

REPORT ON ENVIRONMENTAL SAFETY

FOR 2018



NO RWM



**REPORT
ON ENVIRONMENTAL SAFETY
FOR 2018**



MOSCOW 2019

CONTENT:

1. GENERAL CHARACTERISTICS AND MAIN ACTIVITY OF FSUE "NO RWM"	7
1.1. General information	7
1.2. Operational activities of FSUE "NO RWM"	10
1.3. Activities to create final disposal facilities for radioactive waste.	14
2. ENVIRONMENTAL POLICY OF FSUE "NO RWM"	19
3. SYSTEMS OF ENVIRONMENTAL MANAGEMENT, QUALITY MANAGEMENT AND HEALTH AND SAFETY MANAGEMENT.	25
4. MAIN DOCUMENTS REGULATING ENVIRONMENTAL PROTECTION ACTIVITIES OF FSUE "NO RWM"	29
5. INDUSTRIAL ENVIRONMENTAL MONITORING AND MONITORING OF THE ENVIRONMENT	35
6. ENVIRONMENTAL IMPACT	49
6.1. Water intake from water sources	49
6.2. Discharges into the open hydrographic network	49
6.3. Emissions to the air.	49
6.4. Waste	51
6.4.1. Production and consumption waste management (non-radioactive)	51
6.4.2. Radioactive waste management	53
6.5. The percentage of production and consumption waste of FSUE "NO RWM" branches in the total volume on the branches territory.	54
6.6. State of the FSUE "NO RWM" territory	54
7. IMPLEMENTATION OF ENVIRONMENTAL POLICIES OF FSUE "NO RWM"	57
8. ENVIRONMENTAL AND EDUCATIONAL ACTIVITY. PUBLIC ACCEPTANCE	61
8.1. Interaction with state and local authorities. Key events of 2018	62
8.2. Interaction with public environmental organizations, scientific and social institutions. informing the public. Key results of 2018	62
8.3. Development of international cooperation in technology and environmental safety issues. Key events in 2018	72
9. ADDRESSES AND CONTACTS	75
ANNEX.	80

GENERAL CHARACTERISTICS AND MAIN ACTIVITY OF FSUE "NO RWM"



1. 1. GENERAL CHARACTERISTICS AND MAIN ACTIVITY OF FSUE «NO RWM»

1.1. GENERAL INFORMATION

In international practice, the most secure way to isolate radioactive waste (hereinafter - RW) is recognized as their disposal at special facilities. The final disposal of RW is the final, very important and environmentally responsible stage of RW management, aimed at ensuring reliable long-term safety for the entire period of RW activity.

The Federal State Unitary Enterprise "National Operator for Radioactive Waste Management" (FSUE "NO RWM») was created in accordance with the Federal Law № 190-FZ of July 11, 2011 "On management of radioactive waste and amendment to some acts of law of the Russian Federation" on the basis of the state enterprise "Central Research Laboratory of Industrial Innovation Technologies", established by the order of the Ministry of Atomic Energy and Industry of the USSR of April 9, 1990 № 269.

According to the order of the Government of the Russian Federation dated March 20, 2012 № 384-p, FSUE "NO RWM" has the status of a national operator for radioactive waste management and is the **only organization**, authorized to dispose radioactive waste and perform other activities related to that.

The place of FSUE "NO RWM" in the general process chain of the RW management is shown in [Figure 1](#).

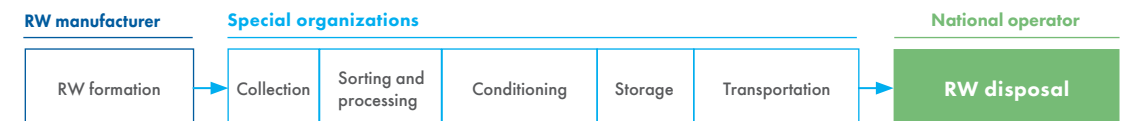


Figure 1

General scheme of RW management

Providing a solution to the problems of the accumulated Soviet nuclear legacy and newly-produced radioactive waste, the enterprise is, in fact, a state production and environmental enterprise, whose **key goal** is the final disposal of radioactive waste, considering any potential risks to the environment and human health.

The mission of FSUE "NO RWM" is to ensure the environmental safety of the Russian Federation in the field of final disposal of radioactive waste.

FSUE "NO RWM" was recognized as an organization suitable to operate nuclear facilities and carry out activities in the field of atomic energy use (Certificate of March 07, 2012 № GK-S008) by the governing body in the person of State Corporation Rosatom.

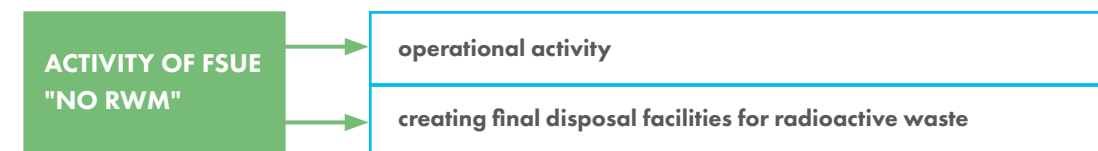
The main activities of FSUE "NO RWM" are:

- radioactive waste disposing;
- ensuring the safe handling of radioactive waste accepted for final disposal;
- ensuring the operation and closure of the final disposal facilities;
- ensuring nuclear, radiation, technical, fire safety, environmental protection;
- performing customer functions for the design and construction of final disposal facilities for radioactive waste;
- forecasting the volumes of final disposal of radioactive waste, of infrastructure development for radioactive waste management and placing relevant information on the website of FSUE "NO RWM" and the website of State Corporation "Rosatom" on the Internet;
- informing the public, government authorities, other state bodies, local governments on safety issues when handling radioactive waste, and on the radiation situation in the territories where radioactive waste disposal facilities are located;
- carrying out inventory of final disposal facilities for radioactive waste;
- performing preparatory and pre-project work related to the construction of final disposal facilities;
- developing and implementing measures to ensure the physical protection of final disposal facilities, including the creation of a system and elements of a physical protection system;
- organizing and conducting public hearings.

Nuclear materials, radioactive substances, radioactive waste are subject to state accounting and control in the state accounting and control system for nuclear materials and in the state accounting and control system for radioactive substances and radioactive waste according to Article 22 of the Federal Law "On the Use of Atomic Energy". One of the activities of FSUE "NO RWM" is the technical and informational support for the state accounting and control of radioactive substances and radioactive waste. In 2016, the Russian Government issued Resolution No. 542 of June 15, 2016 "On the Management of the State System for Accounting and Control of Radioactive Material and Radioactive Waste", which establishes, inter alia, the procedure for carrying out state accounting and control of RW, i.e. collecting, recording information on the amount, the qualitative composition and transporting of radioactive waste; registration of radioactive waste; registration of RW storage facilities; maintaining the register of radioactive waste; maintaining cadastre register of radioactive waste storage facilities; registration of the passport of radioactive waste.

Currently, "NO RWM" is mainly active in two major areas:

1. operational activities;
2. creating final disposal facilities for radioactive waste.



1.2. 1.2. OPERATIONAL ACTIVITIES OF FSUE "NO RWM»

The enterprise consists of the central office and the following branches and offices in the regions where existing and future final disposal facilities for radioactive waste are located:

1. branch "DIMITROVGRADSKIY" (Dimitrovgrad, Ulyanovsk region);
2. branch "ZHELEZNOGORSKIY" (Zheleznogorsk, Krasnoyarsk Krai);
3. branch "SEVERSKIY" (Seversk, Tomsk region);
4. department "NOVOURALSK" of branch "SEVERSKIY" (Novouralsk, Sverdlovsk region);
5. branch "OZERSKY" (Ozersk, Chelyabinsk region).

Dimitrovgradskiy, Severskiy and Zheleznogorskiy branches are engaged in the deep disposal of liquid radioactive waste (LRW). Department "Novouralsk" of Branch "Severskiy" operates the near surface disposal facility for the 3rd and 4th classes of radioactive waste. Branch "Ozersky" was established at the end of 2017 for the construction and subsequent operation of a near surface disposal facility for class 3 and 4 radioactive waste.

Figure 2

Location map of operating and projected DFRW of FSUE "NO RWM»



Places of DFRW are displayed on the scheme of territorial planning of the Russian Federation in the field of energy, approved by the decree of the Government of the Russian Federation of August 1, 2016 No. 1634-p

Deep (underground) disposing of LRW has been carried out since 1963. The first facility was created at JSC "Siberian Chemical Combine". In 1966 the Experimental Industrial Landfill was commissioned in the area of JSC "SSC RIAR", and in 1967 - landfill "Severnoy" in the area of location of the Federal State Unitary Enterprise Federal Nuclear Organization "Mining and Chemical Combine". Injection of low and intermediate level radioactive waste is carried out in deep-seam reservoirs, isolated from the above and below lying aquifers. The technological process of injection eliminates the possibility of negative impact on the components of the environment and the population. There were no emergencies for all the operation time..

LRW disposal is accompanied by systematic observations over the distribution of waste using a network of observation and test wells only at predetermined boundaries of the geological environment and the conduct of special studies

Disposal sites are serviced 365 days a year, 24 hours a day.
Scheduled repairs and technical control, quality control are constantly carried out.

BRANCHES OF FSUE "NO RWM»

Branch "DIMITROVGRADSKIY" operates facilities of the Experimental Industrial Landfill deep disposal of liquid radioactive waste (DDF EIL). It is located in the Ulyanovsk region, 6 km south-west of Dimitrovgrad, on the territory of the production site of JSC "SSC RIAR". The object is a complex of underground and surface constructions intended for the injection of liquid radioactive waste from JSC "SSC RIAR" into deep geological formations isolated from lower and overlying aquifers.

Two horizons are used for waste disposition, one of which is confined to the deposits of the Yasnaya Polyana over-horizon of the Lower Carboniferous (III aquifer — 1,380 m), the other to the Oka-Bashkir deposits of the Lower and Middle Carboniferous (IV aquifer — 1,250 m). Under natural conditions, these horizons contain calcium-sodium chloride brines with a salinity of 200–250 g/l, which are unsuitable for drinking and industrial water supply, and do not contain useful components in industrial concentrations. Injection of waste into absorbing horizons at the site is carried out through a complex of buildings and structures, which includes high-pressure pumps, special networks transporting LRW, injection wells, an installation management system and a system for controlling the process of LRW injection.

Branch "ZHELEZNOGORSKIY" operates the facilities of the deep disposal of liquid radioactive waste — landfill "Severnoy" (FDD landfill "Severnoy"). The distance from the industrial site of the Severny range to the northeastern boundary of Krasnoyarsk (regional administrative center) is 60 km. Nearest localities: Zheleznogorsk, 18 km to the south-west and the village of Bolshoy Baltschug, 6 km to the north of landfill "Severnoy" on the right bank of the Yenisei River; Atamanovo village 6.0 km and Shivera village 15 km to the south-west on the left bank of the Yenisei River.

FDD landfill "Severnoy" is a complex of facilities designed for the deep disposal of FSUE "MCC" liquid radioactive waste by controlled injection of waste through a system of injection wells into production horizons blocked by waterproof rocks.

Two horizons are used for waste disposition: I production horizon is located at a depth of 355-500 m, II production horizon — at a depth of 180-280 m.



Branch "SEVERSKIY" operates the facilities for the deep disposal of liquid radioactive waste "Platforms 18 and 18a" (FDD "Platforms 18 and 18a»). The object is located within the industrial site of JSC "Siberian Chemical Combine", located on the right bank of the Tom River within the boundaries of the Closed Administrative-Territorial Formation (CATF) Seversk at a distance of 10-12 km from the northern outskirts of Tomsk and at a distance of 2.5 km to the north-west from the residential area of Seversk.

FDD "Platforms 18 and 18a" are a complex of underground and surface facilities for underground disposition of liquid waste by controlled injection into deep geological formations isolated from lower and overlying aquifers through a system of injection wells.

Platform 18 is designed for the disposal of low level LRW. Disposing is carried out in horizons II and III, occurring in the depth intervals of 375–430 m and 260–303 m.

Platform 18a is designed for the disposal of intermediate level LRW. The waste is buried in horizon II, occurring in the depth interval of 315-345 m.

Department "NOVOURALSK" of branch "SEVERSKIY" operates a near surface disposal facility for radioactive waste in Novouralsk (hereinafter – NSDFRW of Novouralsk). **Establishing of facility in Novouralsk, Sverdlovsk Region, was provided for by the federal target program "Nuclear and Radiation Safety in 2008 and for the period up to 2015"**. The construction of NSDFRW was carried out in accordance with the project developed by the Ural Design and Research Institute VNIPIET. The operation of NSDFRW began in November-December 2016, when the first batch of solid 3rd-class radioactive waste from the Ural Electrochemical Combine was accepted.

NSDFRW is located in the single industrial zone of the city of Novouralsk, north of the residential areas. The nearest settlements: Novouralsk is located 4 km to the south; 4.5 km to the north is the village of Belorechka, 4.8 km to the south-east is the village of Verkh-Neyvinsky, 5 km to the northeast — the village of Neivo-Rudyanka.

NSDFRW is intended for disposition of third and fourth classes of solid radioactive waste according to the classification of the radioactive waste, approved by the Decree of the Government of the Russian Federation of October 10, 2012 № 1069.

NSDFRW includes: building № 1, packaged transformer substation, fire tanks (2 units), Map № 10, etc.

Map № 10 is intended for disposition of RW packages and is a set of reinforced concrete compartments. The system for the disposal of radioactive waste, implemented at NSDFRW, introduces the principle of multiple barriers, consisting of engineering and natural (geological) safety barriers. As part of the engineering safety barriers, an underlying screen is provided around the perimeter of the construction of Map № 10 (walls, floor). The design of the screen consists of a reinforced concrete base resistant to mechanical loads and a sorption barrier - special clay, which serves to prevent the migration of radionuclides leached from waste beyond the construction structure.

In addition to ensuring the operation of the final disposal facilities for radioactive waste, the company is responsible for their timely and safe closure. In 2017, the development strategy of FSUE "NO RWM" for 2018–2022 included measures that ensure readiness to complete the operation of facilities and their closure if they decide to stop using the disposal technology in deep geological horizons.

The closure of FDD includes: the conservation (liquidation) of injection wells and parts of observation wells, the decision to decommission surface structures, if necessary, the rehabilitation of contaminated sites and groundwater, the organization of monitoring of the radioactive waste disposal system in the aftermath of closure.

By 2020, it is planned to obtain baseline data for the formation of closure projects: research of plugging materials most resistant to degradation under technogenically modified geological environment due to LRW, substantiation of ways to eliminate wells, approbation of individual technical solutions to eliminate wells, develop options for the planned state of the FDD, the development of the concept of the organization of long-term monitoring, the results of the periodic assessment of long-term security. In addition to the well system, it is planned to develop and use monitoring technologies that do not violate the geological environment.

The next stage (2021–2023) will be the development of programs for closing of FDD, envisaged by the requirements of NP-055-14, including: analyzing the design and operational documentation and monitoring results, analyzing the stability of FDD to external impacts of natural and man-made origin, justifying the choice of the option for closure FDD and radiation survey of facilities and structures of FDD and development of projects for the closure of FDD, including the main preparations for the closure, consistency and orientation a detailed schedule of the implementation stages of the closure of DFRW.

1.3. ACTIVITIES TO CREATE FINAL DISPOSAL FACILITIES FOR RADIOACTIVE WASTE

Clause 4 of the Decree of the Government of the Russian Federation dated November 19, 2012 № 1185 "On establishing a process and timeframe for creation of a unified state system for management of radioactive waste" provides for the creation of a system of final disposal facilities for radioactive waste.

One of the most important aspects of minimizing the negative impact on the environment and preventing environmental and radiation risks, as well as a crucial step in the process of creating final disposal facilities, is the pre-design stage, where prospective sites are searched and selected. The basic principles of the search for the placement of such facilities are shown in [figure 3](#).

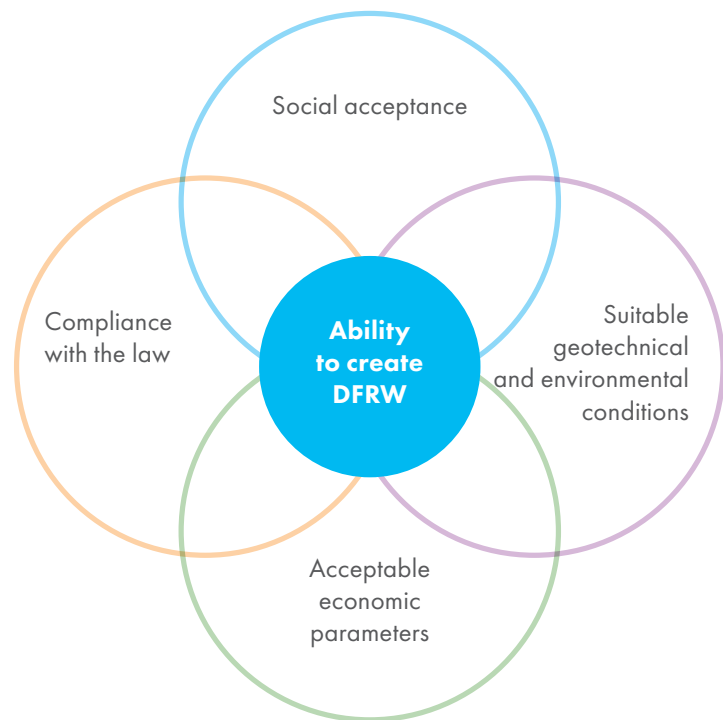


Figure 3
Basic principles for the placement of final disposal facilities for radioactive waste

Only a combination of these conditions makes it possible to consider the sites as suitable for the placement of disposal facilities. At the pre-project and project stages, the fundamental direction of work is to conduct an environmental impact assessment (EIA), on which the safety of not only the facility itself, but also the region of its location will depend on it in the future. Impact assessment is carried out in accordance with the Regulation on Environmental Impact Assessment of the planned economic and other activities in the Russian Federation, approved by Order № 372 of the State Environmental Committee of the Russian Federation dated May 16, 2000, in several stages (they are shown in [figure 4](#)).

EIA procedure

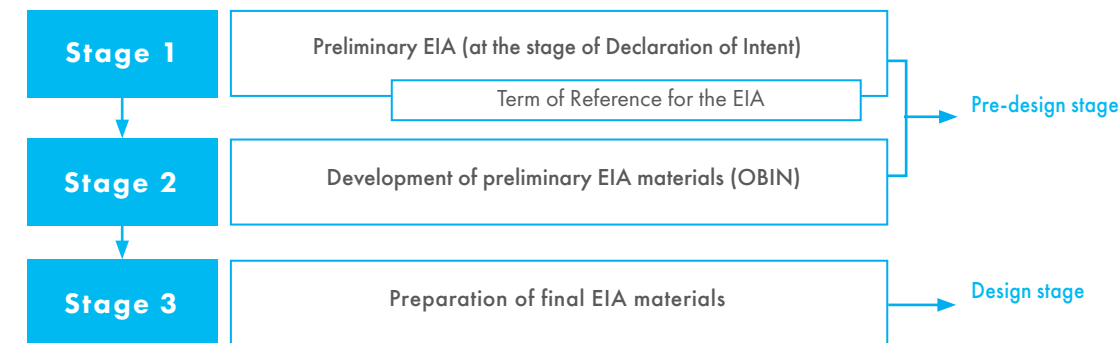


Figure 4
EIA procedure

*OBIN – investment case studies

ENVIRONMENTAL POLICY OF FSUE "NO RWM"



2. ENVIRONMENTAL POLICY OF FSUE "NO RWM"

FSUE "NO RWM" is an environmentally significant organization of the nuclear industry in accordance with the List of environmentally significant organizations of State Corporation Rosatom, approved on December 14, 2018.

In 2018, in accordance with the Unified Industry Environmental Policy of "Rosatom" and its organizations, approved by order of "Rosatom" № 1/1232-P dated December 12, 2017, the FSUE "NO RWM" Environmental Policy was revised by the order FSUE "NO RWM" № 319-01 / 22-P dated January 17, 2019.

When planning and implementing the main activity, FSUE "NO RWM" is guided by the following principles:

principle of compliance – ensuring compliance of activities of NO RWM and branches of NO RWM with legislative and other regulatory requirements and standards, including international, in the field of ensuring environmental safety and environmental protection;

the principle of presumption of potential environmental hazard – the awareness that any activity may have a negative impact on the environment and the priority of mandatory consideration of environmental factors and assessing the possible negative impact on the environment when planning and implementing activities of NO RWM and branches of NO RWM;

the principle of scientific soundness of decisions – a scientifically based approach to making environmentally significant decisions by the management and officials of NO RWM and branches of NO RWM involving the expert community, as well as the obligation to use modern and promising scientific achievements;

the principle of consistency – a combination of environmental, economic and social interests of NO RWM and the community, public organizations, state authorities and local governments in the regions where NO RWM branches are located in the interests of sustainable development and ensuring favorable environment and environmental safety;

the principle of environmental efficiency – ensuring high performance of environmental activities, reducing the negative impact on the environment from the activities of the branches of NO RWM and the use of natural resources at a reasonable level of costs;

the principle of informational openness – compliance with the public right to receive reliable information on the state of the environment in the regions where NO RWM branches are located in accordance with the established procedure, transparency and availability of environmental information;

the principle of readiness – the constant readiness of the management and employees of NO RWM and branches of NO RWM to prevent, localize and eliminate the consequences of possible technological accidents and other emergency situations;

the principle of acceptable risk – the use of a risk-based approach for making environmentally effective management decisions;

the principle of continuous improvement – the continuous improvement of the system of environmental management and environmental safety through the use of targets and indicators of environmental performance;

the principle of best practices – the use of advanced domestic and foreign experience to improve the quality of the environment and ensure environmental safety.

To implement the basic principles of environmental activities, FSUE "NO RWM" undertakes the following obligations:

- 1.1. Conduct predictive assessment of the environmental impact of the disposal of radioactive waste on the environment in order to reduce environmental risks and prevent accidents.
- 1.2. Ensure the reduction of specific indicators of emissions and discharges of pollutants into the environment, the volume of waste generation, including radioactive waste, as well as the reduction of environmental impact.
- 1.3. Implement and maintain the best methods of environmental management and environmental safety in accordance with national and international standards in the field of environmental management.
- 1.4. Provide the necessary resources, including personnel, financial, technological, environmental protection and environmental safety.
- 1.5. Improve the system of industrial environmental control and monitoring, to apply modern methods and measurement tools to develop automated systems of environmental control and monitoring.
- 1.6. Involve, in the established manner, interested citizens, public and other non-profit organizations to participate in the discussion of the planned activities in the field of disposal of radioactive waste on environmental protection and environmental safety.
- 1.7. Ensure the interaction and coordination of activities in the field of environmental protection and environmental safety with the state authorities of the Russian Federation, state authorities of the constituent entities of the Russian Federation and local authorities.
- 1.8. Ensure reliability, openness, accessibility and objectivity of information on the environmental impact of branches of NO RWM on the environment in their

location areas, as well as measures taken to protect the environment and ensure environmental safety.

1.9. Promote the formation of environmental culture, the development of environmental education for all employees of NO RWM and branches of NO RWM and environmental education of the population in the regions where branches of NO RWM are located.

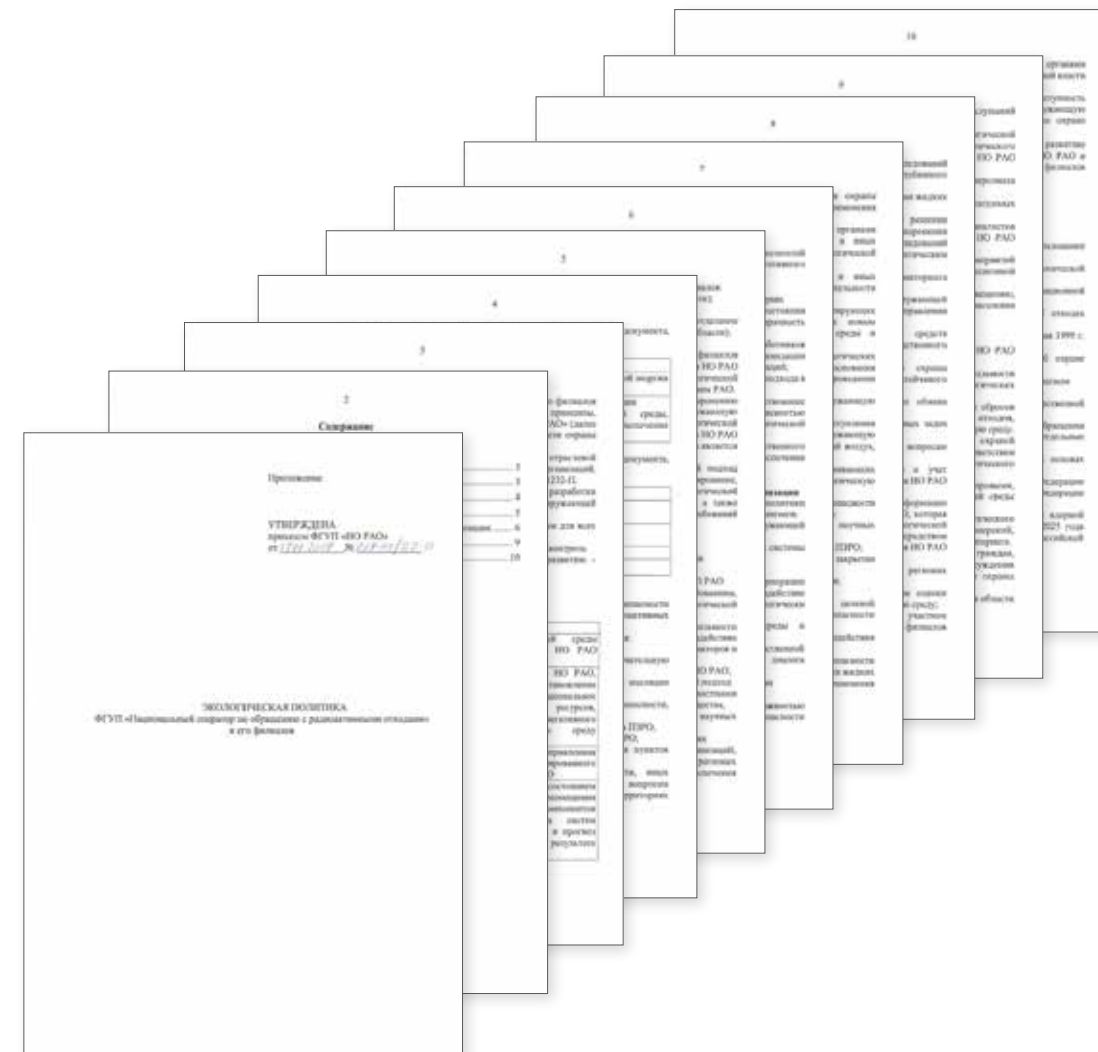
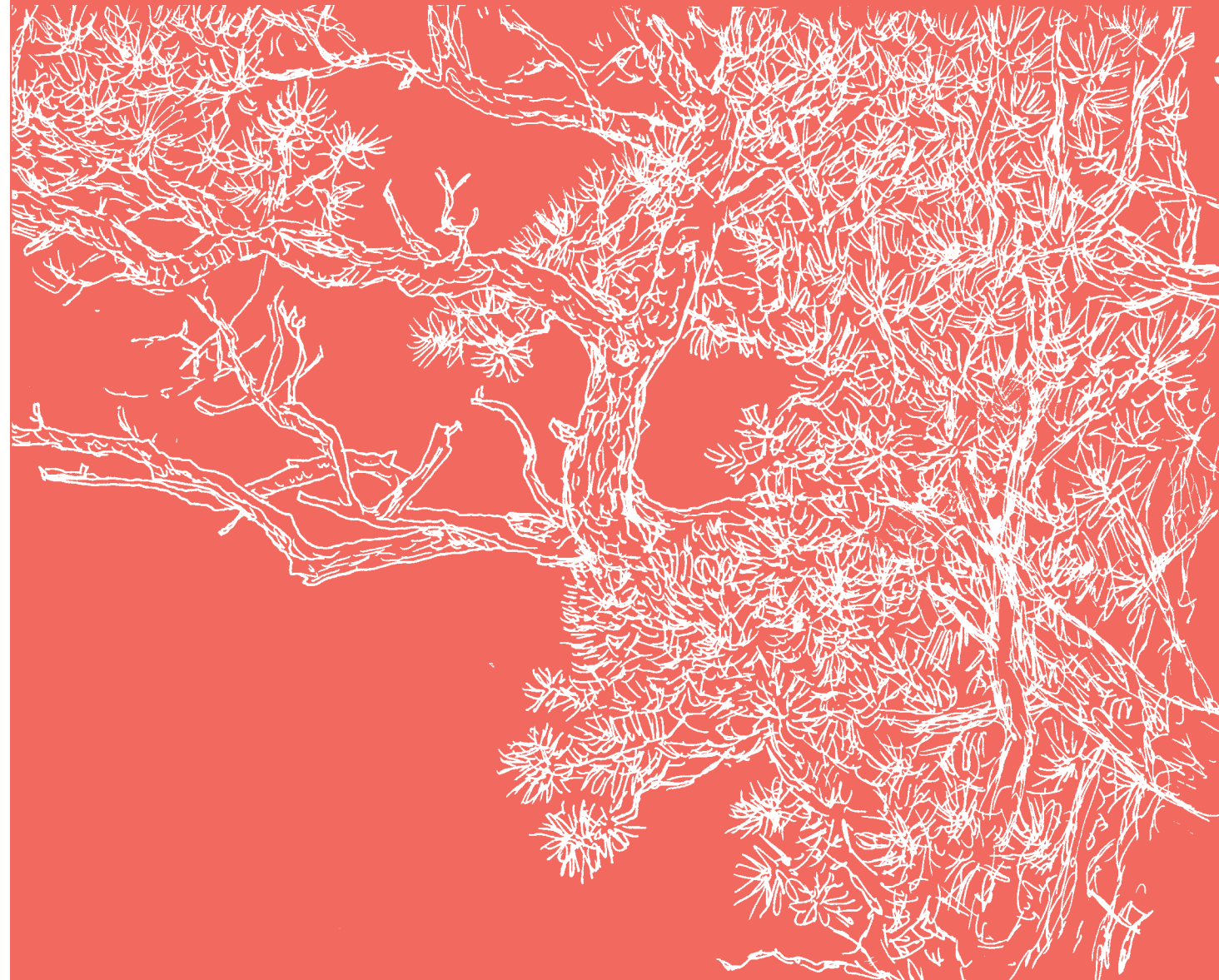


Figure 5
Order on approval of the Environmental Policy of FSUE "NO RWM"

SYSTEMS OF ENVIRONMENTAL MANAGEMENT, QUALITY MANAGEMENT AND HEALTH AND SAFETY MANAGEMENT





3. SYSTEMS OF ENVIRONMENTAL MANAGEMENT, QUALITY MANAGEMENT AND HEALTH AND SAFETY MANAGEMENT

In accordance with Art.35 of the Federal Law № 170-FZ of November 21, 1995 "On the Use of Atomic Energy", FSUE "NO RWM", being the operating organization, organizes and coordinates the development and implementation of quality assurance programs at all stages of creation, operation and closure of the final disposal facilities of radioactive waste. Quality assurance programs are carried out with the requirements of the following documents:

- NP-090-11 "Requirements for quality assurance programs for nuclear facilities";
- GOST R ISO 9000-2015. National standard of the Russian Federation. Quality management systems. Fundamentals and vocabulary;
- GOST ISO 9001-2011. Interstate standard. Quality management systems. Requirements;
- GOST R ISO 9004-2010. Managing for the sustained success of an organization. Quality management approach;
- GOST 12.0.230-2007. Interstate standard. Occupational safety standards system. Labor protection management systems. General requirements;
- GOST R 12.0.007-2009. Occupational safety standards system. The system of management of labor protection in the organization. General requirements for the development, application, evaluation and improvement;
- OST 95 10584-2003 Personnel qualifications and competence. General requirements.

The FSUE "NO RWM" has a Quality Assurance Program of FSUE "NO RWM", approved by the order of FSUE "NO RWM" № 319-11P/331-P dated August 20, 2015, as well as a number of documents regulating quality assurance activities in production branches FSUE "NO RWM":

- Regulations on the OSH management system in the Zheleznogorsk branch of FSUE "NO RWM" IN 01.F-04.006-2013;
- Quality assurance program for the operation of FDD landfill "Severny" during the liquidation of wells SK PR F10-02.001-2016;
- A quality assurance program for site selection at a non-nuclear facility for the storage of radioactive waste created in accordance with the project documentation for the construction of final disposal facilities for radioactive waste (Krasnoyarsk Krai, Nizhne-Kansk massif) as part of the underground research laboratory of POC 319-001.01.00-2015;
- A quality assurance program for the operation of FDD LRW of "Platforms 18 and 18a" of Branch "Severskiy" of the FSUE "NO RWM" RP PP F10-000-001.03.01-2017 (approved by Order № 319-11R/659 dated October 10, 2017);
- Quality assurance programs for the well site abandonment operations at the "Platforms 18 and 18a" POC 319-F20-001.11.08-2015;
- The program for quality control of measurements of radioactive substances and radioactive waste in the branch "Severskiy" of FSUE "NO RWM" PR-319-02f-015-2016;
- Quality Assurance Program for the construction of NSDFRW, POC 319-000-001.01.01-2017 (approved by Order № 319-11P/883-P of December 28, 2017);

- Regulations on the organization and implementation of production control over compliance with industrial safety requirements in the workshop for the operation of FDD of the Branch "Severskiy" of FSUE "NO RWM" P-319-2/216-2017 (approved by Order № 319-2/889-P of December 29, 2017);
- Quality Assurance Program for the operation of DDF EIL of Branch "Dimitrovgradskiy" of the FSUE "NO RWM" (PR PP F30-000-001.03.01-2017) № 319-11R /637-P of October 2, 2017.

In 2014, the FSUE "NO RWM" introduced a quality management system and approved the quality policy of the FSUE "NO RWM" (order № 319-01/37-P, dated February 12, 2014). Within the framework of the quality management system, documented procedures were developed and approved (order № 319-11R/55-P dated January 26, 2017). The quality management system of FSUE "NO RWM" is certified and complies with the requirements of GOST R ISO 9001-2015 (Certificate № ROSS RU.S.04HZH.SK.0615).

The environmental policy of FSUE "NO RWM", introduced in 2014, was developed in accordance with the basic principles and provisions of the environmental management standards of the GOST R ISO 14000. Currently, work is underway to implement the environmental management system in FSUE "NO RWM" and its branches.

In 2016, in order to improve the activities of the central office and branches of NO RWM in the field of environmental protection and environmental safety, FSUE "NO RWM" introduced the practice of conducting an internal environmental audit.

Internal environmental audit is a set of control (verification) measures for assessing compliance by the central office and branches of FSUE "NO RWM" with environmental requirements and requirements of the Environmental

Policy of "Rosatom", which is conducted on its own initiative in the interests of management of FSUE "NO RWM" without the involvement of external experts

The Regulation on the conduct of internal environmental audit of FSUE "NO RWM" was approved by the order of FSUE "NO RWM" dated March 24, 2016 № 319-01/135-P. Internal environmental audit is carried out in accordance with the audit program, approved by the director's order.

MAIN DOCUMENTS REGULATING ENVIRONMENTAL PROTECTION ACTIVITIES OF FSUE "NO RWM"





4. MAIN DOCUMENTS REGULATING ENVIRONMENTAL PROTECTION ACTIVITIES OF FSUE "NO RWM"

The company's activities are based on strict compliance with legal and other regulatory requirements, as well as environmental standards and radiation safety, including the following documents:

4.1. FEDERAL LAWS

Federal Law of November 11, 1995 № 170-FZ "On the Use of Atomic Energy";
Federal Law of January 10, 2002 № 7- FZ "On Environmental Protection";
The Law of the Russian Federation of February 02, 1992 № 2395-1 "On Subsoil";
Land Code of the Russian Federation of October 25, 2001 № 136-FZ;
Water Code of the Russian Federation of June 3, 2006 № 74-FZ;
Forest Code of the Russian Federation of December 4, 2006 № 200-FZ ;
Federal Law № 174-FZ of November 23, 1995 "On environmental expertise";
Federal Law of January 09, 1996 № 3-FZ "On the radiation safety of the population";
Federal Law of June 24, 1998 № 89-FZ "On Production and Consumption Waste";
Federal Law of July 11, 2011 № 190-FZ "On management of radioactive waste and amendment of some acts of Law of the Russian Federation";
Federal Law of December 7, 2011 № 416-FZ "On water supply and wastewater disposal";
Federal Law № 96-FZ "On the protection of atmospheric air" of May 4, 1999 and others.

4.2. RESOLUTIONS OF THE GOVERNMENT OF THE RUSSIAN FEDERATION

Government Orders of the Russian Federation "On procedure for development of the radiation and hygiene passports of organizations and territories, № 93 of January 28, 1997.

Order of the Government of the Russian Federation of October 19, 2012 № 1069 "About criteria of reference of solid, liquid and gaseous waste to radioactive waste, criteria of reference of radioactive waste to special radioactive waste and to the deleted radioactive waste and criteria of classification of the deleted radioactive waste";

Resolution of the Government of the Russian Federation of March 02, 2000 № 183 "On norms of emissions of harmful substances (pollutants) into the air and harmful physical effects on it";

Order of the Government of the Russian Federation of October 3, 2015 № 1062 "About licensing of activities for collection, transportation, processing, utilization, neutralization, disposition of waste of the I-IV classes of danger" (with Regulations on licensing of activities for collection, transportation, processing, utilization, neutralization, disposition of waste of the I-IV classes of danger);

Resolution of the Government of the Russian Federation № 280 of March 29, 2013 "Licensing Activities in the Field of the Use of Atomic Energy" and others.

4.3. OTHER DOCUMENTS

The Resolution of the Chief State Sanitary Doctor of the Russian Federation of July 07, 2009 N 47 "On approval of SanPiN 2.6.1.2523-09" (together with "NRB-99/2009.

SanPiN 2.6.1.2523-09. Norms of Radiation Safety. Sanitary rules and norms");

Resolution of the Chief State Sanitary Doctor of the Russian Federation № 40 of April 26, 2010 "SP 2.6.1.2612-10 "Basic Sanitary Rules for Ensuring Radiation Safety" (OSPORB-99/2010)" (together with "SP 2.6.1.2612-10 OSPORB-99/2010 Sanitary rules and standards of..")

Certificates of state registration of objects of FSUE "NO RWM", which have a negative impact on the environment: the branch "Dimitrovgradskiy" - certificate № AO3FQHL3 dated December 30, 2016, the branch "Severskiy" - certificate № BB1GYRAA dated February 09, 2017;

Sanitary rules and technical conditions of operation and conservation of deep disposal facilities for liquid radioactive and chemical wastes of enterprises of the nuclear fuel cycle (SR and TC OCF-93);

Guidelines for the operation and conservation of deep disposal facilities for liquid radioactive waste and chemical waste from the nuclear industry (G OCFD-2003);

GOST R 52108-2003. Resources saving. Waste treatment. Basic principles;

Federal norms and rules in the field of atomic energy use "Disposal of Radioactive Waste. Principles, Criteria and General Safety Requirements" (NP-055-14);

Federal norms and rules in the field of atomic energy use "Near Surface Disposal of Radioactive Waste. Safety Requirements" (NP-069-14);

Federal norms and rules in the field of atomic energy use "Radioactive Waste Acceptance requirements for Disposal" (NP-093-14) and others.

4.4. PERMITS

Types of activities stipulated by the company's charter that are directly related to the management of radioactive waste during their final disposal, as well as to ensuring the radiation safety of personnel, the public and the environment, are performed by FSUE "NO RWM" under:

- license № GN-03-304-3539 dated July 16, 2018, issued by the Federal Service for Environmental, Technological and Atomic Supervision on the operation of a stationary facility and facilities intended for the disposal of radioactive waste by branch "Dimitrovgradskiy" of FSUE "NO RWM";
- license № GN-03-304-3540 dated July 16, 2018, issued by the Federal Service for Environmental, Technological and Atomic Supervision on the operation of a stationary facility and structures intended for the disposal of radioactive waste by branch "Severskiy" of FSUE "NO RWM";
- license № GN-03-304-3538 dated July 16, 2018, issued by the Federal Service for Environmental, Technological and Atomic Supervision on the operation of a stationary facility and structures intended for the disposal of radioactive waste by branch "Zheleznogorskiy" of FSUE "NO RWM";
- license № GN-03-304-3092 of November 10, 2015, amended by No. 1, issued by the Federal Service for Environmental, Technological and Nuclear Supervision for the right to operate the first stage of a stationary facility intended for the disposal of radioactive waste (RW), which is operated by Department "Novouralsk" of Branch "Severskiy" of FSUE "NO RWM";
- license № ULN 15637 ZE, issued by the Federal Subsoil Use Agency (Rosnedra) for the right to use subsoil for the purpose of disposal of liquid low- and intermediate level radioactive waste at the landfill of the State Scientific Center – Research

Institute of Atomic Reactors (Dimitrovgrad) valid until 12/31/2020;

- license № TOM 15636 ZG issued by Rosnedra for the right to use subsoil for the purpose of disposing of liquid radioactive waste in underground horizons by branch "Severskiy" of FSUE "NO RWM" valid until December 1, 2026;
- license № KRR 15638 ZG issued by Rosnedra for the right to use subsoil for the purpose of disposal of liquid radioactive waste in FDD landfill "Severny" (Zheleznogorsk) valid until 31.12.2020.

Branches have developed feasibility documents and received following approvals in sphere of environmental impact:

- Permit № 17/2015 dated March 30, 2015 issued by the Federal Service for Environmental, Technological and Atomic Supervision to branch "Zheleznogorskiy" on emissions of radioactive materials into atmosphere (valid up to March 26, 2020);
- Permit № 15/2014 dated December 25, 2014 issued by the Federal Service for Environmental, Technological and Atomic Supervision to branch "Severskiy" on emissions of radioactive materials into atmosphere (valid up to December 29, 2019);
- Waste generation standards and waste disposal limits № 265 dated March 23, 2016 established by the Federal Service for Supervision of Natural Resources in Krasnoyarsk Krai for branch "Zheleznogorskiy" (valid up to March 23, 2021);
- Waste generation standards and waste disposal limits № 214 dated March 31, 2015 established by the Federal Service for Supervision of Natural Resources in Tomsk region for branch " Severskiy " (valid up to March 30, 2020).

Contracting organizations providing services and performing work on the territory of radioactive waste disposal facilities are also provided with a full set of necessary permits and licenses.

INDUSTRIAL ENVIRONMENTAL MONITORING AND MONITORING OF THE ENVIRONMENT



Figure 6
Copies of Subsoil Use Licenses





5. INDUSTRIAL ENVIRONMENTAL MONITORING AND MONITORING OF THE ENVIRONMENT

The main task of industrial environmental and radiation monitoring, carried out in the regions of presence of FSUE “NO RWM”, is to ensure activities within the established standards and in accordance with the requirements of current legislation and regulatory documents.

Industrial, environmental and radiation monitoring at branches and departments of FSUE “NO RWM” is mainly active in two major areas:

1. control over compliance with environmental legislation requirements during operating activities;
2. monitoring compliance with legal requirements while ensuring radiation safety.

Industrial environmental and radiation monitoring include:

- control of emissions of radioactive substances into the air;
- control of production and consumption waste generation volumes;
- control of the volume of secondary radioactive waste generation, the procedure for handling this waste;
- control of the content of radioactive substances in the surface layer of atmospheric air and precipitation;
- control of the content of harmful chemical and radioactive substances in surface and groundwater;
- radiation monitoring of soil and vegetation;
- control of individual doses of personnel;
- control of the dose rate of gamma radiation, the flux density of alpha and beta particles at workplaces, in industrial premises and in the territory of disposal facilities;
- control of the content of radioactive aerosols in the air of workers and other premises;
- control of levels of contamination of working surfaces and equipment, skin and working clothes by radioactive substances;

- control of the level of pollution by radioactive substances of vehicles;
- radiation monitoring during work on the decontamination of equipment, premises and territory of the final disposal facilities.

Obtained in 2018 as a result of production control data show:

controlled radiation factors, including the content of radionuclides in environmental samples, do not exceed the permissible values established by the legislation and permit;

RW management system complies with modern criteria, standards and safety requirements; safety principles are observed when radioactive waste is disposed of; RW disposal facilities meet safety requirements.

The production environmental and radiation monitoring at the facilities of FSUE “NO RWM” is carried out in accordance with the programs developed and approved by the management of the branches, involving accredited laboratories, including the enterprises of the State Atomic Energy Corporation “Rosatom” (FSUE “Mining and Chemical Combine”, JSC “SCC”, JSC “SSC RIAR”), attracted on a contractual basis.

Branch "DIMITROVGRADSKIY"

Industrial environmental control in the branch "Dimitrovgrad" FSUE "NO RWM" is carried out in accordance with:

The program of industrial environmental control of December 28, 2016 № 319-F30/628-P,

The program of radiation monitoring of DDF EIL of October 30, 2017 № 319-3/719-P,

Subsoil Monitoring Program of DDF EIL FSUE "NO RWM" of January 26, 2017 № 319-3/53-P and includes:

- sampling from observation wells of FDD LRW;
- carrying out physicochemical and radiometric analyzes of formation water from observation wells;
- control of radiation parameters;
- emissions of radionuclides into the atmosphere;
- the content of radionuclides in water sources;
- ambient dose equivalent rate of gamma radiation in the territory of FDI;
- surface radioactive contamination of the territory of FDI.

The system of observations of the state of the subsoil and the environment includes geophysical, hydrochemical and hydrodynamic studies in the process of filling the underground repository with radioactive waste. The main methods of controlling the spread of waste in the subsoil are geophysical studies in wells. For this purpose, integrated digital equipment TRGK and MID-K on the basis of a PKS logging station is used. Geophysical surveys include the following types of work:

- gamma logging - in order to determine the natural gamma background created by the rocks forming the section, and gamma anomalies caused by the appearance of waste in any interval of the section;
- thermometry - to determine the rise in temperature of the layers and the detection of interfacial flows, as well as monitoring the tightness of the production columns of observation wells;
- resistivity - to determine the electrical resistance of water filling the wellbore; serves as an indirect method for determining casing integrity;
- magnetic-pulse flaw detection - to monitor the integrity of casing strings, as well as to determine areas of increased corrosion.

Hydrochemical studies include water sampling from observation wells, followed by chemical and radiometric analysis.

Hydrodynamic studies are to determine the position of the piezometric surface of the groundwater reservoir and overlying horizons (measuring levels or pressures at the top of wells). The study of changes in the depth of the groundwater level is carried out to determine the hydrodynamic parameters of reservoirs and to study the disturbed pressure regime of reservoirs and overlying aquifers, as well as to monitor the tightness of reservoirs.

In the reporting year, measurements of the monitored radiation parameters were made in full. Physico-chemical and radiometric studies of formation water from observation wells, the determination of radionuclide content in water supply sources were performed in the laboratory of radiation control of JSC "SSC RIAR".

The scheme of the observational network of DDF EIL is presented in [figure 7](#).

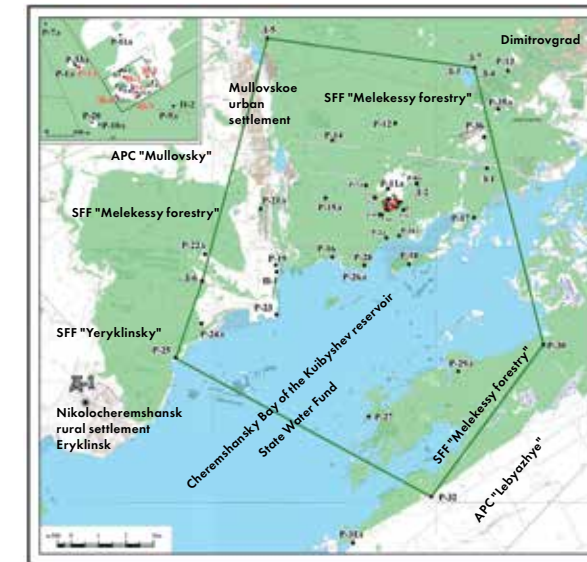


Figure 7

The observation network, the boundaries of the mining withdrawal of the subsoil and sanitary-protective zone of DDF EIL (Dimitrovgrad, Ulyanovsk Region)

- | | | | |
|--------------|--|------------|---|
| H-4 | Injection well: | A-1 | Additional observation well recommended by Rosnedra |
| ● | to upper reservoir | ● | |
| H-1 | to the lower reservoir | — — | The border of the near zone of mining withdrawal of the subsoil (access to the surface) FDD |
| ● | | — — | Border of the far zone of mining withdrawal of the subsoil (in the exploited formations and the buffer complex) |
| P-18 | Observation wells | + | FDD conditional center |
| ● | | | |
| CF-1 | Sanitary and hydrogeological wells | | |
| ● | | | |
| B-1 | Water wells | | |
| ● | | | |
| P-26л | Liquidated wells (with the letter "л") | | |
| ● | | | |

According to hydrodynamic, hydrochemical, and geophysical monitoring data, the current state of the subsoil in the FDD area is acceptable and predictable. The impact on the subsoil by the disposal of waste is expected and acceptable. The buried waste is distributed within the licensed subsoil block in the operating complexes. Signs of technogenic changes in the natural geological conditions in the buffer and overlying aquifers, including in fresh groundwater, were not observed.

The main results of industrial environmental monitoring for 2018 are presented in [table 1](#).

Object of control	Defined parameters	Units	Average value	Maximum value
Water supply sources	Specific total alpha activity	Bq/kg	0,04	0,09
	Specific total beta activity	Bq/kg	0,05	0,09
	Specific activity Cs-137	Bq/kg	0,01	0,02
	Specific activity Rn-222	Bq/kg	1,93	2,65
Territory of FDD	Ambient dose equivalent rate of gamma radiation (at the boundary)	μSv/h	0,1	0,2
	Surface radioactive contamination	particles/cm ² min	not found	not found

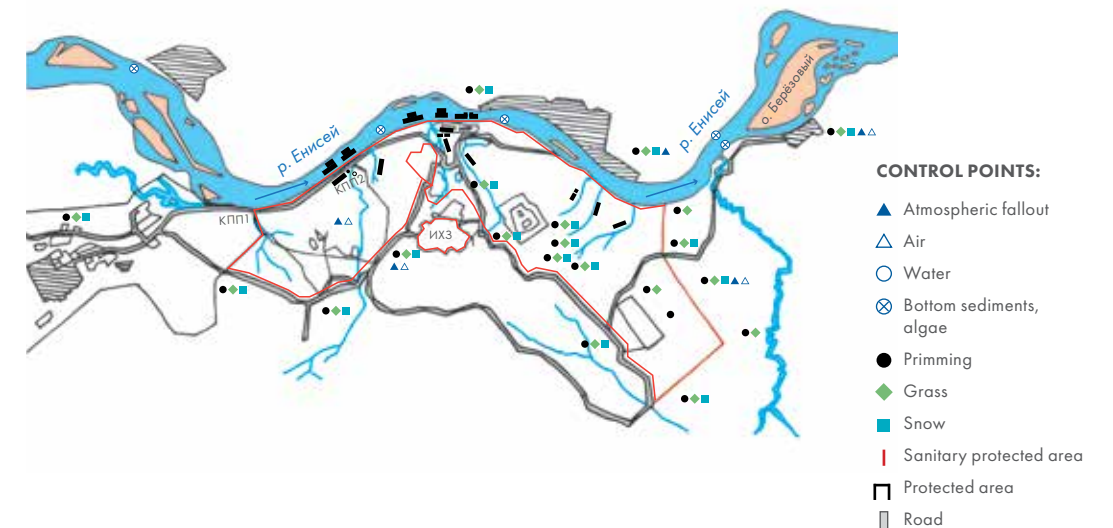
[Table 1](#)
The main results of industrial environmental monitoring for 2018

Branch "ZHELEZNOGORSKIY"

The production environmental and radiation monitoring of the facilities of the branch "Zheleznogorskiy" in 2018 was carried out in accordance with:

- radiation monitoring programs at FDD landfill "Severny" IN F01-04.111-2014;
- contract dated December 05, 2017 № 0573100027017000120_301743 for the provision of a range of services for laboratory analysis of water samples for radionuclides and hazardous chemicals in the area of FDD landfill "Severny" of branch "Zheleznogorskiy" of FSUE "NO RWM";
- contract dated May 22, 2017 № 0573100027017000126_301743 for the provision of services for continuous radio environmental monitoring in the area of FDD landfill "Severny" of branch "Zheleznogorskiy" of FSUE "NO RWM".

The map-scheme of the location of radio environmental (radiometric) control points in the region of FDD landfill "Severny" is shown in [figure 8](#).



[Figure 8](#)
The map-scheme of the location of radio environmental (radiometric) control points in the region of FDD landfill "Severny"

The average annual ambient dose rate of external radiation at the boundary of the sanitary protection zone.
On the boundary of the fencing of FDD landfill "Severny":

0,08±0,04 μSv/h – average value;

0,10±0,04 μSv/h – maximum value;

0,06±0,03 μSv/h – minimum value.

The main results of monitoring the average annual volume (specific) activity of radionuclides in the water of open water bodies and in the air in the sanitary protection zone (in units of water intake, DOAnas) for 2018 are presented in table 2.

№	Name of the control point	Radionuclide	Specific activity	
			Bq/kg	In unit of water intake
WATER				
1	Place of the confluence of the untitled stream into the river B. Tel	Total alpha activity	<0,2	-
		Total beta activity	<0,2	-
AIR				
№	Name of the control point	Radionuclide	Volume activity	
			10 ⁻⁶ Bq/m ³	In unit of DOAnas
2	1 km north of the boundary of the fencing of FDD landfill "Severny"	Cobalt-60	< 20	< 7,4E-06
		Zirconium 95	< 0,3	< 6,5E-09
		Niobium 95	< 3	< 6,8E-07
		Ruthenium 106	< 6	< 1,8E-06
		Cesium-134	< 0,3	< 1,6E-08
		Cesium-137	1,6 ± 0,5	7,8E-08
		Cesium-144	<3	<9,1E-07
		Strontium-90	120 ± 30	-
		Total alpha activity	690 ± 190	-
Total beta activity				

Table 2

Average annual volume (specific) activity of radionuclides in the water of open water bodies and in the air in the sanitary protection zone (in units of water intake, DOAnas)

Branch "SEVERSKIY"

The industrial environmental and radiation control of the branch is carried out in accordance with the following documents:

- production control programs for ensuring radiation safety in branch "Severskiy" of FSUE "NO RWM", RB P-319-f20-100-2014;
- radiation monitoring programs for FDD LRW of branch "Severskiy" of FSUE "NO RWM" RB PR-319-2/212-2017;
- regulations on the procedure for the implementation of production control in the field of production and consumption waste management in branch "Severskiy" of FSUE "NO RWM", P-319-F20-103-2014.

The layout of the points of radiation monitoring of atmospheric air, atmospheric precipitation, dose rate of gamma radiation, snow cover, soil, vegetation (grass) is shown in figure 9; groundwater control points in figure 10.

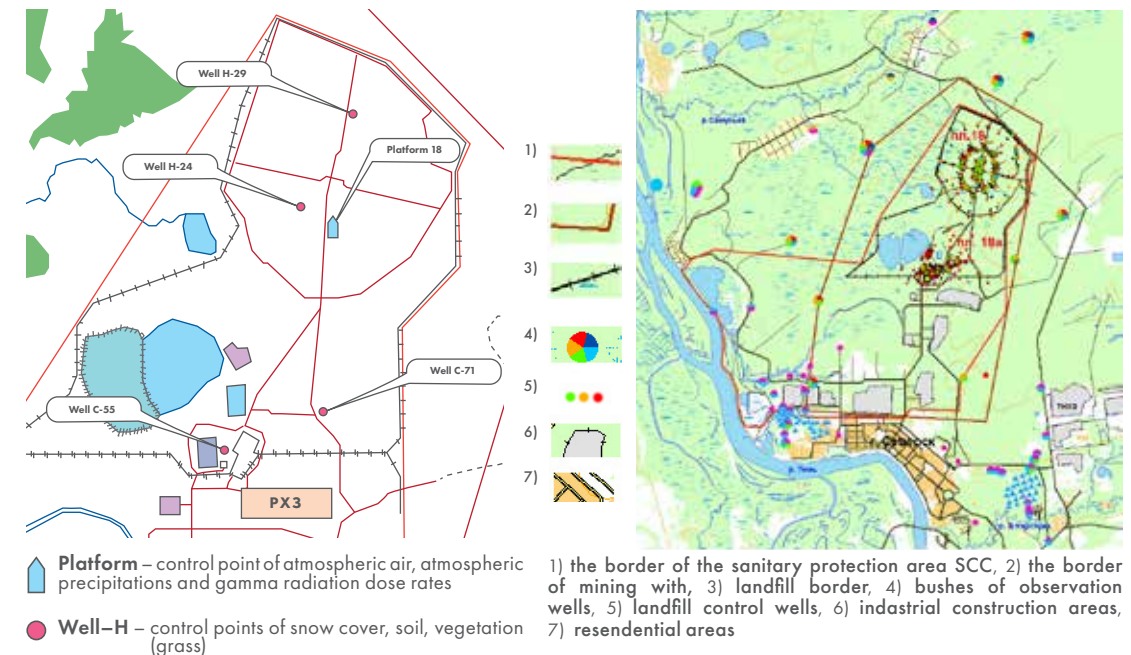


Figure 9

Points of radiation monitoring of atmospheric air, atmospheric precipitation, dose rate of gamma radiation, snow cover, soil, vegetation (grass)

Figure 10

Layout of the observation control wells of FDD LRW of branch "Severskiy" of FSUE "NO RWM"

Environmental monitoring in the area of the location of FDD "Platforms 18 and 18a" was conducted by the accredited Environmental Protection Laboratory of the Radiation Industrial and Sanitary Laboratory (RPSL) of JSC "SCC" under the contract with JSC "SCC" on the provision of a set of services of February 02, 2016 № 319/892-D.

The following indicators were subject to monitoring:

- emissions of radionuclides into the atmosphere;
- content of radionuclides in the atmospheric surface layer;
- content of radionuclides in atmospheric precipitation;
- content of radionuclides in atmospheric precipitation;
- content of radionuclides in soil;
- content of radionuclides in vegetation;
- values of equivalent dose rate of gamma radiation during sampling and on the ground.

Content of radionuclides in the atmospheric surface layer.

The average annual activity of radionuclides in the atmospheric surface layer at Platforms 18 and 18a were at levels close to the background and in 2018 amounted to:

- strontium-90 - $1.7 \cdot 10^{-6}$ Bq/m³, which is 6 orders of magnitude less than the permissible volume activities (DOAnas) established by the "Radiation Safety Standards (NRB 99/2009)" for strontium-90;
- cesium-137 - $<1.0 \cdot 10^{-6}$ Bq/m³, which is 7 orders of magnitude less than the permissible volume activities (DOAnas) established by the "Radiation Safety Standards (NRB 99/2009)" for cesium-137;;
- cesium-137 - $<1.0 \cdot 10^{-6}$ Bq/m³, which is 7 orders of magnitude less than the permissible volume activities (DOAnas) established by the "Radiation Safety Standards (NRB 99/2009)" for cesium-137;
- the sum of beta-active nuclides is $5.1 \cdot 10^{-4}$ Bq/m³, which is 4 orders of magnitude less than DOAnas for strontium-90.

Content of radionuclides in atmospheric precipitation.

The values of alpha-, beta-active nuclides, strontium-90 and cesium-137 in atmospheric precipitation do not exceed the average values typical for the territory of the sanitary protection zone of JSC "SCC", in which territory there is FDI, and were in 2018:

- amount of alpha-active nuclides - 11 Bq/m²;
- amount of beta active nuclides – 74 Bq/m²;
- strontium -90 – 3 Bq/m²;
- cesium-137 – <11 Bq/m².

Content of radionuclides in snow cover, soil and vegetation (grass).

The content of alpha-active nuclides in the snow cover was at the level from 21.0 to 24.0 Bq/m² (background point - 9.4 Bq/m²), strontium-90 - at the level of the lower limit of determination ≤ 2.4 Bq/m², cesium-137 - at the level of the lower limit of determination ≤ 42 Bq/m².

The strontium-90 radionuclide content in the soil ranged from ≤ 0.14 to 20.75 Bq/m² (background point - 0.16 Bq/m²), cesium-137 from ≤ 1.6 to 87.34 Bq/m² (background point - 1.67 Bq/m²), plutonium-239.240 from 0.29 to 10.68 Bq/m² (background point is 0.07 Bq/m²).

The specific content of strontium-90 radionuclide in the grass was from 21.6 to 347.6 Bq/kg (background point - 3.1 Bq/kg), cesium-137 - at the level of the lower limit of determination ≤ 30 Bq/kg, plutonium-239, -240 from 2.59 to 4.6 Bq/kg (background point is 0.07 Bq/kg).

The specified values of the radionuclide content correspond to the levels of long-term observations for the area.

DEPARTMENT "NOVOURALSK" OF BRANCH "SEVERSKIY"

Production radiation (production and environmental) monitoring of environmental objects at NSDFRW, in the sanitary protection zone of the NSDFRW, is carried out in accordance with instructions from enterprise I-319-4-2-2017 "Procedure for conducting production radiation monitoring at NSDFRW department "Novouralsk" of branch "Severskiy" of FSUE "NO RWM" and the "Program of radiation monitoring of the near surface disposal facility of SRW for 2018 of Department "Novouralsk" of branch "Severskiy" of FSUE "NO RWM" (on December 11, 2017 № 319-4/5327- VC, Inter-regional coordinated control № 31 FMBA Russia).

Figure 11 shows a scheme for NSDFRW with an indication of control points of environmental objects.

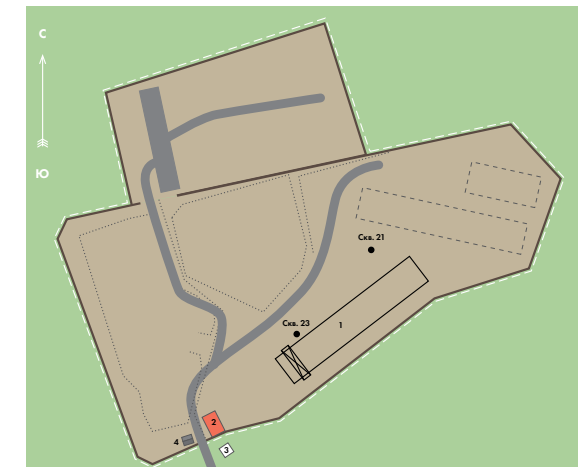


Figure 11 Scheme for NSDFRW.

- 1 – Map № 10,
- 2 – building № 1,
- 3 – complete transformer substation,
- 4 – fire tanks well 21, well 23 – observation wells.

The main monitored parameters of environmental objects at the NSDFRW (atmospheric air, groundwater from observation wells, snow cover, vegetation, soil, surface water) are:

- a) specific/volume activity by the sum of alpha-emitting radionuclides;
- b) specific/volume activity by the sum of beta-emitting radionuclides;
- c) specific/volume activity of radionuclides Am-241, Co-60, Cs-137, Sr-90, Pu-239;
- d) mass fraction of natural uranium isotopes, mass fraction of uranium-235;
- e) concentration of Cu, Ni, Cd, Pb, Cr, Zn, Fe, F (for groundwater).

Content of volume alpha, beta activity, volume activity of radionuclides (Am-241, Co-60, Cs-137, Sr-90, Pu-239) in samples of atmospheric air does not exceed the allowable volumetric activity in the inhaled air of individual radionuclides for critical groups population (NRB-99/2009).

The results of measurements of specific alpha, beta activity in underground water of controlled wells, snow cover do not exceed the permissible levels for drinking water supply (SanPiN 2.1.4.1074-01 "Drinking water. Hygienic requirements for water quality of centralized drinking water supply systems. Quality control. Hygienic requirements to ensure the safety of hot water systems"). The results of measurements of the specific activity of radionuclides (Am-241, Co-60, Cs-137, Sr-90, Pu-239) in the groundwater of controlled wells, snow cover do not exceed the level of intervention for the content of individual radionuclides in drinking water (NRB-99/2009).

Analysis of the result of the content of specific alpha, beta activity, specific activity of radionuclides (Am-241, Co-60, Cs-137, Sr-90, Pu-239) in soil and vegetation samples for 2018 in comparison with the result obtained for 2017, did not reveal significant changes.

The results of measurements of the mass concentration of pollutants (Cu, Pb, Cr, Cd, Zn, F) in groundwater from controlled wells do not exceed the permissible levels for drinking water supply (SanPiN 2.1.4.1074-01 "Drinking water. Hygienic requirements for water quality of centralized drinking water supply systems. Quality control. Hygienic requirements to ensure the safety of hot water systems").

The average annual gamma radiation DER at the boundary of the sanitary protection zone of NSDFRW 0.07 $\mu\text{Sv/h}$. (Background gamma radiation DER value for the Ural region is 0.3 $\mu\text{Sv/h}$).

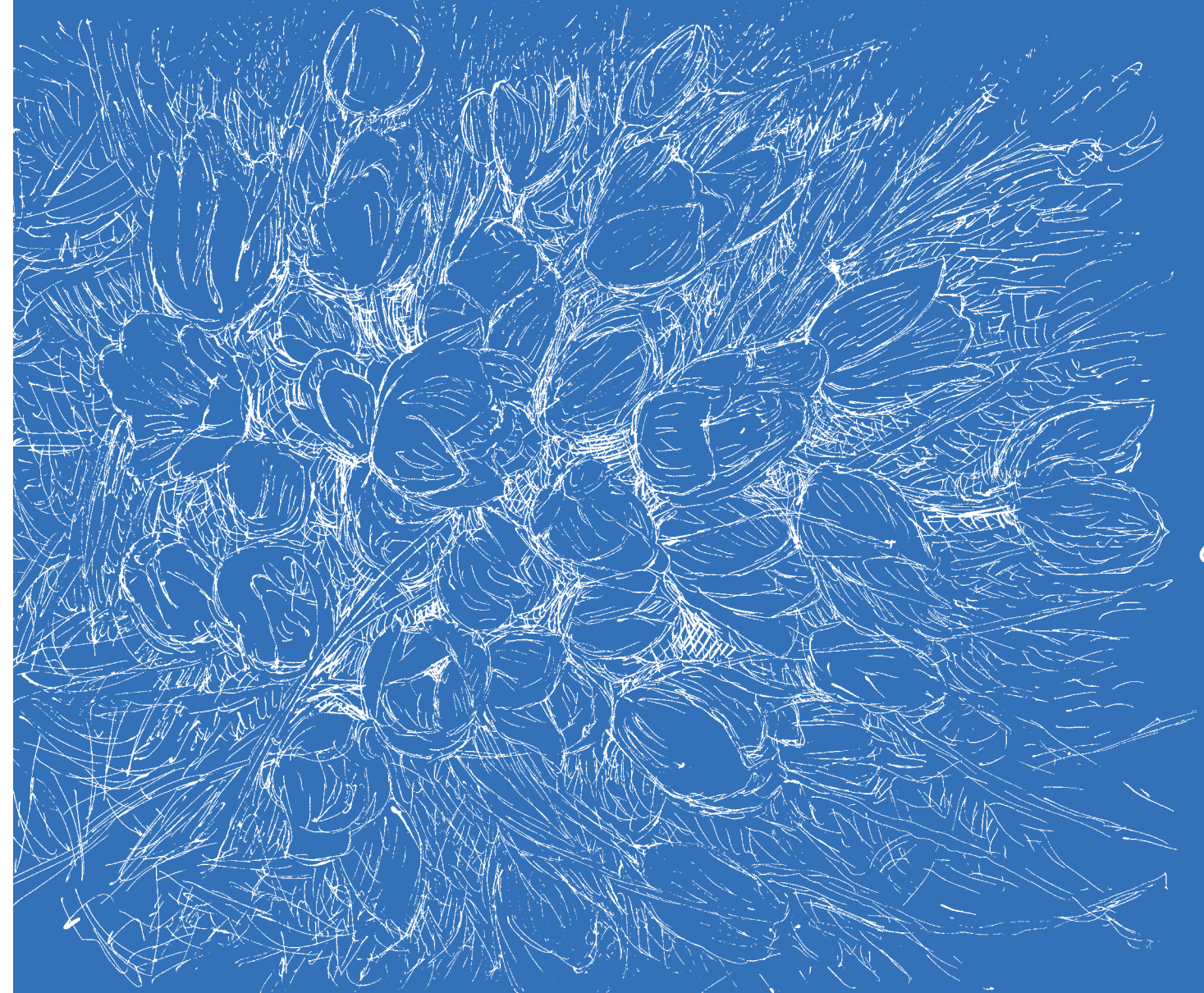
The results of the production and environmental control of environmental facilities at the NSDFRW for 2018 show that the content of radioactive substances in the controlled objects is significantly below permissible levels (NRB-99/2009, SanPiN 2.1.4.1074-01).

Table 3.

Results of the production and environmental control of samples of the environment at NSDFRW

Control object and parameter to be defined	Units	Average	Maximum
1. Atmospheric air at NSDFRW			
volume activity by the sum of alpha-emitting radionuclides	Bq/m ³	4,33E-05	1,40E-04
объемная активность по сумме бета-излучающих радионуклидов	Bq/m ³	2,13E-03	6,10E-03
2. Groundwater			
specific activity by the sum of alpha-emitting radionuclides	Bq/m ³	<0,05	<0,05
specific activity by the sum of beta-emitting radionuclides	Bq/m ³	<1,0	<1,0
3. Snow cover at NSDFRW			
specific activity by the sum of alpha-emitting radionuclides	Bq/m ³	<0,05	<0,05
specific activity by the sum of beta-emitting radionuclides	Bq/m ³	<0,01	<0,01
4. Soil at NSDFRW			
specific activity by the sum of alpha-emitting radionuclides	Bq/m ³	9,03E+02	3,61E+03
specific activity by the sum of beta-emitting radionuclides	Bq/m ³	3,67E+02	1,47E+03
5. Vegetation at NSDFRW			
specific activity by the sum of alpha-emitting radionuclides	Bq/m ³	<0,1	<0,1
specific activity by the sum of beta-emitting radionuclides	Bq/m ³	482,0	549,0
6. NSDFRW boundary			
gamma dose rate	$\mu\text{Sv/h}$	0,07	0,16

ENVIRONMENTAL IMPACT





6. ENVIRONMENTAL IMPACT

In accordance with the criteria approved by the Government of the Russian Federation dated September 28, 2015 № 1029, the branches of the FSUE "NO RWM" (Severskiy, Dimitrovgradskiy) are assigned to category II objects that have a negative impact on the environment, that is, those have a moderate environmental impact. Branches of FSUE "NO RWM" obtained certificates on the state registration of objects of FSUE "NO RWM" that have a negative impact on the environment.

The facilities of the branch "Zheleznogorskiy" of FSUE "NO RWM" in 2018 were removed from the state register of objects that have a negative impact on the environment (Certificates of removing № CFVIU53R dated May 29, 2018; № CFVIU53N dated May 29, 2018; № CFVIU53T dated May 29, 2018).

6.1. WATER INTAKE FROM WATER SOURCES

"DIMITROVGRADSKIY", "SEVERSKIY" branches, Department "NOVOURALSK" of Branch "SEVERSKIY"

Water intake from natural sources is not done separately, receiving water under contracts for the provision of water supply services.

Branch "ZHELEZNOGORSKIY"

At the end of the year, 4.45 thousand m³ of water was pumped out of the production horizon in order to compensate for intra-layer pressure. The provision of drinking water to the staff of the branch "Zheleznogorskiy" was carried out by the supply of bottled water under the contract dated December 09, 2018 № 319/1571-D for the provision of services in 2018.

6.2. DISCHARGES INTO THE OPEN HYDROGRAPHIC NETWORK

"DIMITROVGRADSKIY", "ZHELEZNOGORSKIY", "SEVERSKIY" branches, DEPARTMENT "NOVOURALSK" of Branch "SEVERSKIY"

The discharges of harmful chemical and radioactive substances into the open hydrographic network are not done. Water is disposed in sewer networks under contracts for the provision of complex services.

6.3. EMISSIONS TO THE AIR

6.3.1. EMISSIONS OF HARMFUL CHEMICALS (HCH)

"DIMITROVGRADSKIY", "ZHELEZNOGORSKIY", "SEVERSKIY" branches, Department "NOVOURALSK" of Branch "SEVERSKIY"

Due to the fact that there are no own stationary sources of emissions of HCHs in the atmospheric air, HCH emissions into the atmospheric air are excluded.

6.3.2. RADIONUCLIDE EMISSIONS

Branch "DIMITROVGRADSKIY"

The branch has no sources of radioactive substances released into the air that are subject to regulatory control.

Branch "ZHELEZNOGORSKIY"

Emissions of radioactive substances into the air are carried out in accordance with the obtained permit dated March 30, 2015 № 17/2015. The actual radionuclide emissions from the emission sources of branch "Zheleznogorskiy" are given in [table 4](#).

Emission source	Radionuclide	Release form	Maximum permissible emission, Bq/year	Actual emission, Bq/year	% of normal
object 353a	Cesium-137	aerosol	8,99E+07	3,34e+05	0,37
	Strontium-90	aerosol	8,01E+07	5,89e+05	0,74
object 353r	Cesium-137	aerosol	1,25E+07	3,08E+05	3,08
	Strontium-90	aerosol	1,10E+07	3,73e+05	3,39
object 353e	Cesium-137	aerosol	7,06E+06	4,51e+04	0,64
	Strontium-90	aerosol	6,31E+06	3,91e+04	0,62
object 760	Cesium-137	aerosol	3,82E+07	2,63e+05	0,69
	Strontium-90	aerosol	3,44E+07	1,31e+06	3,81
object 760a	Cesium-137	aerosol	7,66E+06	7,45e+04	0,97
	Strontium-90	aerosol	6,87E+06	3,99e+05	5,81

Table 4.

Emission of radionuclides into the atmospheric air by facilities of branch "Zheleznogorskiy" of the FSUE "NO RWM" in 2018

Branch "SEVERSKIY"

The total emission into the air was:

alpha-emitting nuclides - 5.99 105 Bq/year, which is 142 times less than the established MPE standards;

beta-emitting nuclides - 1.09 107 Bq/year, which is 34 times less than the established MPE standards.

Department "NOVOURALSK" of Branch "SEVERSKIY"

In the process of production activities of the NSDFRW, Department "Novouralsk" does not release radioactive substances into the atmospheric air, since NSDFRW do not have stationary emission sources.

6.4. WASTE

6.4.1. PRODUCTION AND CONSUMPTION WASTE MANAGEMENT (NON-RADIOACTIVE)

The production and consumption wastes generated at the branches are handled in accordance with the requirements of the Federal Law № 89-FZ dated June 24, 1998 "On Production and Consumption Wastes" and the Instructions on the Management of Production and Consumption Wastes in the Branches of FSUE "NO RWM". In the branches, responsible persons are appointed for the collection and accounting of production and consumption wastes.

Branch "DIMITROVGRADSKIY"

The branch, performing its activities, uses rented office and production premises, where 100% of the staff workplaces are located. In accordance with lease agreements, lessors provide for the collection of production and consumption waste generated in the rented premises during the work activities of the employees of branch "Dimitrovgradskiy" and further perform transportation, storage, neutralization, recycling and other actions until complete disposal of waste and decontamination products in accordance with the requirements of the current legislation of the Russian Federation.

Branch "ZHELEZNOGORSKIY"

During 2018, 5,82 tons of municipal solid waste was generated. Solid municipal waste was transferred to "Yenisei-Eco M" LLC under contract No. 319/1306-D dated January 9, 2017. In 2018, 5,82 tons of municipal solid waste were transferred.

In 2015, according to the contract dated August 13, 2015 № 319/714-D, the Draft Standards for the Generation of Waste and the Limits on their Disposition were developed. In 2016, the Order of the Office of Rosprirodnadzor for the Krasnoyarsk Krai of March 23, 2016 № 265 branch "Zheleznogorskiy" of FSUE "NO RWM" approved waste generation standards and limits on their disposition for a period of 5 years.

The amount of waste generated in 2018 on the territory of FDD is presented in [table 5](#).

Waste type	Hazard class	Amount of generated waste, tons	Transferred for disposal, tons	Availability at the enterprise at the end of the reporting year	Name of the organization to which the waste was transferred
Unsorted waste from office and household premises of organizations (excluding large-sized) (Code for the Federal Classification Catalog of Wastes	IV	5,40	5,40	0,000	"Yenisei-Eco M" LLC (License dated December 21, 2015 № 02400164)
Waste paper and paperboard from clerical and office work (Code for the Federal Classification Catalog of Wastes 40512202605)	V	0,42	0,42	0,000	"Ecoresurs" LLC (License dated June 22, 2012 № 02400101)

Table 5

Amount of production and consumption wastes generated at FDD of branch "Zheleznogorskiy" in 2018

Dynamics of production and consumption waste generation at FDD of branch "Zheleznogorskiy" in table 6.

Waste type	Hazard Class	Generation Standard	2014, tons	2015, tons	2016, tons	2017, tons	2018, tons
Mercury, mercury-quartz, fluorescent lamps, which have lost consumer properties (Code for the Federal Classification Catalog of Wastes 47110101521)	IV	5,40			4,054	5,40	5,40
Waste paper and paperboard from clerical and office work (Code for the Federal Classification Catalog of Wastes 40512202605)	V	0,42	3,5	12	0,316	0,42	0,42
Итого:		5,82	3,5	12	4,37	5,82	5,82

Table 6

Branch "SEVERSKIY"

Collection of production and consumption waste is done in specially equipped places. Waste removal from the territory of FDD is made by the specialized organization "ABF System" LLC in accordance with the contract № 98-YUL/2017/319/1535-D dated December 22, 2017. According to the lease agreement № 319/1497-D dated November 28, 2017, waste generated in the rented office premises is disposed of by the lessor "House-8" LLC.

The amount of waste generated in 2018 on the territory of FDD is presented in Table 7.

Waste type	Hazard Class	Amount of generated waste, tons	Transferred for disposal, tons	Availability at the enterprise at the end of the reporting year	Name of the organization to which the waste was transferred
Mercury, mercury-quartz, fluorescent lamps, which have lost consumer properties (Code for the Federal Classification Catalog of Wastes 47110101521)	I	0,045	0,050	0,005	JSC "Polygon" (License dated March 10, 2011, series 054 № 00025, dated July 30, 2012 series 070 № 00099)
Garbage from office and household premises of organizations unsorted (excluding large-sized) (Code for the Federal Classification Catalog of Wastes 73310001724)	IV	1,3	1,3	0,000	"ABF System" LLC (License dated September 25, 2017 № (70)-1844-ST/P)

Table 7

Generation on FDD of branch "Severskiy" production and consumption wastes in 2018

Dynamics of production and consumption waste generation at FDD of branch "Severskiy" is presented in Table 8.

Waste type	Hazard Class	Generation Standard, tons	Waste generation, tons				
			2014	2015	2016	2017	2018
Mercury, mercury-quartz, fluorescent lamps, which have lost consumer properties (Code for the Federal Classification Catalog of Wastes 47110101521)	I	0,342	–	0,033	0,085	0,028	0,045
Garbage from office and household premises of organizations unsorted (excluding large-sized) (Code for the Federal Classification Catalog of Wastes 73310001724)	IV	2,000	–	0,500	0,600	0,900	1,3
Garbage from twigs, branches from logging (Code for the Federal Classification Catalog of Wastes 15211001215)	V	2,376	–	–	0,200	–	–
Waste paper and paperboard from clerical and office work (Code for the Federal Classification Catalog of Wastes 40512202605)	V	0,1053	–	–	–	0,100	–

Raise of generation of production and consumption waste is due to increase of personnel, put in operation of administrative buildings and creation of new jobs.

Department "NOVOURALSK" of Branch "SEVERSKIY"

In the process of production activities of NSDFRW, production and consumption waste (non-radioactive) is generated. In accordance with the contract for the maintenance of buildings, structures and the territory of NSDFRW for 2018, ownership of production and consumption waste is transferred to the contractor at the time of loading the waste onto the transport company providing the services of FSUE "NO RWM" under this contract. The payment for the negative impact on the environment is made at the expense of the company providing the services of FSUE "NO RWM" under this agreement.

6.4.2. RADIOACTIVE WASTE MANAGEMENT

Branch "DIMITROVGRADSKIY" During normal operation of the main industrial facility, solid radioactive waste is not generated in branch "Dimitrovgradskiy". The formation of solid radioactive waste occurs during repairs and decontamination of surfaces. These works are carried out by JSC "SSC RIAR" under a separate contract.

Branch "ZHELEZNOGORSKIY" During normal operation of the facilities of FDD landfill "Severnoy" solid radioactive waste is not produced. SRW generated during repair work performed under an agreement with the FSUE MCC is transferred to the FSUE "Mining and Chemical Combine".

Branch "SEVERSKIY" During normal operation of the main industrial facility, SRW in branch "Severskiy" is not generated. The formation of SRW occurs during repair work and decontamination of surfaces, the resulting waste is transferred to JSC "SCC".

Department "NOVOURALSK" of Branch "SEVERSKIY" As a result of industrial activities of the DFRW, solid and liquid radioactive waste may be produced. In 2018, solid and liquid radioactive waste in department "Novouralsk" was not produced.

There are necessary primary collections and other equipment for collection, temporary storage of radioactive waste in all the branches.

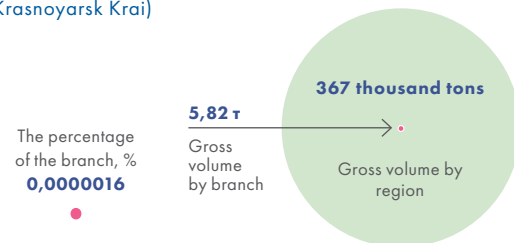
IMPLEMENTATION OF ENVIRONMENTAL POLICIES OF FSUE "NO RWM"

6.5. THE PERCENTAGE OF PRODUCTION AND CONSUMPTION WASTE OF FSUE "NO RWM" BRANCHES IN THE TOTAL VOLUME ON THE BRANCHES TERRITORY

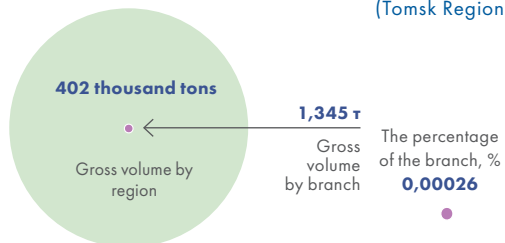
The impact of the activities of the branches of FSUE "NO RWM" on public health and various environmental components is minimal, which is confirmed by the data on the share of production and consumption wastes of the branches of FSUE "NO RWM" in the total volume of their location - Tomsk Region and Krasnoyarsk Krai, which are given below. The data on regional indicators are reflected in the State Report on the State and Environmental Protection in the Krasnoyarsk Krai for 2018, available at <http://mpr.krskstate.ru/dat/File/3/Doklad-2018.pdf>, and the State Report on state and environmental protection in the Tomsk region for 2018, published on the site <http://www.sibfo.ru/economics/ecology.php>.

VOLIME OF PRODUCTION AND CONSUMPTION WASTE GENERATION

Branch "Zheleznogorskiy"
(Krasnoyarsk Krai)

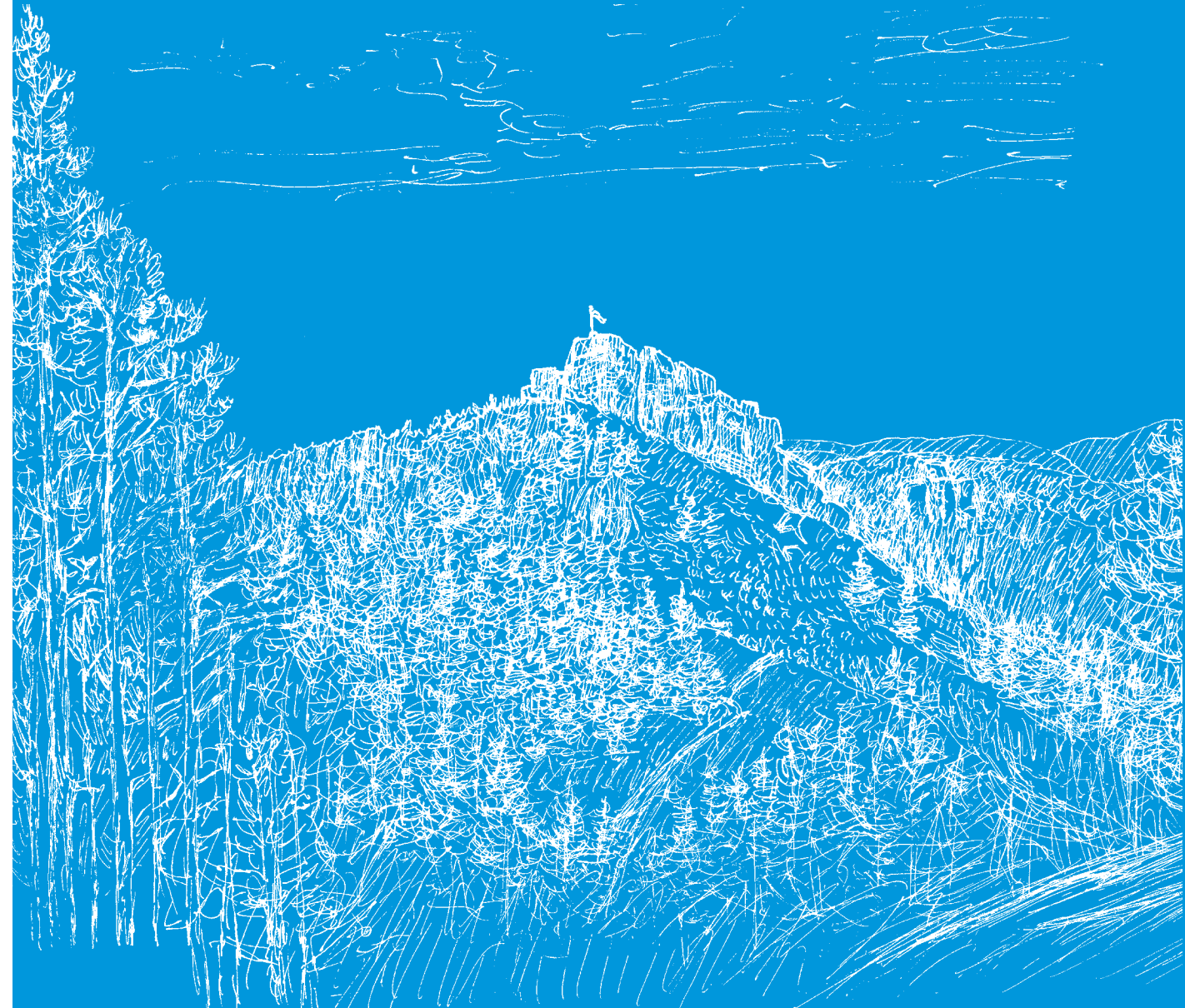


Branch "Severskiy"
(Tomsk Region)



6.6. STATE OF THE FSUE "NO RWM" TERRITORY

During 2018, no cases of radioactive contamination of the territories of industrial sites of branches and offices of the FSUE "NO RWM" were registered. There are no territories polluted with harmful chemicals and radionuclides. As follows from the long-term observations of the environment in the vicinity of branches "Dimitrovgradskiy", "Zheleznogorskiy" and "Severskiy", liquid radioactive waste is localized in geological horizons and does not have any direct impact on surface and groundwater and other environmental objects. According to the results of measurements of environmental samples at NSDFRW in Novouralsk, including in the area of its location for 2015-2018 (atmospheric air, snow cover, soil, vegetation, ground and surface waters, etc.), this object does not have any negative impact on the environment.





7. IMPLEMENTATION OF ENVIRONMENTAL POLICIES OF FSUE “NO RWM”

FSUE “NO RWM” and its branches implement the Environmental Policy considering the requirements of the Environmental Policy of Rosatom and its organizations.

Final disposal of radioactive waste is an effective environmental protection measure that prevents the effects of waste on the population and the environment. Performing this activity, in accordance with the existing legal documents, additional measures are taken to meet the requirements of sanitary, radiation and environmental safety, to ensure the localization of waste - a sanitary protection zone is organized and a mining allotment is issued. Verification of compliance with the requirements for ensuring sanitary and radiation safety of final disposal of radioactive waste is done in accordance with observations, measurements and analysis of their results, calculations and modeling.

In 2018, a large number of environmental events were held. The costs of environmental protection were aimed at ensuring the radiation safety of the environment and amounted to:

Branch “DIMITROVGRADSKIY”

49,492.0 thousand rubles (including current (operational) costs for environmental protection of 30,269 thousand rubles and expenses for payment of environmental protection services of 19,223 thousand rubles).

Branch “ZHELEZNOGORSKIY”

212,165.0 thousand rubles (including current (operational) expenses for environmental protection of 21,205.0 thousand rubles and expenses for payment of environmental protection services of 160.0 thousand rubles).

Branch “SEVERSKIY”

169,621.0 thousand rubles (including current (operational) expenses for environmental protection of 74,007.0 thousand rubles and expenses for payment of environmental protection services of 95,614.0 thousand rubles).

Department “NOVOURALSK”

54,739.0 thousand rubles (including current (operational) expenses for environmental protection of 26,871.0 thousand rubles and expenses for payment of environmental protection services of 27,868.0 thousand rubles).

ENVIRONMENTAL AND EDUCATIONAL ACTIVITY. PUBLIC ACCEPTANCE





8. ENVIRONMENTAL AND EDUCATIONAL ACTIVITY. PUBLIC ACCEPTANCE

Accumulated and newly produced radioactive waste must be reliably disposed for the entire period of their potential danger. Decisions in this matter are made including representatives of the public. Therefore, one of the main activities of FSUE "NO RWM" in the regions of the company's presence is informational work aimed at educating and improving radio-environmental literacy in the need and safety of the final disposal of radioactive waste.

Within the framework of the communication policy of FSUE "NO RWM", the following tasks are accomplished:

1. Building an open dialogue with regional government bodies and local self-government;
2. Development of effective interaction of representatives of the expert community and the public on issues related to the final disposal of radioactive waste;
3. Involvement of environmental organizations and organizations in joint work in order to expand the expert community;
4. Development of cooperation with the media, which publish materials on environmental issues;
5. Implementation of international cooperation in the technological and scientific-educational sphere, as well as in the issues of ensuring environmental safety.

When deciding on the location of the final disposal facility for radioactive waste, the priorities are not only environmental safety, but also public acceptance.

8.1. INTERACTION WITH STATE AND LOCAL AUTHORITIES. KEY EVENTS OF 2018.

The main form of interaction of FSUE "NO RWM" with state and local authorities is the coordination of plans for the placement, construction and operation of objects for the final disposal of radioactive waste, as well as work with regulatory and licensing authorities.

In 2018, in the framework of cooperation, the following results were achieved:

- In July, licenses were received for the right to extend the operation of FDD for liquid radioactive waste: FDD landfill "Severny" of Branch "Zheleznogorskiy" (operated since 1967); Landfill "Platforms 18 and 18a" of branch "Severskiy" (put into pilot operation in 1963); The Experimental Industrial Landfill of Branch "Dimitrovgradskiy" (operated since 1966).
- In August, materials justifying the license for the disposal and construction of NSDF for solid radioactive waste of 3rd and 4th classes in the Chelyabinsk Region (near CATF Ozersk) are aimed at passing a state environmental review;
- In December, materials justifying the license for the disposal and construction of NSDF for solid radioactive waste of 3rd and 4th classes in the Tomsk region (near CATF Seversk) are aimed at passing through a state environmental impact assessment.

8.2. INTERACTION WITH PUBLIC ENVIRONMENTAL ORGANIZATIONS, SCIENTIFIC AND SOCIAL INSTITUTIONS. INFORMING THE PUBLIC. KEY RESULTS OF 2018.

As part of the task of informing the public about environmental safety in the management of radioactive waste, FSUE "NO RWM" published an annual report on environmental safety in 2017, which provides information on the activities of the company aimed at preserving and improving the environmental situation in the regions of presence. The report was presented in the Sverdlovsk, Chelyabinsk, Tomsk regions and the Krasnoyarsk Krai.

In 2018, work continued on the implementation of the "Shelter for Atom", communication project aimed at involving the public in a dialogue on the safety of the



final disposal of radioactive waste. Within its framework, on air of the cities of Yekaterinburg, Novouralsk, Tomsk, Seversk, Chelyabinsk, Ozersk, Krasnoyarsk and Zheleznogorsk, two films were shown showing Russian and foreign approaches to the final disposal of radioactive waste of classes 3 and 4.

In order to reduce radiophobia, the specialists of FSUE "NO RWM" presented and discussed with the public a published book "8 myths about radioactive waste", which contains misconceptions that exist on the topic of radioactive waste management. Experts in various fields, such as science, ecology, medicine and nuclear energy, comment on the myths and debunk them.



- Presentation of the book on scientific readings, organized by the Krasnoyarsk Atomic Energy Information Center



In the framework of interaction with representatives of the media and the public, a series of seminars and tours were conducted on objects of circulation and final disposal of radioactive waste both in Russia and abroad. Journalists, representatives of research institutes and the public visited the final disposal facility for radioactive waste in the CATF Novouralsk of the Sverdlovsk region and the construction site of an underground research laboratory in CATF Zheleznogorsk, Krasnoyarsk Krai. They also got acquainted with the experience of operators in the management of radioactive waste in Sweden and France.

- The team of FSUE "NO RWM" took part in the All-Russian Environmental clean-up event "Green Spring", which was held in Moscow's Sokolniki Park. Employees of the Branch "Zheleznogorskiy" took part in a similar environmental campaign for the improvement of urban park zones.



In the interests of improving radio environmental literacy, specialists of FSUE "NO RWM" took part in awareness-raising events for schoolchildren and students of the Sverdlovsk and Chelyabinsk regions and Krasnoyarsk Krai. To implement the tasks of informing the public about the safety of radioactive waste management, an underground research laboratory site (NKM Laboratories) was launched, where you can get acquainted with the project progress in the Nizhne-Kansk massif rock massif - <http://nkmlab.ru/>.

Sverdlovsk region

- Representatives of the public took part in the planned environmental monitoring of the final disposal facility for radioactive waste. He took a sample of soil, water, air, laboratory tests which were presented to them for review.

- A technical tour was organized to the final disposal facility of radioactive waste for experts of FTP NRS 2030.rf portal, local government representatives, public and media as part of the information support of the federal target program "Nuclear and Radiation Safety in 2016–2020 and until 2030" (FTP NRS-2).



- Members of the public, media and environmental organizations familiarized themselves with the experience of the final disposal of radioactive waste in Sweden. During the tour there was a discussion of the difference in approaches to the definition of radioactive waste, their classification, as well as the legislative initiative regarding radioactive waste management.

- Representatives of the Public Chamber of Novouralsk, the public and the media attended the pouring of the first concrete of the second stage of the final disposal facility for radioactive waste of classes 3 and 4 in Novouralsk. Construction work is scheduled for completion by the end of 2020.



- An environmental lesson took place on the basis of school № 54 of the city of Novouralsk, where schoolchildren were told about radiation and safety of the facility, which is located in the city district.
- A technical tour to the final disposal facility for radioactive waste was organized for the representatives of the public and mass media of Novouralsk by the biennium of operating the first in Russia NSDF for demonstrating the process of loading containers with radioactive waste.
- A technical tour was organized to the site of the first in Russia existing final disposal facility for class 3 and 4 radioactive waste, including the construction site for the second stage of the facility, for representatives of Korea Radioactive Waste Agency KORAD.

Chelyabinsk region

- In the framework of public discussions of materials justifying the license for the disposal and construction of NSDF for SRW of 3 and 4 classes, a series of round tables in Chelyabinsk and Ozersk were organized with the participation of representatives of the Emergencies Ministry, Rospotrebnadzor, Rostekhnadzor of the Chelyabinsk region, CATF Ozersk, FSUE "Mayak Production Association", the Public Council of the State Corporation "Rosatom", research institutes, the media and the public.



Chelyabinsk region

- Representatives of public organizations, the media and opinion leaders visited the final disposal facility of radioactive waste on the English Channel in France. This facility, operated by French national radioactive waste management agency (ANDRA), is similar to the one planned for placement on Chelyabinsk Region.
- Press seminars were organized on the environmental safety of the disposal of radioactive waste for the media of the Chelyabinsk Region. Within the framework of the events, a presentation of the book "8 myths about radioactive waste" was held and the prospects for creating a system of final disposal of radioactive waste in the region were discussed.
- Representatives of FSUE "NO RWM" took part in the project of the specialized scientific and technical council "Christmas meetings with scientists" on the problems of radiation safety of the population of the Chelyabinsk region and the department "Life Safety" of South Ural State University.

Tomsk region

- Representatives of the media and environmental organizations and public opinion leaders of the Tomsk region familiarized themselves with the final disposal system for radioactive waste in Sweden.
- Representatives of FSUE "NO RWM" took part in the work of the section "Safety in the management of radioactive waste and radio environmental" at the IX School-Conference of Young Atomic Scientists of Siberia held at the National Research Tomsk Polytechnic University.

- Public hearings were held on materials justifying the license for the disposal and construction of NSDF for solid radioactive waste of 3 and 4 classes in the Information Center of FSUE "Mayak Production Association".



- CATF Seversk held public discussion on materials justifying a license to operate the existing FDD "Platforms 18 and 18a" of the branch "Severskiy" FSUE "NO RWM".



Tomsk region

- A series of round tables with the participation of media representatives, public organizations, the Ministry of Emergency Situations, Rostekhnadzor, the CATF Seversk Administration and the executive authorities of Tomsk Region was held as part of public discussions on materials justifying the license for the disposal and construction of near surface solid radioactive waste disposal facilities of the 3rd and 4th classes platforms JSC "SCC".



- At press seminars on safety issues in the management of radioactive waste, the mass media of Tomsk region familiarized themselves with the book "8 myths about radioactive waste" and the activities of FSUE "NO RWM" in the regions of operation.
- The public discussions in Seversk held a public discussion of the materials justifying the license for the disposal and construction of the near surface disposal facility for solid radioactive waste of classes 3 and 4.



Krasnoyarsk Krai

- Public discussions of materials justifying the license to operate the current FDD landfill "Severny" of branch "Zheleznogorskiy" of FSUE "NO RWM" were held in CATF Zheleznogorsk.



- An approach to the management of radioactive waste of classes 1 and 2 in Sweden was introduced to representatives of the media, public and environmental organizations of the Krasnoyarsk Krai.
- Representatives of French national radioactive waste management agency ANDRA and the chairman of the community of Communes of the Aube department took part in the round table "Interaction with local communities: experience in the construction of final disposal facilities for radioactive waste" in the Krasnoyarsk Atomic Energy Information Center.



Krasnoyarsk Krai

- A press-seminar was organized for the mass media of the Krasnoyarsk Krai on the results of the company's activities, the construction of an underground research laboratory in Nizhne-Kansk massif and prospects for the near future.

- The popular science book "8 myths about radioactive waste" was presented to the public of the Krasnoyarsk Krai as part of the educational project "Scientific Readings".
- Teachers and schoolchildren, members of the public, as well as the mass media of Zheleznogorsk and Krasnoyarsk presented the book "8 myths about radioactive waste" in the youth department of the Central City Library of Zheleznogorsk.



- Members of the Public Council under the Ministry of Environment and Environmental Management of the Krasnoyarsk Krai visited Landfill "Severny" and the construction place of an underground research laboratory in Nizhne-Kansk massif.



Krasnoyarsk Krai

- FSUE "NO RWM" organized an information and educational event called the School of Eco-Ideas for students of Zheleznogorsk schools and university students from Krasnoyarsk Krai with the support of the Zheleznogorsk Children's Environmental and Biological Center and the Krasnoyarsk Atomic Energy Information Center.



- FSUE "NO RWM" together with the "Children's Environmental and Biological Center" and the Information Center of the Nuclear Industry organized the "Eco-Ideology Laboratory" at the Youth Festival "Oxygen" in Zheleznogorsk.



Ulyanovsk region

- In the scientific and cultural center named after E. Slavsky in Dimitrovgrad, public discussions took place on the materials justifying the license to operate the existing DDF EIL of branch "Dimitrovgradskiy" of FSUE "NO RWM".



8.3. DEVELOPMENT OF INTERNATIONAL COOPERATION IN TECHNOLOGY AND ENVIRONMENTAL SAFETY ISSUES. KEY EVENTS IN 2018.

The international cooperation of the National Operator on Radioactive Waste Management is aimed at providing information on the compliance of the enterprise's activities with accepted international standards and sharing scientific and technical experience in the field of radioactive waste management, as well as demonstrating to the public good examples of the safe operation of final disposal facilities for radioactive waste in Russia and abroad.

- The delegations of FSUE "NO RWM" familiarized themselves with the work of Korea Radioactive Waste Agency KORAD and French national radioactive waste management agency (ANDRA).

- FSUE "NO RWM" took part in the X Anniversary International Forum "ATOMEXPO 2018".



- Representatives of the Federal Government of Germany and organizations involved in creating the final disposal system for radioactive waste in Germany visited FSUE "NO RWM" with the aim of developing a plan for further scientific and technical cooperation in the field of the peaceful use of nuclear energy.
- Representatives of the French national radioactive waste management agency ANDRA and the chairman of the community of Communes of the Aube department spoke in the framework of the round table "Interaction with local communities: experience in construction of final disposal facilities of RW" with the participation of specialists of the FSUE "Mining and Chemical Combine", representatives of environmental and public organizations, the executive and legislative authorities, the media of Zheleznogorsk and Krasnoyarsk.
- A letter of intent was organized between head of ZATO Zheleznogorsk Igor Kuksin and mayor of the city Sulen Duy, chairman of the community of mayors of the city Aube department Philippe Dahmann in order to exchange experience between regions in the framework of building trusting relationships when creating final disposal facilities with the assistance of representatives of FSUE "NO RWM".

- Delegates from the IAEA, The Nuclear Energy Agency of the Organisation for Economic Co-operation and Development, ANDRA (France), BGR (Federal Institute for Geosciences and Natural Resources of Germany), BGE TECHNOLOGY GmbH (Federal Company for the Final Disposal of Nuclear Waste of Germany), Federal Ministry for Economic Affairs and Energy, GRS GmbH (Society for Environmental Safety in the Field of Nuclear Energy (Germany), Nuclear Safety Institute Of The Russian Academy Of Sciences, FBI "SEC NRS", "Mayak Production Association" and FSUE "Mining and Chemical Combine" visited the laboratory building site in Nizhne-Kansk massif in Zhelezno Orsk, Krasnoyarsk Krai.



- FSUE "NO RWM" presented a report and work plan for 2019 at the ninth meeting of the working group on atomic energy of Franco-Russian Economic, Financial, Industrial and Trade Council (CEFIC).
- An international scientific-practical seminar "Implementation of the Agreement on information interaction of the CIS member states in transporting of radioactive sources" was held on the basis of FSUE "NO RWM". About 20 specialists from Russia, Belarus, Kazakhstan, Kyrgyzstan and Uzbekistan took part in this event.

- The State Atomic Energy Corporation "Rosatom", FSUE "NO RWM", and Korea Radioactive Waste Agency KORAD signed a general cooperation agreement.



ADDRESSES AND CONTACTS

- Representatives of Korea Radioactive Waste Agency KORAD visited the final disposal facility for class 3 and 4 radioactive waste near Novouralsk, Sverdlovsk Region.



Representatives of FSUE "NO RWM" took part in a number of IAEA events, including:

- the Sixth Meeting of the Contracting Parties to the IAEA Joint Convention on the Safety of Spent Fuel Management and on the Safety of Handling of Spent Nuclear Fuel and Radioactive Waste;
- technical meeting on financing;
- Annual Plenary Meeting of the Forum on the Safety of Radioactive Waste Management for near surface disposal;
- technical meeting "Learning lessons from the experience of participation of local communities and stakeholders in the field of radioactive waste management";
- technical meeting on the disposal of spent sealed radioactive sources (SSRS) in wells;
- the second technical meeting of the working group on the use of monitoring programs for the safe development of geological disposal facilities for radioactive waste.

9. ADDRESSES AND CONTACTS

CENTRAL OFFICE

General Director
of FSUE "NO RWM"
IGIN
Igor Mikhailovich

Contact:
119017, Moscow , Pyatnitskaya St.,
49A, Bld.2
E-mail: info@norao.ru
www.norao.ru

Deputy General Director for
Development – Head of Research
KRASILNIKOV
Victor Yakovlevich

Contact:
119017, Moscow , Pyatnitskaya St.,
49A, Bld.2
E-mail: vykrasilnikov@norao.ru
www.norao.ru

Environmental expert
SHILOVA
Ekaterina Grigorievna

Contact:
Phone: 8 (916) 066-61-94
E-mail: egshilova@norao.ru

**BRANCH
"DIMITROVGRADSKIY"**

Branch "Dimitrovgradskiy" Director

KARASEV

Alexey Yurievich

Contact:
433502, Ulyanovsk region, Dimitrovgrad,
st. Osipenko, 1 A, office 1
Phone: +7 (84235) 45977
E-mail: aykarasev@norao.ru

**BRANCH
"ZHELEZNOGORSKIY"**

Deputy General Director

Branch "Zheleznogorskiy" Director

TROKHOV

Nikolay Nikolaevich

Contact:
662971, Krasnoyarsk Krai, Zheleznogorsk,
st. Shkolnaya, 30,
Phone: +7 (3919)74-67-67,
Fax: +7(3919)74-64-44
E-mail: fe@norao.ru

**BRANCH
"SEVERSKIY"**

Branch "Severskiy" Director

SEDEL'NIKOV

Vladimir Pavlovich

Contact:
636035, Tomsk region, Seversk,
Kommunistichesky avenue, 8
E-mail: vpsedelnikov@norao.ru

**DEPARTMENT "NOVOURALSK"
OF BRANCH "SEVERSKIY"**

Department Director

ALEKSANDROV

Vyacheslav Vladimirovich

Contact:
624130, Sverdlovsk region, Novouralsk, st.
Dzerzhinsky, 5
Phone: +7 (343 70) 7-86-93
E-mail: vvaleksandrov@norao.ru

BRANCH «OZERSKY»

Branch "Ozersky" Director

TRUKHAN

Igor Mikhailovich

Contact:
456780, Chelyabinsk region, Ozersk, st.
Kyshtymskaya, 71
Phone: +7 (985) 809-16-15
E-mail: imtrukhan@norao.ru

ANNEX

Radioactive waste — materials and substances not subject to further use, as well as equipment, products (including spent sources of ionizing radiation), the content of radionuclides in which exceeds the levels established in accordance with the criteria established by the Government of the Russian Federation. Radioactive waste can be recognized as materials with a high content of natural radionuclides, produced during non-atomic energy-related activities for the extraction and processing of mineral and organic raw materials with a high content of natural radionuclides, if these materials are not to be further used.

RW is classified as follows:

