

**REPORT
ON THE ENVIRONMENTAL
IMPACT OF JAVYS, a. s.,
OPERATIONS**

2022

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1 Introduction

The Environment Report 2022 provides comprehensive information on the air protection, water and waste management systems, on the handling and use of chemicals, on environmental impact assessment (EIA) processes and on activities related to the environmental protection performed within JAVYS, a. s. JAVYS, a.s. is certified in environmental management system in accordance with the ISO standard 14001:2015 Environmental Management Systems, which demonstrates our goal and mission to perform all activities related to environmental protection.



Environmental protection forms part of the Safety process within the framework of the integrated management system. During the performance of all the activities, emphasis is placed on compliance with the legal requirements of the SR and EU in the individual fields of environmental protection; and on the obligation to comply with limits and conditions included in decisions made by state authorities and regulatory bodies which oversee the protection of individual environmental components.

2.

Air protection

In the field of air protection, JAVYS, a. s. complies with the basic legal regulation, i.e. Act No. 137/2010, Coll. on Air Protection, as amended, adopted by the National Council of the Slovak Republic, and with all subsequent related Acts, executive ordinances and regulations of the Government of the Slovak Republic. The method to operate sources of air pollution, be it the granting of permits, the specification of the emission monitoring system, and the definition of the limits of pollutants discharged into the air, is governed by applicable decisions by the national authorities and supervisory bodies in relation to the air protection issued for JAVYS, a. s.

Sources of air pollution and volumes of discharged emissions

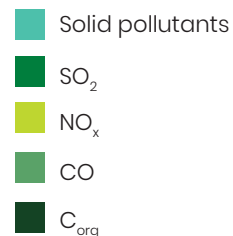
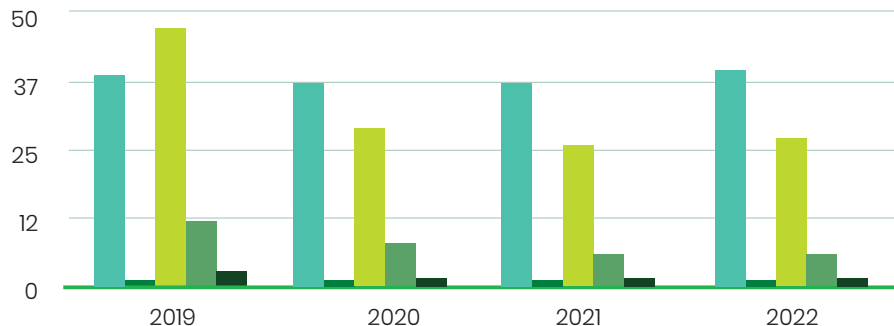
In 2022, company JAVYS, a.s. operated five (5) medium sources and one (1) small source of air pollution.

Reserve boiler plant (RBP)	medium source
Diesel generator in pumping station "V1"	medium source
Diesel generator adjacent to the outdoor switchboard "A1"	medium source
Diesel generator in sub-station V1 (2 pcs)	medium source
Diesel generator next to ISFS (interim spent fuel storage)	medium source
Production of fibre concrete mixture in the V1 FCC production plant	small source

Amount of Fuel Consumed, Number of Operating Hours and Amount of Emissions Discharged from Individual Sources in 2022

Zdroj znečisťovania ovzdušia	Fuel	Number of operating hours	Amount of pollutant (kg)				
Medium air pollution sources							
Reserve boiler plant	Natural gas (thous. Nm³)	Hours/year	Solid pollutants	SO ₂	NO _x	CO	C _{org}
	4.061	6	0.309	0.037	6.762	2.282	0.293
Diesel generators	diesel (tonnes)	hours/year	Solid pollutants	SO ₂	NO _x	CO	C _{org}
DG Caterpillar Olympian	0.376	17.5	0.534	0.008	1.882	0.301	0.027
DG Martin Power MP 1700	2.092	11	2.970	0.042	10.458	1.673	0.230
DG1 Martin Power MP 400/2 ks	0.259	8.2	0.367	0.005	1.293	0.207	0.028
DG Caterpillar C13ATAAC400-SA	1.361	21.5	1.932	0.027	6.804	1.089	0.150
Small air pollution sources							
FMC production	–	–	33.037	–	–	–	–
Total amount of pollutants from all small air pollution sources (kg)			39.150	0.120	27.201	5.551	0.728

Amounts of discharged emissions of all air pollutants (2018 – 2021)



The amounts of pollutant emissions discharged into the air in 2022 were comparable to previous years.

Company JAVYS, a. s., also operates nuclear facilities that are not categorized as sources of air pollution according to the Act on Air Protection, despite the fact that inactive emissions of pollutants discharged into the air are measured in them by an automated measuring system (AMS). Emission limits for polluting substances are approved for these facilities by the Nuclear Regulatory Authority of the Slovak Republic, which is also the regulator for the nuclear facilities. The nuclear facilities are as follows:

- BRWTC Incineration Plant (PS06) in the building 808,
- RAW Incineration Plant (PS45) in the building 809,
- Metallic RAW Melting Facility (PS37) in the building 34.

BRWTC Incineration Plant (PS06)

In 2022, the Bohunice Radioactive Waste Treatment Centre Incineration Plant (PS06) was operated in the months of January–April and June–July, therefore the amounts of pollutants discharged from the Incineration Plant for the year 2022 contained in the Table No. 2 are lower compared to previous years.

Amounts of emissions discharged from the BRWTC Incineration Plant (PS06) for the year 2022 and comparison with previous years

Pollutant	year 2019	year 2020	year 2021	year 2022
Solid pollutants	3.600	0.050	1.640	0.380
CO	114.300	56.700	27.240	20.160
C _{org}	8.500	1.370	0.800	0.490
SO ₂	60.500	39.700	80.610	4.630
NO _x	676.300	931.000	839.620	230.240
HCl	9.108	6.210	16.640	1.008
HF	1.207	1.240	6.600	0.437
Hg + Tl + Cd	0.217	0.218	0.085	-
As + Ni + Cr + Co	1.238	1.249	0.383	-
Pb + Cu + Mn	0.773	0.780	0.194	-
Hg *	-	-	-	0.004
Tl + Cd *	-	-	-	0.007
Sb + As + Pb + Ni + Cr + Co + Cu + Mn + V *	-	-	-	0.090
Operating hours /year	7,046	7,160	8,107	2,619

* New Limits & Conditions for the BRWTC Incineration Plant (PS06), in which, in addition to the emission limits for pollutants discharged into the air, the composition of heavy

metals for their monitoring in the flue gases changed, have been effective since the 17th of January 2022.

During the operation of the RAW Incineration Plant (PS 06) in 2022, the concentration values of individual pollutants discharged into the air were not exceeded.

RAW Incineration Plant (PS45)

In 2022, the operation of the new RAW Incineration Plant (PS45) in the building No. 809 was permitted. Early use of the building was permitted by a decision of the Nuclear Regulatory Authority of the Slovak Republic No. 382/2021, while a decision issued by the Nuclear Regulatory Authority of the Slovak Republic No. 286/2022 permitted the use of the building. By issuing the final opinion of the Ministry of Environment of the Slovak Republic No. 417/2021-1.7/zg for the assessed activity „Optimization of Facility for Treatment and Conditioning of RAW in JAVYS, a s., on site of Jaslovské Bohunice“, which became valid on the 2nd of May 2022, the parallel operation of both RAW Incineration Plants (PS06 and PS45) with a total annual capacity of incinerated RAW of 480 t was enabled. In 2022, the new RAW Incineration Plant (PS45) was operated in the months of May – December, the Table No. 3 contains the amounts of pollutants discharged from the Incineration Plant during this period

Amounts of emissions discharged from the RAW Incineration Plant for the year 2022

Pollutant	year2022 (kg)
Solid pollutants	0.019
CO	143.420
C _{org}	16.930
SO ₂	146.470
NO _x	961.760
HCl	10.824
HF	1.660
Hg	0.010
Tl + Cd	0.007
Sb + As + Pb + Ni + Cr + Co + Cu + Mn + V	0.109
Operating hours /year	6,034

During the operation of the RAW Incineration Plant (PS 45) in 2022, the concentration values of individual pollutants discharged into the air were not exceeded.

Metallic RAW Melting Facility

Metallic RAW Melting Facility (PS37) in the building No. 34 was under commissioning in 2022, permitted by the Decision of the Nuclear Regulatory Authority of the Slovak Republic No. 280/2021. For this facility, the concentration emission limit for

solid pollutants (5 mg/m³) has been set in operating procedure 10-LAP-001. In addition to measuring the solid pollutants, chemical monitoring (AMS) of gaseous discharges and other pollutants, namely NO_x, CO and SO₂, is performed in the facility. In the 2022 annual report from the AMS measurement, pollutant concentration levels were measured far below the established emission limits.

Air pollution charges (NEIS)

In line with the Act No. 137/2010 Coll. on Air Protection, and Act No. 401/1998 Coll. on Air Pollution Charges, JAVYS, a. s. is obliged to annually report data on stationary sources, amounts of pollutants discharged into the air in the previous year, its compliance with the emission limits and the calculated annual charge for all medium air pollution sources. The data are sent to the relevant District Environment Office (in compliance with the cadastral area based on the Land Register where the source is situated) and, subsequently, to the National Emission Information System (NEIS). With regard to the negligible amounts of pollutants produced (calculated in compliance with the approved calculation formulas) in 2021, JAVYS, a. s. was not obliged to pay any charge for the emissions discharged as a result of the operation of its medium air pollution sources. The amount of € 15 was charged by Municipal Office Jaslovské Bohunice for the operation of a small source of air pollution.

Equipment containing fluorinated greenhouse gases

Pursuant to the Act No. 286/2009, Coll., on Fluorinated Greenhouse Gases, and Regulation 517/2014 of the European Parliament and the Council (EC) on Fluorinated Greenhouse Gases, JAVYS, a. s. is the operator of multiple equipment containing fluorinated greenhouse gases (F gases). Such gases are mainly found in air conditioning units, current and voltage transformers, switchboards and stationary fire suppression equipment. The operators of equipment which contain F gases provide for regular mandatory inspections of discharged F gases on all such equipment. Inspections are performed by professionally competent individuals. In line with the Act, JAVYS, a. s., sent the annual report on fluorinated greenhouse gases to the relevant District Offices, Departments of Environmental Protection. The report concerned equipment with a volume of 5 and more tonnes of CO₂ equivalent, within the deadline specified by the Act.

Greenhouse gas emissions

Pursuant to Act No. 414/2012 Coll., on Emission Allowances Trading, JAVYS a. s., is a mandatory trading scheme participant. **21 tonnes of greenhouse gases (CO₂)** were discharged by the Reserve Boiler Plant and diesel-generators in 2022. The amount of CO₂ emissions slightly increased (21 tonnes compared to 20 tonnes in 2021). The report on the level of operation and the report on greenhouse gas emissions from the operation in 2022 were redacted in line with require-

ments defined by the Act No. 414/2012 Coll. on Emission Allowances Trading. In line with the Act, both reports were verified by an accredited verifier (ASTRAIA Certification, s. r. o.). The report on emissions along with the verification report were sent to the District Office in Trnava and to the Ministry of Environment of the Slovak Republic by means of the electronic EU emission system (ETS).

Discharges of radioactive substances into the atmosphere

Only fractions of permitted guidance limit values of exhaust gases are discharged into the environment by the nuclear facilities owned by JAVYS, a. s., as confirmed by multiple monitoring measurements. The guidance limit values of discharged radioactive substances were established by decisions of the Public Health Authority of the Slovak Republic, and approved by the Nuclear Regulatory Authority of the Slovak Republic.

Discharged radioactive aerosols (β, γ) in 2022

Nuclear facility	Vol. activity of discharged substances (Bq)	Annual guidance value (Bq)	% of guidance limit
Aerosols VK 46A (HVB)	3.5×10^7 Bq	6.58×10^8 Bq	5.30
Aerosols VK 46B (Bitum. Line and External buildings)	4.7×10^8 Bq	1.41×10^9 Bq	3.32
Aerosols VK 808 (BRWTC and External buildings)	9.7×10^4 Bq	1.41×10^9 Bq	0.07
Aerosols VK 840 (ISFS)*	1.8×10^5 Bq	3.00×10^9 Bq	0.06
Aerosols V1 NPP	2.0×10^7 Bq	8.00×10^{10} Bq	0.02
Aerosols (FP LRAW)	4.6×10^4 Bq	8.00×10^7 Bq	0.06

* Shared limit value of 3×10^8 Bq applies to all radionuclides produced by ISFS (β, γ included)

No radioactive substances were discharged into the atmosphere from the NRAWR premises, due to the nature of the repository.

In 2022, substances discharged from nuclear facilities operated by JAVYS, a. s. into the atmosphere were significantly below the authorized guidance limits specified by the Public Health Authority of the Slovak Republic.

3.

Water Management System

In the field of water protection, JAVYS, a. s. complies with the basic legal regulation, i.e. Act No. 364/2004 Coll., on Water, as amended, adopted by the National Council of the Slovak Republic, and with all subsequent related Acts, executive ordinances and regulations. The permitted amounts of discharged wastewater, the concentrations and balance limit values of pollutants in the wastewater, places and methods of wastewater discharge, etc., are defined by applicable decisions of state authorities and regulatory authorities in the field of water protection, and issued for JAVYS, a. s.

Drinking water

Drinking water is supplied to the Jaslovské Bohunice site from the TAVOS, a. s. distribution line, based on a valid drinking water supply contract. The Mochovce nuclear site is connected to the SE, a. s. EMO Plant (SE-EMO) drinking water distribution line. The drinking water supply to the administrative building in Bratislava is provided from the public water mains of Bratislavská vodárenská spoločnosť, a. s.

Amount of drinking water consumed between 2019 and 2022

SITE	Consumption (m³)			
	2019	2020	2021	2022
Jaslovské Bohunice	45,408	48,602	51,778	59,034
NRAWR Mochovce	434	397	806	402
FP LRAW Mochovce	298	283	256	259
Office building Bratislava	1,150	1,180	998	880
SUM TOTAL	47,290	50,462	53,838	60,575

The total consumption of drinking water in 2022 increased by 6,737 m³ compared to the previous year, which represents the increase by 12.5%. The increase in consumption was caused by an increase in the number of Contractors' employees working in individual projects.

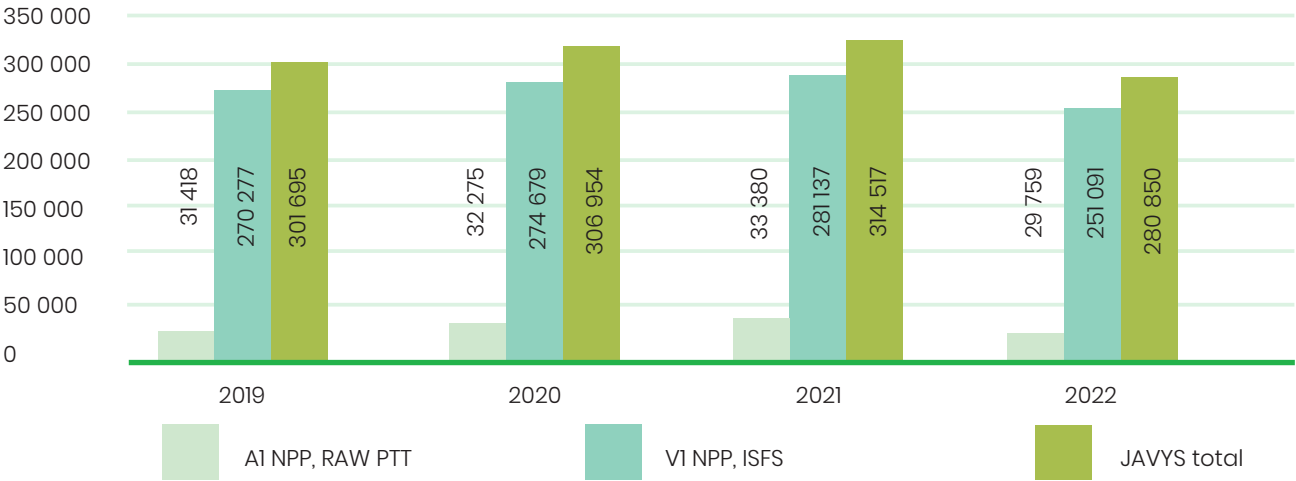
The quality of drinking water was controlled at JAVYS, a. s., in line with Decree No. 247/2017 Coll. of the Ministry of Health of the Slovak Republic, which specifies details of Drinking Water Quality, Drinking Water Quality Control, Monitoring Programme and Risk Management in relation to the Drinking Water Supply, and pursuant to Decree of the Ministry of Health of the Slovak Republic No. 100/2018, Coll., on Reduction of Population Exposure from Drinking Water, Natural Mineral Water and Spring Water. All tested samples complied with the limit values specified by the Decrees of the Ministry of Health of the Slovak Republic for the evaluated sample indicators.

Cooling water

Surface water taken from the Sĺřava water reservoir is used as cooling water at the Jaslovské Bohunice site. It is supplied by SE-EBO. The surface water is used for the cooling of the V1 NPP wastewater treatment system, for the cooling of facilities where radioactive waste is managed and stored, and for cooling of the processing facilities and storage premises for RAW and SNF (ISFS).

The amounts of cooling water consumed show a steady trend in both the technology and methods of decommissioning of individual operational systems and civil buildings situated at the A1 and V1 NPP sites.

Consumed cooling water (supplied from the River Váh) 2019 – 2022



The FP LRAW (the bituminization lines and the thickening evaporator) technological facilities are connected to the supply of the non-essential utility water system from the SE-EMO distribution system, i.e. to the cooling water circulation system. The consumption of cooling water reached 1,779 m³ in 2022.

Wastewater

Jaslovské Bohunice site

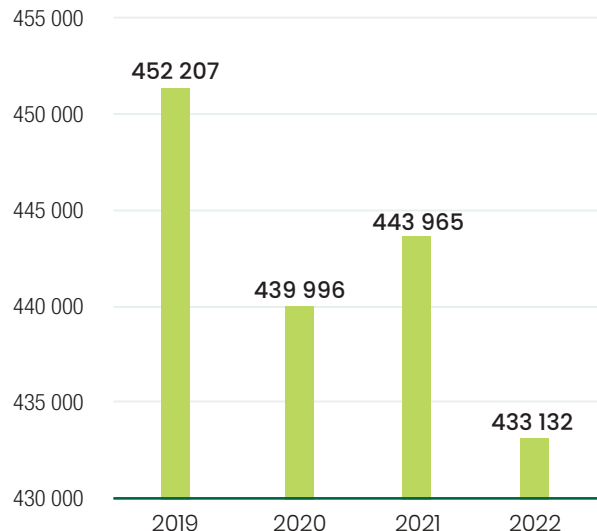
Wastewater from the JAVYS, a. s. site in Jaslovské Bohunice is discharged by a separate sewerage system to the Rivers Váh (water used by technology) and Dudváh (surface drainage water).

Balance of discharged wastewater

Wastewater from the Jaslovské Bohunice site is discharged via the pipe drainage collector SOCOMAN and the open canal Manivier in line with the applicable decision OU-TT-OSŽP2-2013/00026/GI issued by the District Office in Trnava.

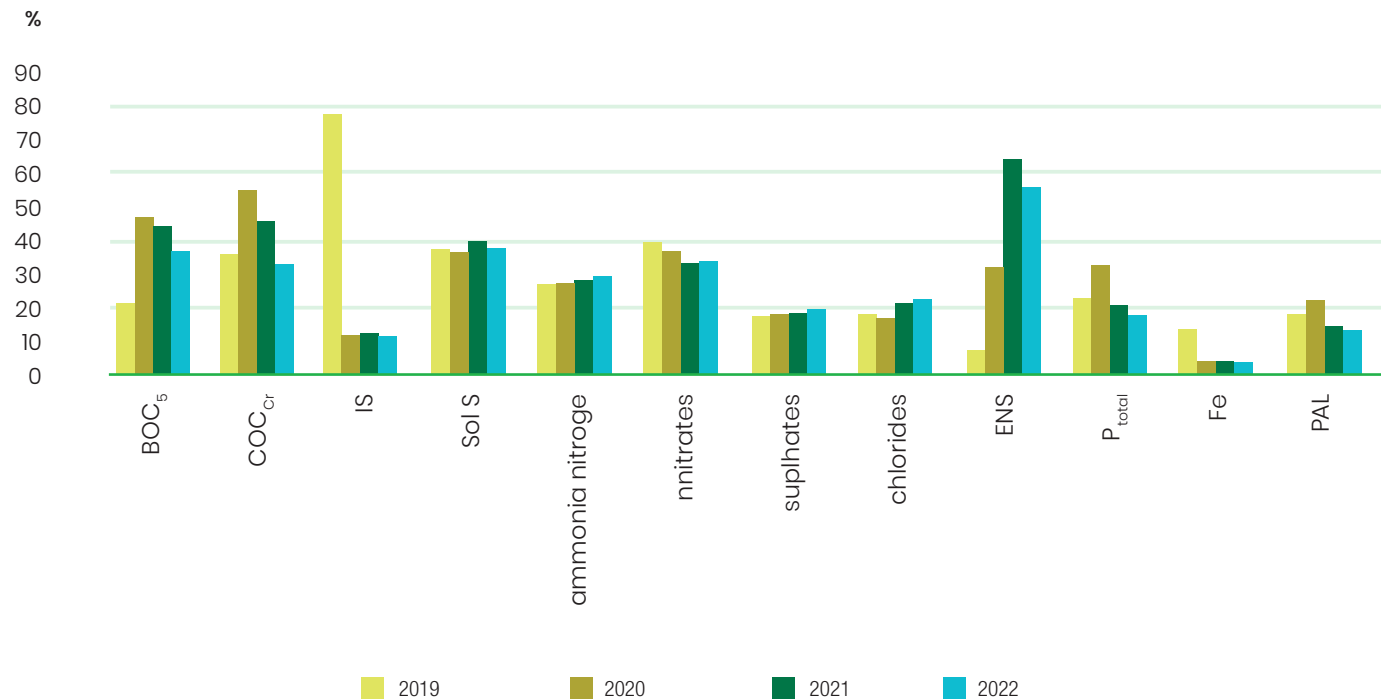
Quality of wastewater discharged into the River Váh recipient is monitored by taking samples collected over a period of 24 hours analyzed in an accredited laboratory. Company JAVYS, a.s. is not obliged to measure the quantity and quality of rainwater discharged into the recipient Dudváh.

Amounts of wastewater discharged into the River Váh, 2019–2022 (m³)



According to the results of accredited sampling and analyses of wastewater samples discharged into the River Váh recipient in 2022, the limit values of pollutant indicators in wastewater were not exceeded.

Percentage of Usage Limit of individual contaminants
in discharged wastewater 2019 - 2022



Average Concentration of Chemical Pollutants Discharged into the River Váh Recipient

Chemical pollution indicator	Average concentration of discharged contaminants	Permitted concentration (decision OU-TT-OS ŽP2-2013/00026/GI)
Acidity, alkalinity – pH	7.747	9.00
	mg/l	mg/l
Biochemical oxygen consumption – BOC ₅	3.042	8.00
Chemical oxygen consumption – ChOC _{Cr}	9.454	30.00
Insoluble substances – IS	2.083	20.00
Soluble substances – SS	361.986	1,000.00
Ammonia – N-NH ₄ ⁺	1.095	4.00
Nitrates – NO ₃ ⁻	15.972	50.00
Sulphates – SO ₄ ²⁻	28.507	150.00
Chlorides – Cl ⁻	20.819	100.00
Extracted non-polar substances – NES	0.200	0.35
Total phosphates – P _{TOTAL}	0.350	2.00
Iron – Fe	0.053	2.00
Detergents – PAL	0.063	0.50

NRAWR Mochovce site

A rainwater sewage system is installed at the NRAWR site. The system of tanks is emptied into the Telinsky potok stream. Decision OU-NR-OSZP2-2020/043017-003 issued by the District Office in Nitra permitted the discharge of surface drainage water into the Telinsky potok stream. NRAWR discharged 2,270 m³ of surface drainage water into the Telínsky potok stream in 2022. 160 m³ of sanitary water accumulated in a waterproof cesspool in NRAWR were transported to a wastewater treatment plant to be treated.

FP LRAW Mochovce

Sanitary water from FP LRAW is drained into the SE-EMO sewage system, then taken into the wastewater treatment plant and, after its purification, discharged into the environment with SE-EMO water. The rainwater is drained into the SE-EMO rainwater sewage system along with rainfall water from other SE-EMO civil buildings. The sanitary water and rainwater is drained by Slovenské elektrárne, a. s.

Discharges of radioactive substances into the hydrosphere

Only fractions of permitted limit values of discharged liquids are discharged into the environment by the nuclear facilities operated by company JAVYS, a. s., as confirmed by multiple monitoring measurements. The guidance limit values of radioactive substances discharged into surface water by nuclear facilities of JAVYS, a.s. were established by decisions of the Public Health Authority of the Slovak Republic, and approved by the Nuclear Regulatory Authority of the Slovak Republic.

The substances discharged in wastewater are monitored by measuring the volumes of tritium, corrosion and fission products, and the volume of water stored in retention tanks at RAW PTT, A1 NPP, ISFS and V1 NPP, while water discharges are also continuously monitored at measurement points. Water with low values of contaminants also includes water discharged due to the standard operation of the groundwater pumping system from well N-3 (BO 106) permitted by the District Office in Trnava in line with the Act No. 364/2004 Coll. on Water.

Low-level Water Discharge from the Jaslovské Bohunice Site (including water pumped from the recovery pumps at the RAW PTT and A1 NPP Sites) into the River Váh

2022	Activities of radionuclides in wastewater of the River Váh recipient							
	NP, V1 NPP, ISFS				NP, A1 NPP, RAW PTT			
Volume of discharged water	9,694 m ³				199,761 m ³			
	Corr. & fiss. prod. (MBq)	Tritium (GBq)	% of CFP guidance limit*	% of Tritium guidance limit*	Corr. & fiss. prod. (MBq)	Tritium (GBq)	% of CFP guidance limit**	% of Tritium guidance limit**
Total	13.112	1.948	0.101	0.097	10.365	314.538	0.086	3.145

* CFP guidance limit: 13,000 MBq; Tritium guidance limit: 2,000 GBq

** CFP guidance limit: 12,000 MBq; Tritium guidance limit: 10,000 GBq

Note: By the 31st of May 2022, wastewater from the ISFS was discharged within the V1 NPP, from the 1st of June 2022, it was discharged within the Facility for Treatment and Conditioning of RAW.

Water Actively Discharged into the Hydrosphere from NRAWR and FP LRAW

Surface drainage water is only discharged from NRAWR into the Telinský potok stream. 2,270m³ was discharged in 2022, with disintegration activity 5.98 × 10⁶ Bq. Limits of volumetric activities of radionuclides in discharged water specified by the decision of the Chief Public Health Officer were not exceeded for any of the indicators monitored in this period.

Quality of rainfall wastewater discharged from NRAWR

Radionuclide	Guidance limit (Bq/year)	Disintegration activity in discharged water (Bq)	% of guidance limit
Tritium	1.88 × 10 ¹⁰	5.68 × 10 ⁶	0.030
Cs-137	2.28 × 10 ⁷	4.00 × 10 ⁴	0.175
Co-60	2.24 × 10 ⁷	2.00 × 10 ⁴	0.089
Sr-90	2.44 × 10 ⁸	2.35 × 10 ⁵	0.096
Pu-239	5.56 × 10 ⁵	5.80 × 10 ⁴	1.032

Secondary active wastewater was not discharged from the FP LRAW facility in 2022.

Groundwater monitoring and protection

Jaslovské Bohunice site

The monitoring and protection of groundwater and soil waters at the Jaslovské Bohunice site and in its surroundings have been carried out since 1997 in accordance with the approved

monitoring programme. Long-term and regularly monitored radiation in ground water at RAW PTT and AI NPP is currently stable. Continuously working recovery pumps on-site have been in operation since 2000. Activities are carried out under the AI NPP decommissioning project, based on which primary sources of soil contamination, followed by sources of groundwater contamination, were gradually removed. Recovery pumps are operated in compliance with the MoE SR decision in force.

Evaluation of the Standard Operation of the Groundwater Recovery Pumps, Well N-3

Recovery pumping in 2022	Reached CFP activity [MBq]	[%] of CFP guidance limit*	Reached tritium activity [GBq]	[%] of Tritium guidance limit*	Volume of pumped water [m ³]
Total	1.61	0.013	53.21	0.532	196,208

- * Guidance limits are specified by decision as follows:
- CFP guidance limit = 1.2 × 10⁴ MBq,
 - Tritium guidance limit = 1.0 × 10⁴ GBq.

In addition to the monitoring within the company's site, the surroundings are monitored as well. Based on the groundwater monitoring results in the surroundings of the Jaslovské Bohunice site, it is possible to observe a significant reduction of radiation (reduced tritium volumetric activities to an insignificant level at the natural level) in the surroundings of municipalities Malženice and Žlkovce.

NRAWR Mochovce site

Within and nearby NRAWR, groundwater samples were collected from monitoring wells in line with the monitoring calendar 2022, for the purpose of chemical and radiochemical analyses. Apart from ground water, drainage water is also monitored at NRAWR. The volumetric activity of the individual radionuclides in 2022 was below the limit specified by the Chief Health Officer of the Slovak Republic. Drainage water is discharged through rainwater tanks. Its amount and analyses are included in data on discharged water.

Results of Chemical and Radiochemical Analyses of Water in 2022

Measured quantity	Activity limit (Bq/l)
Tritium	< 5
Total beta activity	< 1
Cs-137	< 1.19
Co-60	< 0.83
Sr-90	< 0.12
Pu-239	< 0.06

The results of radiochemical analyses reached the level of normal potential values; the environment was not negatively impacted at NRAWR and its surroundings during operation.



4.

Waste Management (Inactive Waste)

In the field of waste management, JAVYS, a. s. complied in 2022 with the basic legal regulation, i.e. Act No. 79/2015, Coll., on Waste, as amended, adopted by the National Council of the Slovak Republic, and with all subsequent related acts, executive ordinances and regulations of the Government of the Slovak Republic.

JAVYS, a. s. provides waste management by the collection, sorting and accumulation of waste within the premises allocated for such purpose – the Waste Collection Yard.



Balance of Waste Produced from Projects co-financed by the EU

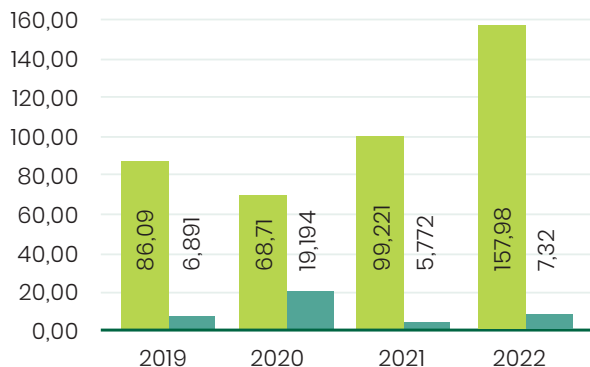
Disposal and recycling of waste produced by activities not implemented by projects co-financed by the EU fall under the competence of JAVYS, a. s. If such activities are provided, the disposal and recycling of such waste is ensured by a contracted supplier.

**Amount and type of waste (category “other”) produced by JAVYS, a. s. in 2022,
within projects not financed by the EU in the locality of Jaslovské Bohunice**

Catalogue Number	Type of Waste	Other waste – name	Amount (tonnes)	Recycled waste (tonnes)	Disposed waste (tonnes)
150101	O (Other)	Paper and cardboard packaging	9.640	✓	
150106	O (Other)	Mixed packaging	2.460	✓	
160214	O (Other)	Discarded equipment not listed under 160209– 160213	4.880	✓	
170201	O (Other)	Wood	6.920	✓	
170604	O (Other)	Insulation materials not listed under 170601–03	28.960		✓
190809	O (Other)	Grease and oil mixture from oil/water separation containing only edible oil and fats	18.380	✓	
170904	O (Other)	Mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	4.030	✓	
150203	O (Other)	Absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02	0.051	✓	
170302	O (Other)	Bituminous mixtures other than those mentioned in 17 03 01	75.800		✓
170203	O (Other)	Plastic	3.620		✓
200201	O (Other)	Biodegradable waste	3.24	✓	
Total amount (t)			157.981	49.601	108.380
Total amount			100 %	31.40 %	68.60 %

**Amount and type of hazardous waste produced by JAVYS, a. s. in 2022,
within projects not financed by the EU in the locality of Jaslovské Bohunice**

Catalogue Number	Type of Waste	Hazardous waste – name	Amount (tonnes)	Recycled waste (tonnes)	Disposed waste (tonnes)
090104	H (Hazardous)	Fixing agent solutions	0,600		✓
160602	H (Hazardous)	Ni-Cd batteries	0,120	✓	
180103	H (Hazardous)	wastes whose collection and disposal is subject to special requirements in order to prevent infection	0,040	✓	
150110	H (Hazardous)	Packaging containing residues of or contaminated by hazardous substances	0,940		✓
150202	H (Hazardous)	Absorbents, filters (oil filters included), cloths used to clean contaminated hazardous substances	0,300		✓
160213	H (Hazardous)	Discarded equipment containing parts made of hazardous materials – not listed under 160209 to 160212	2,580	✓	
160506	H (Hazardous)	Laboratory chemicals which consist of/contain hazardous substances	0,180		✓
160601	H (Hazardous)	Lead-acid batteries	2,080	✓	
080317	H (Hazardous)	Used printer cartridges containing hazardous substances	0,140		✓
200121	H (Hazardous)	Fluorescent tubes and other mercury-containing waste	0,340	✓	
Total amount (t)			7.32	5.160	2.160
Total amount			100%	70.50%	29.50%



Other and hazardous waste produced at the Jaslovské Bohunice site, unrelated to projects co-financed by the EU (2019 - 2022)

other hazardous

Total production of waste (excluding projects co-funded from the EU sources) increased compared to the previous year, which was mainly due to the maintenance of the Jaslovské Bohunice site, namely the replacement of the asphalt surface of the roads in the area. No hazardous or other waste from the National Radioactive Waste Repository operation was disposed of/recycled, with the exception of municipal waste.

Balance of Waste Produced within Projects co-financed by the EU

Waste was produced by JAVYS, a. s. in 2022 during Stage 2 of V1 NPP decommissioning, and recycled and disposed of by

contractors and sub-contractors engaged in the individual projects.

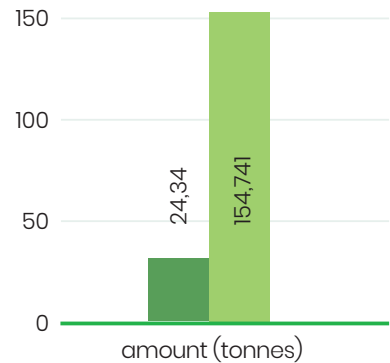
Amount and type of waste (category “other” and “hazardous”) produced by JAVYS, a. s. in 2022, within projects financed by the EU

Catalogue Number	Type of Waste	Other waste – name	Amount (tonnes)	Recycled Waste	Disposed waste
170203	O	Plastic – BIDSF Project A5-A3	8.42		✓
170302	O	Bituminous mixtures – BIDSF Project D4.1	12.22		✓
150106	O	Mixed packaging – BIDSF Project A5- A2a	2.10	✓	
170904	O	Mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03 – BIDSF Project A5-A2a	1.60		✓
Total amount (tonnes)			24.34	2.10	22.24
Total amount			100%	8.63%	91.37%

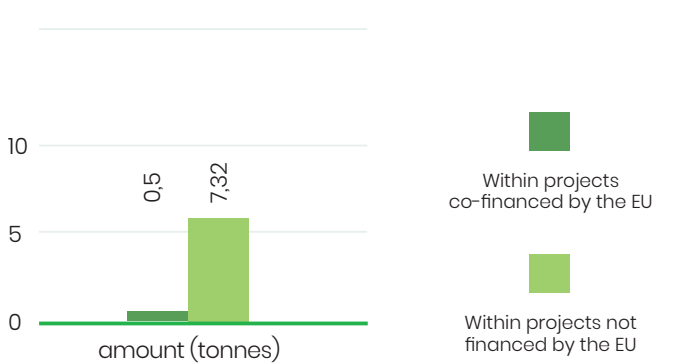
Catalogue Number	Type of Waste	Hazardous waste – name	Amount (tonnes)	Recycled Waste	Disposed waste
190304	H (Hazardous)	Waste marked as hazardous, partly stabilized – BIDSF Project D4.2	0.50		✓
Total amount (tonnes)			0.50	0	0.50
Total amount			100%	0%	100%

Comparison of the amount of other and hazardous waste produced within projects co-financed by the EU, and by in-house production

Compared production in 2022 – other waste



Compared production in 2022 – hazardous waste



Balance of Municipal and Biodegradable Waste

Amount of municipal and biodegradable waste produced by JAVYS, a. s. in 2022, in the locality of Jaslovské Bohunice

Catalogue Number	Type of Waste	Waste name	Amount (tonnes)	Recycled waste	Disposed waste
200301	O	Mixed municipal waste J. Bohunice	30.62		✓
200301	O	Mixed municipal waste – National Radioactive Waste Repository in Mochovce	2.06		✓
Total amount (tonnes)			32.68	0	32.68
Total amount			100 %	0 %	100 %

Total balance of other and hazardous waste produced in all facilities operated by company JAVYS, a.s. for the years 2020 – 2022

Amount (tonnes)	year 2020	year 2021	year 2022
Recycled waste			
Other waste	52.85	31.621	51.701
Other waste – metallic	5,163.524	2,155.647	1,932.29
Hazardous waste	15.925	4.352	5.16
Total	5,232.299	2,191.62	1,989.151
Disposed waste			
Other waste (without metallic waste)	38.42	260.24	130.62
Municipal waste (Other waste)	42.97	35.334	32.68
Hazardous waste	8.969	10.642	2.66
Total	90.359	306.216	165.96
Total amount (recycled and disposed)			
Other waste + Hazardous waste (t)	5,322.658	2,497.836	2,155.111

Total production of waste in 2022 was lower compared to the previous year.

5.

Major Industrial Accidents

Within the prevention of major industrial accidents, JAVYS, a. s. complies with the basic legal regulation, i.e. Act No. 128/2015, Coll., on Prevention of Major Industrial Accidents, and on amendments and supplements to certain Acts, as amended, adopted by the National Council of the Slovak Republic, and with all (in)directly related acts.



Despite the fact that JAVYS, a. s. is neither in Category A nor in Category B specified by the Act, the company is obliged to regularly monitor quantities, fire characteristics and types of hazardous substances within its premises. The "Management of Chemical Substances" (MCHS) application is used to monitor hazardous chemicals management. The application includes a code list of all chemical substances and mixtures purchased and used within and brought into JAVYS, a. s. by contractors and tenants. The chemicals are classified into categories in line with the Chemical Act, the Water Act, and the Act on Prevention of Major Industrial Accidents, including the Safety Data Sheet for each chemical for employees' convenience.

6. Environmental Impact Assessment

The environmental impact assessment is governed by Act No. 24/2006 Coll. on Environmental Impact Assessment, and on amendments and supplements to certain Acts, as amended, adopted by the National Council of the Slovak Republic. The provisions of the Act were implemented into Procedure BZ/OŽ/SM-04 Environmental impact assessment (EIA).

Environmental impact assessment processes

Screening proceedings

No screening process pursuant to the relevant Act was held in 2022.

Mandatory assessment

In 2022, the mandatory assessment process pursuant to the Act No. 24/2006 Coll. for the proposed activity **„Optimization of processing capacities of facilities for the treatment and conditioning of radioactive waste in JAVYS, a. s., on site of Jaslovské Bohunice“** was completed by decision of the Minister of Environment of the Slovak Republic No. 59862/2021, which rejected the appeals filed against the final opinion of the Ministry of Environment of the Slovak Republic No. 417/2021-1.7/zg. Validity of the final opinion of the Ministry of Environment of the Slovak Republic No. 417/2021-1.7/zg, in which the Ministry agrees with the proposed activity, was confirmed on the 2nd of May 2022. This process was the most complex environmental impact assessment process in terms of its duration and public participation (it started with the submission of the Preliminary Environmental Study on the 5th of February 2018).

The second proceeding, which began on the 7th of September 2022, pursuant to the Act No. 24/2006 Coll. with submission of the Preliminary Environmental Study, is the assessment of the impacts of activity **„Stage V. of the A1 NPP decommissioning and subsequent exempt of the A1 NPP area from administrative control“**, which will continue in 2023.

Activities carried out during the permitting of assessed activities

The implementation and operation of activities that have been assessed in accordance with the *Act on Environmental Impact Assessment* is only possible under the condition of proving the compliance of the activity implementation with the final opinion from the assessment process or with the decision issued in the screening proceedings. This compliance has been demonstrated by preparing a written evaluation of the conditions of the final opinion of the Ministry of Environment of the Slovak Republic, or conditions of the decision issued in the screening proceedings and attached to the application for an activity permit. In the course of 2022, a written evaluation of the fulfilment of conditions resulting from the final opinions on permitting proceedings was prepared:

1. Issuing of the building permit for the activities:

- Completion of the 4th double-row for LLW at the National Radioactive Waste Repository in Mochovec
- I00TSVD20007 – Optimization of the processing facilities within the Facility for Treatment and Conditioning of RAW – compacting
- Reconstruction and extension of sanitary premises and adjacent areas in the civil building CB 47
- Annex to the building CB 30 for handling of large components from the AI NPP decommissioning

2. Issuing of the permit for removal of construction:

- Demolition of the building 44/10, relocation of the HVAC system and electrical switchboard MR44.1

3. Issuing of the permit for the change in use of construction:

- BIDSF project D4.2 "Establishment of dry fragmentation workplace in the building CB 490:V1"

In all binding opinions, the Ministry of Environment of the Slovak Republic confirmed the compliance of the permitting proceedings with the Act No. 24/2006 Coll. and decisions issued pursuant to this Act.

Post-project analysis

In the first half of 2022, a post-project analysis for 2021 was developed for all evaluated activities performed by JAVYS, a. s. The results of the post-project analysis and evaluated compliance with the conditions specified by the MoE SR in its Final Decisions showed that JAVYS, a. s. performed all reviewed activities in compliance with the Environmental Impact Assessment Act, and with decisions issued in compliance with the Act.



Environmental Management System

JAVYS, a. s. adheres to the certified environmental management system in accordance with the ISO standard 14001:2015 Environmental Management Systems, to demonstrate it undertook all its activities in 2022 in compliance with the environmental protection requirements.

The functionality and implementation of this system was verified by an independent certification body, Det Norske Veritas GL, on 8.11.- 10.11.2022, by a recertification IMS audit confirming the validity of internationally acceptable certificates for JAVYS, a. s. The environmental protection requirements are regularly monitored and reviewed by internal IMS audits which also verify the implementation of environmental management system requirements. The audits concluded with minor findings which were remedied within deadlines recommended in IMS audit reports. The audits did not report any non-conformities.

ABBREVIATIONS

³ H	Tritium
AP	Air pollutant
As	Arsenic
BIDSF	Bohunice International Decommissioning Support Fund – VI NPP
Bq	Becquerel
BRWTC	Bohunice Radioactive Waste Treatment Centre
Cd	Cadmium
CFP	Corrosion and fission products
CO	Carbon monoxide
Co	Cobalt
CO ₂	Carbon dioxide
C _{org}	Organic carbon
Cr	Chrome
Cs	Caesium
Cu	Copper
DG	Diesel generator
DO	District office
EIA	Environmental impact assessment
Env	Environment
ETS	Emission Trading System
EB	External buildings
EU	European Union
FCC	Fibre concrete container
FCCP	Fibre concrete container production
FP LRAW	Final processing of liquid radioactive waste
GBq	Gigabecquerel
HCl	Hydrogen chloride
HF	Hydrogen fluoride
Hg	Mercury
HP	Hazardous parts

HS	Hazardous substance
IMS	Integrated management system
ISFS	Interim Spent Fuel Storage
JAVYS, a. s.	Jadrová a vyradovacia spoločnosť, a joint stock company
MBq	Megabecquerel
MH SR	Ministry of Health of the Slovak Republic
Mn	Manganese
MoE SR	Ministry of Environment of the Slovak Republic
MRB	Main reactor building
NF	Nuclear facility
Ni	Nickel
NO _x	Oxides of nitrogen
NRAWR	National Radioactive Waste Repository
Pb	Lead
P _{Total}	Total phosphate
Pu	Plutonium
RAW	Radioactive waste
RAW PTT	Radioactive waste processing and treatment technology
RBP	Reserve boiler plant
SE-EBO	Slovenské elektrárne, a. s., Atómové elektrárne Bohunice power plant
SE-EMO	Slovenské elektrárne, a. s., Atómové elektrárne Mochovce power plant
SNF	Spent nuclear fuel
SO ₂	Sulphur dioxide
SP	Solid pollutants
Sr	Strontium
TAVOS, a.s.	Trnavská vodárenská spoločnosť, a.s.
Tl	Tellurium
VS	Ventilation stack



Jadrová a vyrad'ovacia spoločnosť, a. s.

Jaslovské Bohunice 360

919 30 Jaslovské Bohunice

www.javys.sk