16% children.

Reduction of specific activity: in 64% children.

The evaluation of the scientific significance according to T-Student criterion ($n = 110$): $t=7.51$. The received criterion $t > 1.96$; $p < 0.01$.

Median value after the first measurement: 22.5 Bq/kg.

Median value after the second measurement: 17.2 Bq/kg.

Decrease of median value of specific activity of ^{137}Cs was 24%.

The figure 5 contains the diagram of the interval ^{137}Cs specific activity distribution in pupils in the Buynovivhi secondary school and kindergarten of Lelchitsy district of Gomel region in accordance with the results of measurements dated to March 18, 2010 and May 19, 2010.

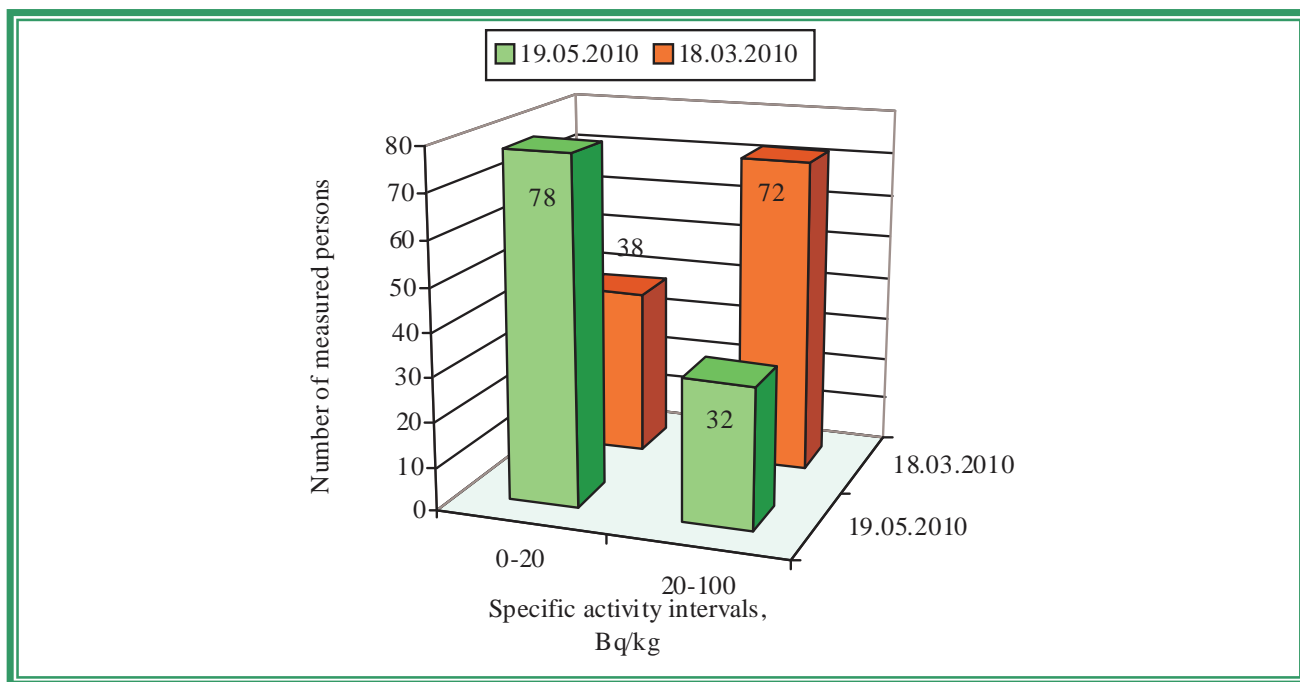


Figure 5 – Diagram of the interval ^{137}Cs specific activity distribution in pupils in the Buynovivhi secondary school and kindergarten of Lelchitsy district of Gomel region in accordance with the results of measurements dated to March 18, 2010 and May 19, 2010.

LELCHITSY, SECONDARY SCHOOL No. 1

Characteristics	Value	Source
^{137}Cs contamination density of the territory	1.51 Ci/km ²	Dose catalogue of the Ministry for Public Health Services of the Republic of Belarus, 2004
Number of inhabitants	9565 persons	Lelchitsy district executive committee, dated to 01.01.2010
External dose	0.18 mSv/a	Dose catalogue of the Ministry for Public Health Services of the Republic of Belarus, 2004
Internal dose	1.40 mSv/a	-----«-----
Cumulative dose	1.58 mSv/a	-----«-----

According to the data dated to January 2010 in the Lelchitsy secondary school No. 1 there are 649 children, 81 teachers and 28 persons of another staff.

Children from following settlements go to the Lelchitsy secondary school No. 1: Lelchitsy and Chemernoye.

February 9-11, 2010

The first measurement of children in the Lelchitsy secondary school No.1 was performed in the school building. A total of measured persons was 576 persons (526 children (the children A.M.

Gud, A.V. Raduchich, N.O. Sviridov and M.N. Shur were measured two times for internal control) and 46 adults).

Average ^{137}Cs specific activity in the whole group (n = 526): (26.4 ± 0.9) Bq/kg.

Average specific activity in the critical group (n = 30): (85.9 ± 10.7) Bq/kg.

Median value in the whole group: 22.8 Bq/kg.

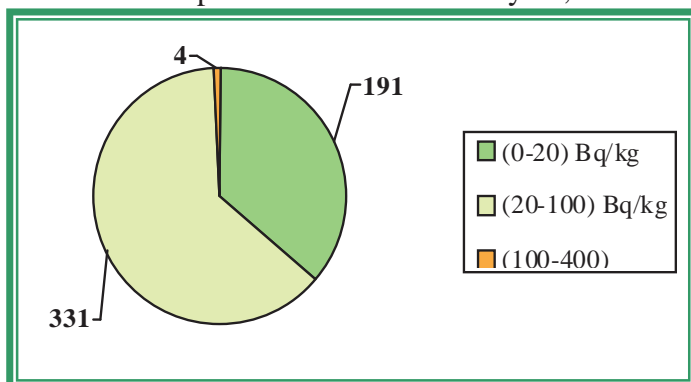
Median value in the critical group: 62.1 Bq/kg.

The table 5 demonstrates the maximal levels of ^{137}Cs specific activity (the critical group) according to the results of measurements performed from February 09, 2010 to February 11, 2010.

Table 5

No.	Surname Name Patronymic	Occupation	Sex	Weight, kg	Year of birth	Sp. activity, Bq/kg
1.	G.A.M.	SCHOOLBOY	M	25	2002	311.1
2.	R.A.V.	SCHOOLBOY	M	55	1993	219.7
3.	S.N.O.	SCHOOLBOY	M	52	1999	181.9
4.	P.M.N.	SCHOOLBOY	M	32	1999	125.7
5.	A.A.V.	SCHOOLBOY	M	85	1994	94.0
6.	P.V.Yu.	SCHOOLBOY	M	43	1996	90.8
7.	L.Ya.V.	SCHOOLGIRL	F	53	1994	90.6
8.	S.V.V.	SCHOOLGIRL	F	56	1994	89.6
9.	Sh.M.N.	SCHOOLGIRL	F	54	1996	82.7
10.	S.V.V.	SCHOOLBOY	M	46	1998	72.2
11.	A.Ya.V.	SCHOOLGIRL	F	58	1993	70.9
12.	N.N.S.	SCHOOLGIRL	F	46	1994	70.9
13.	A.D.S.	SCHOOLGIRL	F	32	2001	69.5
14.	A.N.S.	SCHOOLGIRL	F	32	2000	64.6
15.	M.D.A.	SCHOOLGIRL	F	32	1998	62.1
16.	N.A.S.	SCHOOLGIRL	F	34	1998	61.3
17.	A.A.A.	SCHOOLGIRL	F	44	1999	60.9
18.	D.V.G.	SCHOOLBOY	M	73	1993	60.6
19.	G.N.A.	SCHOOLGIRL	F	54	1995	59.0
20.	K.V.N.	SCHOOLGIRL	F	57	1993	58.0
21.	F.R.V.	SCHOOLBOY	M	34	1999	57.7
22.	B.K.N.	SCHOOLGIRL	F	42	2002	57.5
23.	L.M.V.	SCHOOLBOY	M	51	1998	57.0
24.	K.O.N.	SCHOOLGIRL	F	54	1995	56.7
25.	J.L.O.	SCHOOLGIRL	F	40	1996	56.1
26.	H.E.M.	SCHOOLBOY	M	34	2000	55.7
27.	S.V.V.	SCHOOLGIRL	F	28	2000	52.3
28.	K.M.A.	SCHOOLBOY	M	33	2000	52.1
29.	B.A.L.	SCHOOLBOY	M	43	1995	50.7
30.	N.A.P.	SCHOOLBOY	M	63	1994	50.0

The figure 6 contains the diagram of the interval ^{137}Cs specific activity distribution in pupils in the Lelchitsy secondary school No.1 of Gomel region in accordance with the results of measurements performed from February 09, 2010 to February 11, 2010.



←Figure 6 – Diagram of the interval ^{137}Cs specific activity distribution in pupils in the Lelchitsy secondary school No.1 of Gomel region in accordance with the results of measurements performed from February 09, 2010 to February 11, 2010.

On February 16, 2010 1160 packings of the pectin preparation VITAPECT were given for children.

March 10-11, 2010

The second measurement of children in the Lelchitsy secondary school No.1 was performed in the school building. A total of measured persons was 588 persons (548 children and 40 adults).

Average ^{137}Cs specific activity in the whole group (n = 548): (19.7 ± 0.8) Bq/kg.

Average specific activity in the critical group (n = 30): (66.7 ± 10.2) Bq/kg.

Median value in the whole group: 17.1 Bq/kg.

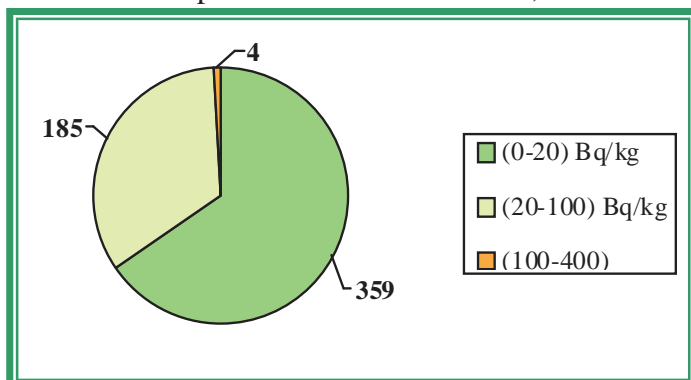
Median value in the critical group: 49.0 Bq/kg.

The table 6 demonstrates the maximal levels of ^{137}Cs specific activity (the critical group) according to the results of measurements performed from February 10, 2010 to February 11, 2010.

Table 6

No.	Surname Name Patronymic	Occupation	Sex	Weight, kg	Year of birth	Sp. activity, Bq/kg
1.	G.A.M.	SCHOOLBOY	M	25	2002	322.3
2.	H.E.A.	SCHOOLGIRL	F	41	1997	159.6
3.	S.N.O.	SCHOOLBOY	M	35	1999	139.7
4.	B.A.L.	SCHOOLBOY	M	43	1995	100.6
5.	K.O.V.	SCHOOLGIRL	F	52	1994	82.6
6.	P.V.Yu.	SCHOOLBOY	M	46	1996	66.3
7.	R.R.V.	SCHOOLBOY	M	22	2002	62.4
8.	G.D.F.	SCHOOLBOY	M	64	1992	61.3
9.	H.S.A.	SCHOOLGIRL	F	44	1998	59.0
10.	Sh.M.N.	SCHOOLGIRL	F	55	1996	57.1
11.	S.V.V.	SCHOOLBOY	M	48	1998	51.8
12.	J.L.O.	SCHOOLGIRL	F	41	1996	51.7
13.	J.I.V.	SCHOOLGIRL	F	26	2002	51.7
14.	A.Ya.V.	SCHOOLGIRL	F	58	1993	50.7
15.	L.Ya.V.	SCHOOLGIRL	F	52	1994	49.2
16.	G.D.V.	SCHOOLBOY	M	65	1995	48.8
17.	K.O.N.	SCHOOLGIRL	F	54	1995	48.3
18.	M.A.V.	SCHOOLGIRL	F	46	1996	46.7
19.	B.D.A.	SCHOOLBOY	M	59	1994	46.6
20.	D.V.G.	SCHOOLBOY	M	72	1993	44.2
21.	K.V.N.	SCHOOLGIRL	F	58	1993	42.8
22.	R.M.I.	SCHOOLGIRL	F	31	2000	42.4
23.	A.N.S.	SCHOOLGIRL	F	31	2000	41.3
24.	K.M.A.	SCHOOLBOY	M	32	2000	41.3
25.	A.A.A.	SCHOOLGIRL	F	38	1999	41.1
26.	H.E.M.	SCHOOLBOY	M	34	2000	40.6
27.	A.D.S.	SCHOOLGIRL	F	33	2001	39.7
28.	M.R.V.	SCHOOLBOY	M	39	2000	38.5
29.	N.A.S.	SCHOOLGIRL	F	34	1998	38.2
30.	B.I.V.	SCHOOLGIRL	F	48	1997	35.9

The figure 7 contains the diagram of the interval ^{137}Cs specific activity distribution in pupils in the Lelchitsy secondary school No.1 of Gomel region in accordance with the results of measurements performed from March 10, 2010 to March 11, 2010.



←Figure 7 – Diagram of the interval ^{137}Cs specific activity distribution in pupils in the Lelchitsy secondary school No.1 of Gomel region in accordance with the results of measurements performed from March 10, 2010 to March 11, 2010.

To demonstrate the efficiency of the effects of pectin preparations there are comparative data on interval distribution of the specific activity of ^{137}Cs in children having taken VITAPECT and having passed two WBC measurements (from February 09, 2010 to February 11, 2010 and from March 10, 2010 to March 11, 2010). This group consists of 460 children.

February 9-11, 2010

March 10-11, 2010

The first measurement of children in the Lelchitsy secondary school No.1 was performed in the school building. A total of measured persons was 576 persons (526 children (the children A.M. Gud, A.V. Raduchich, N.O. Sviridov and M.N. Shur were measured two times for internal control) and 46 adults).

The second measurement of children in the Lelchitsy secondary school No.1 was performed in the school building. A total of measured persons was 588 persons (548 children and 40 adults).

The data of statistical processing of the results of measurements of the group of children having passed two WBC measurements and having taken VITAPECT-T (460 children).

Average specific activity of ^{137}Cs :

after the first measurement: (25.8 ± 0.9) Bq/kg,

after the second measurement: (19.3 ± 0.9) Bq/kg.

Decrease of average specific activity of ^{137}Cs was 25%.

Increase of specific activity: in 2% children.

The same level of specific activity: in 10% children.

Reduction of specific activity: in 88% children.

The evaluation of the scientific significance according to T-Student criterion ($n = 460$): $t=7.26$. The received criterion $t > 1.96$; $p < 0.01$.

Median value after the first measurement: 22.8 Bq/kg.

Median value after the second measurement: 16.7 Bq/kg.

Decrease of median value of specific activity of ^{137}Cs was 27%.

The figure 8 contains the diagram of the interval ^{137}Cs specific activity distribution in pupils in the Lelchitsy secondary school No.1 of Gomel region in accordance with the results of measurements performed from March 10, 2010 to March 11, 2010.

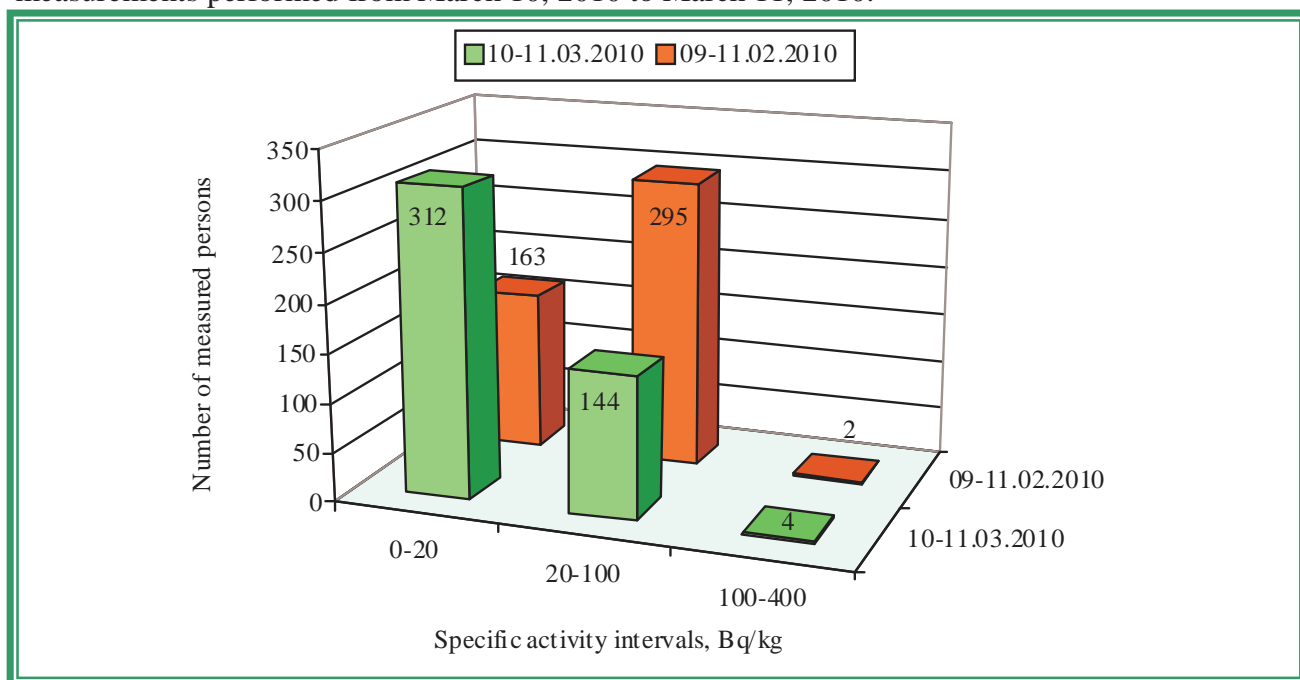


Figure 8 – Diagram of the interval ^{137}Cs specific activity distribution in pupils in the Lelchitsy secondary school No.1 of Gomel region in accordance with the results of measurements performed from March 10, 2010 to March 11, 2010

LELCHITSY, KINDERGARTEN No. 3

Characteristics	Value	Source
¹³⁷ Cs contamination density of the territory	1.51 Ci/km ²	Dose catalogue of the Ministry for Public Health Services of the Republic of Belarus, 2004
Number of inhabitants	9565 persons	Lelechitsy district executive committee, dated to 01.01.2010
External dose	0.18 mSv/a	Dose catalogue of the Ministry for Public Health Services of the Republic of Belarus, 2004
Internal dose	1.40 mSv/a	-----«-----
Cumulative dose	1.58 mSv/a	-----«-----

According to the data dated to October 2009 in the Lelechitsy kindergarten No. 3 there are 61 children, 29 teachers and persons of another staff.

February 17, 2010

The first measurement of children in the Lelechitsy kindergarten No.3 of Gomel region was performed in the kindergarten building. A total of measured persons was 81 persons (56 children and 25 adults).

Average ¹³⁷Cs specific activity in the whole group (n = 56): (25.3 ± 0.9)
Bq/kg.

Average specific activity in the critical group (n = 15): (33.2 ± 0.5) Bq/kg.

Median value in the whole group: 25.2 Bq/kg.

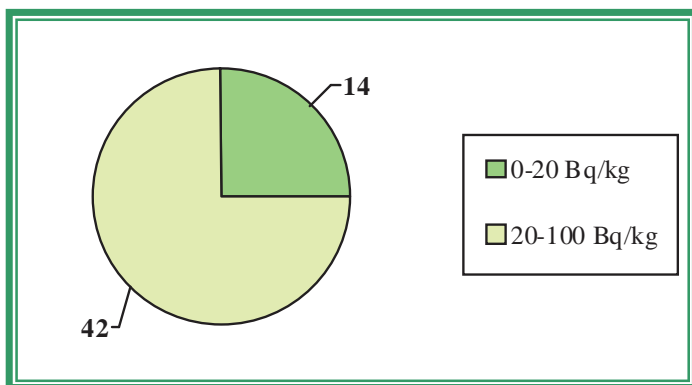
Median value in the critical group: 33.3 Bq/kg.

The table 7 demonstrates the maximal levels of ¹³⁷Cs specific activity (the critical group) according to the results of measurements dated to February 17, 2010.

Table 7

No.	Surname Name Patronymic	Occupation	Sex	Weight, kg	Year of birth	Sp. activity, Bq/kg
1.	S.N.V.	CHILD PRESCHOOL AGE	M	14	2005	37.8
2.	N.D.M.	CHILD PRESCHOOL AGE	F	14	2006	35.4
3.	K.D.V.	SCHOOLGIRL	F	70	1994	35.2
4.	T.N.A.	CHILD PRESCHOOL AGE	M	17	2006	34.6
5.	H.A.G.	CHILD PRESCHOOL AGE	F	18	2005	33.7
6.	L.V.S.	CHILD PRESCHOOL AGE	F	15	2006	33.6
7.	R.A.A.	CHILD PRESCHOOL AGE	M	13	2007	33.3
8.	J.Ya.A.	CHILD PRESCHOOL AGE	M	13	2006	33.3
9.	Ya.M.N.	CHILD PRESCHOOL AGE	M	14	2006	32.2
10.	I.E.A.	CHILD PRESCHOOL AGE	F	14	2005	32.2
11.	F.S.I.	CHILD PRESCHOOL AGE	M	20	2005	31.8
12.	Ch.K.V.	CHILD PRESCHOOL AGE	F	18	2005	31.7
13.	G.A.M.	CHILD PRESCHOOL AGE	F	15	2005	31.6
14.	S.A...	CHILD PRESCHOOL AGE	F	12	2007	31.5
15.	H.I.V.	CHILD PRESCHOOL AGE	M	14	2004	30.7

The figure 9 contains the diagram of the interval ¹³⁷Cs specific activity distribution in children in the Lelechitsy kindergarten No.3 of Gomel region in accordance with the results of measurements dated to February 17, 2010.



←Figure 9 – Diagram of the interval ^{137}Cs specific activity distribution in children in the Lechitsy kindergarten No.3 of Gomel region in accordance with the results of measurements dated to February 17, 2010

May 13, 2010

The second measurement of children in the Lechitsy kindergarten No.3 of Gomel region was performed in the kindergarten. A total of measured persons was 74 persons (60 children and 14 adults).

Average ^{137}Cs specific activity in the whole group (n = 60): (27.0 ± 1.4) Bq/kg.

Average ^{137}Cs specific activity in the critical group (n = 15): (41.8 ± 1.3) Bq/kg.

Median value in the whole group: 26.6 Bq/kg.

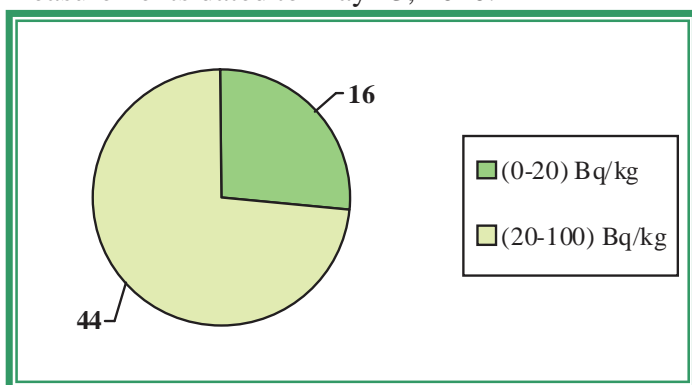
Median value in the critical group: 41.7 Bq/kg.

The table 8 demonstrates the maximal levels of ^{137}Cs specific activity (the critical group) according to the results of measurements dated to May 13, 2010.

Table 8

No.	Surname Name Patronymic	Occupation	Sex	Weight, kg	Year of birth	Sp. activity, Bq/kg
1.	J.D.A.	CHILD PRESCHOOL AGE	M	14	2006	50.5
2.	N.D.M.	CHILD PRESCHOOL AGE	F	15	2006	48.4
3.	G.N.D.	CHILD PRESCHOOL AGE	M	16	2006	47.6
4.	Sh.D.V.	CHILD PRESCHOOL AGE	F	19	2007	45.0
5.	R.A.A.	CHILD PRESCHOOL AGE	M	14	2007	44.4
6.	J.Ya.A.	CHILD PRESCHOOL AGE	M	15	2006	44.2
7.	K.D.Yu.	CHILD PRESCHOOL AGE	F	19	2006	42.8
8.	R.K.A.	CHILD PRESCHOOL AGE	F	15	2006	41.7
9.	H.D.M.	CHILD PRESCHOOL AGE	M	15	2007	41.4
10.	G.A.O.	CHILD PRESCHOOL AGE	F	14	2006	39.1
11.	Ya.M.N.	CHILD PRESCHOOL AGE	M	15	2006	38.5
12.	A.N.I.	CHILD PRESCHOOL AGE	M	15	2006	36.8
13.	K.D.L.	CHILD PRESCHOOL AGE	M	17	2005	36.4
14.	J.I.S.	CHILD PRESCHOOL AGE	M	15	2006	35.8
15.	Sh.K.V.	CHILD PRESCHOOL AGE	M	16	2006	34.2

The figure 10 contains the diagram of the interval ^{137}Cs specific activity distribution in children in the Lechitsy kindergarten No.3 of Gomel region in accordance with the results of measurements dated to May 13, 2010.



←Figure 10 - Diagram of the interval ^{137}Cs specific activity distribution in children in the Lechitsy kindergarten No.3 of Gomel region in accordance with the results of measurements dated to May 13, 2010

To demonstrate the efficiency of the effects of pectin preparations there are comparative data on interval distribution of the specific activity of ^{137}Cs in children having passed two WBC measurements (on February 17, 2010 and May 13, 2010). This group consists of 40 children.

February 17, 2010

May 13, 2010

The first measurement of children in the Lelchitsy kindergarten No.3 of Gomel region was performed in the kindergarten building. A total of measured persons was 81 persons (56 children and 25 adults).

The second measurement of children in the Lelchitsy kindergarten No.3 of Gomel region was performed in the kindergarten. A total of measured persons was 74 persons (60 children and 14 adults).

The data of statistical processing of the results of measurements of the group of children having passed two WBC measurements (40 children).

Average specific activity of ^{137}Cs :

after the first measurement: (26.3 ± 0.9) Bq/kg,

after the second measurement: (27.3 ± 1.9) Bq/kg.

Increase of average specific activity of ^{137}Cs was 3%.

Increase of specific activity: in 52% children.

The same level of specific activity: in 12% children.

Reduction of specific activity: in 36% children.

The evaluation of the scientific significance according to T-Student criterion ($n = 40$): $t=0.61$. The received criterion $t < 1.96$; $p > 0.01$.

Median value after the first measurement: 26.6 Bq/kg.

Median value after the second measurement: 26.3 Bq/kg.

Decrease of median value of specific activity of ^{137}Cs was 1%.

The figure 11 contains the diagram of the interval ^{137}Cs specific activity distribution in children in the Lelchitsy kindergarten No.3 of Gomel region in accordance with the results of measurements dated to February 17, 2010 and May 13, 2010.

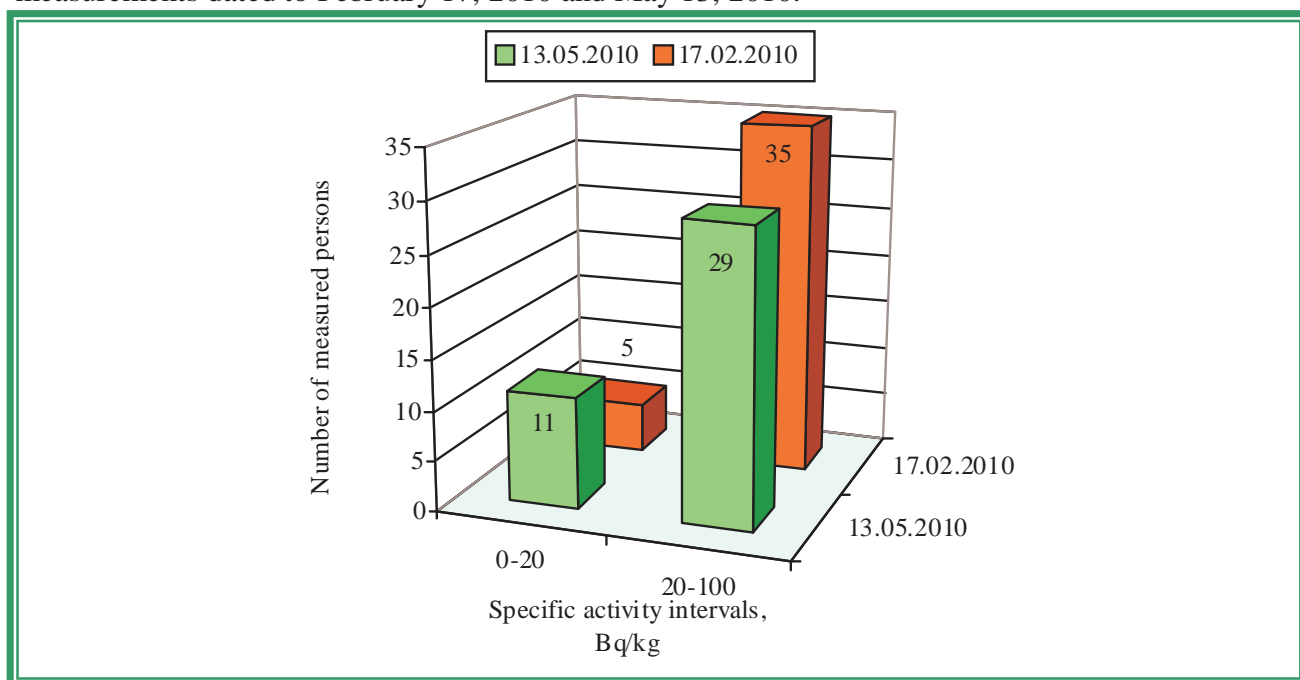


Figure 11 – Diagram of the interval ^{137}Cs specific activity distribution in children in the Lelchitsy kindergarten No.3 of Gomel region in accordance with the results of measurements dated to February 17, 2010 and May 13, 2010

LELCHITSY, KINDERGARTEN No. 4 «RUCHEYOK»

Characteristics	Value	Source
¹³⁷ Cs contamination density of the territory	1.51 Ci/km ²	Dose catalogue of the Ministry for Public Health Services of the Republic of Belarus, 2004
Number of inhabitants	9565 persons	Lelchitsy district executive committee, dated to 01.01.2010
External dose	0.18 mSv/a	Dose catalogue of the Ministry for Public Health Services of the Republic of Belarus, 2004
Internal dose	1.40 mSv/a	-----<-----
Cumulative dose	1.58 mSv/a	-----<-----

According to the data dated to October 2009 in the Lelchitsy kindergarten No. 4 “Rucheyok” there are 144 children, 40 persons of another staff.

February 11, 2010

The first measurement of children in the Lelchitsy kindergarten No.4 of Gomel region was performed in the kindergarten building. A total of measured persons was 109 persons (88 children and 21 adults).

Average ¹³⁷Cs specific activity in the whole group (n = 88): (24.6 ± 0.6) Bq/kg.

Average specific activity in the critical group (n = 15): (33.9 ± 0.9) Bq/kg.

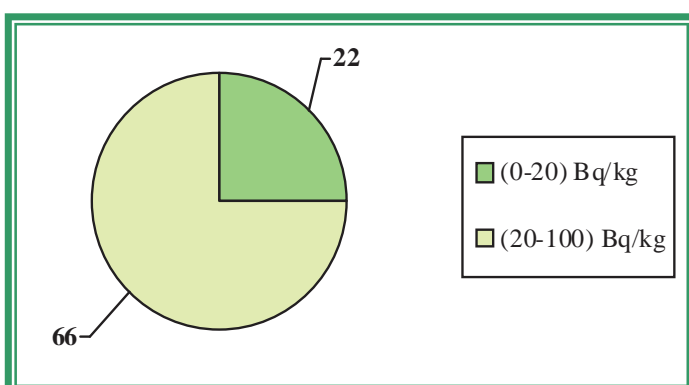
Median value in the whole group: 24.3 Bq/kg.

Median value in the critical group: 32.5 Bq/kg.

The table 9 demonstrates the maximal levels of ¹³⁷Cs specific activity (the critical group) according to the results of measurements dated to February 11, 2010.

Table 9

No.	Surname Name Patronymic	Occupation	Sex	Weight, kg	Year of birth	Sp. activity, Bq/kg
1.	N.E.P.	CHILD PRESCHOOL AGE	F	13	2006	41.8
2.	M.A.A.	CHILD PRESCHOOL AGE	M	19	2003	41.1
3.	K.K.I.	CHILD PRESCHOOL AGE	F	14	2007	37.5
4.	T.E.V.	CHILD PRESCHOOL AGE	F	16	2007	35.2
5.	Z.A.D.	CHILD PRESCHOOL AGE	F	16	2006	33.8
6.	R.A.A.	CHILD PRESCHOOL AGE	M	14	2006	33.0
7.	K.A.A.	CHILD PRESCHOOL AGE	M	15	2005	32.8
8.	T.D.A.	CHILD PRESCHOOL AGE	F	19	2006	32.5
9.	P.A.V.	CHILD PRESCHOOL AGE	M	17	2006	32.4
10.	F.D.A.	CHILD PRESCHOOL AGE	M	25	2005	32.1
11.	R.I.L.	CHILD PRESCHOOL AGE	M	15	2005	31.6
12.	S.A.R.	CHILD PRESCHOOL AGE	F	15	2005	31.6
13.	D.Ya.S.	CHILD PRESCHOOL AGE	F	20	2005	31.3
14.	K.D.V.	CHILD PRESCHOOL AGE	F	17	2004	30.9
15.	S.V.V.	CHILD PRESCHOOL AGE	M	15	2006	30.8



The figure 12 contains the diagram of the interval ¹³⁷Cs specific activity distribution in children in the Lelchitsy kindergarten No.4 of Gomel region in accordance with the results of measurements dated to February 11, 2010.

←Figure 12 – Diagram of the interval ^{137}Cs specific activity distribution in children in the Lelchitsy kindergarten No.4 of Gomel region in accordance with the results of measurements dated to February 11, 2010

On February 06, 2010 144 packings of the pectin preparation VITAPECT were given for children.

March 11, 2010

The **second** measurement of children in the Lelchitsy kindergarten No.4 of Gomel region was performed in the kindergarten. A total of measured persons was 115 persons (111 children and 4 adults).

Average ^{137}Cs specific activity in the whole group (n = 111): (33.2 ± 3.6) Bq/kg.

Average ^{137}Cs specific activity in the critical group (n = 15): (67.5 ± 25.2) Bq/kg.

Median value in the whole group: 29.8 Bq/kg.

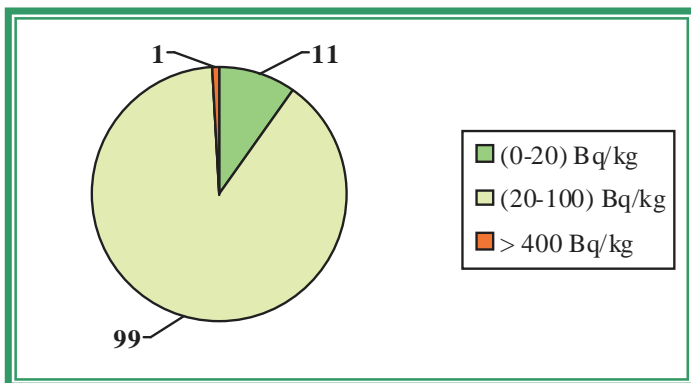
Median value in the critical group: 41.3 Bq/kg.

The table 10 demonstrates the maximal levels of ^{137}Cs specific activity (the critical group) according to the results of measurements dated to May 11, 2010.

Table 10

No.	Surname Name Patronymic	Occupation	Sex	Weight, kg	Year of birth	Sp. activity, Bq/kg
1.	H.S.Yu.	CHILD PRESCHOOL AGE	M	24	2005	419.6
2.	B.D.A.	CHILD PRESCHOOL AGE	M	12	2006	50.0
3.	N.E.P.	CHILD PRESCHOOL AGE	F	13	2006	46.4
4.	L.K.V.	CHILD PRESCHOOL AGE	F	16	2005	46.3
5.	S.A.R.	CHILD PRESCHOOL AGE	F	15	2005	43.2
6.	P.D.V.	CHILD PRESCHOOL AGE	M	17	2006	42.2
7.	Yu.A.V.	CHILD PRESCHOOL AGE	F	18	2004	41.9
8.	P.E.O.	CHILD PRESCHOOL AGE	F	18	2005	41.3
9.	L.A.V.	CHILD PRESCHOOL AGE	F	16	2006	41.2
10.	H.A.V.	CHILD PRESCHOOL AGE	F	15	2006	40.7
11.	L.A.V.	CHILD PRESCHOOL AGE	M	14	2007	40.4
12.	Z.D.P.	CHILD PRESCHOOL AGE	M	18	2006	39.9
13.	K.K.I.	CHILD PRESCHOOL AGE	F	13	2007	39.9
14.	D.K.V.	CHILD PRESCHOOL AGE	F	17	2005	39.6
15.	H.R.A.	CHILD PRESCHOOL AGE	M	18	2006	39.3

The figure 13 contains the diagram of the interval ^{137}Cs specific activity distribution in children in the Lelchitsy kindergarten No.4 of Gomel region in accordance with the results of measurements dated to March 11, 2010.



←Figure 13 – Diagram of the interval ^{137}Cs specific activity distribution in children in the Lelchitsy kindergarten No.4 of Gomel region in accordance with the results of measurements dated to March 11, 2010

To demonstrate the efficiency of the effects of pectin preparations there are comparative data on interval distribution of the specific activity of ^{137}Cs in children having passed two WBC measurements (on February 11, 2010 and March 11, 2010). This group consists of 70 children.

February 11, 2010

March 11, 2010

The first measurement of children in the Lelchitsy kindergarten No.4 of Gomel region was performed in the kindergarten building. A total of measured persons was 109 persons (88 children and 21 adults).

The second measurement of children in the Lelchitsy kindergarten No.4 of Gomel region was performed in the kindergarten. A total of measured persons was 115 persons (111 children and 4 adults).

The data of statistical processing of the results of measurements of the group of children having passed two WBC measurements (70 children).

Average specific activity of ^{137}Cs :

after the first measurement: (24.6 ± 0.6) Bq/kg,

after the second measurement: (29.5 ± 0.9) Bq/kg.

Increase of average specific activity of ^{137}Cs was 20%.

Increase of specific activity: in 65% children.

The same level of specific activity: in 24% children.

Reduction of specific activity: in 11% children.

The evaluation of the scientific significance according to T-Student criterion ($n = 70$): $t=5.83$. The received criterion $t > 1.96$; $p < 0.01$.

Median value after the first measurement: 24.1 Bq/kg.

Median value after the second measurement: 29.9 Bq/kg.

The figure 14 contains the diagram of the interval ^{137}Cs specific activity distribution in children in the Lelchitsy kindergarten No.4 of Gomel region in accordance with the results of measurements dated to February 11, 2010 and March 11, 2010.

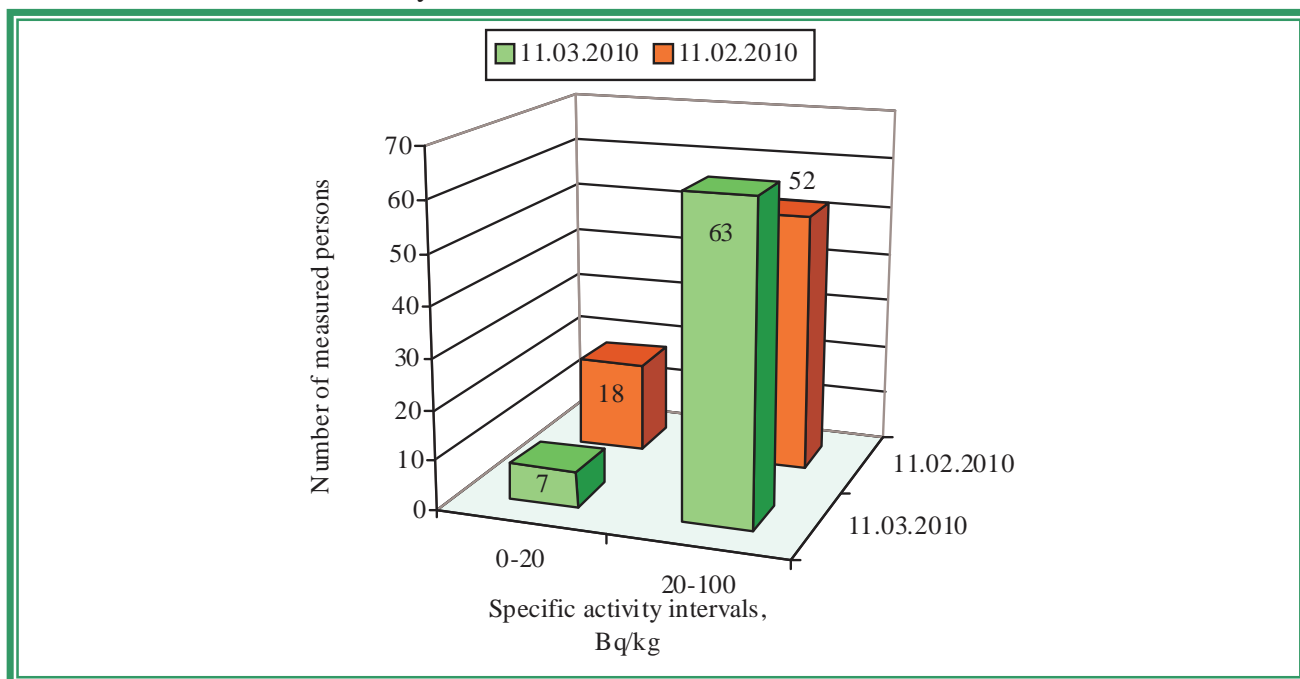


Figure 14 – Diagram of the interval ^{137}Cs specific activity distribution in children in the Lelchitsy kindergarten No.4 of Gomel region in accordance with the results of measurements dated to February 11, 2010 and March 11, 2010

LELCHITSY, KINDERGARTEN No.5

Characteristics	Value	Source
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¹³⁷ Cs contamination density of the territory	1.51 Ci/km ²	Dose catalogue of the Ministry for Public Health Services of the Republic of Belarus, 2004
Number of inhabitants	9565 persons	Lelechitsy district executive committee, dated to 01.01.2010
External dose	0.18 mSv/a	Dose catalogue of the Ministry for Public Health Services of the Republic of Belarus, 2004
Internal dose	1.40 mSv/a	-----<-----
Cumulative dose	1.58 mSv/a	-----<-----

According to the data dated to October 2009 in the Lelechitsy kindergarten No. 5 there are 95 children, 41 teachers and persons of another staff.

February 17, 2010

The first measurement of children in the Lelechitsy kindergarten No.5 of Gomel region was performed in the kindergarten building. A total of measured persons was 89 persons (70 children and 19 adults).

Average ¹³⁷Cs specific activity in the whole group (n = 70): (23.2 ± 3.7) Bq/kg.

Average specific activity in the critical group (n = 15): (46.8 ± 16.2) Bq/kg.

Median value in the whole group: 17.5 Bq/kg.

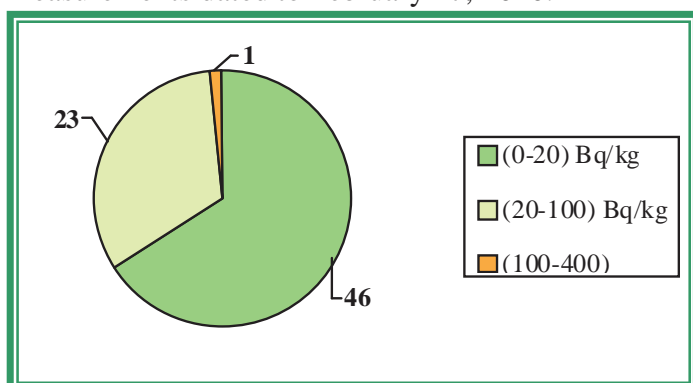
Median value in the critical group: 26.3 Bq/kg.

The table 11 demonstrates the maximal levels of ¹³⁷Cs specific activity (the critical group) according to the results of measurements dated to February 17, 2010.

Таблица 11

No.	Surname Name Patronymic	Occupation	Sex	Weight, kg	Year of birth	Sp. activity, Bq/kg
1.	P.V.V.	CHILD PRESCHOOL AGE	M	17	2005	261.8
2.	R.Yu.L.	CHILD PRESCHOOL AGE	F	17	2005	92.9
3.	B.E.P.	CHILD PRESCHOOL AGE	F	13	2007	31.9
4.	J.D.V.	CHILD PRESCHOOL AGE	F	18	2006	30.8
5.	V.D.R.	CHILD PRESCHOOL AGE	M	15	2006	28.9
6.	V.P.A.	CHILD PRESCHOOL AGE	M	15	2006	27.9
7.	R.A.R.	CHILD PRESCHOOL AGE	F	15	2006	27.1
8.	S.M.A.	CHILD PRESCHOOL AGE	M	16	2006	26.3
9.	K.E.S.	CHILD PRESCHOOL AGE	F	21	2003	26.0
10.	V.I.N.	CHILD PRESCHOOL AGE	M	22	2003	25.9
11.	H.A.S.	CHILD PRESCHOOL AGE	M	23	2003	25.7
12.	D.M.M.	CHILD PRESCHOOL AGE	M	15	2007	25.3
13.	N.D.V.	CHILD PRESCHOOL AGE	M	24	2005	24.1
14.	V.S.R.	CHILD PRESCHOOL AGE	M	14	2007	23.8
15.	A.D.A.	CHILD PRESCHOOL AGE	M	14	2007	23.3

The figure 15 contains the diagram of the interval ¹³⁷Cs specific activity distribution in children in the Lelechitsy kindergarten No.5 of Gomel region in accordance with the results of measurements dated to February 17, 2010.



←Figure 15 - Diagram of the interval ¹³⁷Cs specific activity distribution in children in the Lelechitsy kindergarten No.5 of Gomel region in accordance with the results of measurements dated to February 17, 2010

After completion of the work 108 packings of the pectin preparation VITAPECT were given for children.

March 11, 2010

The second measurement of children in the Lelchitsy kindergarten No.5 of Gomel region was performed in the kindergarten. A total of measured persons was 80 persons (79 children and 1 adults).

Average ^{137}Cs specific activity in the whole group (n = 79): (21.9 ± 2.5) Bq/kg.

Average ^{137}Cs specific activity in the critical group (n = 15): (39.1 ± 10.3) Bq/kg.

Median value in the whole group: 18.5 Bq/kg.

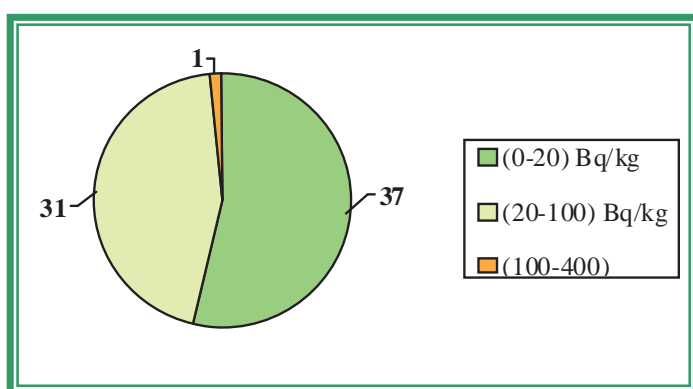
Median value in the critical group: 26.1 Bq/kg.

The table 12 demonstrates the maximal levels of ^{137}Cs specific activity (the critical group) according to the results of measurements dated to March 11, 2010.

Table 12

No.	Surname Name Patronymic	Occupation	Sex	Weight, kg	Year of birth	Sp. activity, Bq/kg
1.	P.V.V.	CHILD PRESCHOOL AGE	M	17	2005	179.3
2.	R.Yu.L.	CHILD PRESCHOOL AGE	F	18	2005	60.0
3.	B.N.S.	CHILD PRESCHOOL AGE	M	19	2005	38.0
4.	B.E.P.	CHILD PRESCHOOL AGE	F	13	2007	30.5
5.	B.K.I.	CHILD PRESCHOOL AGE	F	15	2007	29.6
6.	R.I.S.	CHILD PRESCHOOL AGE	M	16	2006	28.4
7.	L.Yu.V.	CHILD PRESCHOOL AGE	F	17	2006	27.4
8.	S.R.D.	CHILD PRESCHOOL AGE	M	16	2007	26.1
9.	J.E.B.	CHILD PRESCHOOL AGE	M	24	2005	25.3
10.	H.A.S.	CHILD PRESCHOOL AGE	M	23	2003	24.3
11.	Sh.N.V.	CHILD PRESCHOOL AGE	M	17	2005	23.9
12.	J.R.V.	CHILD PRESCHOOL AGE	M	17	2006	23.7
13.	S.N.V.	CHILD PRESCHOOL AGE	F	23	2004	23.5
14.	K.A.A.	CHILD PRESCHOOL AGE	F	22	2004	23.4
15.	D.M.M.	CHILD PRESCHOOL AGE	M	15	2007	22.9

The figure 16 contains the diagram of the interval ^{137}Cs specific activity distribution in children in the Lelchitsy kindergarten No.5 of Gomel region in accordance with the results of measurements dated to March 11, 2010.



←Figure 16 – Diagram of the interval ^{137}Cs specific activity distribution in children in the Lelchitsy kindergarten No.5 of Gomel region in accordance with the results of measurements dated to March 11, 2010.

To demonstrate the efficiency of the effects of pectin preparations there are comparative data on interval distribution of the specific activity of ^{137}Cs in children having taken VITAPECT and having passed two WBC measurements (on February 17, 2010 and March 11, 2010). This group consists of 48 children.

February 17, 2010

March 11, 2010

The first measurement of children in the Lelchitsy kindergarten No.5 of Gomel region was performed in the kindergarten building. A total of measured persons was 89 persons (70 children and 19 adults).

The second measurement of children in the Lelchitsy kindergarten No.5 of Gomel region was performed in the kindergarten. A total of measured persons was 80 persons (79 children and 1 adults).

The data of statistical processing of the results of measurements of the group of children having passed two WBC measurements and having taken VITAPECT-T (48 children).

Average specific activity of ^{137}Cs :

after the first measurement: (25.8 ± 5.3) Bq/kg,

after the second measurement: (22.2 ± 3.5) Bq/kg.

Decrease of average specific activity of ^{137}Cs was 14%.

Increase of specific activity: in 28% children.

The same level of specific activity: in 34% children.

Reduction of specific activity: in 38% children.

The evaluation of the scientific significance according to T-Student criterion ($n = 48$): $t=0.79$. The received criterion $t < 1.96$; $p > 0.01$.

Median value after the first measurement: 18.4 Bq/kg.

Median value after the second measurement: 18.1 Bq/kg.

Decrease of median value of specific activity of ^{137}Cs was 1%.

The figure 17 contains the diagram of the interval ^{137}Cs specific activity distribution in children in the Lelchitsy kindergarten No.5 of Gomel region in accordance with the results of measurements dated to February 17, 2010 and March 11, 2010.

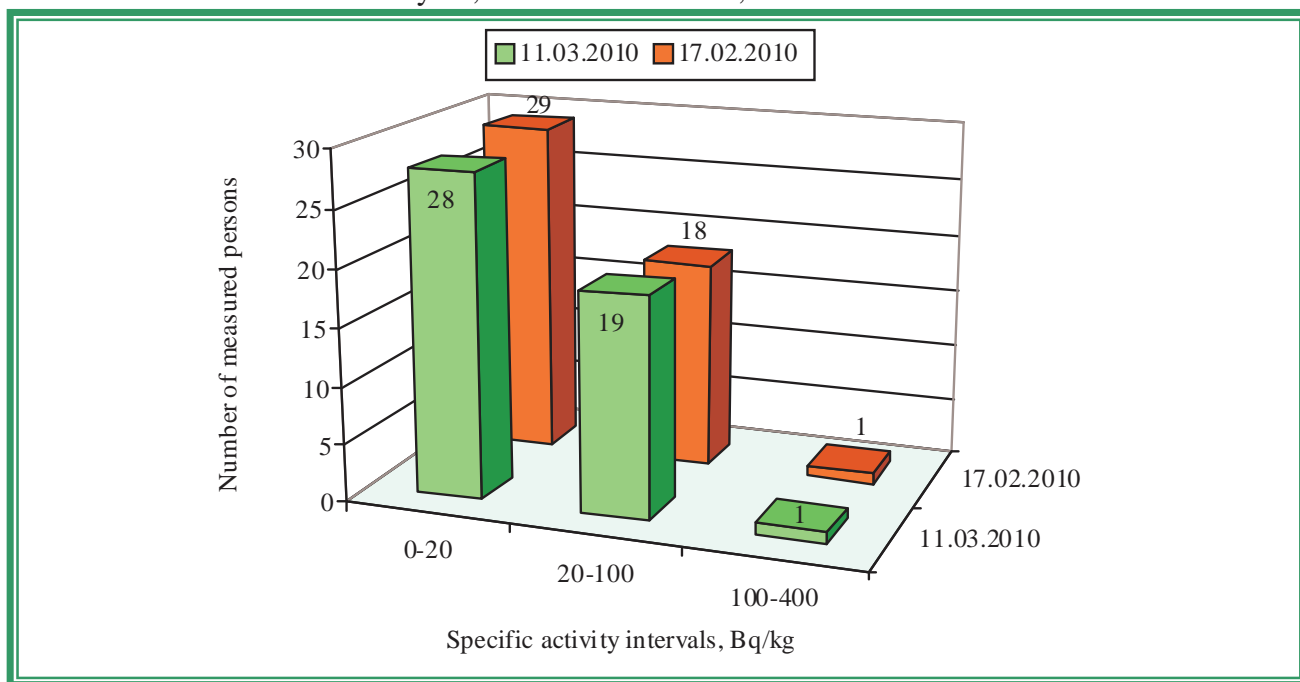


Figure 17 - Diagram of the interval ^{137}Cs specific activity distribution in children in the Lelchitsy kindergarten No.5 of Gomel region in accordance with the results of measurements dated to February 17, 2010 and March 11, 2010

Senior engineer

I.V. Krasnopyorov