GROUNDWATER SURVEY REPORT 2023 ARMENIA





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EU4Environment in Eastern Partner Countries: Water Resources and Environmental Data (ENI/2021/425-550)

ABOUT THIS REPORT

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ABOUT EU4ENVIRONMENT – WATER RESOURCES AND ENVIRONMENTAL DATA

This Programme aims at improving people's wellbeing in EU's Eastern Partner Countries and enabling their green transformation in line with the European Green Deal and the Sustainable Development Goals (SDGs). The programme's activities are clustered around two specific objectives: 1) support a more sustainable use of water resources and 2) improve the use of sound environmental data and their availability for policy-makers and citizens. It ensures continuity of the Shared Environmental Information System Phase II and the EU Water Initiative Plus for Eastern Partnership programmes.

The programme is implemented by five Partner organisations: Environment Agency Austria (UBA), Austrian Development Agency (ADA), International Office for Water (OiEau) (France), Organisation for Economic Co-operation and Development (OECD), United Nations Economic Commission for Europe (UNECE). The programme is principally funded by the European Union and co-funded by the Austrian Development Cooperation and the French Artois-Picardie Water Agency based on a budget of EUR 12,75 million (EUR 12 million EU contribution). The implementation period is 2021-2024.

https://eu4waterdata.eu

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List of abbreviations

ADAAustrian Development Agency
BQEBiological Quality Elements
DoA Description of Action
DG NEAR Directorate-General for Neighbourhood and Enlargement Negotiations of the European Commission
EaP Eastern Partners
EC European Commission
EECCA Eastern Europe, the Caucasus and Central Asia
EMBLASEnvironmental Monitoring in the Black Sea
EPIRBEnvironmental Protection of International River Basins
ESCS Ecological Status Classification Systems
EUEuropean Union
EUWI+European Union Water Initiative Plus
GEFGlobal Environmental Fund
ICPDR International Commission for the Protection of the Danube River
INBOInternational Network of Basin Organisations
IOW/OIEauInternational Office for Water, France
IWRMIntegrated Water Resources Management
NESBNational Executive Steering Board
NFPNational Focal Point
NGOsNon-Governmental Organisations
NPDNational Policy Dialogue
OECDOrganisation for Economic Cooperation and Development
RBD River Basin District
RBMPRiver Basin Management Plan
Reps Representatives (the local project staff in each country)
ROMResult Oriented Monitoring
ToRTerms of References
UBAUmweltbundesamt GmbH, Environment Agency Austria
UNDP United Nations Development Programme
UNECE United Nations Economic Commission for Europe
WFD Water Framework Directive

Country Specific Abbreviations Armenia

EMIC Environmental Monitoring and Information Centre (until January 2020)

- HMC..... Hydrogeological Monitoring Centre (since February 2020)
- MNP..... Ministry of Nature Protection
- RA Republic of Armenia
- SCWS..... State Committee on Water Systems
- SWCIS..... State Water Cadastre Information System of Armenia
- WRMA Water Resources Management Agency

Key messages

The Northern RBD includes the river basins of Debed, Aghstev, Hakhum, Tavush, Khndzorut with their tributaries and covers an area of 7185 km².

The main goal of the survey is the development of the national network of groundwater monitoring in the Northern RBD of the Republic of ARmenia. Currently, there are only 2 observation posts in the Northern RBD.

Taking into consideration the scarcity of hydrogeological monitoring observation points in Northern RBD, under the initiative of EU4Enviroment, a survey covering 32 groundwater springs for quantitative and qualitative studies in 2023 was accomplished. Finally, 16 monitoring sites were recommended for inclusion into the national groundwater monitoring network.

Executive Summary

This report comprises a summary of a groundwater chemical survey, which took place in June 2023 in the Northern River Basin District (RBD) of Armenia. In the survey 32 wells and springs were sampled, aiming at finding appropriate, already existing wells and springs which could be candidates for their integration into the national groundwater monitoring network.

Each sample was analyzed for a comprehensive number of chemical substances and indicators. The groundwater chemical survey 2023 covered the following activities:

- Development of the survey manual;
- Field survey conducted by the hydrogeologists of the Hydrometeorology and Monitoring Centre (HMC) (19-23 June 2023);
- Laboratory analyses incl. laboratory reports by the HMC laboratory;
- Interpretation of the results by the HMC hydrogeologists;
- Preparation of this groundwater survey report.

The newly gathered data for a comprehensive set of parameters acts as gap filling and as a kind of screening (surveillance monitoring) contributing to the characterisation of groundwater bodies and the risk and status assessment. All results and documents that were elaborated under this contract are public and finally accessible at the EU4Env Water and Data project website (https://eu4waterdata.eu/en/).

1. Summary of the survey 2023

1.1. General geological-hydrogeological conditions of the Northern RBD

The Northern river basin district (RBD) of Armenia includes the Debed, Aghstev, Hakhum, Tavush, Khndzorut and Voskepar river basins and together with their tributaries occupies an area of about 7,185 km2.

The area is mountainous. The steep mountain slopes, narrow and canyon-like river valleys, intermountain depressions with a limited surface area, large differences in hypsometric marks (430 m Debedavan, 3,081 m Maymekh L.) are characteristic of long-term average annual air temperatures (-2.5–12.3 °C), average annual precipitation (490–900 mm and more) and evaporation (300–500 mm).

Pre-Paleozoic and Meso-Cenozoic metamorphic, sedimentary, volcanic - sedimentary, volcanic, intrusive and volcanic rocks participate in the geological structure. Quaternary - modern lacustrine origin and loose debris and clay formations are common in intermountain hollows.

The mentioned rocks are represented by shales, limestones, sandstones, tufobreccias, tufosandstones, porphyrites, granitoids, andesites, basalts, tuffs and other varieties.

River boulders, gravel, granular sands, clays, loams are common in intermountain depressions and river valleys. Eluvial-deluvial sandy loams, loams and boulders of small thickness (up to 5 m) are widespread in the hillsides.

The structural structure, lithological composition, porosity and fracture of the mountain rocks in the vertical area together with the frequently changing complex bioclimatic conditions determine the complex hydrogeological conditions of the northern RBD.

In the conditions of cut relief, the main part of groundwater is discharged to the surface of the earth in the form of concentrated (springs) and scattered, linear, drainage flow.

In the Debed river basin, the waters of lacustrine formations formed in volcanic rocks and intermountain depressions are used for drinking water supply, and in Aghstev and other river basins, ground water of limestone formations, various tuffogens, granitoid rocks and pebble formations of narrow river valleys are used for drinking water supply.

1.2. Recommended observation points for improving groundwater monitoring

In the Northern RBD, in the Aghstevi river basin, there are currently 2 monitoring observation points, which are highly insufficient for the assessment of changes in the qualitative and quantitative indicators of groundwater in the described RBD.

In order to choose the right monitoring observation points, before the field research, we collected and summarized archival materials. From the 80 typical wells collected, 32 observation points were selected for field research, a brief description of which is given in Table 1.

It is planned to include at least 16 of the 32 observation points studied during the field research in the monitoring network, taking into account:

- 1. the presence of 22 water bodies separated in the monitoring network,
- 2. natural protection of observation points from possible pollution, and
- 3. possible mild changes of observed hydrodynamic parameters (flow, level).

2. General aspects

Date of survey	19-23. June 2023
Location	The survey is performed in the Northern River Basin District of Armenia
Overall responsibility.	Mr Harutyun Yeremyan, HMC
Scope of survey	In total 32 monitoring sites. The list of the monitoring sites and the passports of the sites are attached as Annex.
Objective of survey	To provide input for the delineation of groundwater bodies, the risk, status and trend assessment; To identify wells and springs which could be candidates for the upcoming monitoring network; To receive a first impression about geogenic background and effects of human pressures and impacts.
Sampling team	Ms Armine Hakobyan, Mr Gegham Muradyan Mr Gevorg Torosyan (all HMC)

2.1. Measured and analysed substances

Table 1: Field parameters – measured by the HMC hydrogeologists

Parameter/Indicator	Unit	Measurement device
Water temperature	°C	field device
Electrical conductivity	μS/cm	field device
Dissolved oxygen	mg/l	field device
pH value		field device / test strip
Odour		none
Colour		none
Taste		none
Turbidity		None
Depth to groundwater table	m	Field device
Water discharge	I/s	none

Table 2: Parameters analysed at HMC laboratory

Major ions	
Calcium Ca	mg/l
Magnesium Mg	mg/l
Sodium Na	mg/l
Potassium K	mg/l
Chloride Cl	mg/l
Nitrate NO3	mg NO3/I
Sulphate SO4	mg SO4/I
Hydrogen carbonate HCO3	mg/l
Total mineralisation	mg/l

Dissolved metals	
Iron Fe	mg/l
Manganese Mn	mg/l
Aluminium Al	mg/l
Arsenic As	mg/l
Lead Pb	mg/l
Cadmium Cd	mg/l
Chromium Cr	mg/l
Copper Cu	mg/l
Nickel Ni	mg/l
Zinc Zn	mg/l

2.2. Sampled wells and springs - 2023

Taking into consideration the scarcity of hydrogeological monitoring observation points in the Northern RBD, under the initiative of EU4Enviroment, in 2023 a survey of 32 groundwater springs was performed. Of the 32 points studied, 22 are springs, 6 are flowing wells, 2 are non flowing wells and 2 are ground wells.

During the field survey, the location, type, hydrogeological conditions, some physical and chemical indices, water consumption (level), temperature, purpose of use and other parameters were described. Water samples were taken for laboratory chemical analysis.

The present report briefly describes the sampled springs by sampling numbers. Sampling protocols of groundwater springs (Annex 1), as well as the results of laboratory chemical analysis (Annex 2) are presented in the annexes.

Taking into consideration the geological-hydrogeological conditions of the groundwater springs, the features of feeding, accumulation and discharge, 16 observation points are proposed to be include in the hydrogeological monitoring network of Northern River Basin District. They are the following sites: N1, N3, N6, N7, N8, N13, N14, N15, N18, N21, N22, N24, N26, N28, N29 L N30:.

2.2.1. Site N 1 (flowing well, Lernavan village)

The flowing well is located in the administrative territory of Lernavan village of Lori region. The well was drilled in 1969. The depth is 188 m. Inner diametr of the well is 168 mm. The aquifer is set up at a depth of 160–178 m and is presented by sandstone. Water level is at an altitude of 0.8 m above the Earth's surface. The discharge of the well is 0.4 l/s, water temperature is 20.0°C, the total mineralization is 346 mg/l, dissolved oxygen 6.73 mg/l, electrical conductivity is 532 μ S/cm (at 25°C), pH is 7.18.

The water flows into the river and is used for irrigation. The nitrate concentration is 8.77 mg/l, which does not exceed the drinking water norm (45 mg/l) approved by the Armenian Ministry of Health.

2.2.2. Site N 2 ("Qung" spring, Katnadjur village)

The spring is located in the administrative territory of Katnadjur village of Lori region, above the cemetery. The outflow of water is observed from tuffogenic rocks. The spring is not captured.

The discharge of the spring is 0.52 l/s, water temperature is 10.0°C, the total mineralization is 214 mg/l, dissolved oxygen 8.84 mg/l, electrical conductivity is 329 μ S/cm (at 25°C), pH-value is 7.8.

The spring is utilized for drinking water supply by several houses. The nitrate concentration is 3.83 mg/l, which does not exceed the Armenian drinking water norm (45 mg/l).

2.2.3. Site N 3 (flowing well, Mets Parni village)

The flowing well is located in the administrative territory of Mets Parni village of Lori region. The well was drilled in years of 1968–1969. The depth is 188.6 m. Inner diametr of the well is 168 mm. The aquifer is presented by pebble-boulders gravel and sand.

Water level is at an altitude of 0.6 m above the Earth's surface. The discharge of well is 0.28 l/s, water temperature is 12.9°C, the total mineralization is 251 mg/l, dissolved oxygen 8,19mg/l, electrical conductivity is 386,6 μ S/cm (at 25°C), pH-value is 7.92.

The well is utilized for drinking water supply by several houses. The nitrate concentration is 16,08mg/l, which does not exceed the Armenian drinking water norm (45 mg/l).

2.2.4. Site N 4 (spring, Nor Khachakap village)

The spring is located in the administrative territory of Nor Khachakap village of Lori region, above the cemetery. The outflow of water is observed from porphyritic rocks. The spring is captured, but damaged.

The discharge of the spring is 0.15 l/s, water temperature is 9.9°C, the total mineralization is 223 mg/l, dissolved oxygen 7.46 mg/l, electrical conductivity is 346 μ S/cm (at 25°C), pH-value is 7.76.

The well is utilized for drinking water supply by several houses. The nitrate concentration is 12.15 mg/l, which does not exceed the Armenian drinking water norm (45 mg/l).

2.2.5. Site N 5 (spring, Darbas village)

The spring is located in the administrative territory of Darbas village of Lori region, near the cemetery. The outflow of water is observed from volcanic- sedimentary rocks. The spring is captured.

The discharge of the spring is 0.03 l/s, water temperature is 13.1° C, the total mineralization is 356 mg/l, dissolved oxygen 8.38 mg/l, electrical conductivity is 559 µS/cm (at 25°C), pH-value is 7.69.

The water is used for livestock supply. The nitrate concentration is 33.83 mg/l, which does not exceed the Armenian drinking water norm (45 mg/l).

2.2.6. Site N 6 (flowing well, Saratovka village)

The flowing well is located in the administrative territory of Saratovka village of Lori region. The well is located the left side of the river. The well was drilled in years of 1967–1970. The depth is 100 m. Inner diametr of well is 168 mm. The aquifer is presented by volcanic rocks.

Water level is at an altitude of 1.2 m above the Earth's surface. The discharge of the well is 0.1 l/s, water temperature is 13.2°C, the total mineralization is 609 mg/l, dissolved oxygen 3.45mg/l, electrical conductivity is 937 μ S/cm (at 25°C), pH-value is 7.08.

The water is not used. The nitrate concentration is 0.16 mg/l, which does not exceed the Armenian drinking water norm (45 mg/l).

2.2.7. Sample N 7 (spring, Saratovka village)

The spring is located in the administrative territory of Saratovka village of Lori region. The spring is located the right side of the river. The outflow of water is observed from volcanic- sedimentary rocks. The spring is captured.

The discharge of the spring is 0.25 l/s, water temperature is 10.8 °C, the total mineralization is 385 mg/l, dissolved oxygen 4.75 mg/l, electrical conductivity is 592 μ S/cm (at 25 °C), pH-value is 7.14.

The water is not used. The nitrate is 1.60 mg/l, which does not exceed the Armenian drinking water norm (45 mg/l).

2.2.8. Sample N 8 (flowing well, Tashir city)

The flowing well is located in the administrative territory of Tashir city of Lori region. The well was drilled in early 1970s. The depth is 115 m. Inner diametr of the well is 230 mm. The aquifer is presented by volcanic rocks.

Water level is at an altitude of 1.35m above the Earth's surface. The discharge of the well is 6.5 l/s, water temperature is 10.6°C, the total mineralization is 418 mg/l, dissolved oxygen 6.40 mg/l, electrical conductivity is 643 μ S/cm (at 25°C), pH-value is 7.32.

The water is not used and it flows into the Tashir River. The nitrate concentration is 33.28 mg/l, which does not exceed the drinking water norm (45 mg/l) approved by the RA Ministry of Health.

2.2.9. Sample N 9 (flowing well, Getavan/Stepanavan village)

The flowing well is located in the administrative territory of Getavan/Stepanavan village of Lori region.

The well was drilled in early 1970s. The depth is 85 m. Inner diametr of the well is 219 mm. The aquifer is presented by volcanic rocks.

Water level is at an altitude of 1.4 m above the Earth's surface. The discharge of the well is 12 l/s, water temperature is 8.9°C, the total mineralization is 591 mg/l, dissolved oxygen 8.81 mg/l, electrical conductivity is 139.5 μ S/cm (at 25°C), pH-value is 7.88.

The water is not used, flows into the river. The nitrate concentration is 2.52 mg/l, which does not exceed the drinking water norm (45 mg/l) approved by the RA Ministry of Health.

2.2.10. Sample N 10 (flowing well, Getavan/Stepanavan village)

The flowing well is located in the administrative territory of Getavan/Stepanavan village of Lori region. The well was drilled in early 1970s. The depth is 93 m. Inner diametr of well is 219 mm. The aquifer is presented by volcanic rocks.

Water level is at an altitude of 2.8 m above the Earth's surface. The discharge of well is 62.0 l/s, water temperature is 7.9°C, the total mineralization is 83 mg/l, dissolved oxygen 9.35 mg/l, electrical conductivity is 131 μ S/cm (at 25°C), pH-value is 7.9.

The water is not used, flows into the river. The nitrate concentration is 2.73 mg/l, which does not exceed the drinking water norm (45 mg/l) approved by the RA Ministry of Health.

2.2.11. Sitee N 11 ("Lusaghbyur "spring, Lori Berd village)

The spring is located in the administrative territory of Lori Berd village of Lori region. The outflow of water is observed from volcanic rocks. The spring is not captured.

The discharge of the spring is 13 l/s, water temperature is 9.1°C, the total mineralization is 120 mg/l, dissolved oxygen 9.62 mg/l, electrical conductivity is 188 μ S/cm (at 25°C), pH-value is 7.5.

The water is not used. The nitrate concentration is 4.36 mg/l, which does not exceed the drinking water norm (45 mg/l) approved by the RA Ministry of Health.

2.2.12. Site N 12 ("Kobayr" spring, Tumanyan village)

The spring is located in the administrative territory of Tumanyan village of Lori region, in the canyon of Kobayr. The outflow of water is observed from volcanic rocks. The spring is captured.

The discharge of the spring is 1.0 l/s, water temperature is 15.6°C, the total mineralization is 528 mg/l, dissolved oxygen 9.09 mg/l, electrical conductivity is 812 μ S/cm (at 25°C), pH-value is 8.45.

The spring is utilized for drinking water. The nitrate concentration is 26.23 mg/l, which does not exceed the drinking water norm (45 mg/l) approved by the RA Ministry of Health.

2.2.13. Site N 13 ("Kakali taki" spring, Shamlugh village (Bendik district))

The spring is located in the administrative territory of Shamlugh village (Bendik district) of Lori region. The outflow of water is observed from volcanic- sedimentary rocks. The spring is captured.

The discharge of the spring is 0.2 l/s, water temperature is 10.5°C, the total mineralization is 474 mg/l, dissolved oxygen 6.9 mg/l, electrical conductivity is 730 μ S/cm (at 25°C), pH-value is 7.12.

The spring is near the cemetery, and utilized for drinking water supply. Only 15–20 people live in the village. The nitrate concentration is 33.81 mg/l, which does not exceed the drinking water norm (45 mg/l) approved by the RA Ministry of Health.

2.2.14. Sample N 14 (well, Bagratashen village)

The flowing well is located in the administrative territory of Bagratashen village of Tavush region. The well was drilled in 1960s. The depth is 26 m. Inner diametr of well is 273 mm. The aquifer is presented by pebble-boulders gravel and sand.

Water level is at an altitude of 8 m below the Earth's surface. ECW 10 brand submersible pump is installed in the 16m depth of the well. The discharge of well is 10.0 l/s, water temperature is 14.0°C, the total mineralization is 165 mg/l, dissolved oxygen 6.85 mg/l, electrical conductivity is 254 μ S/cm (at 25°C), pH-value is 8.01.

The water is not used. The nitrate concentration is 4.72 mg/l, which does not exceed the drinking water norm (45 mg/l) approved by the RA Ministry of Health.

2.2.15. Sample N 15 (ground well, Berdavan village)

The flowing well is located in the administrative territory of Berdavan village of Tavush region. The well was drilled in 1980s. The depth is 5 m. Inner diametr of well is 480mm. The aquifer is presented by pebble-boulders gravel and sand.

Water level is at an altitude of 0 m the Earth's surface. The pump is missing. ECW 10 brand submersible pump is installed in the 16m depth of the well. The discharge of well is 10.0 l/s, water temperature is 12.4°C, the total mineralization is 594 mg/l, dissolved oxygen 5.2 mg/l, electrical conductivity is 914 μ S/cm (at 25°C), pH-value is 7.12.

The water is not used. The nitrate concentration is 31.58 mg/l, which does not exceed the drinking water norm (45 mg/l) approved by the RA Ministry of Health.

2.2.16. Site N 16 ("Darbnants" spring, Jujevan village)

The spring is located in the administrative territory of Jujevan village of Tavush region. The outflow of water is observed from volcanic- sedimentary rocks. The spring is captured.

The discharge of the spring is 1.0 l/s, water temperature is 12.0°C, the total mineralization is 578 mg/l, dissolved oxygen 7.3 mg/l, electrical conductivity is 889 μ S/cm (at 25°C), pH-value is 7.16.

The spring is not used. The nitrate concentration is 43.56 mg/l, which is high, but does not exceed the drinking water norm (45 mg/l) approved by the RA Ministry of Health.

2.2.17. Site N 17 (spring, Voskevan village)

The spring is located in the administrative territory of Voskevan village of Tavush region. The outflow of water is observed from tuffaceous sandstones, volcanic- sedimentary rocks. The spring is captured.

The discharge of the spring is 0.3 l/s, water temperature is 13.6°C, the total mineralization is 482 mg/l, dissolved oxygen 7.96 mg/l, electrical conductivity is 742 μ S/cm (at 25°C), pH-value is 7.43.

The spring is not used. The nitrate concentration is 35.17 mg/l, which does not exceed the drinking water norm (45 mg/l) approved by the RA Ministry of Health.

2.2.18. Site N 18 ("Gharasui" spring, Voskepar village)

The spring is located in the administrative territory of Voskepar village of Tavush region. 10m away from the right bank of the Voskepar River. The outflow of water is observed from tuffogenic and limestone rocks. The spring is captured.

The discharge of the spring is 9.6 l/s, water temperature is 12.6°C, the total mineralization is 195 mg/l, dissolved oxygen 7.09 mg/l, electrical conductivity is 320 μ S/cm (at 25°C), pH-value is 7.2.

The spring is utilized for drinking water supply. The nitrate concentration is 20.95 mg/l, which does not exceed the drinking water norm (45 mg/l) approved by the RA Ministry of Health.

2.2.19. Site N 19 ("Gyol" spring, Aygehovit village)

The spring is located in the administrative territory of Aygehovit village of Tavush region. The outflow of water is observed from volcanic- sedimentary rocks. The spring is captured.

The discharge of the spring is 0.02 l/s, water temperature is 14.0°C, the total mineralization is 571 mg/l, dissolved oxygen 9.14 mg/l, electrical conductivity is 897 µS/cm (at 25°C), pH-value is 7.37.

The spring is utilized for drinking water supply. The nitrate concentration is 35.19 mg/l, which does not exceed the drinking water norm (45 mg/l) approved by the RA Ministry of Health.

2.2.20. Site N 20 ("Yolomi" spring, Vazashen village)

The spring is located in the administrative territory of Vazashen village of Tavush region. The outflow of water is observed from volcanic-sedimentary rocks. The spring is captured.

The discharge of the spring is 0.15 l/s, water temperature is 15.7°C, the total mineralization is 701 mg/l, dissolved oxygen 4.2 mg/l, electrical conductivity is 1078 μ S/cm (at 25°C), pH-value is 7.09.

The spring is temporary, utilized for drinking water supply. The nitrate concentration is 1.98 mg/l, which does not exceed the drinking water norm (45 mg/l) approved by the RA Ministry of Health.

2.2.21. Site N 21 (spring, Paravakar village)

The spring is located in the administrative territory of Paravakar village of Tavush region. The outflow of water is observed from limestone, sedimentary rocks. The spring is captured.

The discharge of the spring is 1.98 l/s, water temperature is 13.2°C, the total mineralization is 1233mg/l, dissolved oxygen 8.03 mg/l, electrical conductivity is 1898 μ S/cm (at 25°C), pH-value is 7.23.

The spring is not used. Spring water is polluted by anthropogenic inputs of the settlement, the nitrate concentration exceeds 56.0 mg/l.

2.2.22. Site N 22 ("Alposi" spring, Verin Tsaghkavan village)

The spring is located in the administrative territory of Verin Tsaghkavan village of Tavush region. The outflow of water is observed from volcanic-sedimentary rocks. The spring is not captured.

The discharge of the spring is 0.16 l/s, water temperature is 13.6°C, the total mineralization is 686 mg/l, dissolved oxygen 7.3 mg/l, electrical conductivity is 1055 μ S/cm (at 25°C), pH-value is 7.23.

The spring is utilized for drinking water supply. The nitrate concentration is 27.48 mg/l, which does not exceed the drinking water norm (45 mg/l) approved by the RA Ministry of Health.

2.2.23. Site N 23 ("Medz" spring, Navur village)

The spring is located in the administrative territory of Navur village of Tavush region. The outflow of water is observed from limestone rocks. The spring is captured.

The discharge of the spring is 1.0 l/s, water temperature is 9.6°C, the total mineralization is 847 mg/l, dissolved oxygen 8.3 mg/l, electrical conductivity is 950 μ S/cm (at 25°C), pH-value is 7.29.

The spring is not used. Spring water is polluted by anthropogenic inputs of the settlement, the nitrate concentration exceeds 66.0 mg/l.

2.2.24. Site N 24 ("Miji" spring, Berd city)

The spring is located in the administrative territory of Berd city of Tavush region. The outflow of water is observed from volcanic-sedimentary rocks. The spring is captured.

The discharge of the spring is 0.7 l/s, water temperature is 11.0°C, the total mineralization is 302 mg/l, dissolved oxygen 8.78 mg/l, electrical conductivity is 501 μ S/cm (at 25°C), pH-value is 7.49.

The spring is utilized for drinking water supply. The nitrate concentration is 27.13 mg/l, which does not exceed the drinking water norm (45 mg/l) approved by the RA Ministry of Health.

2.2.25. Site N 25 ("Zani" spring, Lusadzor village)

The spring is located in the administrative territory of Luszdzor village of Tavush region. The outflow of water is observed from volcanic- sedimentary rocks. The spring is captured.

The discharge of the spring is 0.2 l/s, water temperature is 13.0°C, the total mineralization is 357 mg/l, dissolved oxygen 7.78 mg/l, electrical conductivity is 550 μ S/cm (at 25°C), pH-value is 7.34.

The spring is utilized for drinking water supply. The nitrate concentration is 7.29 mg/l, which does not exceed the drinking water norm (45 mg/l) approved by the RA Ministry of Health.

2.2.26. Site N 26 (ground well, Lusadzor village)

The flowing well is located in the administrative territory of Lusadzor village of Tavush region. The well is located in the area of Vigen Nerkararyan. The well was drilled in 2019. The depth is 5 m. Inner diametr of well is 400 mm. The aquifer is presented by sedimentary rocks.

Water level is at an altitude of 3.6 m bellow the Earth's surface. The discharge of well is 5.3 l/s, water temperature is 13.6°C, the total mineralization is 302 mg/l, dissolved oxygen 7.11 mg/l, electrical conductivity is 525 μ S/cm (at 25°C), pH-value is 7.27.

The well is utilized for fish farming. The nitrate concentration is 13.43 mg/l, which does not exceed the drinking water norm (45 mg/l) approved by the RA Ministry of Health.

2.2.27. Site N 27 ("Dudinants" spring, Gandzaqar village)

The spring is located in the administrative territory of Gandzaqar village of Tavush region, in the yard of Samvel Hovhannisyan. The outflow of water is observed from volcanic- sedimentary rocks. The spring is not captured and flows into the river.

The discharge of the spring is 0.06 l/s, water temperature is 12.2°C, the total mineralization is 305 mg/l, dissolved oxygen 7.8 mg/l, electrical conductivity is 469 μ S/cm (at 25°C), pH-value is 7.25.

The spring is not used. The nitrate concentration is 13.19 mg/l, which does not exceed the drinking water norm (45 mg/l) approved by the RA Ministry of Health.

2.2.28. Site N 28 ("Shnqar" spring, Hovq village)

The spring is located in the administrative territory of Hovq village of Tavush region. The outflow of water is observed from volcanic- sedimentary rocks.

The discharge of the spring is 0.3 l/s, water temperature is 10.9°C, the total mineralization is 257 mg/l, dissolved oxygen 9.28 mg/l, electrical conductivity is 392 μ S/cm (at 25°C), pH-value is 7.32.

The spring is not captured and not used. The nitrate concentration is 7.18 mg/l, which does not exceed the drinking water norm (45 mg/l) approved by the RA Ministry of Health.

2.2.29. Site N 29 ("Medz" spring, Verin Chambarak village)

The spring is located in the administrative territory of Verin Chambarak village of Gegharkunik region. The outflow of water is observed from volcanic- sedimentary rocks. The spring is captured.

The discharge of the spring is 0.17 l/s, water temperature is 8.1°C, the total mineralization is 420 mg/l, dissolved oxygen 8.21 mg/l, electrical conductivity is 647 µS/cm (at 25°C), pH-value is 7.22.

The spring is not used. The nitrate concentration is 41.29 mg/l, which does not exceed the drinking water norm (45 mg/l) approved by the RA Ministry of Health.

2.2.30. Site N 30 (ground well, Margahovit village)

The well is located in the administrative territory of Margahovit village of Tavush region, in the yard of Arsen Bekchyan. The well was drilled in 2020. The depth is 30 m. Inner diametr of well is 124 mm. The aquifer is presented by volcanic- sedimentary rocks.

Water level is at an altitude of 11.92 m bellow the Earth's surface. The discharge of well is 0.06 l/s, water temperature is 9.4°C, the total mineralization is 248 mg/l, dissolved oxygen 6.65 mg/l, electrical conductivity is 382 μ S/cm (at 25°C), pH-value is 7.8.

The well is utilized for drinking and irrigation water by the owner. The nitrate concentration is 37.14 mg/l, which does not exceed the drinking water norm (45 mg/l) approved by the RA Ministry of Health.

2.2.31. Site N 31 ("Qor" spring, Dilijan city)

The spring is located in the administrative territory of Dilijan city of Tavush region, at Aygestan street in Shamaghyan district. The outflow of water is observed from volcanic- sedimentary rocks. The spring is captured.

The discharge of the spring is 0.05 l/s, water temperature is 12.7°C, the total mineralization is 286 mg/l, dissolved oxygen 7.32 mg/l, electrical conductivity is 440 μ S/cm (at 25°C), pH-value is 7.39.

The spring is utilized for drinking water and livestock supply. The nitrate concentration is 18.92 mg/l, which does not exceed the drinking water norm (45 mg/l) approved by the RA Ministry of Health.

2.2.32. Site N 32 ("Artzruni" spring, Dilijan city)

The spring is located in the administrative territory of Dilijan city of Tavush region, in the yard of Arshak Markosyan. The outflow of water is observed from volcanic- sedimentary rocks. The spring is captured, but needs repair.

The discharge of the spring is 0.02 l/s, water temperature is 13.1°C, the total mineralization is 587 mg/l, dissolved oxygen 6.40 mg/l, electrical conductivity is 903 μ S/cm (at 25°C), pH-value is 7.47.

The spring is utilized for drinking water by the owner. The nitrate concentration is 39.14 mg/l, which does not exceed the drinking water norm (45 mg/l) approved by the RA Ministry of Health.

N	Region	Location of observatio n point	Type of observation point	Coordinates	Water-bearing layer of RBD /geological index	code and number of RBD	Consum ption, I/s	Temp °C	TDS fild, mg/l	рН	Recomme nded (+)
1	Lori	Lernavan	Flowing borehole	X=40 ^o 47' 01.2" Y=44 ^o 09' 57.7" H= 1746	fragmented tufo- breccias ළ ₂	6G-1	0.5	19.9	0.5	7.3	+
2	Lori	Katnadjur	spring («Qung»)	X=40° 49' 01.5" Y=44° 08' 01.2" H= 1798	tuffogenic rocks 足2	6G-4	0.7	10.4	0.25	8.0	
3	Lori	Mets Parni	Flowing borehole	X=40 ^o 50' 38.1" Y=44 ^o 06' 27.5" H= 1673	pebble-boulders gravel, sand Q	6G-2	0.33	12.6	0.35	7.9	+
4	Lori	Nor Khachakap	spring	X=40 ^o 49' 36.5" Y=44 ^o 21' 11.5" H= 1660	porphyritic rocks ළ ₂	6G-4	0.2	11.2	0.3	7.9	
5	Lori	Darbas	spring	X=40 ^o 50' 05.1" Y=44 ^o 25' 25.0" H= 1384	volcanic- sedimentary rocks N ₁	6G-4	0.22	12.4	0.47	7.9	
6	Lori	Saratovka	Flowing borehole	X=41 ⁰ 04' 29.7" Y=44 ⁰ 18' 42.0" H= 1457	volcanic N ₂	6G-5	0.1	13.4	1.07	7.6	+
7	Lori	Saratovka	spring	X=41 ⁰ 04' 30.6" Y=44 ⁰ 18' 39.5" H= 1481	volcanic rocks (bazalt) N ₂	6G-6	0.19	10.4	0.4	7.7	+
8	Lori	Tashir	Flowing borehole	X=41 ⁰ 06'07.6" Y=44 ⁰ 17'56.8" H= 1481	volcanic N ₂	6G-5	4.0	10.7	0.53	7.8	+
9	Lori	Stepanava n	Flowing borehole	X=41°02'01.5" Y=44°21'12.4" H= 1403	volcanic N ₂	6G-5	14.0	9.1	0.12	7.7	
10	Lori	Getavan	Flowing borehole	X=41°02'03.0" Y=44°21'12.8" H=1421	volcanic N ₂	6G-5	60.0	8.0	0.1	7.9	

Table 3: Monitoring sites subject to the GW survey 2023. Recommended sites for inclusion into the GW monitoring network are indicated.

N	Region	Location of observatio n point	Type of observation point	Coordinates	Water-bearing layer of RBD /geological index	code and number of RBD	Consum ption, I/s	Temp °C	TDS fild, mg/l	рН	Recomme nded (+)
11	Lori	Lori berd	spring ''Lusaghbyur''	X=41 ^o 00' 13.3" Y=44 ^o 25' 52.3" H= 1402	volcanic N ₂	6G-7	13.0	9.5	0.16	8.2	
12	Lori	Tumanyan	spring ''Kobayr''	X=41 ⁰ 00' 28.3" Y=44 ⁰ 38' 10.4" H= 937	volcanic N ₂	6G-11	0.5	16.0	0.69	8.5	
13	Lori	Shamlugh (Bendik)	spring ''Kakali taki''	X=41 ^o 09' 22.7" Y=44 ^o 43' 03.5" H= 1217	volcanic- sedimentary rocks J	6G-11	0.19	11.4	0.64	7.8	+
14	Tavush	Bagratashe n	well	X=41 ^o 14' 14.3" Y=44 ^o 49' 02.1" H= 459J	pebble-boulders gravel and sand Q_3	6G-12	10	14	0.16	8.01	+
15	Tavush	Berdavan	ground well	X=41 ^o 12' 08.2" Y=45 ^o 00' 25.3" H= 664J	pebble-boulders gravel and sand Q	6G-22	0	12.4	0.59	7.12	+
16	Tavush	Jujevan	spring («Darbnants»)	X=41 ^o 07' 41.3" Y=45 ^o 00' 43.0" H= 1039J	volcanic- sedimentary K	6G-21	1.0	12.0	0.58	7.16	
17	Tavush	Voskevan	spring	X=41 ⁰ 07' 15.6" Y=45 ⁰ 04' 06.4" H= 926Ư	tuffaceous sandstones, volcanic- sedimentary r K	6G-21	0.3	13.6	0.48	7.43	
18	Tavush	Voskepar	spring («Gharasu»)	X=41 ^o 04' 17.5" Y=45 ^o 04' 14.8" H= 710J	limestone, sedimentary K	6G-21	9.6	12.6	0.19	7.2	+
19	Tavush	Aygehovit	spring («Gyoli»)	X=40 ^o 58' 41.7" Y=45 ^o 14' 53.7" H= 709	volcanic- sedimentary rocks J	6G-16	1.2	15.1	0.84	8.2	
20	Tavush	Vazashen	spring («Yolomi»)	X=40 ^o 59' 54.8" Y=45 ^o 17' 52.4" H= 704	volcanic- sedimentary rocks J	6G-16	0.05	14.8	1.14	7.7	
21	Tavush	Paravakar	spring	X=40 ^o 58' 56.3" Y=45 ^o 21' 59.5" H= 762J	limestone, sedimentary J	6G-18	1.98	13.2	1.23	7.23	+

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N	Region	Location of observatio n point	Type of observation point	Coordinates	Water-bearing layer of RBD /geological index	code and number of RBD	Consum ption, I/s	Temp °C	TDS fild, mg/l	рН	Recomme nded (+)
22	Tavush	Verin Tsaghkava n	spring («Alposi»)	X=40 ^o 56' 28.3" Y=45 ^o 20' 3.0" H= 796d	volcanic- sedimentary rocksJ	6G-18	0.16	13.6	0.68	7.23	+
23	Tavush	Navur	spring («Medz»)	X=40 ^o 51' 59.7" Y=45 ^o 20' 19.6" H= 1438J	limestone, sedimentary K	6G-18	1	9.6	0.95	7.29	
24	Tavush	Berd	spring («Miji»)	X=40 ^o 52' 44.5" Y=45 ^o 23' 16.5" H= 939J	volcanic- sedimentary rocks J	6G-19	0.7	11.0	0.3	7.49	+
25	Tavush	Lusadzor	spring («Zani»)	X=40 ^o 56' 03.3" Y=45 ^o 08' 25.3" H= 706	volcanic- sedimentary rocks J	6G-16	0.4	13.5	0.62	8.3	
26	Tavush	Lusadzor	ground well	X=40 ^o 56' 22.8" Y=45 ^o 09' 47.7" H= 594	sedimentary Q	6G-16	5.3	15.0	0.79	8.3	+
27	Tavush	Gandzaqar	spring («Dudinyants »)	X=40 ^o 50' 47.3" Y=45 ^o 09' 30.3" H= 894	volcanic- sedimentary rocks J	6G-18	0.08	13.4	0.51	7.6	
28	Tavush	Hovq	spring («Shnqar»)	X=40° 47' 30.7" Y=45° 03' 43.4" H= 881	volcanic- sedimentary rocks J	6G-18	0.3	11.4	0.37	7.7	+
29	Geghark unik	Verin Chambara k	spring («Medz»)	X=40° 36' 17.3" Y=45° 21' 26.1" H= 1849J	volcanic- sedimentary rocks J	6G-17	0.17	8.1	0.42	7.22	+
30	Tavush	Margahovi t	well	X=40° 43' 59.2" Y=44° 41' 30.5" H= 1737	volcanic- sedimentary rocks N ₁	6G-13	0.06	9.6	0.42	7.3	+
31	Tavush	Dilijan /Shamaghy an/	spring («Qor spring»)	X=40 ^o 45' 0.01" Y=44 ^o 49' 45.6" H= 1465	volcanic- sedimentary rocks N ₁	6G-23	0.05	13.7	0.39	7.8	
32	Tavush	Dilijan	spring «Artsruni»	X=40 ^o 44' 29.1" Y=44 ^o 49' 47.7" H= 1345	volcanic- sedimentary rocks N ₁	6G-23	0.01	13.4	0.81	7.7	



Table 4: Location of monitoring sites in the Northern RBD in 2023

Annex I: Sampling protocols composed in Northern RBD in 2023

	TOCOL – GROUND					_			
Project:	"EU4Environment	: - Wat	ter Res	ources and	Environmental	Data	" Project		
General									
	he sampling point:	Arr	nenia,	Lori Regior	i, Lernavan villa	ge			
The coordinates	of the			Contraction of		4R			
sampling point									
X=40 ⁰ 47' 01.2									
Y=44 ⁰ 09' 57.7	"			100 12		3. 2	2 4 2 4 1		
H= 1746m									
Sampling Date:	June 19, 2023	Time	(hh:mi	m): 10:45	Sample	ID:	N1		
Sampling person	: Ms Armine Hakobyan			Institute [,] I	Ministry of Natu	Jre Pr	rotection		
	Mr Gegham Muradyan				teorology and N				
Sampling site	Mr Gevorg Torosyan			· ·					
Sampling site ID:	N1		Туре	of sampling	site: Flowing	well			
Inner diameter o			Distance between land surface and well head (m): 0.95						
	(m below well head):	+0.8	Final	depth of we	ell (m below we	ll hea	ad): 188		
	ion of the sampling sit				well was drilled				
The water flows	into the river and is u	ised fo	or irrig	ation					
Sampling									
Type of sampling	: <u>a with bailer</u> a w	ith pu	mp 🗆	🛛 at a tap	Abstraction dev	vice:	plastic bucket		
Pumping duratio	n (min):		Abs	straction ra	te / discharge (/sec)	: 0.4 l/sec		
Field parameters	(at the sampling)				_		-		
Weather:	Colour:		Turbi	dity:	Sediment:		Smell:		
<u>□ sunny</u>	colourless		<u> </u>		<u> </u>		<u>□ odorless</u>		
cloudy	slight		□ low		□ low		🗆 putrid		
changing	strong		🗆 mo	derate	🗆 moderate		🗆 fishy		
🗆 rain	🗆 brown		🗆 stro	ong	□ strong		chemical		
🗆 heat	□ grey		□		□		🗆 chlor		
Measuring devic	e:								
pH-value:	Water temperatur	re (°C)	:	Dissolved	oxygen (mg/l):	T	DS (mg/l)		
7.18	20.0			6.73		34	16		
Electrical conduc	tivity incl. reference to					1 at 2	5 °C		
Sample treatmer			rated		oilised with acid				
Contacts: He	ead of Lernavan admin	nistra	tive dis	strict: Nelso	n Beglaryan	Tel +	37493-161-163)		
laboratory.	er:			-	ampling manual Date:				

SAMPLING PROT	IUCUL - GROUNL	JWAI	ER			
Project:	"EU4Environmen	it - Wat	ter Resource	es and Enviro	onmenta	Data" Project
General						
The location of th	e sampling point:	Arn	nenia, Lori R	egion, Katn	a djur vill	age
The coordinates o	of the		A BAR	NX N M	Ver h	ATTAC STREET, A
sampling point						
	-3-21	and in	AT AN			
X=40 ⁰ 49' 01.5"						
Y=44 ⁰ 08' 01.2"	Stree of					
H= 1798m		-				
		2026				A CAREAR & MARY
		1. 37 ·			WW A	
			A Plan	and the		
	E. Elle	S. Ar	the second	a much	4 4	
Sampling Date: Ju	upo 10, 2022	Timo	(bb:mm): 1	1.20	Sample	e ID: N2
• -		Time	(hh:mm): 1		Sample	EID. NZ
Sampling person: 1	Mis Armine Hakobyan Mr Gegham Muradyan			ature Protec		
	Mr Gevorg Torosyan		'Hyc	drometeoro	ogy and	Monitoring Center
Sampling site			Γ			
Sampling site ID: N	N2		Type of sa	mpling site:	Spring	(«Qung»)
				1 0		
Inner diameter of			Distance b			and well head (m): -
Inner diameter of): -			d surface	and well head (m): -
Inner diameter of Calm water level (Further informatio	well (mm): - m below well head on of the sampling s	site (e.g	Final depth coordinates):	etween land h of well (m The spring is	d surface below w s not cap	and well head (m): - ell head): - ptured. the head of the spring i
Inner diameter of Calm water level (Further information open, and the sp	well (mm): - m below well head on of the sampling s	site (e.g	Final depth coordinates):	etween land h of well (m The spring is	d surface below w s not cap	and well head (m): - ell head): -
Inner diameter of Calm water level (Further informatic open, and the sp cemetery	well (mm): - m below well head on of the sampling s	site (e.g	Final depth coordinates):	etween land h of well (m The spring is	d surface below w s not cap	and well head (m): - ell head): - ptured. the head of the spring i
Inner diameter of Calm water level (Further informatic open, and the sp cemetery Sampling	well (mm): - m below well head on of the sampling s pring is utilized for	site (e.g	Final depth (coordinates): T ing water s	etween land n of well (m The spring is upply by se	d surface below w s not cap everal ho	and well head (m): - ell head): - otured. the head of the spring i puses. The spring is above the
Inner diameter of Calm water level (Further informatic open, and the sp cemetery Sampling Type of sampling:	well (mm): - m below well head on of the sampling s oring is utilized for <u>u with bailer</u> u	site (e.g	Final depth coordinates): ing water s ump _ at a	etween land n of well (m The spring is upply by se tap Abstr	d surface below w s not cap everal ho action de	and well head (m): - ell head): - otured. the head of the spring i puses. The spring is above the evice: plastic bucket
Inner diameter of Calm water level (Further information open, and the sp cemetery Sampling Type of sampling: Pumping duration	well (mm): - m below well head on of the sampling s oring is utilized for <u>with bailer</u> v (min): -	site (e.g	Final depth coordinates): ing water s ump _ at a	etween land n of well (m The spring is upply by se	d surface below w s not cap everal ho action de	and well head (m): - ell head): - otured. the head of the spring i puses. The spring is above the evice: plastic bucket
Inner diameter of Calm water level (Further informatic open, and the sp cemetery Sampling Type of sampling: Pumping duration Field parameters	well (mm): - m below well head on of the sampling s oring is utilized for <u>with bailer</u> v (min): - (at the sampling)	site (e.g	Final depth coordinates): T ing water s ump 🗆 at a Abstract	etween land n of well (m The spring is upply by se tap Abstr tion rate / di	d surface below w s not cap everal ho action de ischarge	and well head (m): - ell head): - otured. the head of the spring i puses. The spring is above the evice: plastic bucket (l/sec): 0.52 l/sec
Inner diameter of Calm water level (Further information open, and the sp cemetery Sampling Type of sampling: Pumping duration Field parameters Weather:	well (mm): - m below well head on of the sampling so oring is utilized for <u>with bailer</u> v (min): - (at the sampling) Colour:	site (e.g	Final depth coordinates): T ing water s ump	etween land n of well (m The spring is upply by se tap Abstr tion rate / di Sed	d surface below w s not cap everal ho action de ischarge iment:	and well head (m): - ell head): - otured. the head of the spring i puses. The spring is above the evice: plastic bucket (l/sec): 0.52 l/sec Smell:
Inner diameter of Calm water level (Further information open, and the sp cemetery Sampling Type of sampling: Pumping duration Field parameters Weather: Sunny	well (mm): - m below well head on of the sampling so oring is utilized for <u>u with bailer</u> u (min): - (at the sampling) Colour: <u>u colourless</u>	site (e.g	Final depth coordinates): T ing water s ump	etween land n of well (m The spring is upply by se tap Abstr tion rate / di Sed 	d surface below w s not cap everal ho action de ischarge iment: 2	and well head (m): - ell head): - otured. the head of the spring i puses. The spring is above the evice: plastic bucket (I/sec): 0.52 I/sec Smell: <u>odorless</u>
Inner diameter of Calm water level (Further information open, and the sp cemetery Sampling Type of sampling: Pumping duration Field parameters Weather: Sunny Cloudy	well (mm): - m below well head on of the sampling so oring is utilized for with bailer • (min): - (at the sampling) Colour: • colourless • slight	site (e.g	Final depth coordinates): T ing water s ump	etween land n of well (m The spring is upply by se tap Abstr tion rate / di Sed 	d surface below w s not cap everal ho action de ischarge iment: <u>D</u> w	and well head (m): - ell head): - otured. the head of the spring i buses. The spring is above the evice: plastic bucket (l/sec): 0.52 l/sec Smell: Dutrid
Inner diameter of Calm water level (Further informatio open, and the sp cemetery Sampling Type of sampling: Pumping duration Field parameters Weather: Sunny cloudy changing	well (mm): - m below well head on of the sampling so pring is utilized for with bailer • (min): - (at the sampling) Colour: • colourless • slight • strong	site (e.g	Final depth coordinates): T ing water s ump	etween land n of well (m The spring is upply by se tap Abstr tion rate / di Sed 	d surface below w s not cap everal ho action de ischarge iment: <u>p</u> w oderate	and well head (m): - ell head): - otured. the head of the spring i buses. The spring is above the evice: plastic bucket (I/sec): 0.52 I/sec Smell: odorless putrid fishy
Inner diameter of Calm water level (Further information open, and the sp cemetery Sampling Type of sampling: Pumping duration Field parameters Weather: Sunny Cloudy changing rain	well (mm): - m below well head on of the sampling so oring is utilized for <u>u with bailer</u> un (min): - (at the sampling) Colour: <u>u colourless</u> u slight u strong u brown	site (e.g	Final depth c. coordinates): 1 ing water s ump at a Abstract Turbidity: <u>no</u> low moderat strong	etween land n of well (m The spring is upply by se tap Abstr tion rate / di Sed <u>no</u> lo no st	d surface below w s not cap everal ho action de ischarge iment: <u>2</u> w oderate rong	and well head (m): - ell head): - ell head): - otured. the head of the spring i puses. The spring is above the evice: plastic bucket (l/sec): 0.52 l/sec Smell: Odorless putrid fishy chemical
Inner diameter of Calm water level (Further information open, and the sp cemetery Sampling Type of sampling: Pumping duration Field parameters Weather: Sunny Cloudy Changing rain heat	well (mm): - m below well head on of the sampling so oring is utilized for <u>utilized for</u> (min): - (at the sampling) Colour: <u>colourless</u> slight strong brown grey	site (e.g	Final depth coordinates): T ing water s ump	etween land n of well (m The spring is upply by se tap Abstr tion rate / di Sed <u>no</u> lo no st	d surface below w s not cap everal ho action de ischarge iment: <u>p</u> w oderate	and well head (m): - ell head): - otured. the head of the spring i puses. The spring is above the evice: plastic bucket (l/sec): 0.52 l/sec Smell: odorless putrid fishy chemical chlor
Inner diameter of Calm water level (Further informatio open, and the sp cemetery Sampling Type of sampling: Pumping duration Field parameters Weather: Sunny Cloudy changing rain heat frost	well (mm): - m below well head on of the sampling so pring is utilized for with bailer • (min): - (at the sampling) Colour: • colourless • slight • strong • brown • grey • yellow	site (e.g	Final depth c. coordinates): 1 ing water s ump at a Abstract Turbidity: <u>no</u> low moderat strong	etween land n of well (m The spring is upply by se tap Abstr tion rate / di Sed <u>no</u> lo no st	d surface below w s not cap everal ho action de ischarge iment: <u>2</u> w oderate rong	and well head (m): - ell head): - ell head): - otured. the head of the spring i puses. The spring is above the evice: plastic bucket (l/sec): 0.52 l/sec Smell: Odorless putrid fishy chemical
Inner diameter of Calm water level (Further information open, and the specemetery Sampling Type of sampling: Pumping duration Field parameters Weather: Sunny Cloudy Changing rain heat frost Measuring device	well (mm): - m below well head on of the sampling so oring is utilized for <u>with bailer</u> v (min): - (at the sampling) Colour: <u>colourless</u> slight strong brown grey yellow :	with pu	Final depth coordinates): 1 ing water s ump ext{a} at a Abstract Turbidity: <u>no</u> low low strong 	etween land n of well (m The spring is upply by se tap Abstr tion rate / di Sed no ce no st 	d surface below w s not cap everal ho action de ischarge iment: <u>2</u> W oderate rong	and well head (m): - ell head): - otured. the head of the spring i puses. The spring is above the evice: plastic bucket (I/sec): 0.52 I/sec Smell: odorless putrid fishy chemical chlor gasoline/oil
Inner diameter of Calm water level (Further informatio open, and the sp cemetery Sampling Type of sampling: Pumping duration Field parameters Weather: Sunny cloudy cloudy changing rain heat frost Measuring device pH-value:	well (mm): - m below well head on of the sampling so oring is utilized for with bailer • (min): - (at the sampling) Colour: • colourless • slight • strong • brown • grey • yellow : Water temperate	with pu	Final depth coordinates): 1 ing water s ump ext{a} at a Abstract Turbidity: <u>no</u> low low strong 	etween land n of well (m The spring is upply by se tap Abstr tion rate / di Sed ne se ne st 	d surface below w s not cap everal ho action de ischarge iment: <u>2</u> w oderate rong oxygen (i	and well head (m): - ell head): - otured. the head of the spring i buses. The spring is above the evice: plastic bucket (l/sec): 0.52 l/sec Smell:
Inner diameter of Calm water level (Further information open, and the specemetery Sampling Type of sampling: Pumping duration Field parameters Weather: Sunny Cloudy Changing changing rain heat frost Measuring device pH-value: 7.8	well (mm): - m below well head on of the sampling so oring is utilized for with bailer • • (min): - (at the sampling) Colour: • colourless • slight • strong • brown • grey • yellow : Water temperate 10.0	with pu	Final depth coordinates): 1 ing water s ump ext{ata} Abstract Turbidity: <u>no</u> low low strong 	etween land n of well (m The spring is upply by se tap Abstr tion rate / di Sed n Sed n 0 lo 1 lo 1 st Dissolved 8.84	d surface below w s not cap everal ho action de ischarge iment: <u>D</u> W oderate rong	and well head (m): - ell head): - otured. the head of the spring is ouses. The spring is above the evice: plastic bucket (l/sec): 0.52 l/sec Smell: <u>odorless</u> <u>putrid</u> fishy chemical chlor gasoline/oil TDS (mg/l) 214
Inner diameter of Calm water level (Further informatio open, and the sp cemetery Sampling Type of sampling: Pumping duration Field parameters Weather: Sunny Cloudy Changing cloudy changing frost Measuring device pH-value: 7.8 Electrical conducti	well (mm): - m below well head on of the sampling soring is utilized for with bailer • (min): - (at the sampling) Colour: • colourless • slight • strong • brown • grey • yellow :: Water temperate 10.0 ivity incl. reference	with pu ure (°C	Final depth coordinates): 1 ing water s ump	etween land n of well (m The spring is upply by se tap Abstr tion rate / di Sed n d Dissolved 8.84 cm): 329	d surface below w s not cap everal ho action de ischarge iment: 2 w oderate rong oxygen (n uS/cm	and well head (m): - ell head): - ell head): - otured. the head of the spring i buses. The spring is above the evice: plastic bucket (l/sec): 0.52 l/sec Smell:
Inner diameter of Calm water level (Further informatio open, and the sp cemetery Sampling Type of sampling: Pumping duration Field parameters Weather: Sunny Cloudy changing cloudy changing rain heat frost Measuring device pH-value: 7.8 Electrical conducti	well (mm): - m below well head on of the sampling soring is utilized for with bailer • v (min): - (at the sampling) Colour: • colourless • slight • strong • brown • grey • yellow :: Water temperate 10.0 ivity incl. reference :: <u>• chilled</u>	with pu with pu ure (°C tempe	Final depth coordinates): 1 ing water s ump at a Abstract Turbidity: no low low strong 	etween land n of well (m The spring is upply by se tap Abstr tion rate / di Sed Sed 0 	d surface below w s not cap everal ho action de ischarge iment: <u>p</u> w oderate rong oxygen (i u yS/cm	and well head (m): - ell head): - otured. the head of the spring i puses. The spring is above the evice: plastic bucket (I/sec): 0.52 I/sec Smell:
Inner diameter of Calm water level (Further information open, and the specemetery Sampling Type of sampling: Pumping duration Field parameters Weather: Sunny Cloudy Changing Cloudy Changing Changing Field parameters Weather: Sunny Cloudy Cloudy Changing Cloudy Changing Cloudy Changing Cloudy Changing Cloudy Changing Cloudy Changing Cloudy Changing Cloudy C	well (mm): - m below well head on of the sampling soring is utilized for with bailer • • (min): - (at the sampling) Colour: • colourless • slight • strong • brown • grey • yellow :: Water temperate 10.0 ivity incl. reference :: <u>• chilled</u> ad of Katnadjur adn	with pu with pu ure (°C tempe	Final depth coordinates): 1 ing water s ump at a Abstract Turbidity: no low low strong control strong control trated ative district	etween land n of well (m The spring is upply by se tap Abstr tion rate / di Sed 0 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	d surface below w s not cap everal ho action de ischarge iment: <u>p</u> W oderate rong oxygen (i μS/cm	and well head (m): - ell head): - otured. the head of the spring i puses. The spring is above the evice: plastic bucket (l/sec): 0.52 l/sec Smell: <u>odorless</u> <u>putrid</u> fishy chemical chlor gasoline/oil mg/l): TDS (mg/l) 214 at 25 °C d (Tel +37499-000-302)
Inner diameter of Calm water level (Further informatio open, and the sp cemetery Sampling Type of sampling: Pumping duration Field parameters Weather: Sunny Cloudy changing cloudy changing rain heat frost Measuring device pH-value: 7.8 Electrical conducti Sample treatment Contacts: Heat	well (mm): - m below well head on of the sampling soring is utilized for with bailer • • (min): - (at the sampling) Colour: • colourless • slight • strong • brown • grey • yellow :: Water temperate 10.0 ivity incl. reference :: <u>• chilled</u> ad of Katnadjur adn	with pu with pu ure (°C tempe	Final depth coordinates): 1 ing water s ump at a Abstract Turbidity: no low low strong control strong control trated ative district	etween land n of well (m The spring is upply by se tap Abstr tion rate / di Sed 0 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	d surface below w s not cap everal ho action de ischarge iment: <u>p</u> W oderate rong oxygen (i μS/cm	and well head (m): - ell head): - otured. the head of the spring i puses. The spring is above the evice: plastic bucket (I/sec): 0.52 I/sec Smell:
Inner diameter of Calm water level (Further information open, and the specemetery Sampling Type of sampling: Pumping duration Field parameters Weather: Sunny Cloudy Changing Cloudy Changing Changing Field parameters Weather: Sunny Cloudy Cloudy Changing Cloudy Changing Cloudy Changing Cloudy Changing Cloudy Changing Cloudy Changing Cloudy Changing Cloudy C	well (mm): - m below well head on of the sampling soring is utilized for with bailer • • (min): - (at the sampling) Colour: • colourless • slight • strong • brown • grey • yellow :: Water temperate 10.0 ivity incl. reference :: <u>• chilled</u> ad of Katnadjur adn sampling and of the	with pu with pu ure (°C tempe	Final depth coordinates): 1 ing water s ump at a Abstract Turbidity: no low low strong control strong control trated ative district	etween land n of well (m The spring is upply by se tap Abstr tion rate / di Sed 0 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	d surface below w s not cap everal ho action de ischarge iment: <u>p</u> W oderate rong oxygen (i μS/cm	and well head (m): - ell head): - otured. the head of the spring i puses. The spring is above the evice: plastic bucket (l/sec): 0.52 l/sec Smell: <u>odorless</u> <u>putrid</u> fishy chemical chlor gasoline/oil mg/l): TDS (mg/l) 214 at 25 °C d (Tel +37499-000-302) g manual and the requirement

General The location of the sar The coordinates of the sampling point X=40° 50' 38.1" Y=44° 06' 27.5" H= 1673m Sampling Date: June 1 Sampling person: Ms Ar Mr Ge	19, 2023	Arn	nenia,	Lori Regior), Mets	Parni village	
The location of the sar The coordinates of the sampling point X=40 ⁰ 50' 38.1" Y=44 ⁰ 06' 27.5" H= 1673m Sampling Date: June 1 Sampling person: Ms Ar Mr Ge Mr Ge	19, 2023 rmine Hakobyan egham Muradyan			m): 12:15			
The coordinates of the sampling point X=40 ⁰ 50' 38.1" Y=44 ⁰ 06' 27.5" H= 1673m Sampling Date: June 1 Sampling person: Ms Ar Mr Ge Mr Ge	19, 2023 rmine Hakobyan egham Muradyan			m): 12:15			
sampling point X=40 ⁰ 50' 38.1" Y=44 ⁰ 06' 27.5" H= 1673m Sampling Date: June 1 Sampling person: Ms Ar Mr Ge Mr Ge	19, 2023 rmine Hakobyan egham Muradyan	Time	(hh:m	-		Sample ID:	<image/>
X=40 ⁰ 50' 38.1" Y=44 ⁰ 06' 27.5" H= 1673m Sampling Date: June 1 Sampling person: Ms Ar Mr Ge Mr Ge	rmine Hakobyan egham Muradyan	Time	(hh:m	-		Sample ID:	<image/>
Y=44 ⁰ 06' 27.5" H= 1673m Sampling Date: June 1 Sampling person: Ms Ar Mr Ge Mr Ge	rmine Hakobyan egham Muradyan	Time	(hh:m	-		Sample ID:	N3
H= 1673m Sampling Date: June 1 Sampling person: Ms Ar Mr Ge Mr Ge	rmine Hakobyan egham Muradyan	Time	(hh:m	-		Sample ID:	N3
Sampling Date: June 1 Sampling person: Ms Ar Mr Ge Mr Ge	rmine Hakobyan egham Muradyan	Time	(hh:m	-		Sample ID:	N3
Sampling person: Ms Ar Mr Ge Mr Ge	rmine Hakobyan egham Muradyan	Time	(hh:m	-		Sample ID:	N3
Mr Ge Mr Ge	egham Muradyan			Institute: I			
						y of Nature I ogy and Mon	Protection itoring Center
Sampling site ID: N3			Туре	of sampling	site:	Flowing wel	I
Inner diameter of well	(mm): 168		Dista	nce betwee	n land	surface and	well head (m): 0.45
Calm water level (m be	elow well head):	+0.6	Final	depth of we	ell (m b	elow well he	ead): 188.6
Further information of The well is utilized for						drilled in yea	ars of 1968-1969
Sampling							
Type of sampling: <u>u</u>	<u>vith bailer</u> □ wi	ith pu	mp 🛛	🗆 at a tap	Abstra	ction device:	plastic bucket
Pumping duration (min	ı): -		Ab	straction ra	te / dis	charge (I/see	c): 0.28 l/sec
Field parameters (at th	-					0 ()	· ·
	lour:		Turbi	dity:	Sodir	nent:	Smell:
	colourless			uity.		nent.	□ odorless
	slight		<u>□ low</u>	1	□ low	1	□ putrid
•	strong			derate		derate	□ fishy
	brown		□ stro		□ stro		□ chemical
	grey						□ chlor
	yellow						□ gasoline/oil
Measuring device:	,				1		
	ater temperatur			Dissolved	ovugan	(mg/l)·	TDS (mg/l)
7.92	12.9 °C	e (c)	•		mg/l		251
Electrical conductivity i	incl. reference te	emper	ature	(µS/cm): 3	886,6	µS/cm □ at	25 °C
Sample treatment: <u></u>	□ chilled	□ filt	rated	🗆 stak	oilised v	with acid	
Contacts: Head of	f Mets Parni adm	ninistr	ative o	district: Gor	Ashug	hatoyan (1	rel +3749380-69-50)
Execution of the samplir laboratory. Signature of sampler: Name of sampler:						pling manual	and the requirements of th

SAMPLING PROT	OCOL – GROUND	WATE	R				
Project:	"EU4Environmen	t - Wa	ter Reso	urces and	Environmen	tal Data	n" Project
General							
The location of the	sampling point:	Arr	nenia, L	ori Region	, Nor Khacha	akap vill	age
The coordinates of	the			1. 1.20			
sampling point			and the second				2
						- Care	
X=40 ⁰ 49' 36.5"		/	affer t	a fre			
Y=44 ⁰ 21' 11.5"		de					
H= 1660m						Stat Cal	
						A CONTRACT	- Patrick
		Xa					
		A RAN					
				a day	2014	CONT.	
			A CO			N	Contraction of the second
Sampling Date: Ju	ne 19, 2023	Time	(hh:mm): 13:36	Samp	le ID:	N4
Sampling person: N	/ls Armine Hakobyan			nctituto: N	Ministry of N	atura Di	rataction
	/Ir Gegham Muradyan				-		oring Center
	Ar Gevorg Torosyan			nyuronnet			
Sampling site			I				
Sampling site ID: N	4	Type of sampling site: Spring					
Inner diameter of v	vell (mm): -	Distance between land surface and well head (m): -					vell head (m): -
Calm water level (n	n below well head)						ad): -
Further information	n of the sampling s	ite (e.g.	coordinate	s): The spr	ing is captu	ed, but	damaged.
The spring is utilize	ed for drinking wat	er sup	ply by s	everal hou	uses. The spi	ring is a	bove the cemetery
Sampling							
Type of sampling:	<u>□ with bailer</u> □ v	vith pu	mp 🗆 :	at a tap	Abstraction	device:	plastic bucket
Pumping duration (min): -		Abst	raction rat	te / discharg	e (l/sec)	: 0.15 l/sec
Field parameters (a	at the sampling)						
Weather:	Colour:		Turbid	ity:	Sediment:		Smell:
🗆 sunny	colourless		<u> </u>		<u> </u>		odorless
□ cloudy	🗆 slight		□ low		□ low		🗆 putrid
changing	strong		□ mod	erate	🗆 moderat	e	🗆 fishy
🗆 rain	🗆 brown		□ stron	ng	□ strong		chemical
🗆 heat	🗆 grey		□		□		🗆 chlor
□ frost	yellow						gasoline/oil
Measuring device:							
pH-value:	Water temperatu	ire (°C)):	Disso	lved oxygen	(mg/l)	TDS (mg/l)
7.76	9.9				7.46		223
Electrical conductiv	vity incl. reference	tempe	rature (µ	uS/cm):	346 μS/cm	□ at 2	5 °C
Sample treatment:	<u>□ chilled</u>	□ fil	trated	🗆 stab	oilised with a	cid	
Contacts: Head of	f Nor Khachakap ad	dminist	rative d	istrict: Ma	rtik (Tel +	37494-8	8-82-24)
Execution of the	sampling and of	the at	ove wo	orks accor	ding to the	sampl	ing manual and the
requirements of the	e laboratory.						
Signature of sample	er:				Dat	:e:	
Name of sampler:							

	OTOCOL – GROUN							
Project:	"EU4Environme	ent - Wat	er Resour	ces and	Enviro	nment	al Data	" Project
General								
	the sampling point:	Arr	nenia, Lori	Region,	Darba	s villag	ge	drah. 1 W
The coordinate	s of the	Cales -		No - Cale				
sampling point				13.00				
X=40 ⁰ 50'05.1"		and the second	义 内相比		a al			
Y=44 [°] 25' 25.0"	a start a start a start as the			Alle				
H= 1384น์		200 T	THE CHAT	1			a du	Chint a
	- JK	and the second	A CARLER					A A A A A A A A A A A A A A A A A A A
								Yee the
		A.		Contraction of the second				C C C C C C C C C C C C C C C C C C C
						1	11.	5. 200.
Sampling Date:	June 19, 2023	Time	(hh:mm): 1	15:30		Sampl	e ID:	N5
	n: Ms Armine Hakobyan		line		1:0:0+0	f. N	ture Dr	ete etie e
	Mr Gegham Muradya							otection oring Center
o II	Mr Gevorg Torosyan	_				sy ana	wome	
Sampling site	–				•.			
Sampling site ID			Type of sa			Spring		
	of well (mm): -		Distance between land surface and well head (m): -					
	el (m below well head	•	Final dept	h of we	ll (m be	elow w	/ell hea	id): -
Eurthor informa								
	ation of the sampling						ed.	
The water is us	ation of the sampling ed for livestock supp						ed.	
The water is us							ed.	
The water is us Sampling		oly. The s	spring is ne	ear the c	cemete	ery.		plastic bucket
The water is us Sampling Type of samplir	ed for livestock supp	oly. The s	mp □ at a	ear the c	emete	e ry. tion d	evice:	•
The water is us Sampling Type of samplir Pumping durati	ed for livestock supp	oly. The s	mp □ at a	ear the c	emete	e ry. tion d	evice:	•
The water is us Sampling Type of samplir Pumping durati	ed for livestock supp ng: <u>vith bailer</u> v on (min): -	oly. The s	mp □ at a	a tap A	emete	tion de	evice:	•
The water is us Sampling Type of samplir Pumping durati Field paramete	ed for livestock supp ng: <u>with bailer</u> on on (min): - rs (at the sampling)	oly. The s	mp 🗆 at a	a tap A	emete Abstrac	tion de	evice:	: 0.03 l/sec
The water is us Sampling Type of samplir Pumping durati Field paramete Weather: □ sunny	ed for livestock supp ng: <u>with bailer</u> on (min): - rs (at the sampling) Colour:	oly. The s	mp at a Abstrac	a tap A	Abstrace Abstrace Abstrace Sedim	tion d charge	evice:	: 0.03 l/sec Smell:
The water is us Sampling Type of samplir Pumping durati Field paramete Weather: □ sunny □ cloudy	ed for livestock supp ng: <u>with bailer</u> on (min): - rs (at the sampling) Colour: <u>colourless</u>	oly. The s	mp at a Abstrac	a tap A	Abstrac Abstrac e / disc Sedim <u>no</u> no	tion d charge	evice: (I/sec)	: 0.03 l/sec Smell: <u>odorless</u>
The water is us Sampling Type of samplin Pumping durati Field paramete Weather: Sunny cloudy cloudy changing	ed for livestock supp ng: <u>with bailer</u> on (min): - rs (at the sampling) Colour: <u>colourless</u> slight	oly. The s	mp at a Abstrac Turbidity ano low	a tap A	Abstrac Abstrac e / disc Sedim <u>no</u> no	ery. tion de charge nent:	evice: (I/sec)	: 0.03 l/sec Smell: <u>odorless</u> putrid
The water is us Sampling Type of samplin Pumping durati Field paramete Weather: Sunny cloudy changing rain	ed for livestock supp ng: <u>with bailer</u> on (min): - rs (at the sampling) Colour: <u>colourless</u> slight strong	oly. The s	mp at a Abstrac Turbidity ono low modera	ear the c a tap A ction rate	Abstrac e / disc Sedim <u>no</u> low mo	ery. tion de charge nent:	evice: (I/sec)	: 0.03 l/sec Smell: <u>odorless</u> putrid fishy
The water is us Sampling Type of samplin Pumping durati Field paramete Weather: Sunny cloudy cloudy changing rain heat	ed for livestock supp ng: <u>with bailer</u> on (min): - rs (at the sampling) Colour: <u>colourless</u> slight strong brown	oly. The s	mp at a Abstrac Turbidity <u>no</u> low modera strong	ear the c a tap A ction rate	Abstrac e / disc Sedim <u>no</u> low mo	ery. tion de charge nent:	evice: (I/sec)	: 0.03 l/sec Smell: <u>odorless</u> putrid fishy chemical
The water is us Sampling Type of samplin Pumping durati Field paramete Weather: Sunny cloudy changing changing rain heat frost	ed for livestock supp ng: <u>with bailer</u> on (min): - rs (at the sampling) Colour: <u>colourless</u> slight strong brown grey yellow	oly. The s	mp at a Abstrac Turbidity <u>no</u> low modera strong	ear the c a tap A ction rate	Abstrac e / disc Sedim <u>no</u> low mo	ery. tion de charge nent:	evice: (I/sec)	: 0.03 l/sec Smell: <u>odorless</u> putrid fishy chemical chlor
The water is us Sampling Type of samplin Pumping durati Field paramete Weather: Sunny cloudy cloudy changing rain heat frost Measuring devi	ed for livestock supp ng: <u>with bailer</u> on (min): - rs (at the sampling) Colour: <u>colourless</u> slight strong brown grey yellow	with pu	mp at a Abstrac Turbidity on low strong	te	Abstrac e / disc Sedim <u>no</u> low stro	ery. tion de charge nent: derate ng	evice: (I/sec)	: 0.03 l/sec Smell: <u>odorless</u> putrid fishy chemical chlor
The water is us Sampling Type of samplin Pumping durati Field paramete Weather: Sunny Cloudy Cloudy Cloudy Changing rain heat frost Measuring devi	ed for livestock supp ng: <u>with bailer</u> on (min): - rs (at the sampling) Colour: <u>colourless</u> slight slight strong brown grey yellow ice:	with pu	mp at a Abstrac Turbidity on low strong	te	Abstrac e / disc Sedim <u>no</u> low stro	ery. tion de charge nent: derate ng	evice: (I/sec)	: 0.03 l/sec Smell: <u>odorless</u> putrid fishy chemical chlor gasoline/oil
The water is us Sampling Type of samplin Pumping durati Field paramete Weather: Sunny Cloudy Cloudy Cloudy Changing rain heat frost Measuring devi pH-value: 7.69	ed for livestock supp ng: <u>with bailer</u> on (min): - rs (at the sampling) Colour: <u>colourless</u> slight strong strong brown grey yellow ice: Water tempera	vith pu	mp at a Abstrace	te Dissol	Abstrac e / disc <u>e / disc</u> <u>no</u> low stro 8.38	ery. tion de charge nent: derate ng	evice: (I/sec)	: 0.03 l/sec Smell: <u>odorless</u> putrid fishy chemical chlor gasoline/oil TDS (mg/l) 356
The water is us Sampling Type of samplir Pumping durati Field paramete Weather: Sunny Cloudy Cloudy Changing rain heat frost Measuring devi pH-value: 7.69 Electrical condu	ed for livestock supp ng: <u>with bailer</u> on (min): - rs (at the sampling) Colour: <u>colourless</u> slight strong brown grey yellow ice: Water tempera 13.1 uctivity incl. reference	ture (°C)	mp at a Abstrace	te Dissol	Abstrac e / disc e / disc Sedim <u>no</u> low stro lved ox 8.38 49 µS	ery. tion de charge nent: derate ng	evice: (I/sec) mg/I): at 2	: 0.03 l/sec Smell: <u>odorless</u> putrid fishy chemical chlor gasoline/oil TDS (mg/l) 356
The water is us Sampling Type of samplir Pumping durati Field paramete Weather: Sunny Cloudy Changing rain heat frost Measuring devi pH-value: 7.69 Electrical condu	ed for livestock supp ng: <u>with bailer</u> on (min): - rs (at the sampling) Colour: <u>colourless</u> slight strong brown grey yellow ice: Water tempera 13.1 uctivity incl. reference	ture (°C)	mp □ at a Abstrac Turbidity: □ no □ low □ modera □ strong □	te Dissol	Abstrace Abstrace e / disc Sedim <u>no</u> low stroce lved ox 8.38 49 µS ilised v	ery. tion de charge nent: derate ng cygen (c/cm	evice: (I/sec) mg/I): at 2: id	: 0.03 l/sec Smell: <u>odorless</u> putrid fishy chemical chlor gasoline/oil TDS (mg/l) 356 5 °C
The water is us Sampling Type of samplir Pumping durati Field paramete Weather: Sunny Cloudy Cloudy Changing rain Cheat Frost Measuring devi Contacts: Heat	ed for livestock supp ng: <u>with bailer</u> on (min): - rs (at the sampling) Colour: <u>colourless</u> slight strong brown grey yellow ice: Water tempera 13.1 uctivity incl. reference	ture (°C) ture filt administ	mp □ at a Abstrac Abstrac Urbidity: □ no □ low □ modera □ strong □	te Dissol	Abstrac e / disc e / disc Sedin no low out stro lved ox 8.38 49 μS ilised v rtik (ery. tion de charge nent: derate ng cygen (cygen (c/cm vith ac Tel +3:	evice: (I/sec) (mg/l): at 2: id 7494-8:	 0.03 l/sec Smell: odorless putrid fishy chemical chlor gasoline/oil TDS (mg/l) 356 5 °C
The water is us Sampling Type of samplin Pumping durati Field paramete Weather: Sunny Cloudy C	ed for livestock supp ng: <u>with bailer</u> on (min): - rs (at the sampling) Colour: <u>colourless</u> slight strong brown grey yellow ice: Water tempera 13.1 uctivity incl. reference ent: <u>chilled</u>	ture (°C) ture filt administ	mp □ at a Abstrac Abstrac Urbidity: □ no □ low □ modera □ strong □	te Dissol	Abstrac e / disc e / disc Sedin no low out stro lved ox 8.38 49 μS ilised v rtik (ery. tion de charge nent: derate ng cygen (cygen (c/cm vith ac Tel +3:	evice: (I/sec) (mg/l): at 2: id 7494-8:	 0.03 l/sec Smell: odorless putrid fishy chemical chlor gasoline/oil TDS (mg/l) 356 5 °C
The water is us Sampling Type of samplir Pumping durati Field paramete Weather: Sunny Cloudy Changing rain heat frost Measuring devi pH-value: 7.69 Electrical condu Sample treatme Contacts: Hea Execution of t requirements o	ed for livestock supp ng: <u>with bailer</u> on (min): - rs (at the sampling) Colour: <u>colourless</u> slight strong brown grey yellow ice: Water tempera 13.1 uctivity incl. reference ent: <u>chilled</u> he sampling and of	ture (°C) e temper administ f the ab	mp □ at a Abstrac Turbidity: □ no □ low □ modera □ strong □ : rature (µS/ rative distrive dist	te Dissol	Abstrace Abstrace e / disc Sedim <u>no</u> low ono stroce lved ox 8.38 49 µS ilised v rtik (ding to	ery. tion de charge derate ng cygen (cygen (c/cm vith ac Tel +3 o the	evice: (I/sec) (ing/I): at 2: id 7494-8: sampli	 0.03 l/sec Smell: odorless putrid fishy chemical chlor gasoline/oil TDS (mg/l) 356 5 °C

SAMPLING PRO	TOCOL – GROUND	WATER				
Project:	"EU4Environmer	nt - Water F	Resources and	Environment	al Data	a" Project
General						
The location of th	ne sampling point Arr	menia, Lori	Region, Sarat	ovka village		
The coordinates o	of the		Watthewsen .			
sampling point		and the second				
X=41 ⁰ 04' 29.7"					and a start	and the second division of the second se
Y=44 ⁰ 18' 42.0"		and the second second		1. Cak. 1		Contraction of the second
H= 1457m						
Sampling Data:	upo 20, 2022	Time (bb)	mm): 00:45	Sampl		N6
Sampling Date: J	Ms Armine Hakobyan		mm): 09:45	Sampl		
sampling person.	Mr Gegham Muradyan			Ministry of Na teorology and		
o 1	Mr Gevorg Torosyan		Tryaromet			
Sampling site			<u> </u>	·. 		
Sampling site ID:			pe of sampling		-	
Inner diameter of						vell head (m): 1.0
	(m below well head):		al depth of we			•
	on of the sampling side		nates): Ine wel	i was drilled i	n year	s of 1969-1970.
	d the left side of the	river.				
Sampling				A hatva ati a a d		hudlet
Type of sampling:		vith pump		Abstraction d		
Pumping duration		/	Abstraction ra	te / discharge	(I/sec): 0.1 l/sec
-	(at the sampling)	-	4. • . 4 •			C
Weather:	Colour:		rbidity:	Sediment:		Smell:
<u>sunny</u>	□ colourless	<u> </u>		<u> </u>		
□ cloudy	□ slight			□ low		D putrid
changing	□ strong		noderate	moderate		□ fishy
🗆 rain	🗆 brown		trong	□ strong		chemical
□ heat	□ grey			□		□ chlor
🗆 frost	□ yellow					gasoline/oil
Measuring device						
pH-value:	Water temperatu	ure (°C):		oxygen (mg/	I):	TDS (mg/l)
7.08	13.2			45	1	609
	ivity incl. reference t			•	🗆 at 2	25 °C
Sample treatmen		🗆 filtrate		lised with aci		
•	ad of Saratovka adm	inistrative	district: Garnil		•	37499-04-55-50)
Contacts: He						
Contacts: He Execution of the	e sampling and of t	the above	works accor	ding to the	sampl	ing manual and t
Contacts: He Execution of the requirements of t	e sampling and of the laboratory.			-	sampl	ing manual and t
Contacts: He Execution of the requirements of t	e sampling and of the laboratory.			-	-	ing manual and t

	OTOCOL – GROUN						
Project:	"EU4Environme	nt - Wa	ter Resou	rces and	Environment	al Data	" Project
General		-					
	the sampling point:	Armer	nia, Lori R	egion, Sa	aratovka villag	e	
The coordinates	of the	R.C.					The sector
sampling point				a constant			States Sta
X=41 ⁰ 04			- Into	the set			Al ad
Y=44 ⁰ 1			Y	Call St		7	A STANK
H= 1481	m		1 Story	SE.			
				A State of the			
		and the second	The second	17			E TATODA
				100			
		3		F:	A STAR	MAR AN	
				1			
					-		THE REAL PROPERTY OF
					A	MMM.	CALL ST
		Milling Same	2011	K. S. S.	142	AF	The second second
Sampling Date:	June 20, 2023	Time	(hh:mm):	10:15	Sampl	e ID:	N7
Sampling persor	1: Ms Armine Hakobyan		In	stitute: N	Ministry of Na	ture Pr	rotection
	Mr Gegham Muradyar	ו	'Hydrometeorology and Monitoring Center				
Sampling site	Mr Gevorg Torosyan			·			-
Sampling site ID	· N7		Type of	ampling	site: Spring		
Inner diameter							vall boad (m):
	l (m below well head	4)· _	Distance between land surface and well head (m): - Final depth of well (m below well head): -				
	tion of the sampling	-			•		iu)
	ated the right side o			. The spi	ing is capture	.u.	
Sampling							
	g: <u> with bailer</u>	with pu	mp ⊓ at	a tap	Abstraction d	evice:	bucket
Pumping duration	-		-		te / discharge		
	rs (at the sampling)					(., ,	
			Turbidit		Codimont		Smell:
-			-		searment:		
Weather:				y:	Sediment:		
Weather:	<u>□ colourless</u>		<u> </u>	y:	<u> </u>		odorless
Weather: <u>sunny</u> cloudy	□ colourless □ slight		<u>□ no</u> □ low	-	<u>□ no</u> □ low		<u>□ odorless</u> □ putrid
Weather: <u>sunny</u> cloudy changing	<u>□ colourless</u>		<u>□ no</u> □ low □ moder	ate	<u>□ no</u> □ low □ moderate		odorless
Weather:	 colourless slight strong brown 		<u>□ no</u> □ low	ate	<u>□ no</u> □ low		<u>□ odorless</u> □ putrid □ fishy
Weather: <u>sunny</u> cloudy changing rain	 □ colourless □ slight □ strong 		 <u>no</u> low moder strong 	ate	 <u>no</u> low moderate strong 		 □ odorless □ putrid □ fishy □ chemical
Weather: <u>sunny</u> cloudy changing rain heat frost	 colourless slight strong brown grey yellow 		 <u>no</u> low moder strong 	ate	 <u>no</u> low moderate strong 		 □ odorless □ putrid □ fishy □ chemical □ chlor
Weather: <u>sunny</u> cloudy changing rain heat frost Measuring devi	 colourless slight strong brown grey yellow 	ture (°C)	□ no □ low □ moder □ strong □	ate	 <u>no</u> low moderate strong 		 □ odorless □ putrid □ fishy □ chemical □ chlor
Weather: <u>sunny</u> cloudy changing rain heat frost Measuring devi	 colourless slight strong brown grey yellow 	ture (°C)	□ no □ low □ moder □ strong □	ate	 <u>no</u> low moderate strong 		 odorless putrid fishy chemical chlor gasoline/oil
Weather: <u>sunny</u> cloudy changing rain heat frost Measuring devi pH-value: 7.14	ce:		□ no □ low □ moder □ strong □	ate Dissc	 no low moderate strong olved oxygen (4.75 		 odorless putrid fishy chemical chlor gasoline/oil TDS (mg/l) 385
Weather: <u>sunny</u> cloudy changing rain heat frost Measuring devi pH-value: 7.14 Electrical condu	ctivity incl. reference	e tempe	□ no □ low □ moder □ strong □	Dissc	 no low moderate strong olved oxygen (4.75 	mg/l)	 odorless putrid fishy chemical chlor gasoline/oil TDS (mg/l) 385
Weather: <u>sunny</u> cloudy changing rain heat frost Measuring devi pH-value: 7.14 Electrical condu Sample treatme	ctivity incl. reference	e tempe	<u>no</u> low moder strong strong	ate Dissc 5/cm): 5 □ stab	 no low moderate strong olved oxygen (4.75 μS/cm pilised with ac 	mg/l) <u> at 2</u> id	 odorless putrid fishy chemical chlor gasoline/oil TDS (mg/l) 385
Weather: <u>sunny</u> cloudy changing rain heat frost Measuring devi pH-value: 7.14 Electrical condu Sample treatme Contacts: Hea	Ce: Water temperation Water temperation Ctivity incl. reference	e tempe	<u>□ no</u> □ low □ moder □ strong □ : rature (µS trated e district:	Dissc Dissc Com): 5 Dissc	 no low moderate strong olved oxygen (4.75 i92 μS/cm oilised with ac	mg/l) □ at 2 id el +374	 □ odorless □ putrid □ fishy □ chemical □ chlor □ gasoline/oil TDS (mg/l) 385 5 °C
Weather: <u>sunny</u> cloudy changing rain heat frost Measuring devi pH-value: 7.14 Electrical condu Sample treatme Contacts: Heat Execution of th	ctivity incl. reference d of Saratovka admir	e tempe	<u>□ no</u> □ low □ moder □ strong □ : rature (µS trated e district:	Dissc Dissc Com): 5 Dissc	 no low moderate strong olved oxygen (4.75 i92 μS/cm oilised with ac	mg/l) □ at 2 id el +374	 odorless putrid fishy chemical chlor gasoline/oil TDS (mg/l) 385 5 °C
Weather: <u>sunny</u> cloudy changing rain heat frost Measuring devi pH-value: 7.14 Electrical condu Sample treatme Contacts: Heat Execution of the requirements of	colourless slight strong brown grey yellow ce: Water temperat 10.8 ctivity incl. reference nt: <u>chilled</u> d of Saratovka admin ne sampling and of	e tempe □ fill histrative the at	no low moder strong strong 	ate Dissc Jcm): 5 □ stab Garnik M ks accor	 no low moderate strong olved oxygen (4.75 aux μS/cm oilised with ac Martoyan (T rding to the 	mg/l) id el +374 sampli	 odorless putrid fishy chemical chlor gasoline/oil TDS (mg/l) 385 5 °C

SAMPLING PROT	OCOL – GROUNDWATE	R			
Project:	"EU4Environment - Wat	ter Resources	and Environ	mental Data	" Project
General					
The location of the	sampling point		-	5-100	
Armenia, Lori	and the second second	And the second			
Region, Tashir			144.07		
city	and the second second	Line			
	- ANT - ANT		A MARK A		A State of the second
The	A AND A A	and a start	A State of the second	BAR S	
coordinates		Carlor Co		A STATE	A Press
of the				-	
sampling point			- 16		
X=41 ⁰ 06' 07.6"					
Y=44° 17' 56.8"	A CONTRACTOR				
H= 1481m					
J.	1 ACTION AND A	Sec.			
			-S - Salar		
2	C / A MARTINE C MA	- 7		Surry -	Electra this
Sampling Date: Ju	ne 20, 2023 Time	(hh:mm): 12:	20 S	ample ID:	N8
Sampling person: N		Institu	ute: Ministry	of Nature P	rotection
	/Ir Gegham Muradyan		ometeorolog		
	Ar Gevorg Torosyan	nyar	ometeorolog		
Sampling site	-				
Sampling site ID: N			pling site: Fl	-	
Inner diameter of v					vell head (m): 0.8
	below well head): +1.35				
	n of the sampling site (e.g.		e well was di	rilled in earl	y 1970s.
	sed, flows into the Tashir	River.		_	
Sampling					
	□ with bailer □ with pu			ion device:	
Pumping duration (· ·	Abstractio	on rate / discl	harge (I/sec)	: 6.5 l/sec
Field parameters (a					
Weather:	Colour:	Turbidity:	Sedimo	ent:	Smell:
<u>□ sunny</u>		<u> </u>	<u> </u>		odorless
□ cloudy	□ slight				□ putrid
□ changing	□ strong	moderate			□ fishy
□ rain	□ brown	□ strong	□ stror	0	chemical
□ heat	□ grey	□	□		□ chlor
□ frost	□ yellow				gasoline/oil
Measuring device:	\A/c++-	o /ºC):	Discolute	1 mar (mar / 1)	
pH-value:	Water temperatur	e (°C):	Dissolved oxy	0 . 0. /	
7.32	10.6	roturo lucles	6.4		418
	vity incl. reference temper				5 L
Sample treatment:			stabilised wi		4
	Fashir Urban Planning and	a Agriculture	Department,	Chief Archit	ect
	-				
Slavik Anakhasyan	(Tel +37494-39-48-08)				
Slavik Anakhasyan	(Tel +37494-39-48-08) ng and of the above works acc		npling manual a Date:	nd the require	ments of the laboratory.

SAMPLING PROTOCOL -	- GROUNDWATER						
Project:	"EU4Environment - Wa	ter Res	ources and	Environmental Dat	a" Proiect		
General					······		
	sampling point Armenia	a. Lori R	egion, Geta	avan/Stepanavan vi	llage		
The coordinates		., _0					
of the		Surt an			Di Martin Martin		
sampling point			Ser 1	MARY LAND			
Sumpling point				The second	AND		
X=41°02′01.5″							
Y=44 ^o 21' 12.4"		I and the second			- ALA		
H= 1403m	(And the second	Children and the			the second		
		Eling a			A ARTING A CARE		
	Sector Sector	-					
	A EN STR	a starter of	A STATE				
			M See		ALTERN		
	Sector Maria	marine .	A Long				
Sampling Date: Ju	ne 20, 2023 Time	e (hh:mr	n): 13:48	Sample ID:	N9		
Sampling person: N			-		Protoction		
	/Ir Gegham Muradyan			Ministry of Nature F			
	Ir Gevorg Torosyan		Hydromet	eorology and Mon	itoring Center		
Sampling site							
Sampling site ID: N	9	Type of	of sampling	site: Flowing wel	I		
Inner diameter of v		Distar	Distance between land surface and well head (m): 1.0				
	n below well head): +1.4	Final o	depth of we	ell (m below well he	ead): 85		
	n of the sampling site (e.g		•				
The well is not use			,				
Sampling							
	□ with bailer □ with p	ump 🗆	at a tap	Abstraction device:	bucket		
Pumping duration (· · ·	te / discharge (l/see			
Field parameters (a		1.00			<u>. </u>		
Weather:	Colour:	Turbio	ditv.	Sediment:	Smell:		
	□ colourless		arcy.		□ odorless		
□ cloudy	□ slight	<u>□ no</u> □ low		□ no □ low	□ putrid		
	-						
changing rain	□ strong □ brown		derate	□ moderate	□ fishy		
🗆 rain		□ stro	-	□ strong	chemical		
□ heat	□ grey	□		□	□ chlor		
frost	□ yellow				gasoline/oil		
Measuring device:							
pH-value:	Water temperature (°C	:):	Disso	olved oxygen (mg/l)			
7.88	8.9			8.81	591		
	ity incl. reference tempe				25 °C		
Sample treatment:	<u>□ chilled</u> □ fi	ltrated	🗆 stab	oilised with acid			
Contacts: -							
Execution of the sampling	and of the above works according	g to the sar	npling manual	and the requirements of the	he laboratory.		
Signature of sampler:			_Date:				
Name of sampler:			_				

		ER					
Project:	"EU4Environment - Wa	ter Res	ources and	Environmental	Data" Project		
General							
The location of t	he sampling point Armenia	a, Lori R	egion, Geta	avan/Stepanava	n village		
The coordinates							
of the			15 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -				
sampling point					Real Land		
		A state	1				
X=41 ⁰ 02′03.0″ Y=44 ⁰ 21′ 12.8″	YYUNCAI	Ma			AND IN THE		
H= 1421m							
Sampling Date:	June 20, 2023 Time	(hh:mi	n): 14:15	Sample	ID: N10		
	: Ms Armine Hakobyan	•					
	Mr Gegham Muradyan		Institute: Ministry of Nature Protection 'Hydrometeorology and Monitoring Center				
	Mr Gevorg Torosyan		riyurome				
Sampling site		-	<u>(</u>)	·. ·			
Sampling site ID:				site: Flowing			
	f well (mm): 219				and well head (m): 0.35		
	(m below well head): +2.8	Final	uepth of we	en (m below we			
Further informat	ion of the computing site (The		· · · · · · · · · · · · · · · · · · ·		
	ion of the sampling site (e.g			ell was drilled in	· · · · · · · · · · · · · · · · · · ·		
The well is plann	ion of the sampling site (e.g ed to be used for energy p			ell was drilled in	· · · · · · · · · · · · · · · · · · ·		
The well is plann Sampling	ed to be used for energy p	ourpose	s by "Step	ell was drilled in dzor'' LTD.	early 1970s.		
The well is plann Sampling Type of sampling	ed to be used for energy p	urpose	at a tap	ell was drilled in dzor" LTD. Abstraction dev	early 1970s. vice: bucket		
The well is plann Sampling Type of sampling Pumping duratio	ed to be used for energy p : <u>u with bailer</u> with pu n (min): -	urpose	at a tap	ell was drilled in dzor'' LTD.	early 1970s. vice: bucket		
The well is plann Sampling Type of sampling Pumping duratio Field parameters	ed to be used for energy p : <u>• with bailer</u> • with pu n (min): - s (at the sampling)	urpose	at a tap	ell was drilled in dzor" LTD. Abstraction dev te / discharge (I	early 1970s. vice: bucket /sec): 62 l/sec		
The well is plann Sampling Type of sampling Pumping duratio Field parameters Weather:	ed to be used for energy p : <u>with bailer</u> with pu n (min): - (at the sampling) Colour:	urpose	at a tap	ell was drilled in dzor" LTD. Abstraction dev te / discharge (I Sediment:	vice: bucket /sec): 62 l/sec Smell:		
The well is plann Sampling Type of sampling Pumping duratio Field parameters Weather: Sunny	ed to be used for energy p : <u>with bailer</u> with pu n (min): - : (at the sampling) Colour: <u>colourless</u>	urpose ump Abs Turbic <u>no</u>	at a tap	ell was drilled in dzor" LTD. Abstraction dev te / discharge (I Sediment: <u>no</u>	i early 1970s. vice: bucket /sec): 62 l/sec Smell: <u>odorless</u>		
The well is plann Sampling Type of sampling Pumping duratio Field parameters Weather: Sunny cloudy	ed to be used for energy p : <u>with bailer</u> with pu n (min): - s (at the sampling) Colour: <u>colourless</u> s light	ump Abs Turbid no low	at a tap	Abstraction dev te / discharge (I Sediment: <u>no</u> low	ice: bucket /sec): 62 l/sec Smell: <u>odorless</u> putrid		
The well is plann Sampling Type of sampling Pumping duratio Field parameters Weather: Sunny cloudy cloudy	ed to be used for energy p : <u>with bailer</u> with pu n (min): - s (at the sampling) Colour: <u>Colourless</u> slight strong	ump Abs Turbie ono low umo	at a tap at a tap dity: derate	Abstraction dev te / discharge (I Sediment: <u>no</u> low moderate	vice: bucket /sec): 62 l/sec Smell: <u>odorless</u> putrid fishy		
The well is plann Sampling Type of sampling Pumping duratio Field parameters Weather: Sunny sunny cloudy changing rain	<pre>ed to be used for energy p : _ with bailer _ with pu n (min): - (at the sampling) Colour: colourless slight strong brown</pre>	ump Abs Turbid no low strc	at a tap at a tap dity: derate	Abstraction dev te / discharge (I Sediment: <u>no</u> low moderate strong	ice: bucket /sec): 62 l/sec Smell: <u>odorless</u> putrid		
The well is plann Sampling Type of sampling Pumping duratio Field parameters Weather: Sunny cloudy cloudy changing rain heat	<pre>ed to be used for energy p :: with bailer with pu n (min): - s (at the sampling) Colour: colourless slight strong brown grey</pre>	ump Abs Turbid no low strc	at a tap dity:	Abstraction dev te / discharge (I Sediment: <u>no</u> low moderate	ice: bucket /sec): 62 l/sec Smell: odorless putrid fishy chemical chlor		
The well is plann Sampling Type of sampling Pumping duratio Field parameters Weather: Sunny cloudy cloudy changing rain heat frost	<pre>ied to be used for energy p ::with bailerwith pu n (min): - s (at the sampling) Colour:Colourlessslightstrongbrowngreyyellow</pre>	ump Abs Turbid no low strc	at a tap dity:	Abstraction dev te / discharge (I Sediment: <u>no</u> low moderate strong	vice: bucket /sec): 62 l/sec Smell: odorless putrid fishy chemical		
The well is plann Sampling Type of sampling Pumping duratio Field parameters Weather: Sunny cloudy changing claudy changing heat frost Measuring devic	<pre>ied to be used for energy p iii is with bailer is with pu iii (min): - iii (at the sampling) Colour: iii colourless iii slight iii strong iii brown iii grey iii yellow e:</pre>	ump	at a tap straction ra dity:	ell was drilled in dzor" LTD. Abstraction dev te / discharge (I Sediment: <u>no</u> low moderate strong 	vice: bucket /sec): 62 l/sec Smell: <u>odorless</u> putrid fishy chemical chlor gasoline/oil		
The well is plann Sampling Type of sampling Pumping duratio Field parameters Weather: Sunny cloudy cloudy changing rain heat frost Measuring devic	ed to be used for energy p : <u>with bailer</u> with purch n (min): - cat the sampling) Colour: <u>colourless</u> slight strong brown grey yellow e: Water temperature (°C	ump	at a tap at a tap straction ra dity: derate ong ssolved oxy	Abstraction dev te / discharge (I Sediment: <u>no</u> low moderate strong	ice: bucket /sec): 62 l/sec Smell: odorless putrid fishy chemical chlor		
The well is plann Sampling Type of sampling Pumping duratio Field parameters Weather: Sunny cloudy cloudy changing rain heat frost Measuring devic pH-value: 7.67	ied to be used for energy p : <u>with bailer</u> with purch n (min): - s (at the sampling) Colour: <u>colourless</u> slight strong brown grey yellow e: Water temperature (°C 7,9	ump	at a tap at a tap straction ra dity: derate ong ssolved oxy 35	ell was drilled in dzor" LTD. Abstraction dev te / discharge (I Sediment: <u>no</u> low low moderate strong 	ice: bucket /sec): 62 l/sec Smell: odorless putrid fishy chemical chlor gasoline/oil TDS (mg/l)		
The well is plann Sampling Type of sampling Pumping duratio Field parameters Weather: Sunny cloudy changing cloudy changing rain heat frost Measuring devic pH-value: 7.67 Electrical conduc	ied to be used for energy p i <u>with bailer</u> with purch n (min): - is (at the sampling) Colour: <u>colourless</u> slight strong brown grey yellow e: Water temperature (°C 7,9 tivity incl. reference temperature	ump	at a tap at a tap dity: derate ong ssolved oxy 35 (µS/cm):	ell was drilled in dzor" LTD. Abstraction dev te / discharge (I Sediment: <u>no</u> low low moderate strong 	<pre>rice: bucket /sec): 62 l/sec Smell:</pre>		
The well is plann Sampling Type of sampling Pumping duratio Field parameters Weather: Sunny cloudy cloudy changing rain heat frost Measuring devic pH-value: 7.67	ied to be used for energy p i <u>with bailer</u> with purch n (min): - is (at the sampling) Colour: <u>colourless</u> slight strong brown grey yellow e: Water temperature (°C 7,9 tivity incl. reference temperature	ump	at a tap at a tap dity: derate ong ssolved oxy 35 (µS/cm):	ell was drilled in dzor" LTD. Abstraction dev te / discharge (I Sediment: <u>no</u> low low moderate strong strong moderate strong	<pre>rice: bucket /sec): 62 l/sec Smell:</pre>		
The well is plann Sampling Type of sampling Pumping duratio Field parameters Weather: Sunny Cloudy Cloudy Changing Cloudy Changing Field Contacts: - Execution of the sample	ied to be used for energy p i <u>with bailer</u> with purch n (min): - is (at the sampling) Colour: <u>colourless</u> slight strong brown grey yellow e: Water temperature (°C 7,9 tivity incl. reference temperature	imp carbon imp carbon Abs Turbin no construction organization imp carbon imp carbo	at a tap at a tap straction ra dity: derate ong ssolved oxy 35 (µS/cm): □ state mpling manual	ell was drilled in dzor" LTD. Abstraction dev te / discharge (I Sediment: <u>no</u> low moderate strong strong strong moderate strong moderate	<pre>vice: bucket /sec): 62 l/sec Smell: odorless putrid fishy chemical chlor gasoline/oil TDS (mg/l) 583 at 25 °C</pre>		

	OTOCOL – GROUN				.		
Project:	"EU4Environme	nt - Wate	er Resources an	d Environmental Dat	ta" Project		
General							
	the sampling point:	Armeni	a, Lori Region, I	Lori Berd village			
The coordinate	s of the						
sampling point				1468			
V 410 00/ 12 2"							
X=41 ⁰ 00' 13.3" Y=44 ⁰ 25' 52.3"				A CALL			
H= 1402m							
				1 1			
					A DEAL A		
					M. C. / D. C. S. P. P.		
					Ver Charles		
				See a Mill			
				C. A.			
Sampling Date:	June 20. 2023	Time (hh:mm): 17:20	Sample ID:	N11		
	n: Ms Armine Hakobyan	1	-				
60.1.p.1.8 perce	Mr Gegham Muradyar	ı	Institute: Ministry of Nature Protection 'Hydrometeorology and Monitoring Center				
	Mr Gevorg Torosyan		Hydrom	eteorology and ivion	itoring Center		
Sampling site							
Sampling site ID): N11		Type of samplir	ng site: Spring «Lus	aghbyur»		
Inner diameter	of well (mm): -		Distance betwe	en land surface and	well head (m): -		
Calm water leve	el (m below well head	l): -	Final depth of v	vell (m below well he	ead): -		
Further informa	ation of the sampling	site (e.g. co	oordinates): The s	pring is not captured	ł.		
Sampling							
	ng: <u>u with float</u> u w	ith pump	o 🗆 at a tap	Abstraction device	: float		
Pumping durati	-			ate / discharge (I/se			
	rs (at the sampling)		1.000.0000				
Weather:	Colour:	· ·	Turbidity:	Sediment:	Smell:		
<u>u sunny</u>	□ colourless		<u>no</u>		□ odorless		
□ cloudy	□ slight		□ low	□ low	□ putrid		
changing	□ strong		moderate	□ moderate	□ fishy		
□ rain	□ brown		□ strong	□ strong	□ chemical		
□ heat	□ grey				\Box chlor		
	□ yellow				□ gasoline/oil		
Measuring dev				 			
pH-value:	Water temperat		Dissolve	d oxygen (mg/l):	TDS (mg/l)		
p⊓-value. 7.5	9.1	uie (C).	DISSOIVE	9.62	120		
		tomnor	turo (us/cm)		25 °C		
	ictivity incl. reference				23 L		
Sample treatme	ent: <u>chilled</u>	□ filtr	ateu 🗆 sta	abilised with acid			
Contacts:	maline and after also			······································			
	mpling and of the above v er:			ng manual and the requi te:	rements of the laborato		
Vibrianne or Camor							

SAMPLING PROT	OCOL – GROUNDWATE	R			
Project:	"EU4Environment - Wat	er Res	ources and	Environmental Data	a" Project
General					
The location of the	sampling point: Armenia	a, Lori I	Region, Turr	nanyan village (In th	e canyon of Kobayr)
The coordinates					
of the					
sampling point					A CARLON AND A
X=41 ⁰ 00' 28.3"				A second	
Y=44 ^o 38' 10.4"					CONSTRUCTION OF THE
H= 937					
Sampling Date: Ju	ne 21, 2023 Time	(hh:mi	m): 10:00	Sample ID:	N12
Sampling person: N		(-		
	/ir Gegham Muradyan			Ainistry of Nature Preorology and Monit	
	Ar Gevorg Torosyan		пушотте		oning Center
Sampling site					
Sampling site ID: N			of sampling		
Inner diameter of v				n land surface and w	
-	n below well head): -		•	ll (m below well hea	ad): -
	n of the sampling site (e.g.		tes): The spr	ing is captured.	
	d for drinking water sup	ply.			
Sampling					
	□ with bailer □ with pu			Abstraction device:	
Pumping duration (Abs	straction rat	e / discharge (l/sec)	: 1.0 l/sec
Field parameters (a			••-		- "
Weather:	Colour:	Turbi	dity:	Sediment:	Smell:
<u>□ sunny</u>	□ colourless	<u> </u>		<u> </u>	odorless
□ cloudy	□ slight	□ low		□ low	□ putrid
□ changing	□ strong		derate	moderate	□ fishy
□ rain	🗆 brown	□ stro	•	□ strong	chemical
□ heat	□ grey	□		□	□ chlor
□ frost	□ yellow				gasoline/oil
Measuring device:					
pH-value: 8.45	Water temperature (°C) 15.6	:	Disso 9.09	lved oxygen (mg/l):	TDS (mg/l) 528
Electrical conductiv	vity incl. reference temper	rature	(µS/cm): 8	312 μS/cm 🛛 🗆 at 2	5 °C
Sample treatment:	<u>□ chilled</u> □ filt	rated	🗆 stab	ilised with acid	
Contacts:					
	ng and of the above works acco	-			ements of the laboratory.
Signature of sampler: Name of sampler:			Date		

Drojoct	DTOCOL – GROUNDW							
Project:	"EU4Environment -	Water Res	ources and	d Environmental Da	ta" Project			
General				/-				
		menia, Lor	i Region, S	hamlugh village (Be	ndik district)			
The coordinates	of the				V. R. LESSING			
sampling point			E Stand	AND AND				
X=41 ⁰ 09' 22.7"			1 M					
Y=44 ⁰ 43' 03.5" H= 1217			The M	A DEAL				
11-1217		File Joy P	1. m.					
		and the second	A A A A A A A A A A A A A A A A A A A					
		11						
		AD	the s					
			A. C. C.					
					A A A			
		A BUCK						
			3.4.1					
Sampling Date:	luno 21 2022 Ti	me (hh:mr	m > 12.20	Sample ID:	N13			
				I •				
Sampling person	I: Ms Armine Hakobyan Mr Gegham Muradyan			Ministry of Nature				
	Mr Gevorg Torosyan		'Hydrome	eteorology and Mon	itoring Center			
Sampling site								
Sampling site ID:	N13	Type	of samplin	g site: Spring «Kal	kali taki»			
Inner diameter o			Distance between land surface and well head (m): -					
	l (m below well head): -		Final depth of well (m below well head): -					
	tion of the sampling site							
	ar the cemetery, and util		-					
	live in the village							
Sampling								
	g: <u> u with bailer</u> u with		at a tap	Abstraction device	· bucket			
Pumping duratic			•	ate / discharge (l/se				
	s (at the sampling)	ADS		ate / discharge (i/se	c). 0.13 1/3ec			
-		Turki	al:+	Sediment:	Small			
Weather:	Colour:	Turbi	aity:		Smell:			
<u>sunny</u>		<u> </u>		<u> </u>	odorless			
	🗆 slight	□ low		□ low	□ putrid			
•				n moderate				
□ changing	□ strong	□ moo		moderate	□ fishy			
□ cloudy □ changing □ rain	□ brown	□ moo □ stro			chemical			
□ changing □ rain □ heat	□ brown □ grey	🗆 stro			□ chemical □ chlor			
□ changing □ rain □ heat □ frost	□ brown □ grey □ yellow	🗆 stro	ong	□ strong	chemical			
□ changing	□ brown □ grey □ yellow	🗆 stro	ong	□ strong	□ chemical □ chlor			
 □ changing □ rain □ heat □ frost Measuring device 	□ brown □ grey □ yellow	□ stro □	ong 	□ strong	 □ chemical □ chlor □ gasoline/oil 			
 □ changing □ rain □ heat □ frost Measuring device 	□ brown □ grey □ yellow	□ stro □	ong 	□ strong □ solved oxygen (mg/l 6.9	□ chemical □ chlor □ gasoline/oil): TDS (mg/l) 474			
 changing rain heat frost Measuring device pH-value: 7.12 	brown grey yellow ce: Water temperature	□ stro □ (°C):	Diss	□ strong □ solved oxygen (mg/l 6.9	chemical chlor gasoline/oil			
 changing rain heat frost Measuring device pH-value: 7.12 Electrical conduct 	 brown grey yellow Se: Water temperature 10.5 	□ stro □ (°C):	Diss (μS/cm):	□ strong □ solved oxygen (mg/l 6.9	□ chemical □ chlor □ gasoline/oil): TDS (mg/l) 474			
 changing rain heat frost Measuring device pH-value: 7.12 Electrical conduce Sample treatment 	 brown grey yellow Se: Water temperature 10.5 	C°C):	ng Diss (μS/cm): □ sta	□ strong □ olved oxygen (mg/l 6.9 730 µS/cm □ at bilised with acid	 □ chemical □ chlor □ gasoline/oil): TDS (mg/l) 474 25 °C 			
 □ changing □ rain □ heat □ frost Measuring device pH-value: 7.12 Electrical conduce Sample treatment Contacts: Head of the second second	brown grey yellow ce: Water temperature 10.5 ctivity incl. reference tem nt: <u> chilled</u>	C°C):	Diss (μS/cm): □ sta : (Tel +374	□ strong □ olved oxygen (mg/l 6.9 730 µS/cm □ at bilised with acid 477-535376, +37495	 □ chemical □ chlor □ gasoline/oil): TDS (mg/l) 474 25 °C 			
 □ changing □ rain □ heat □ frost Measuring device pH-value: 7.12 Electrical conduce Sample treatment Contacts: Head of the value 	□ brown □ grey □ yellow ce: Water temperature 10.5 ctivity incl. reference tem nt: □ chilled □ of Shamlugh administrati	C°C):	ing Diss (μS/cm): □ sta : (Tel +374 98-42-31-2	□ strong □ colved oxygen (mg/l 6.9 730 µS/cm □ at bilised with acid 477-535376, +37499 27)	□ chemical □ chlor □ gasoline/oil TDS (mg/l) 474 25 °C 5-535376)			
 changing rain heat frost Measuring device pH-value: 7.12 Electrical conduce Sample treatment Contacts: Head of the value resident of the sample Signature of sample 	□ brown □ grey □ yellow ce: Water temperature 10.5 ctivity incl. reference tem nt: □ chilled □ of Shamlugh administrati village: Sos Aghababyan	C°C): hperature filtrated ive district (Tel +374 according to	Diss (μS/cm): □ sta : (Tel +374 98-42-31-2 o the samplir	□ strong □ colved oxygen (mg/l 6.9 730 µS/cm □ at bilised with acid 477-535376, +37499 27)	□ chemical □ chlor □ gasoline/oil TDS (mg/l) 474 25 °C 5-535376)			
 changing rain heat frost Measuring devid pH-value: 7.12 Electrical conduct Sample treatment Contacts: Head of the vestion of the sam Signature of sample Name of sampler: 	□ brown □ grey □ yellow ce: Water temperature 10.5 ctivity incl. reference tem nt: □ chilled □ of Shamlugh administrati village: Sos Aghababyan npling and of the above works	C°C): perature filtrated ive district (Tel +374 s according to	Diss (μS/cm): □ sta : (Tel +374 98-42-31-2 o the samplir	□ strong □ solved oxygen (mg/l 6.9 730 µS/cm □ at bilised with acid 477-535376, +37495 27) ng manual and the requi	□ chemical □ chlor □ gasoline/oil TDS (mg/l) 474 25 °C 5-535376)			
Project:	"EU4Environment - W	ater Re	sources and	Environmental	Data" Proiect			
---	---------------------------------	------------	---	------------------------	-------------------------	--	--	--
General								
The location of the	sampling point Armeni	a. Tavı	ush Region. B	agratashen villa	age			
The coordinates								
of the		3 2		- Protect	and the second second			
sampling point	1. C.	NY.	161		A CONTRACTOR			
			and a second	The me				
X=41 ⁰ 14'14.3"								
Y=44 ^o 49' 02.1"		1	-					
H= 459m		170		王臣以	MALS REAL			
		TIM	TANK I	The second				
	200000000			THE THE				
		MAR	The second second					
				CARS COM				
			No. In Star					
Sampling Date: Ju	ne 21, 2023 Tim	e (hh:n	רש: 13:45	Sample	ID: N14			
Sampling person:		- (1					
	Mr Gegham Muradyan			/inistry of Natu				
	Mr Gevorg Torosyan		Hydromet	eorology and N	Ionitoring Center			
Sampling site								
Sampling site ID: N	14	Туре	Type of sampling site: Non flowing well					
Inner diameter of v	well (mm): 273	Dista	Distance between land surface and well head (m): 0.95					
Calm water level (n	n below well head): (-8.0) Fina	l depth of we	ll (m below we	ll head): 26			
Further informatio	n of the sampling site (e.g. coord	linates): The w	ell was drilled	in 1960s. ECW 10 brand			
submersible pump	is installed in the 16m d	epth o	f the well, bu	t now t he well	is not used.			
Sampling								
Type of sampling:	□ with bailer □ with p	ump	🗆 at a tap 🛛 /	Abstraction dev	vice: bucket			
Pumping duration	(min): -	A	ostraction rat	e / discharge (I	/sec): 1 0 l/sec			
Field parameters (at the sampling)							
Weather:	Colour:	Turb	oidity:	Sediment:	Smell:			
🗆 sunny	colourless	<u> </u>	<u>)</u>	<u>□ no</u>	odorless			
□ cloudy	🗆 slight	□ lov	N	□ low	🗆 putrid			
□ changing	□ strong	□ m	oderate	🗆 moderate	□ fishy			
🗆 rain	🗆 brown	🗆 str	ong	□ strong	chemical			
🗆 heat	🗆 grey	□		□	□ chlor			
□ frost	□ yellow				gasoline/oil			
Measuring device:								
pH-value:	Water temperature (°	C):	Dissolved ox	(ygen (mg/l):	TDS (mg/l)			
8.01	14		6.	85	165			
Electrical conductiv	vity incl. reference temp	erature	e (µS/cm): 2	254 μS/cm □	at 25 °C			
Sample treatment:	□ chilled □ f	iltrated	d 🗆 stab	ilised with acid				
Contacts: - Edik (Te	el +37477-857549)	-						
	and of the above works accordin	g to the s		and the requirements	s of the laboratory.			
Signature of sampler: Name of sampler:			Date:					
manie of sumpler								

NTOIOCT'	"EU4Environment	t _ \// at	tor Posourcos ar	d Environmental	Data" Project			
Project: General	E04Environmen	L - VVal	ler Resources ar					
The location of the	compling point Ar	monia		Pordayan village	, ,			
The coordinates	sampling point An	mema	, Tavusii Region	, Beruavan village				
of the								
sampling point			General Contraction					
X=41 ⁰ 12' 8.2"			ATT AND	Mile a state				
Y=45 [°] 00' 25.3"			and the second					
H= 664m			a serie and					
			Alter and a					
			and the set	A share	No.			
					12			
					3			
					1000			
				TAX IS VAR	The second se			
			States (
Sampling Date: Ju		Time	(hh:mm): 14.25	Sample	ID: N15			
Sampling person: N	-		Institute	: Ministry of Natu	ure Protection			
	Ar Gegham Muradyan			•	Aonitoring Center			
	Ar Gevorg Torosyan		7		8			
Sampling site	4 5		T	····	- 11			
Sampling site ID: N			Type of sampling site: ground well Distance between land surface and well head (m): 0					
Inner diameter of v								
	n below well head):	(0.0)	Final danth of					
Transferration for Construction								
Further informatio	n of the sampling s				in 1960s. The well is not			
Further informatio	n of the sampling s							
	n of the sampling s							
used.		ite (e.g	. coordinates): The	well was drilled	in 1960s. ⊺he well is not			
used. Sampling	<u>• with bailer</u> • w	ite (e.g	. coordinates): The mp □ at a tap	well was drilled	in 1960s. The well is not vice: bucket			
used. Sampling Type of sampling:	<u>□ with bailer</u> □ w (min): -	ite (e.g	. coordinates): The mp □ at a tap	well was drilled	in 1960s. The well is not vice: bucket			
used. Sampling Type of sampling: Pumping duration (<u>□ with bailer</u> □ w (min): -	ite (e.g	. coordinates): The mp □ at a tap	well was drilled	in 1960s. The well is not vice: bucket			
used. Sampling Type of sampling: Pumping duration (Field parameters (a Weather:	<u>□ with bailer</u> □ w (min): - at the sampling) Colour:	ite (e.g	. coordinates): The mp □ at a tap Abstraction	well was drilled Abstraction dev rate / discharge (in 1960s. The well is not vice: bucket l/sec): l/sec Smell:			
used. Sampling Type of sampling: Pumping duration (Field parameters (a Weather: <u>sunny</u>	<u>with bailer</u> w (min): - at the sampling) Colour: <u>colourless</u>	ite (e.g	. coordinates) : The mp □ at a tap Abstraction	well was drilled Abstraction dev rate / discharge (Sediment:	in 1960s. The well is not vice: bucket l/sec): l/sec Smell: <u>odorless</u>			
used. Sampling Type of sampling: Pumping duration (Field parameters (a Weather: sunny cloudy	<u>with bailer</u> w (min): - at the sampling) Colour: <u>colourless</u> slight	ite (e.g	 coordinates): The mp	Abstraction dev rate / discharge (Sediment: <u>no</u> low	in 1960s. The well is not vice: bucket l/sec): l/sec Smell: <u>odorless</u> putrid			
used. Sampling Type of sampling: Pumping duration (Field parameters (a Weather: Sunny cloudy cloudy changing	<u>□ with bailer</u> □ w (min): - at the sampling) Colour: <u>□ colourless</u> □ slight □ strong	ite (e.g	 coordinates): The mp at a tap Abstraction Turbidity: no low moderate 	Abstraction dev rate / discharge (Sediment: <u>no</u> low moderate	in 1960s. The well is not vice: bucket l/sec): l/sec Smell: <u>odorless</u> putrid fishy			
used. Sampling Type of sampling: Pumping duration (Field parameters (Weather: Sunny cloudy changing rain	<u>with bailer</u> w (min): - at the sampling) Colour: <u>colourless</u> slight strong brown	ite (e.g	 coordinates): The mp at a tap Abstraction Turbidity: no low moderate strong 	well was drilled Abstraction dev rate / discharge (Sediment: D no D low D low D moderate D strong	in 1960s. The well is not vice: bucket l/sec): l/sec Smell: <u>odorless</u> putrid fishy chemical			
used. Sampling Type of sampling: Pumping duration (Field parameters (a Weather: Sunny Cloudy Cloudy Changing rain heat	with bailer • w (min): - at the sampling) Colour: colourless slight strong brown grey	ite (e.g	 coordinates): The mp at a tap Abstraction Turbidity: no low moderate 	Abstraction dev rate / discharge (Sediment: <u>no</u> low moderate	in 1960s. The well is not vice: bucket l/sec): l/sec Smell: <u>odorless</u> putrid fishy chemical chlor			
used. Sampling Type of sampling: Pumping duration (Field parameters (a Weather: Sunny cloudy cloudy changing rain heat frost	with bailer • w (min): - at the sampling) Colour: colourless slight strong brown grey grey yellow	ite (e.g	 coordinates): The mp at a tap Abstraction Turbidity: no low moderate strong 	well was drilled Abstraction dev rate / discharge (Sediment: D no D low D low D moderate D strong	in 1960s. The well is not vice: bucket l/sec): l/sec Smell: <u>odorless</u> putrid fishy chemical			
used. Sampling Type of sampling: Pumping duration (Field parameters (Weather: sunny cloudy changing a rain heat frost Measuring device:	with bailer • w (min): - at the sampling) Colour: Colourless slight strong brown grey yellow	ite (e.g	 coordinates): The mp at a tap Abstraction Turbidity: no low moderate strong 	well was drilled Abstraction dev rate / discharge (Sediment: D no D low D low D moderate Strong D	in 1960s. The well is not vice: bucket l/sec): l/sec Smell: odorless putrid fishy chemical chlor gasoline/oil			
used. Sampling Type of sampling: Pumping duration (Field parameters (a Weather: Sunny Cloudy Cloudy Changing rain heat frost Measuring device: pH-value:	with bailer • w (min): - at the sampling) Colour: colourless slight strong brown grey yellow Water temperatu	ite (e.g	 coordinates): The mp at a tap Abstraction Turbidity: no low moderate strong 	well was drilled Abstraction der rate / discharge (Sediment: One oxygen (mg/l):	in 1960s. The well is not vice: bucket l/sec): l/sec Smell: odorless putrid fishy chemical chlor gasoline/oil TDS (mg/l)			
used. Sampling Type of sampling: Pumping duration (Field parameters (Weather: Sunny cloudy changing rain heat frost Measuring device: pH-value: 7.12	<pre> with bailer</pre>	ite (e.g /ith pu /ith pu re (°C)	 coordinates): The mp at a tap Abstraction Turbidity: no low moderate strong Dissolved 	well was drilled Abstraction dev rate / discharge (Sediment: Dow Dow Dow Dow Strong Dow Strong Dow Strong Strong Strong Strong Strong Strong Abstraction Abstract	in 1960s. The well is not vice: bucket l/sec): l/sec Smell: odorless putrid fishy chemical chlor gasoline/oil TDS (mg/l) 594			
used. Sampling Type of sampling: Pumping duration (Field parameters (Weather: Sunny Cloudy Changing rain heat frost Measuring device: 7.12 Electrical conductive	with bailer • w (min): - at the sampling) Colour: Colourless slight strong brown grey yellow Water temperatu 12.4 vity incl. reference t	ite (e.g /ith pu /ith pu re (°C)	 coordinates): The mp □ at a tap Abstraction Turbidity: no low moderate strong Dissolved rature (μS/cm): 	well was drilled Abstraction dev rate / discharge (Sediment: D no D low D moderate Strong Oxygen (mg/l): 5.2 914 μS/cm	in 1960s. The well is not vice: bucket l/sec): l/sec Smell: odorless putrid fishy chemical chlor gasoline/oil TDS (mg/l) 594 at 25 °C			
used. Sampling Type of sampling: Pumping duration (Field parameters (Weather: Sunny Cloudy Changing	with bailer	ite (e.g /ith pu /ith pu re (°C) ⊡ filt	<pre>coordinates): The mp □ at a tap Abstraction Turbidity: □ n0 □ low □ moderate □ strong □ : Dissolved rature (µS/cm): rrated □ st</pre>	<pre>well was drilled Abstraction dev rate / discharge (Sediment: no low moderate strong low strong oxygen (mg/l): 5.2 914 µS/cm □ </pre>	in 1960s. The well is not vice: bucket l/sec): l/sec Smell: odorless putrid fishy chemical chlor gasoline/oil TDS (mg/l) 594 at 25 °C			
used. Sampling Type of sampling: Pumping duration Field parameters (a Weather: Sunny Cloudy Changing Changing Changing Field Firost Measuring device: 7.12 Electrical conductive Sample treatment: Contacts: resident	with bailer with bailer with bailer with bailer with bailer with with the sampling) at the sampling) at the sampling) Colour: at the sampling) Colouriess at slight slight strong brown grey yellow Water temperatu 12.4 /ity incl. reference t chilled of the village: Aram	re (°C)	<pre>mpat a tap Abstraction Turbidity: </pre>	<pre>well was drilled Abstraction dev rate / discharge (Sediment:</pre>	in 1960s. The well is not vice: bucket l/sec): l/sec Smell: odorless putrid fishy chemical chlor gasoline/oil TDS (mg/l) 594 at 25 °C			
used. Sampling Type of sampling: Pumping duration (Field parameters (Weather: Sunny Cloudy Changing Changing Changing Changing Firest Measuring device: PH-value: 7.12 Electrical conductive Sample treatment: Contacts: resident Execution of the sampling	 with bailer with bailer with bailer with bailer with bailer with with bailer with with bailer with with bailer wi	re (°C) re (°C) re filt Zobał	<pre>mp □ at a tap Abstraction Durbidity: □ no □ low □ moderate □ strong □ : Dissolved rature (µS/cm): crated □ st oyan (Tel +3747 to the sampling manu</pre>	<pre>well was drilled Abstraction dev rate / discharge (Sediment:</pre>	in 1960s. The well is not vice: bucket l/sec): l/sec Smell: odorless putrid fishy chemical chlor gasoline/oil TDS (mg/l) 594 at 25 °C			
used. Sampling Type of sampling: Pumping duration (Field parameters (Weather: Sunny Cloudy Changing Changing Changing Changing Field Fie	 with bailer with bailer with bailer with bailer with bailer with with bailer with with bailer with with bailer wi	re (°C) re (°C) re filt Zobał	<pre>mp □ at a tap Abstraction Durbidity: □ no □ low □ moderate □ strong □ : Dissolved rature (µS/cm): crated □ st oyan (Tel +3747 to the sampling manu</pre>	<pre>well was drilled Abstraction dev rate / discharge (Sediment:</pre>	in 1960s. The well is not vice: bucket l/sec): l/sec Smell: odorless putrid fishy chemical chlor gasoline/oil TDS (mg/l) 594 at 25 °C			
used. Sampling Type of sampling: Pumping duration (Field parameters (Weather: Sunny Cloudy Changing Changing Changing Changing Changing Field	with bailer with bailer <td>re (°C) re (°C) re filt Zobal</td> <td><pre>mp □ at a tap Abstraction □ Turbidity: □ no □ low □ moderate □ strong □ : Dissolved rature (µS/cm): rrated □ st oyan (Tel +3747 to the sampling manu Date:</pre></td> <td><pre>well was drilled Abstraction dev rate / discharge (Sediment:</pre></td> <td>in 1960s. The well is not vice: bucket l/sec): l/sec Smell: odorless putrid fishy chemical chlor gasoline/oil TDS (mg/l) 594 at 25 °C</td>	re (°C) re (°C) re filt Zobal	<pre>mp □ at a tap Abstraction □ Turbidity: □ no □ low □ moderate □ strong □ : Dissolved rature (µS/cm): rrated □ st oyan (Tel +3747 to the sampling manu Date:</pre>	<pre>well was drilled Abstraction dev rate / discharge (Sediment:</pre>	in 1960s. The well is not vice: bucket l/sec): l/sec Smell: odorless putrid fishy chemical chlor gasoline/oil TDS (mg/l) 594 at 25 °C			

General						
The location of the sampling point:	Armer	nia, Tav	ush Region	, Jujevan village		
The coordinates of the sampling point X=41°07' 41.3" Y=45° 00' 43.0" H= 1039		,				
Sampling Date: June 21, 2023	Time	(hh:mi	n): 15.35	Sample ID	: N16	
Sampling person: Ms Armine Hakobyan Mr Gegham Muradya Mr Gevorg Torosyan		-		Ministry of Nature ceorology and Mo		
Sampling site						
Sampling site ID: N16		Type of sampling site: Spring «Darbnants»				
Inner diameter of well (mm): -		Distar	nce betwee	n land surface an	d well head (m): -	
Calm water level (m below well hea	-			ell (m below well	head): -	
Further information of the sampling	site (e.g.	coordina	tes): The spr	ing is captured.		
The spring is not used.						
Sampling						
	with pu	i		Abstraction devic		
Pumping duration (min): -	_	Abs	traction rat	te / discharge (I/s	ec): 1.0 l/sec	
Field parameters (at the sampling)			1.			
Weather: Colour:		Turbi	dity:	Sediment:	Smell:	
□ sunny □ colourless		<u>□ no</u>		<u>□ no</u>	□ odorless	
□ cloudy □ slight □ changing □ strong		□ low	derate	Iow moderate	 putrid fishy 	
□ changing □ strong □ rain □ brown				□ moderate □ strong	□ nsny □ chemical	
□ heat □ grey			ч <u>в</u>			
□ frost □ yellow					□ gasoline/oil	
Measuring device:		I		L		
pH-value: Water tempera	ture (°C)	:	Disso	olved oxygen (mg,	/l): TDS (mg/l)	
7.16 12.0	(-)			7.3	578	
Electrical conductivity incl. referenc	e tempe	rature	(µS/cm): 8	89 μS/cm 🛛 🗆 a	t 25 °C	
Sample treatment: <u> chilled</u>	-	trated		oilised with acid		
Contacts:						
Execution of the sampling and of the above Signature of sampler: Name of sampler:				g manual and the req :		

SAMPLING PROTO	DCOL – GROUNDWATER
Project:	"EU4Environment - Water Resources and Environmental Data" Project

General							
The location of	the sampling point: Ar	menia, Ta	vush Regio	on, Voskevan village			
The coordinates sampling point X=41°07′ 15.6″ Y=45° 04′ 6.4″ H= 926	of the			Antician of the second s			
Sampling Date:	June 21, 2023 Ti	ime (hh:m	m): 16:20	Sample ID:	N17		
	 Ms Armine Hakobyan Mr Gegham Muradyan Mr Gevorg Torosyan 	·	Institute	Ministry of Nature F eteorology and Moni			
Sampling site							
Sampling site ID	: N17	Туре	Type of sampling site: Spring				
Inner diameter o	of well (mm): -	Dista	nce betwe	en land surface and	well head (m): -		
	l (m below well head): -			vell (m below well he	ad): -		
	tion of the sampling site	(e.g. coordin	ates): The s	pring is captured.			
The spring is no	t used.						
Sampling				I			
	g: <u> </u>		-	Abstraction device:			
Pumping duration	· · ·	Ab	straction r	ate / discharge (l/sec	:): 0.3 l/sec		
-	rs (at the sampling)			1	1		
Weather:	Colour:	Turb	idity:	Sediment:	Smell:		
🗆 sunny	□ colourless	<u> </u>		<u>□ no</u>	odorless		
□ cloudy	slight	□ lov		□ low	putrid		
changing	□ strong	🗆 mo	oderate	moderate	🗆 fishy		
🗆 rain	🗆 brown	🗆 str	ong	□ strong	chemical		
🗆 heat	🗆 grey	□		□	□ chlor		
frost	□ yellow				gasoline/oil		
Measuring devi			I		1		
pH-value:	Water temperature	(°C):	Dis	solved oxygen (mg/l)			
7.43	13.6			7.96	482		
	ctivity incl. reference ten	•			25 °C		
Sample treatme	nt: <u>chilled</u> [☐ filtrated	🗆 sta	abilised with acid			
Contacts:							
	mpling and of the above works	s according			ements of the laborator		
Signature of sample Name of sampler:	er:		Da	te:	-		
manne of sampier:							

SAMPLING PROTO	SAMPLING PROTOCOL – GROUNDWATER						
Project:	"EU4Environment - Water Resources and Environmental Data" Project						

General								
The location of t	he sampling point:	Armer	ia, Tav	ush Regio	n, Voskepa	ar village		
The location of t The coordinates sampling point X=41°04' 17.5" Y=45°04' 14.8" H= 710		Armer	iia, Tav	rush Regioi	n, Voskepa	ar village		
		-			2		9 9	
Sampling Date:		Time	(hh:mi	n): 17:45	Sa	mple ID:	N18	
Sampling person	: Ms Armine Hakobyan Mr Gegham Muradyan Mr Gevorg Torosyan					of Nature F and Moni	Protection toring Center	
Sampling site								
Sampling site ID:	N18		Type of sampling site: Spring "Gharasu"					
Inner diameter o				-			well head (m): -	
	(m below well head): -		depth of w				
Further informat The spring is not Sampling	ion of the sampling s : used.	site (e.g.	coordina	tes): The sp	ring is cap	otured.		
Type of sampling	g: <u> </u>	with pu	mp 🗆	at a tap	Abstracti	on device:	bucket	
Pumping duratio	n (min): -		Abs	straction ra	nte / disch	arge (l/seo	c): 9.6 l/sec	
Field parameters	s (at the sampling)							
Weather:	Colour:		Turbi	dity:	Sedime	nt:	Smell:	
🗆 sunny	colourless		<u> </u>		<u> </u>		odorless	
cloudy	slight		□ low		□ low		🗆 putrid	
changing				derate	□ mode		□ fishy	
🗆 rain	🗆 brown		□ stro	ng	🗆 strong	-	□ chemical	
□ heat	□ grey		□		□		□ chlor	
🗆 frost	□ yellow						gasoline/oil	
Measuring devic		(0.5)			<u> </u>	<i>(</i> /)		
pH-value: 7.2	Water temperat 12.6	ure (°C)	:	Diss	olved oxy 7.09	gen (mg/l)	: TDS (mg/l) 195	
Electrical conduc	tivity incl. reference	tempe	rature	(µS/cm): 🗧	320 µS/cm	n 🗆 at 3	25 °C	
Sample treatmer	nt: <u> </u>	□ filt	rated	🗆 sta	bilised wit	h acid		
Contacts:								
Execution of the sam Signature of sampler Name of sampler:			-		-	nd the requir	ements of the laboratory. -	

SAMPLING PROTO	MPLING PROTOCOL – GROUNDWATER				
Project:	"EU4Environment - Water Resources and Environmental Data" Project				

General						
The location of the	sampling point: Armenia	, Tav	ush Region, A	ygehovit villa	ge	
The						
coordinates						
of the		* <i>21</i> ,		No. State		and the second se
sampling point				Contraction of the second		and the second second
X=40 ^o 58' 41.7"	The same when					and the second
Y=45° 14' 53.7"			Contraction of the second		and the second	
H= 709		5	1	AN SAL		
			2			March Car
			B. Jacobs		3	A CARLENS
						A A A A A A A A A A A A A A A A A A A
	week of the state		and the second second	The state of the		く、「黄いい」
		STO NO				
						NUM
Sampling Date: Jui	ne 22, 2023 Time	(hh:r	nm): 10:00	Sampl	e ID:	N19
Sampling person: N		-		/inistry of Na	turo Di	rotection
	Ir Gegham Muradyan			eorology and		
	Ir Gevorg Torosyan		Injuroniet		wionit	
Sampling site		1				
Sampling site ID: N2			e of sampling		-	
Inner diameter of w						vell head (m): -
Calm water level (m	n below well head): -	Fina	l depth of we	ll (m below w	ell hea	ad): -
	n of the sampling site (e.g.	coord	inates): The spr	ing is capture	ed. The	e spring is utilized for
drinking water sup	ply.					
Sampling						
Type of sampling:	<u>🗆 with bailer</u> 🗆 with pເ	Imp	🗆 at a tap 🛛 A	Abstraction d	evice:	bucket
Pumping duration (min): -	A	bstraction rat	e / discharge	(l/sec)	: 0.02 l/sec
Field parameters (a	at the sampling)					
Weather:	Colour:	Tur	bidity:	Sediment:		Smell:
<u>□ sunny</u>	colourless	<u> </u>	<u>o</u>	<u>□ no</u>		□ odorless
□ cloudy	🗆 slight	□ lo	w	□ low		🗆 putrid
changing	strong	□ m	oderate	🗆 moderate		🗆 fishy
🗆 rain	🗆 brown	□ st	rong	strong		chemical
🗆 heat	🗆 grey	□		□		□ chlor
□ frost	🗆 yellow					gasoline/oil
Measuring device:						
pH-value:	Water temperature (°C):	Dissolved ox	ygen (mg/l):		TDS (mg/l)
7.37	14.0		9.14			571
Electrical conductiv	ity incl. reference tempe	ratur	e (µS/cm): 9	25 μS/cm	🗆 at 2	5 °C
Sample treatment:	<u>□ chilled</u>	trate	d 🗆 stab	ilised with ac	id	
Contacts: Head of A	Aygehovit administrative	distri	ct: Levon Grig	goryan (Tel +	·37493	-433-182)
	pling and of the above worl	ks acc	ording to the s	ampling manu	al and t	he requirements of the
laboratory.						
Signature of sampler:	·			Date:		
Name of sampler:						

SAMPLING PROTO	DCOL – GROUNDWATER
Project:	"EU4Environment - Water Resources and Environmental Data" Project

General								
The location of	the sampling point: Arr	nenia,	, Tavush Regio	on, Va	azashen villa	ge		
The coordinate	s							
of the						Langer of		
sampling point						£		
X=40 ^o 59' 54.8"	,				in the second			
Y=45 ⁰ 17' 52.4'	,							
H= 704								
					Se l	1		
					1	1	- Alexandre	
					1		100 A.C. 100	
					1	X	10 State	
Sampling Date:	June 22, 2023	Time	(hh:mm): 11:	10	Sampl	e ID:	N20	
Sampling perso	n: Ms Armine Hakobyan		Institu	ite: N	/linistry of Na	ture P	rotection	
	Mr Gegham Muradyan				•		toring Center	
a 11 11	Mr Gevorg Torosyan	_						
Sampling site	N N 20		T (. 12		V - I -		
Sampling site I					site: Spring «Yolomil» I land surface and well head (m): -			
Inner diameter	· · · ·							
	el (m below well head):				ll (m below w		ad): -	
	ation of the sampling sit				ing is capture	ed.		
	emporary, utilized for d	Irinkir	ng water supp	oiy.		_		
Sampling	· · · · · · · · · · · · · · · · · · ·	·					h l l	
	-	ith pu			Abstraction d			
Pumping durat	· ·		Abstractio	n rat	e / discharge	(I/sec): 0.15 l/sec	
	ers (at the sampling)						C	
Weather:	Colour:		Turbidity:		Sediment:		Smell:	
<u>□ sunny</u>	<u>colourless</u>		<u>no</u>		<u> </u>			
□ cloudy	□ slight		□ low				□ putrid □ fishy	
□ changing	□ strong		□ moderate		□ moderate			
□ rain □ boot	□ brown		□ strong		□ strong		 chemical chlor 	
□ heat □ frost	□ grey □ yellow		□		□		□ gasoline/oil	
Measuring dev		ro (°C)	Discolved	0.000	ran (mg/l)			
pH-value: 7.18	Water temperatur 15.7	re (C)		0xyg .2	gen (mg/l):		TDS (mg/l) 701	
		omno			078 us/cm	🗆 at 2		
	uctivity incl. reference to ent:			-	ilised with ac		15 L	
Sample treatme						-		
	of Vazashen administra sampling and of the abov				, ,			
laboratory.	sampling and of the abov		s according to	the Sa	amping manu	ai di 10 1	the requirements of the	
	pler:				Date:			
Name of sample								
·								

Project:	"EU4Environment - W	"EU4Environment - Water Resources and Environmental Data" Project							
General									
The location of t	he sampling point: Armen	ia, Ta	avush Region, P	aravakar villa	ge				
The coordinates					. da ta				
of the					A.	A MART			
sampling point				the start of the	and the same				
				and the second					
X=40 ^o 58' 56.3"					A Elas	Town of the second			
Y=45 ^o 21' 59.5"					all the	CA WELL			
H= 762m				a start					
					11	and the second			
					A Service Law				
						and the second			
					24	A CONTRACTOR			
Sampling Date:	June 22. 2023 Tim	ne (hł	n:mm): 12:30	Sampl	e ID:	N21			
	: Ms Armine Hakobyan			· · · ·					
1 01	, Mr Gegham Muradyan			Ministry of Na teorology and					
	Mr Gevorg Torosyan		нуштотте	teorology and	wonitor	ing center			
Sampling site									
Sampling site ID:	N21		Type of sampling site: Spring						
Inner diameter o	f well (mm): -	Di	stance betwee	n land surface	e and wel	l head (m): -			
	(m below well head): -		Final depth of well (m below well head): -						
Further informat	ion of the sampling site (e	.g. coo	rdinates): The spi	ring is capture	ed.				
The spring is no	t used.								
Sampling									
Type of sampling	;: <u>□ with bailer</u> □ with	pump	o 🗆 at a tap	Abstraction d	evice: bı	ucket			
Pumping duratio	n (min): -		Abstraction ra-	te / discharge	(I/sec):	1.98 l/sec			
Field parameters	s (at the sampling)								
Weather:	Colour:	Τι	urbidity:	Sediment:	S	mell:			
🗆 sunny	colourless		no	<u> </u>		odorless			
□ cloudy	🗆 slight		low	□ low		putrid			
changing	strong		moderate	moderate		fishy			
🗆 rain	🗆 brown		strong	□ strong		chemical			
🗆 heat	□ grey			□		chlor			
frost	□ yellow					gasoline/oil			
Measuring devic	e:								
pH-value:	Water temperature (°C):	Dissolved oxy	gen (mg/l):		TDS (mg/l)			
7.23	13.2		8.03			1233			
Electrical conduc	tivity incl. reference temp	perat	ure (µS/cm): 1	L898 μS/cm	🗆 at 25 '	°C			
Sample treatmer		filtra		pilised with ac					
	(Tel +37493-11-51-81)								
	pling and of the above works a	ccord	ing to the sampling	g manual and the	requireme	ents of the laborator			
	:			-					
Name of sampler:									

Project:	"EU4Environment - Wa	ter Re	sources and	Environment	al Data	" Proiect	
General						,	
The location of the	sampling point: Armenia	, Tavı	sh Region, Ve	erin Tsaghkav	an vill	age	
The coordinates			0				
of the				sets i al	All and the		
sampling point					No.	ALL SAL	
				S. C. C.			
X=40 ^o 56' 28.3"				all less			
Y=45° 20' 3.0"					T	A CARLE	
H= 796m					Res /		
						A COLORADO	
				and the second			
						The second	
					1985	The second s	
				1 Cartan		Carl Carl Carl	
Sampling Date: Ju	ne 22, 2023 Time	(hh:n	וm): 13.45	Sample	e ID:	N22	
Sampling person: I				i		rataction	
	, Mr Gegham Muradyan		Institute: Ministry of Nature Protection 'Hydrometeorology and Monitoring Center				
	VIr Gevorg Torosyan		Hydromete		WOIIII		
Sampling site							
Sampling site ID: N		Type of sampling site: Spring "Alposi"					
Inner diameter of v	vell (mm): -	Distance between land surface and well head (m): -					
Calm water level (r	n below well head): -	Fina	l depth of we	ll (m below w	ell hea	ad): -	
Further informatio	n of the sampling site (e.g.	coordir	nates): The spri	ng is not cap	tured.		
The spring is not u	ısed.						
Sampling							
Type of sampling:	□ with bailer □ with pu	ımp	🗆 at a tap 🛛 A	Abstraction de	evice:	bucket	
Pumping duration	(min): -	Ab	ostraction rate	e / discharge	(l/sec)	: 0.16 l/sec	
Field parameters (at the sampling)						
Weather:	Colour:	Turb	oidity:	Sediment:		Smell:	
<u>□ sunny</u>	colourless	□ no	<u>)</u>	<u> </u>		odorless	
□ cloudy	🗆 slight	□ lov	N	□ low		🗆 putrid	
changing	□ strong	□ mo	oderate	🗆 moderate		🗆 fishy	
🗆 rain	🗆 brown	🗆 str	rong	□ strong		🗆 chemical	
🗆 heat	🗆 grey					□ chlor	
□ frost	□ yellow					gasoline/oil	
Measuring device:						, <u> </u>	
pH-value:	Water temperature (°C): D	issolved oxyg	en (mg/l):		TDS (mg/l)	
7.23	13.6		7.3			686	
	vity incl. reference tempe	rature		055 μS/cm	🗆 at 2		
Sample treatment:		trated		ilised with ac			
•	Verin Tsaghkavan adminis					6-64-63)	
	ing and of the above works acc					-	
Signature of sampler: _	• 					,	
Name of sampler:							

	OL – GROUNDWATER		_		
Project:	"EU4Environment	t - Water	Resources an	id Environment	al Data" Project
General					
	he sampling point: Arr	menia, Ta	avush Region,	Verin Tsaghkav	van village
The coordinates					
of the					
sampling point					Add the second
					The states
X=40 ⁰ 56' 28.3" Y=45 ⁰ 20' 3.0"					marties
H= 796m				1	S FARLE MAR
Sampling Date:	lune 22, 2023	Time (hł	n:mm): 15:15	Sampl	e ID: N23
	: Ms Armine Hakobyan			i	
Mr Gegham Muradyan				-	ture Protection
	Mr Gevorg Torosyan		Hydrom	eteorology and	Monitoring Center
Sampling site					
Sampling site ID	: N22	-		ng site: Spring '	
Inner diameter o	of well (mm): -	Di	istance betwe	en land surface	e and well head (m): -
Calm water leve	l (m below well head):	- Fi	nal depth of v	vell (m below w	vell head): -
Further information	tion of the sampling si	te (e.g. coo	rdinates): The s	pring is capture	ed.
The spring is no	t used.				
Sampling					
Type of sampling	g: <u> with bailer</u> w	ith pump	o 🗆 at a tap	Abstraction d	evice: bucket
Pumping duration	on (min): -		Abstraction r	ate / discharge	(l/sec): 1.0 l/sec
Field parameter	s (at the sampling)				
Weather:	Colour:	Τι	urbidity:	Sediment:	Smell:
🗆 sunny	□ colourless		<u>no</u>	<u>□ no</u>	odorless
□ cloudy	slight		low	□ low	🗆 putrid
□ changing	□ strong		moderate	moderate	🗆 fishy
🗆 rain	□ brown		strong	□ strong	□ chemical
🗆 heat	🗆 grey			□	□ chlor
🗆 frost	□ yellow				gasoline/oil
Measuring device		I		•	· · ·
pH-value:	Water temperatu	re (°C):	Dissolved ox	(ygen (mg/l):	TDS (mg/l)
7.29	9.6	. /	8.3		847
1.25	ctivity incl. reference t	emperat		950 μS/cm	□ at 25 °C
	.,	-		abilised with ac	
Electrical conduc	nt: 🗆 chilled	🗌 tiitrai	LEU II.DU		-
Electrical conduc Sample treatme		□ filtrat			
Electrical conduc Sample treatme Contacts: Armer	(Tel +37493-181-17	1)			e requirements of the laborator

SAMPLING PROTOCOL -	GROUNDWATER
Project:	"EU4Environment - Water Resources and Environmental Data" Project

General						
The location of t	the sampling point: Arme	nia, Ta	avush Region, B	erd city		
The coordinates				Contraction of the second		
of the			3 m. 21	A	and the second	
sampling point				and the second	the second second	
					le la strat	and the second sec
X=40 ^o 52' 44.5"					Se in the	
Y=45° 23' 16.5"						
H= 939m				A state of the state		an al
			and the			
			•	Ke Manul		-
				11 128		
Sampling Date:	June 22, 2023 Tir	me (hl	h:mm): 16:40	Sampl	e ID: N24	
Sampling persor	1: Ms Armine Hakobyan		Institute: N	Ministry of Na	ture Protection	
	Mr Gegham Muradyan				Monitoring Center	
	Mr Gevorg Torosyan		Tryaromet			
Sampling site	. ND4	.		aitas Casina I	In a::::II	
Sampling site ID			Type of sampling site: Spring "Miji" Distance between land surface and well head (m): -			
Inner diameter						
	l (m below well head): -		nal depth of we		•	
	tion of the sampling site	(e.g. coc	ordinates): The spr	ing is capture	ed.	
	lized for drinking water.					
Sampling						
	g: <u> with bailer</u> with	pum			evice: bucket	
Pumping duration	<u>· · ·</u>		Abstraction rat	te / discharge	(l/sec): 0.7 l/sec	
	rs (at the sampling)					
Weather:	Colour:	T	urbidity:	Sediment:	Smell:	
🗆 sunny	colourless		no	<u> </u>	odorless	
cloudy	slight		low	□ low	🗆 putrid	
changing	strong		moderate	moderate	🗆 fishy	
🗆 rain	🗆 brown		strong	strong	chemical	
🗆 heat	□ grey			□	□ chlor	
frost	□ yellow				gasoline/oil	
Measuring devi			1			
pH-value:	Water temperature	(°C):	Dissolved oxy	gen (mg/l):	TDS (mg/l)	
7.49	11.0		8.78		302	
Electrical condu	ctivity incl. reference tem	•			□ at 25 °C	
Sample treatme	nt: <u>chilled</u> 🗆	i filtra	ted 🗆 stab	oilised with ac	id	
Contacts:						
	mpling and of the above works					itory.
Signature of sample Name of sampler:	er:		Date	:		
vanie of sampler.						

Project:	"EU4Environment - Wa	ter Resources	and	Environmental Data	a" Project
General	E04Environment wa		unu		
	sampling point: Armenia		n l	usadzor villago	
The coordinates	Sampling point. Armenia	, ravasir negic	, II, E		
of the					
sampling point X=40° 56' 03.3"					A Charles
X=40° 56 03.3 Y=45° 08' 25.3"					
H= 706m				A CONTRACTOR	19.02
					AS CONTRACT
				A BALLARS	
					Spectra Lat
				a state in	9 States
		<u> </u>		11-26 0	
Sampling Date: Ju		(hh:mm): 17:2	22	Sample ID:	N25
Sampling person: N	As Armine Hakobyan Ar Gegham Muradyan			Ministry of Nature P	
	Ar Gevorg Torosyan	'Hydro	met	teorology and Monit	toring Center
Sampling site					
Sampling site ID: N	25	Type of same	ling	site: Spring «Zani»	•
Inner diameter of v				n land surface and v	
	n below well head): -			ell (m below well hea	
	n of the sampling site (e.g				
Sampling				0	
Type of sampling:	□ with bailer □ with pu	ump 🗆 at a ta	p .	Abstraction device:	bucket
Pumping duration				te / discharge (l/sec	
Field parameters (a		71050100010	110		<u>, </u>
Weather:	Colour:	Turbidity:		Sediment:	Smell:
	□ colourless	-			
<u>□ sunny</u> □ alaudu		<u>□ no</u>			<u>odorless</u>
□ cloudy	□ slight	□ low			□ putrid
□ changing	□ strong	moderate		moderate	□ fishy
□ rain	🗆 brown	□ strong		□ strong	chemical
🗆 heat	□ grey	□		□	□ chlor
□ frost	□ yellow				gasoline/oil
Measuring device:	· · ·	, I		1 1 15	
pH-value:	Water temperature (°C): Disso		d oxygen (mg/l):	TDS (mg/l)
7.34	13.0 °C		7.78		357
	vity incl. reference tempe	11 1			25 °C
Sample treatment:	<u>□ chilled</u> □ fil	trated 🗆	stab	oilised with acid	
Contacts:					
Execution of the sam	pling and of the above wor	ks according to	the s	ampling manual and t	the requirements of the
laboratory.					
Signature of sampler	:			Date:	
Name of sampler:					
	OCOL – GROUNDWAT				
Project:	"EU4Environment - Wa	ter Resources	and	Environmental Data	a" Project

General								
	e sampling point Ar	menia	. Tavus	h Region, L	usadzor village			
The coordinates) Tartas					
of the			A.C.	The state		L. J. This		
sampling point		1	12:0	Ros				
X=40 ⁰ 56' 22.8"			and a	THE PAR				
Y=45 [°] 09' 47.7"			1 and			THE AND AND A		
					and the distance			
H= 594								
				MAN-	BORS N			
					A Stand			
				ALL S				
				- LL				
		1.1	arta ta	ET 2	AN TON LOS			
				A Standard				
			A.C.	5 RANGE				
				A States		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
Sampling Date: Ju	ine 22, 2023	Time	(hh:mr	n): 17:55	Sample ID:	N26		
Sampling person: 1	Ms Armine Hakobyan			Institute: N	Ainistry of Nature	Protection		
	Mr Gegham Muradyan				eorology and Mon			
	Mr Gevorg Torosyan			Tryaronnea				
Sampling site			1					
Sampling site ID: N				pe of sampling site: Well				
Inner diameter of v	well (mm): 400			Distance between land surface and well head (m): 0.40				
Calm water level (m be	elow well head): (-3.6)		Final	Final depth of well (m below well head): 5				
Further informatio	n of the sampling si	te (e.g.	coordina	tes): The we	ll was drilled in 20	19. The well is located		
in the area of Vige	n Nerkararyan.The	well is	s utilize	ed for fish f	arming.			
Sampling								
Type of sampling:								
	<u> </u>	/ith ba	iler 🗆	at a tap	Abstraction device	: bucket		
Pumping duration		ith ba	1		Abstraction device e / discharge (I/se			
Pumping duration	(min): -	/ith ba	1					
Pumping duration Field parameters ((min): -	ith ba	Abs	traction rat	e / discharge (l/se	c): 5.3 l/sec		
Pumping duration Field parameters (Weather:	(min): - at the sampling) Colour:	vith ba	Abs Turbi	traction rat	e / discharge (l/se	c): 5.3 l/sec		
Pumping duration Field parameters (Weather: sunny	(min): - at the sampling) Colour: <u>colourless</u>	vith ba	Abs Turbic	traction rat	e / discharge (l/se Sediment:	c): 5.3 l/sec Smell: odorless		
Pumping duration Field parameters (Weather: <u>sunny</u> cloudy	(min): - at the sampling) Colour: <u>colourless</u> slight	<u>vith ba</u>	Abs Turbio <u>no</u> low	traction rat	e / discharge (l/se Sediment: <u>no</u> low	c): 5.3 l/sec Smell: odorless putrid		
Pumping duration Field parameters (Weather: <u>sunny</u> cloudy changing	(min): - at the sampling) Colour: <u>colourless</u> slight strong	vith ba	Abs Turbi <u>no</u> low mod	traction rat	se / discharge (l/se Sediment: <u>no</u> low moderate	c): 5.3 l/sec Smell: odorless putrid fishy		
Pumping duration Field parameters (Weather: <u>sunny</u> cloudy changing rain	(min): - at the sampling) Colour: <u>colourless</u> slight strong brown	<u>vith ba</u>	Abs Turbic <u>no</u> low mod stro	traction rat dity: derate ng	Sediment: <u>no</u> low moderate strong	c): 5.3 l/sec Smell: <u>odorless</u> putrid fishy chemical		
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	e sampling point: Arn	nema	, Tavush Region,	Ganuzau	lar village	
The coordinates						N
of the						A CONTRACT OF A
sampling point						
X=40 ^o 50' 47.3"						
Y=45 ^o 09' 30.3"						
H= 894						
Sampling Data:	una 22 2022	Time	(hhumm), 10,00		Cample ID:	NOT
Sampling Date: J		ime	(hh:mm): 10:00		Sample ID:	N27
Sampling person:	Ms Armine Hakobyan Mr Gegham Muradyan				/ of Nature P	
	Mr Gevorg Torosyan		'Hydrom	eteorolo	gy and Moni	toring Center
Sampling site						
Sampling site ID:	N27		Type of samplir	ng site: S	pring «Dudi	nants»
Inner diameter of	well (mm): -		Distance betwe	en land s	surface and v	vell head (m): -
Calm water level	(m below well head):	-	Final depth of v			
				ven (m bi		au)
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General						
	sampling point: Armenia	, Tavus	h Region, H	ovq village		
The coordinates	1 01	,	<u> </u>		and the second s	
of the				No. AN		
sampling point				No the second	a water a	
X=40 ⁰ 47′30.7″				3		
Y=45 ⁰ 03' 43.4"						
H= 881					A CALL CALL	
					1 2 2 2	
				A CANA		
				1 AND	A	
	1				THE HE A	
Sampling Date: Ju		(hh:mr	n): 10:45	Sample ID:	N28	
Sampling person: N			Institute: N	/linistry of Nature P	rotection	
	Ar Gegham Muradyan			eorology and Monit		
Sampling site	Ar Gevorg Torosyan		•			
Sampling site ID: N	20	Type	of compling	cito: Spring «Shng	2 r.)	
		Type of sampling site: Spring «Shnqar»				
Inner diameter of v		Distance between land surface and well head (m): - Final depth of well (m below well head): -				
	n below well head): -			-	-	
	n of the sampling site (e.g.	coordina	tes): The spr	ing is not captured	and not used.	
Sampling					h	
Type of sampling:		1	•	Abstraction device:		
Pumping duration		Abs	traction rat	e / discharge (l/sec)	: 0.3 l/sec	
Field parameters (C	C	
Weather:	Colour:	Turbio	dity:	Sediment:	Smell:	
<u>sunny</u>	<u>colourless</u>	<u> </u>		<u>no</u>	odorless	
□ cloudy	□ slight	□ low			□ putrid	
changing			derate	moderate	🗆 fishy	
🗆 rain	1 I					
- 6	□ brown	□ stro	0	□ strong	chemical chemical	
□ heat	🗆 grey		ng 	□ strong □	🗆 chlor	
🗆 frost			0	•		
frost Measuring device:	□ grey □ yellow	□		· · · · · · · · · · · · · · · · · · ·	□ chlor □ gasoline/oil	
 frost Measuring device: pH-value: 	□ grey □ yellow Water temperature (°C	□	Dissolved	Oxygen (mg/l):	□ chlor □ gasoline/oil TDS (mg/l)	
 frost Measuring device: pH-value: 7.32 	□ grey □ yellow Water temperature (°C 10.9 °C):	Dissolved	Oxygen (mg/l): 8	□ chlor □ gasoline/oil TDS (mg/l) 257	
 frost Measuring device: pH-value: 7.32 Electrical conductive 	□ grey □ yellow Water temperature (°C 10.9 °C ⁄ity incl. reference tempe): rature	Dissolved 9.2 (µS/cm): 3	ο l oxygen (mg/l): 8 892 μS/cm α at 2	□ chlor □ gasoline/oil TDS (mg/l) 257	
 frost Measuring device: pH-value: 7.32 Electrical conductive Sample treatment: 	□ grey □ yellow Water temperature (°C 10.9 °C ⁄ity incl. reference tempe <u>□ chilled</u> □ fil): rature	Dissolved 9.2 (µS/cm): 3 □ stab	ο l oxygen (mg/l): 8 392 μS/cm α at 2 ilised with acid	□ chlor □ gasoline/oil TDS (mg/l) 257 5 °C	
 □ frost Measuring device: pH-value: 7.32 Electrical conductive Sample treatment: Contacts: Head of Head of Head 	□ grey □ yellow Water temperature (°C 10.9 °C ⁄ity incl. reference tempe <u>□ chilled</u> □ fil Hovq administrative distr): rature trated ict: Hov	Dissolved 9.2 (µS/cm): 3 □ stab rhannes Nag	ο l oxygen (mg/l): 8 392 μS/cm α at 2 ilised with acid	□ chlor □ gasoline/oil TDS (mg/l) 257 5 °C	
 □ frost Measuring device: pH-value: 7.32 Electrical conductive Sample treatment: Contacts: Head of Head of	□ grey □ yellow Water temperature (°C 10.9 °C ⁄ity incl. reference tempe <u>□ chilled</u> □ fil Hovq administrative distr f the village: Marat (Tel +): rature trated ict: Hov 37498-	Dissolved 9.2 (µS/cm): 3 □ stab /hannes Nag 76-54-93)	 I oxygen (mg/l): 8 892 μS/cm □ at 2 ilised with acid ghdalyan (Tel +374) 	□ chlor □ gasoline/oil TDS (mg/l) 257 5 °C 77-05-15-51)	
 frost Measuring device: pH-value: 7.32 Electrical conductive Sample treatment: Contacts: Head of Hereident of Execution of the same 	□ grey □ yellow Water temperature (°C 10.9 °C ⁄ity incl. reference tempe <u>□ chilled</u> □ fil Hovq administrative distr): rature trated ict: Hov 37498-	Dissolved 9.2 (µS/cm): 3 □ stab /hannes Nag 76-54-93)	 I oxygen (mg/l): 8 892 μS/cm □ at 2 ilised with acid ghdalyan (Tel +374) 	□ chlor □ gasoline/oil TDS (mg/l) 257 5 °C 77-05-15-51)	
 □ frost Measuring device: pH-value: 7.32 Electrical conductive Sample treatment: Contacts: Head of Heatment of the same laboratory. 	□ grey □ yellow Water temperature (°C 10.9 °C ⁄ity incl. reference tempe <u>□ chilled</u> □ fil Hovq administrative distr f the village: Marat (Tel + pling and of the above work	ict: Hov	Dissolved 9.2 (µS/cm): 3 □ stab rhannes Nag 76-54-93) ding to the s	 I oxygen (mg/l): 8 392 μS/cm □ at 2 ilised with acid ghdalyan (Tel +374 ampling manual and t 	□ chlor □ gasoline/oil TDS (mg/l) 257 5 °C 77-05-15-51) he requirements of the	
 □ frost Measuring device: pH-value: 7.32 Electrical conductive Sample treatment: Contacts: Head of Heatment of the same laboratory. Signature of sampler 	□ grey □ yellow Water temperature (°C 10.9 °C ⁄ity incl. reference tempe <u>□ chilled</u> □ fil Hovq administrative distr f the village: Marat (Tel +	ict: Hov	Dissolved 9.2 (µS/cm): 3 □ stab rhannes Nag 76-54-93) ding to the s	 I oxygen (mg/l): 8 392 μS/cm □ at 2 ilised with acid ghdalyan (Tel +374 ampling manual and t 	□ chlor □ gasoline/oil TDS (mg/l) 257 5 °C 77-05-15-51) he requirements of the	
 □ frost Measuring device: pH-value: 7.32 Electrical conductive Sample treatment: Contacts: Head of Hereident of the same laboratory. Signature of sampler: Name of sampler: 	□ grey □ yellow Water temperature (°C 10.9 °C ⁄ity incl. reference tempe <u>□ chilled</u> □ fil Hovq administrative distr f the village: Marat (Tel + pling and of the above work	ict: Hov	Dissolved 9.2 (µS/cm): 3 □ stab rhannes Nag 76-54-93) ding to the s	 I oxygen (mg/l): 8 392 μS/cm □ at 2 ilised with acid ghdalyan (Tel +374 ampling manual and t 	□ chlor □ gasoline/oil TDS (mg/l) 257 5 °C 77-05-15-51) he requirements of the	
 frost Measuring device: pH-value: 7.32 Electrical conductive Sample treatment: Contacts: Head of Heatment: Contacts: Head of Heatment: Execution of the same laboratory. Signature of sampler 	□ grey □ yellow Water temperature (°C 10.9 °C ⁄ity incl. reference tempe <u>□ chilled</u> □ fil Hovq administrative distr f the village: Marat (Tel + pling and of the above work	ict: Hov 37498-	Dissolved 9.2 (µS/cm): 3 □ stab rhannes Nag 76-54-93) ding to the s	I oxygen (mg/l): 8 392 μS/cm □ at 2 ilised with acid ghdalyan (Tel +374 ampling manual and t 	□ chlor □ gasoline/oil TDS (mg/l) 257 5 °C 77-05-15-51) he requirements of the	

General				
	sampling point: Armenia	Gegharghunik Re	gion Chambarak vi	llage
The coordinates	Samping point. Armellia			
of the				
sampling point				
X=40 ⁰ 36' 17.3"				
Y=45 [°] 21' 26.1"			Contraction of the second	
H= 1849m			A A	
				ALL D
			and the second second	and the second
			2 MANARA	ALL BAR
				The second second
Sampling Date: Ju	ne 23, 2023 Time	(hh:mm): 12.30	Sample ID:	N29
Sampling person: 1	· · · · · · · · · · · · · · · · · · ·	· /		rotaction
	Mr Gegham Muradyan		Ministry of Nature P	
	Vr Gevorg Torosyan	пуштотте	teorology and Moni	
Sampling site		1		
Sampling site ID: N	29		g site: Spring «Med	
Inner diameter of v	well (mm): -	Distance betwee	en land surface and v	vell head (m): -
Calm water level (r	n below well head): -	Final depth of we	ell (m below well he	ad): -
Further informatio	n of the sampling site (e.g.	coordinates): The sp	ring is captured and	not used.
Sampling				
Type of sampling:	□ with bailer □ with pu	imp 🗆 at a tap	Abstraction device:	bucket
Pumping duration	(min): -	Abstraction ra	te / discharge (l/sec): 0.17 l/sec
Field parameters (at the sampling)			
Weather:	Colour:	Turbidity:	Sediment:	Smell:
🗆 sunny	colourless	<u> </u>	<u>□ no</u>	odorless
□ cloudy	🗆 slight	□ low	□ low	🗆 putrid
changing	□ strong	🗆 moderate	moderate	🗆 fishy
🗆 rain	🗆 brown	□ strong	□ strong	🗆 chemical
🗆 heat	🗆 grey	□	□	🗆 chlor
🗆 frost	□ yellow			gasoline/oil
Measuring device:				
pH-value:	Water temperature (°C): Dissolve	d oxygen (mg/l):	TDS (mg/l)
7.22	8.1		8.21	420
Electrical conductiv	vity incl. reference tempe	rature (µS/cm):	647 μS/cm 🛛 🗆 at 2	25 °C
Sample treatment:			bilised with acid	
	an Arshak (Tel +374-91-9			
	pling and of the above work		sampling manual and	the requirements of the
laboratory.		<u> </u>		
-	•		Date:	
Name of sampler:				
Name of sampler: Project:	"EU4Environment - Wa	ter Resources and	Environmental Data	a" Project

The location of the	e sampling point Ar	menia,	Tav	ush Region,	Margah	ovit village	
The coordinates	1 01	,			0		A Contrate Star
of the							
sampling point						and the second	A REAL COLOR
X=40 ^o 43' 59.2"						A BAL	
Y=44 ^o 41' 30.5"							Ser and and
H= 1737							
Sampling Date: Ju	ine 23, 2023	Time	(hh:r	nm): 14:10		Sample ID:	: N30
Sampling person:		1			N 41		
	Mr Gegham Muradyan Mr Gevorg Torosyan					•	Protection nitoring Center
Sampling site				•			
Sampling site ID: N	22		Type of sampling site: Well				
Inner diameter of	well (mm): 124		Distance between land surface and well head (m): 0.36				
Calm water level (m be	elow well head): (-11.9	92)	Final depth of well (m below well head): 30				
							020. The well is located
-	en Bekchyan.The w	ell is ut	ilize	d for drinkir	ng and i	rrigation w	ater by the owner.
Sampling		vith bai	lor		Abstra	ction devic	o: huskat
Type of sampling:			1	□ at a tap			
Pumping duration				bstraction ra	ate / dis	charge (1/so	ec): 0.06 l/sec
Field parameters (T	. : . : . : . : . : . : . : . : . : . :	Cadi		Creally
Weather:	Colour:			oidity:		ment:	Smell:
<u>□ sunny</u> □ sloudu	<u>colourless</u>				<u>□ no</u>		<u>odorless</u>
□ cloudy	□ slight						□ putrid
□ changing	□ strong			oderate		oderate	□ fishy
□ rain	□ brown			rong	□ str	-	 chemical chlor
□ heat	□ grey		□		□		
□ frost	□ yellow						gasoline/oil
Measuring device:		(°C)	_	Discoluted			
pH-value:	Water temperatu	ire (°C)	•	Dissolved o	oxygen (mg/1):	TDS (mg/l)
7.8	9.4	+		6.65	202		248
	vity incl. reference	temper D filt			•	s/cm ∣□ a with acid	t 25 °C
Sample treatment					IDIIISEU		
Execution of the sampling	ner: Arsen Bekchyai g and of the above works a				I and the r	equirements of	the laboratory.
Signature of sampler: Name of sampler:				Date:			

SAMPLING PROT	OCOL – GROUND\	NATER					
Project:	"EU4Environment	- Wate	r Resources and	d Environment	al Data" Project		
General					-		
The location of the	sampling point: Arr	nenia, T	avush Region,	Dilijan city, Sh	amaghyan, Str.Ayge	stan	
The coordinates	and the second			and the second second	A AND A AND		
of the		and the second	State State	Charles the		A.	
sampling point	Mar And	and the second	A STATE OF		and the second second	- to	
	a state of	Ten Ind	Ration of the second		15 15	7	
X=40 ⁰ 45' 0.01"		and with	A A AREA		3-3 S		
Y=44 ⁰ 49' 45.6"		Sol -		2	water and a		
H= 1465	the second second				Men Ant	Latin a	
			and the second second	A Cost	and the state	Hard Street	
	Net Contraction				The Participation of the Parti	1-12-14	
	CON Stands	AL AN	Sale and all	all the s	THE ALAS		
	1216 3	Mon	the start he		ar - Catton -	and in	
	the state of the s	17 43	Carlow Court (guilt				
Sampling Date: Ju	ne 23, 2023	Time (h	h:mm): 16:00	Sampl	e ID: N31	W. Harris (C.) Tota	
Sampling person: N	As Armine Hakobyan		Institute [.] Mi	nistry of Natur	e Protection		
	Ar Gegham Muradyan				onitoring Center		
	Ar Gevorg Torosyan		inyarometee				
Sampling site	.				-		
Sampling site ID: N			Type of sampling site: Spring «Qor»				
Inner diameter of v			Distance between land surface and well head (m): - Final depth of well (m below well head): -				
	n below well head):						
	n of the sampling sit				ed.		
	ed for drinking wate	er and li	vestock supply	/.			
Sampling		ith num		Abstraction d			
	□ with bailer □ w	ith pum	· · ·	Abstraction d			
Pumping duration (Abstraction ra	ate / discharge	(l/sec): 0.03 l/se	ec	
Field parameters (a	· •	-		Codiment	Creally		
Weather:	Colour:		urbidity:	Sediment:	Smell:		
<u>sunny</u> selaudur	<u> colourless</u>		<u>] no</u>	<u>□ no</u>			
□ cloudy	□ slight		Iow moderate	 low moderate 	□ putrid		
□ changing □ rain	 strong brown 				 fishy chemical 		
⊐ heat	□ grey		strong	□ strong	\Box chlor		
□ frost	□ yellow	L]		□ gasoline/o	il	
Measuring device:		[11	
pH-value:	Water temperatur	۰ <u>۹</u> (۴۲۱۰	Dissolved ox	vgen (mg/l)·	TDS (mg/l)		
7.39	12.7	c (c).	6.2	ygen (mg/i).	286		
	/ity incl. reference to	emnera	0.1	440 uS/cm	□ at 25 °C		
		□ filtra		bilised with ac			
Sample treatment.							
Sample treatment: Contacts: resident	of the village. Rusta					and th	
Contacts: resident	-	he sho	ve works acco	ording to the	sampling manual a		
Contacts: resident Execution of the	sampling and of t	he abo	ve works acco	ording to the	sampling manual a		
Contacts: resident Execution of the requirements of th	sampling and of t				sampling manual a		

SAMPLING PROT	OCOL – GROUND	WATE	R				
Project:	"EU4Environmen	t - Wat	ter Resources ar	nd Environment	al Data" Project		
General							
The location of the	e sampling point:	Armen	ia, Tavush Regio	n, Dilijan city, S	Str.Kalinin		
The coordinates o				11 ×			
sampling point							
X=40 ⁰ 44' 29.1"				A MAN	Subar Company		
Y=44 ⁰ 49' 47.7"				10-1			
H= 1345							
Sampling Date: Ju	upo 10, 2022	Timo	(hh.mm). 17.20	Sampl	e ID: N23		
Sampling person:	· · · · · · · · · · · · · · · · · · ·	Inne	(hh:mm): 17:20				
	Mr Gegham Muradyan			linistry of Natur			
	Mr Gevorg Torosyan		Hydromete	eorology and Mo	onitoring Center		
Sampling site							
Sampling site ID: N	123		Type of sampli	ng site: Spring	«Artzruni»		
Inner diameter of	well (mm): -		Distance betwe	istance between land surface and well head (m): -			
Calm water level (m below well head)	: -	Final depth of	well (m below w	vell head): -		
Further information	on of the sampling s	site (e.g	. coordinates): The	spring is captur	red. The spring is located in		
the yard of Arshal	k Markosyan.The sp	oring is	utilized for drin	nking water by t	the owner.		
Sampling							
Type of sampling:	□ with bailer □ v	vith pu	mp 🗆 at a tap	Abstraction d	evice: bucket		
Pumping duration	(min): -		Abstraction	rate / discharge	(l/sec): 0.01 l/sec		
Field parameters	(at the sampling)						
Weather:	Colour:		Turbidity:	Sediment:	Smell:		
<u>□ sunny</u>	colourless		<u>□ no</u>	<u> </u>	odorless		
□ cloudy	🗆 slight		□ low	□ low	🗆 putrid		
changing	□ strong		🗆 moderate	🗆 moderate	🗆 fishy		
🗆 rain	🗆 brown		strong	□ strong	🗆 chemical		
🗆 heat	🗆 grey		□		□ chlor		
□ frost	□ yellow				gasoline/oil		
Measuring device	:				÷		
pH-value:	Water temperatu	ıre (°C)	: Dissolved or	xygen (mg/l):	TDS (mg/l)		
7.47	13.1		6.40		587		
Electrical conducti	vity incl. reference	tempe	rature (µS/cm):	903 µS/cm	□ at 25 °C		
Sample treatment	: <u>chilled</u>	□ filt	trated 🗆 st	abilised with ac	id		
Contacts: land ow	ner: Arshak Markos	yan (Te	el +37494-94-30	-39)			
	npling and of the abo				al and the requirements of the		

Annex II: The results of laboratory analysis conducted in Northern RBD in 2023

Sam ple ID	Provie nce	Location of observation point	Type of observation point	Sampling date	Water temp. (°C) field	EC μS/cm (at 25°C) field	Dissolved oxygen mg/l, field	pH field	pH Lab.	Trans parency	Suspended particles. mg/l	Color: degree	Smell
1	Lori	Lernavan	Flowing borehole	6/19/2023	19.9	532	6.7	7.3	7.57	31	1.9	10	0
2	Lori	Katnadjur	spring («Qung»)	6/19/2023	10.4	329	8.84	8.0	8.03	31	1.1	10	0
3	Lori	Mets Parni	Flowing borehole	6/19/2023	12.6	386.6	8.19	7.9	8.03	31	1.6	10	0
4	Lori	Nor Khachakap	spring	6/19/2023	11.2	346	7.46	7.9	7.98	31	3.7	10	0
5	Lori	Darbas	spring	6/19/2023	12.4	549	8.38	7.9	7.95	31	0.9	10	1
6	Lori	Saratovka	Flowing borehole	6/20/2023	13.4	537	3.45	7.6	7.47	31	5.5	10	0
7	Lori	Saratovka	spring	6/20/2023	10.4	592	4.75	7.7	7.34	31	5.2	40	0
8	Lori	Tashir	Flowing borehole	6/20/2023	10.7	643	6.4	7.8	7.56	31	3.4	10	0
9	Lori	Stepanavan	Flowing borehole	6/20/2023	9.1	139.5	8.81	7.7	7.91	31	1.2	15	0
10	Lori	Getavan	Flowing borehole	6/20/2023	8.0	131	9.35	7.9	7.88	31	1	15	0
11	Lori	Lori berd	spring "Lusaghbyur"	6/20/2023	9.5	188	9.62	8.2	7.9	31	0.8	15	0
12	Lori	Tumanyan	spring "Kobayr"	6/21/2023	16.0	812	9.09	8.5	8.47	31	2.9	10	0
13	Lori	Shamlugh (Bendik)	spring ''Kakali taki''	6/21/2023	11.4	730	6.9	7.8	7.55	31	1.3	10	0
14	Tavush	Bagratashen	well	6/21/2023	14	254	6.86	8.01	8.05	31	25.3	20	0
15	Tavush	Berdavan	ground well	6/21/2023	12.4	914	5.2	7.12	7.48	31	4	10	1
16	Tavush	Jujevan	spring («Darbnants»)	6/21/2023	12.0	889	7.3	7.16	7.45	31	2.5	15	0
17	Tavush	Voskevan	spring	6/21/2023	13.6	742	7.96	7.43	7.76	31	3.7	10	0
18	Tavush	Voskepar	spring («Gharasu»)	6/21/2023	12.6	320	7.09	7.2	7.72	31	1.4	10	1
19	Tavush	Aygehovit	spring («Gyoli»)	6/22/2023	15.1	879	9.14	8.2	7.83	31	5.5	15	0
20	Tavush	Vazashen	spring («Yolomi»)	6/22/2023	14.8	1078	4.2	7.7	7.57	31	3.1	10	0

Table 5: The results of laboratory analysis conducted in Northern RBD in 2023

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Sam ple ID	Provie nce	Location of observation point	Type of observation point	Sampling date	Water temp. (°C) field	EC μS/cm (at 25°C) field	Dissolved oxygen mg/l, field	pH field	pH Lab.	Trans parency	Suspended particles. mg/l	Color: degree	Smell
21	Tavush	Paravakar	spring	6/22/2023	13.2	1898	8.03	7.23	7.83	31	7.4	10	0
22	Tavush	Verin Tsaghkavan	spring («Alposi»)	6/22/2023	13.6	1055	7.3	7.23	7.67	31	3.4	10	0
23	Tavush	Navur	spring («Medz»)	6/22/2023	9.6	950	8.3	7.29	7.75	31	1.9	10	0
24	Tavush	Berd	spring («Miji»)	6/22/2023	11.0	501	8.78	7.49	7.86	31	1.6	10	0
25	Tavush	Lusadzor	spring («Zani»)	6/22/2023	13.5	550	7.78	8.3	7.72	31	2.5	10	0
26	Tavush	Lusadzor	ground well	6/22/2023	15.0	525	7.11	8.3	7.66	31	2	10	1
27	Tavush	Gandzaqar	spring («Dudinyants»)	6/23/2023	13.4	459	7.8	7.6	7.62	31	1.5	10	0
28	Tavush	Hovq	spring («Shnqar»)	6/23/2023	11.4	392	9.28	7.7	7.65	31	1.8	10	0
29	Gegharkunik	Verin Chambarak	spring («Medz»)	6/23/2023	8.1	647	8.21	7.22	7.62	31	1.1	10	0
30	Tavush	Margahovit	well	6/23/2023	9.6	382	6.65	7.3	7.18	31	2.6	10	0
31	Tavush	Dilijan /Shamaghyan/	spring («Qor spring»)	6/23/2023	13.7	440	7.32	7.8	7.65	31	6.8	10	0
32	Tavush	Dilijan	spring «Artsruni»	6/23/2023	13.4	903	6.4	7.7	7.7	31	8.6	10	0

Sam ple ID	Provie nce	Location of observation point	Type of observation point	Sampling date	Hydrogen Carbonate, HCO ₃ g/L	Sulfate, SO₄. mg/L	Chloride, Cl. mg/L	Nitrate NO ₃ , mg/L	Nitrite NO2, mg/L	Ammonia, NH4, mg/L	Total Mine- ralization, mg/L
1	Lori	Lernavan	Flowing borehole	6/19/2023	353.916	9.5955	3.3063	8.77	0.011559	0.007926	346
2	Lori	Katnadjur	spring («Qung»)	6/19/2023	207.468	15.6699	2.5543	3.8261	0.008902	0.007926	214
3	Lori	Mets Parni	Flowing borehole	6/19/2023	244.08	4.955	3.8773	16.0821	0.016209	0.079255	252
4	Lori	Nor Khachakap	spring	6/19/2023	219.672	5.9526	2.726	12.1517	0.00837	0.295886	225
5	Lori	Darbas	spring	6/19/2023	274.59	29.0655	3.8967	33.8286	0.024978	0.042269	357
6	Lori	Saratovka	Flowing borehole	6/20/2023	451.548	71.0079	63.5872	0.1635	0.063907	0.528896	609
7	Lori	Saratovka	spring	6/20/2023	305.1	21.3804	17.3718	4.9246	0.010363	0.686878	384.8
8	Lori	Tashir	Flowing borehole	6/20/2023	317.304	23.2547	15.6741	33.2765	0.008636	0.082425	417.95
9	Lori	Stepanavan	Flowing borehole	6/20/2023	85.428	1.8162	2.9324	2.5232	0.008237	0.03223	90.35
10	Lori	Getavan	Flowing borehole	6/20/2023	79.326	2.4446	2.633	2.7295	0.009035	0.05178	85.15
11	Lori	Lori berd	spring "Lusaghbyur"	6/20/2023	106.785	3.7539	3.6941	4.3575	0.010762	0.047025	122.2
12	Lori	Tumanyan	spring "Kobayr"	6/21/2023	341.712	122.1803	13.2309	26.2256	0.009832	0.268939	527.8
13	Lori	Shamlugh (Bendik)	spring ''Kakali taki''	6/21/2023	372.222	52.0657	11.1042	33.8102	0.008769	0.097748	474.5
14	Tavush	Bagratashen	well	6/21/2023	115.938	27.4182	3.3745	4.7205	0.066962	0.152698	165.1
15	Tavush	Berdavan	ground well	6/21/2023	463.752	93.3513	17.9584	31.5829	0.008237	0.150585	594.1
16	Tavush	Jujevan	spring («Darbnants»)	6/21/2023	433.242	64.1828	23.0153	43.5645	0.006909	0.072386	577.85
17	Tavush	Voskevan	spring	6/21/2023	360.018	57.4546	12.3472	35.272	0.01023	0.108844	482.3
18	Tavush	Voskepar	spring («Gharasu»)	6/21/2023	292.896	48.3116	9.572	20.9474	0.009566	0.08401	387
19	Tavush	Aygehovit	spring («Gyoli»)	6/22/2023	500.364	31.6516	14.2801	35.1926	0.017936	0.234595	571.35
20	Tavush	Vazashen	spring («Yolomi»)	6/22/2023	512.568	231.7334	18.0023	1.9781	0.004517	0.318606	700.7
21	Tavush	Paravakar	spring	6/22/2023	402.732	681.7128	27.1414	56.8174	0.007573	0.022191	1233.7

Sam ple ID	Provie nce	Location of observation point	Type of observation point	Sampling date	Hydrogen Carbonate, HCO₃ g/L	Sulfate, SO₄. mg/L	Chloride, Cl. mg/L	Nitrate NO₃, mg/L	Nitrite NO2, mg/L	Ammonia, NH4, mg/L	Total Mine- ralization, mg/L
22	Tavush	Verin Tsaghkavan	spring («Alposi»)	6/22/2023	360.018	188.3558	15.273	27.4778	0.009035	0.290602	685.75
23	Tavush	Navur	spring («Medz»)	6/22/2023	402.732	30.6992	22.8529	66.4926	0.01023	0.587016	550.55
24	Tavush	Berd	spring («Miji»)	6/22/2023	366.12	23.6195	10.7323	27.1251	0.014349	0.159567	450
25	Tavush	Lusadzor	spring («Zani»)	6/22/2023	347.814	21.1334	4.6001	7.2923	0.015412	0.415297	358
26	Tavush	Lusadzor	ground well	6/22/2023	353.916	105.0452	15.2203	13.4313	0.017671	0.347666	508
27	Tavush	Gandzaqar	spring («Dudinyants»)	6/23/2023	237.978	36.411	4.6823	13.191	0.007839	0.10356	305
28	Tavush	Hovq	spring («Shnqar»)	6/23/2023	256.284	16.3502	3.3871	7.1802	0.00651	0.091936	269
29	Gegharkunik	Verin Chambarak	spring («Medz»)	6/23/2023	280.692	30.3966	17.2364	41.2868	0.007175	0.168549	421
30	Tavush	Margahovit	well	6/23/2023	219.672	31.3463	13.3941	37.1421	0.01302	0.078727	308
31	Tavush	Dilijan /Shamaghyan/	spring («Qor spring»)	6/23/2023	250.182	12.3848	4.1377	18.9187	0.006776	0.088237	286
32	Tavush	Dilijan	spring «Artsruni»	6/23/2023	439.344	62.3591	17.8506	39.1445	0.016873	0.212932	587

Sam ple ID	Provie nce	Location of observation point	Type of observation point	Sampling date	phosphate, PO₄, mg/L	silicon Si, mg/L	total biological oxygen requirement, mg/L	Bichro mate oxidati on,	Li mg/L	Be mg/L	B mg/L
1	Lori	Lernavan	Flowing borehole	6/19/2023	0.015107	6.101481	2.2	10	0.004656	<0.0001	0.050478
2	Lori	Katnadjur	spring («Qung»)	6/19/2023	0.026132	10.63536	3.03	10	0.000695	<0.0001	0.037079
3	Lori	Mets Parni	Flowing borehole	6/19/2023	0.082479	14.70752	2.12	10	0.001809	<0.0001	0.059376
4	Lori	Nor Khachakap	spring	6/19/2023	0.003675	6.540679	2.17	10	0.000249	<0.0001	0.043493
5	Lori	Darbas	spring	6/19/2023	0.038789	8.430359	2.78	10	0.000159	<0.0001	0.122499
6	Lori	Saratovka	Flowing borehole	6/20/2023	0.066146	18.95986	2.72	30	0.023266	<0.0001	0.099325
7	Lori	Saratovka	spring	6/20/2023	0.700252	16.61296	2.18	40	0.002455	<0.0001	0.076031
8	Lori	Tashir	Flowing borehole	6/20/2023	0.127393	19.75492	1.58	15	0.004982	<0.0001	0.083107
9	Lori	Stepanavan	Flowing borehole	6/20/2023	0.166999	18.95536	2.89	10	0.00458	< 0.0001	0.073949
10	Lori	Getavan	Flowing borehole	6/20/2023	0.174757	17.4756	2.48	10	0.004725	<0.0001	0.067292
11	Lori	Lori berd	spring "Lusaghbyur"	6/20/2023	0.168224	13.81336	2.21	10	0.004851	<0.0001	0.079913
12	Lori	Tumanyan	spring ''Kobayr''	6/21/2023	0.110652	7.367273	3.26	10	0.006569	<0.0001	0.444482
13	Lori	Shamlugh (Bendik)	spring ''Kakali taki''	6/21/2023	0.095545	10.72095	1.98	10	0.002968	<0.0001	0.065923
14	Tavush	Bagratashen	well	6/21/2023	0.131884	5.416782	2.15	20	0.001702	<0.0001	0.049159
15	Tavush	Berdavan	ground well	6/21/2023	0.101669	8.551983	1.01	15	0.007765	<0.0001	0.25775
16	Tavush	Jujevan	spring («Darbnants»)	6/21/2023	0.194356	9.306504	1.56	20	0.01235	<0.0001	0.176329
17	Tavush	Voskevan	spring	6/21/2023	0.031848	10.32454	2.27	10	0.002731	<0.0001	0.169799
18	Tavush	Voskepar	spring («Gharasu»)	6/21/2023	0.036748	9.031723	2.28	10	0.001693	<0.0001	0.178685
19	Tavush	Aygehovit	spring («Gyoli»)	6/22/2023	0.019599	11.30204	2.45	10	0.002509	<0.0001	0.387646
20	Tavush	Vazashen	spring («Yolomi»)	6/22/2023	0.047772	11.95746	2.86	35	0.008575	<0.0001	0.339614
21	Tavush	Paravakar	spring	6/22/2023	0.05553	10.21643	1.91	20	0.000399	<0.0001	0.970765

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Sam ple ID	Provie nce	Location of observation point	Type of observation point	Sampling date	phosphate, PO₄, mg/L	silicon Si, mg/L	total biological oxygen requirement, mg/L	Bichro mate oxidati on,	Li mg/L	Be mg/L	B mg/L
22	Tavush	Verin Tsaghkavan	spring («Alposi»)	6/22/2023	0.059613	11.82458	1.63	15	0.001792	<0.0001	0.292471
23	Tavush	Navur	spring («Medz»)	6/22/2023	0.294392	11.49349	2.85	25	0.00084	<0.0001	0.080485
24	Tavush	Berd	spring («Miji»)	6/22/2023	0.073904	13.08136	2.36	15	0.002197	<0.0001	0.25479
25	Tavush	Lusadzor	spring («Zani»)	6/22/2023	0.03144	5.536153	2.48	15	0.005141	<0.0001	0.096435
26	Tavush	Lusadzor	ground well	6/22/2023	0.037973	8.84253	1.24	15	0.003737	<0.0001	0.314344
27	Tavush	Gandzaqar	spring («Dudinyants»)	6/23/2023	0.058797	10.42139	1.53	15	0.001093	<0.0001	0.091119
28	Tavush	Hovq	spring («Shnqar»)	6/23/2023	0.016332	6.889786	2.24	10	0.000147	<0.0001	0.101222
29	Gegharkunik	Verin Chambarak	spring («Medz»)	6/23/2023	0.620631	13.55885	2.54	15	0.009373	<0.0001	0.122122
30	Tavush	Margahovit	well	6/23/2023	0.116777	8.187111	1.08	15	0.002145	<0.0001	0.050088
31	Tavush	Dilijan /Shamaghyan/	spring («Qor spring»)	6/23/2023	0.009799	6.265899	1.87	10	0.013321	<0.0001	0.047893
32	Tavush	Dilijan	spring «Artsruni»	6/23/2023	0.010616	9.423623	1.34	20	0.014707	<0.0001	0.236828

Sam ple ID	Provie nce	Location of observation point	Type of observation point	Sampling date	Na mg/L	Mg mg/L	Al mg/L	P mg/L	K mg/L	Ca mg/L	Ti mg/L
1	Lori	Lernavan	Flowing borehole	6/19/2023	6.711203	8.652233	<0.01	0.010913	1.033805	103.2205	0.001635
2	Lori	Katnadjur	spring («Qung»)	6/19/2023	15.85157	4.838512	<0.01	0.01266	0.210334	48.54106	0.002153
3	Lori	Mets Parni	Flowing borehole	6/19/2023	22.42252	6.896819	<0.01	0.049715	1.225369	54.67389	0.003189
4	Lori	Nor Khachakap	spring	6/19/2023	17.58742	11.71987	<0.01	<0.01	0.920637	42.06435	0.002021
5	Lori	Darbas	spring	6/19/2023	34.49066	13.20895	<0.01	0.023532	1.086359	61.91994	0.002218
6	Lori	Saratovka	Flowing borehole	6/20/2023	45.14466	53.51254	<0.01	<0.01	5.222936	71.21534	0.003117
7	Lori	Saratovka	spring	6/20/2023	14.01148	16.72555	0.099015	0.537517	20.47993	82.91589	0.010827
8	Lori	Tashir	Flowing borehole	6/20/2023	16.09749	19.94049	<0.01	0.069152	2.630254	95.88677	0.005201
9	Lori	Stepanavan	Flowing borehole	6/20/2023	5.942796	5.893677	0.021257	0.08521	1.140294	14.06553	0.004551
10	Lori	Getavan	Flowing borehole	6/20/2023	5.47777	5.221703	0.050228	0.082779	1.082349	12.53137	0.005048
11	Lori	Lori berd	spring "Lusaghbyur"	6/20/2023	6.260329	7.59787	0.033821	0.079645	1.317626	21.11437	0.004849
12	Lori	Tumanyan	spring "Kobayr"	6/21/2023	95.63704	38.79416	<0.01	0.052285	2.303753	25.25912	0.003072
13	Lori	Shamlugh (Bendik)	spring ''Kakali taki''	6/21/2023	8.507212	21.63671	0.020294	0.082865	0.803379	105.5778	0.003612
14	Tavush	Bagratashen	well	6/21/2023	6.875856	7.614042	0.695705	0.108417	2.431604	37.56808	0.015267
15	Tavush	Berdavan	ground well	6/21/2023	44.03372	37.818	<0.01	0.091346	4.601651	125.4821	0.003892
16	Tavush	Jujevan	spring («Darbnants»)	6/21/2023	17.25742	27.5602	<0.01	0.155629	13.18273	146.3847	0.00324
17	Tavush	Voskevan	spring	6/21/2023	34.04707	22.13037	0.027547	0.052266	1.185488	89.08797	0.003884
18	Tavush	Voskepar	spring («Gharasu»)	6/21/2023	29.50209	16.52898	0.014025	0.037293	1.676628	67.60496	0.002768
19	Tavush	Aygehovit	spring («Gyoli»)	6/22/2023	59.19306	36.66476	0.024012	0.058973	1.675081	80.94594	0.004751
20	Tavush	Vazashen	spring («Yolomi»)	6/22/2023	82.68039	58.30742	0.01659	0.092516	3.843044	128.0616	0.005103
21	Tavush	Paravakar	spring	6/22/2023	208.5152	42.31734	<0.01	0.07481	1.940143	199.8037	0.003796

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Sam ple ID	Provie nce	Location of observation point	Type of observation point	Sampling date	Na mg/L	Mg mg/L	Al mg/L	P mg/L	K mg/L	Ca mg/L	Ti mg/L
22	Tavush	Verin Tsaghkavan	spring («Alposi»)	6/22/2023	112.355	14.64683	<0.01	0.025262	2.137753	75.90258	0.00185
23	Tavush	Navur	spring («Medz»)	6/22/2023	11.31572	29.9645	<0.01	0.219216	3.281575	110.1421	0.004005
24	Tavush	Berd	spring («Miji»)	6/22/2023	76.1111	20.30611	<0.01	0.067032	2.185732	42.92426	0.004156
25	Tavush	Lusadzor	spring («Zani»)	6/22/2023	6.297938	28.32583	0.071872	0.047482	2.279554	68.01303	0.004414
26	Tavush	Lusadzor	ground well	6/22/2023	47.94545	34.01613	0.018103	0.063644	2.355427	86.75162	0.003256
27	Tavush	Gandzaqar	spring («Dudinyants»)	6/23/2023	6.468908	12.90147	<0.01	0.055614	1.940967	70.88986	0.003434
28	Tavush	Hovq	spring («Shnqar»)	6/23/2023	6.140474	13.53009	0.012266	0.03176	0.749544	61.66918	0.002556
29	Gegharkunik	Verin Chambarak	spring («Medz»)	6/23/2023	20.93941	17.08478	<0.01	0.463405	8.971763	86.27819	0.004918
30	Tavush	Margahovit	well	6/23/2023	16.94674	14.85971	<0.01	0.096592	0.858939	60.39676	0.003376
31	Tavush	Dilijan /Shamaghyan/	spring («Qor spring»)	6/23/2023	6.797736	14.39948	<0.01	0.011908	0.651091	68.64376	0.002819
32	Tavush	Dilijan	spring «Artsruni»	6/23/2023	104.0611	22.92059	0.030499	0.036869	1.449817	84.9006	0.004976

Sample	Provie	Location of	Type of observation	Sampling	V	Cr	Fe	Mn	Со	Ni	Cu
ref.no	nce	observation point	point	date	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
1	Lori	Lernavan	Flowing borehole	6/19/2023	0.000668	0.002163	0.499688	<0.0001	0.000283	0.00349	0.000363
2	Lori	Katnadjur	spring («Qung»)	6/19/2023	0.008179	0.000887	0.238462	0.0001163	0.000131	0.00156	0.000331
3	Lori	Mets Parni	Flowing borehole	6/19/2023	0.011556	0.002683	0.266394	0.0001979	0.000144	0.001515	0.000224
4	Lori	Nor Khachakap	spring	6/19/2023	0.008635	0.000941	0.204152	0.0002507	0.000116	0.001468	0.000943
5	Lori	Darbas	spring	6/19/2023	0.007029	0.001675	0.317282	0.0006219	0.000172	0.001937	0.000483
6	Lori	Saratovka	Flowing borehole	6/20/2023	0.000635	0.001874	0.234552	0.0744396	0.00051	0.004021	0.000791
7	Lori	Saratovka	spring	6/20/2023	0.00798	0.002797	0.505237	0.0111925	0.000589	0.007511	0.006632
8	Lori	Tashir	Flowing borehole	6/20/2023	0.012076	0.003307	0.49333	<0.0001	0.000278	0.003424	0.000661
9	Lori	Stepanavan	Flowing borehole	6/20/2023	0.015803	0.001539	0.061407	0.0002842	<0.0001	0.000527	0.000183
10	Lori	Getavan	Flowing borehole	6/20/2023	0.013299	0.001029	0.063873	0.0003511	<0.0001	0.000621	0.000468
11	Lori	Lori berd	spring "Lusaghbyur"	6/20/2023	0.013394	0.001288	0.108427	0.0003107	<0.0001	0.000926	0.00044
12	Lori	Tumanyan	spring "Kobayr"	6/21/2023	0.021256	0.009753	0.112524	0.0002032	<0.0001	0.000763	0.000817
13	Lori	Shamlugh (Bendik)	spring ''Kakali taki''	6/21/2023	0.001013	0.001742	0.732146	0.00114	0.000379	0.004327	0.001419
14	Tavush	Bagratashen	well	6/21/2023	0.005776	0.001452	0.824593	0.0477147	0.000888	0.003532	0.045448
15	Tavush	Berdavan	ground well	6/21/2023	0.006826	0.003573	0.719532	0.0009638	0.0004	0.004892	0.001674
16	Tavush	Jujevan	spring («Darbnants»)	6/21/2023	0.001464	0.002343	0.851125	0.0002986	0.000476	0.005164	0.002517
17	Tavush	Voskevan	spring	6/21/2023	0.024799	0.001909	0.652058	0.0009904	0.000358	0.004228	0.002448
18	Tavush	Voskepar	spring («Gharasu»)	6/21/2023	0.00373	0.002346	0.499795	0.0003954	0.000266	0.003171	0.001596
19	Tavush	Aygehovit	spring («Gyoli»)	6/22/2023	0.010643	0.00399	0.593552	0.0014014	0.000368	0.00372	0.003079
20	Tavush	Vazashen	spring («Yolomi»)	6/22/2023	0.00419	0.002726	0.744085	0.0014814	0.000379	0.004706	0.002732

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Sample ref.no	Provie nce	Location of observation point	Type of observation point	Sampling date	V mg/L	Cr mg/L	Fe mg/L	Mn mg/L	Co mg/L	Ni mg/L	Cu mg/L
21	Tavush	Paravakar	spring	6/22/2023	0.010583	0.00276	1.200334	0.0010662	0.000603	0.007076	0.004088
22	Tavush	Verin Tsaghkavan	spring («Alposi»)	6/22/2023	0.004649	0.000718	0.286174	0.0003918	0.000188	0.002203	0.001322
23	Tavush	Navur	spring («Medz»)	6/22/2023	0.041336	0.002427	0.797948	0.0002366	0.000428	0.004936	0.00145
24	Tavush	Berd	spring («Miji»)	6/22/2023	0.058703	0.004596	0.307408	<0.0001	0.000185	0.002037	0.000931
25	Tavush	Lusadzor	spring («Zani»)	6/22/2023	0.003838	0.002248	0.552163	0.0010052	0.000321	0.003794	0.002746
26	Tavush	Lusadzor	ground well	6/22/2023	0.004339	0.002905	0.664739	0.000274	0.000349	0.004171	0.002846
27	Tavush	Gandzaqar	spring («Dudinyants»)	6/23/2023	0.003489	0.001844	0.535813	0.0002679	0.000295	0.003214	0.002426
28	Tavush	Hovq	spring («Shnqar»)	6/23/2023	0.002572	0.00179	0.465933	0.0015558	0.000234	0.002647	0.000753
29	Gegharkunik	Verin Chambarak	spring («Medz»)	6/23/2023	0.004282	0.002837	0.637634	0.0001213	0.00037	0.004089	0.001347
30	Tavush	Margahovit	well	6/23/2023	0.002224	0.00243	0.459223	0.0009022	0.000258	0.002972	0.001032
31	Tavush	Dilijan /Shamaghyan/	spring («Qor spring»)	6/23/2023	0.005743	0.001665	0.502019	0.0006306	0.000263	0.002987	0.002308
32	Tavush	Dilijan	spring «Artsruni»	6/23/2023	0.01122	0.003855	0.644661	0.00147	0.000354	0.00366	0.002862

Sam ple ID	Provie nce	Location of observation point	Type of observation point	Sampling date	Zn mg/L	As mg/L	Se mg/L	Sr mg/L	Mo mg/L	Cd mg/L	Sn mg/L
1	Lori	Lernavan	Flowing borehole	6/19/2023	0.0002307	0.000648	0.000956	0.49253	0.001511	<0.0001	<0.001
2	Lori	Katnadjur	spring («Qung»)	6/19/2023	<0.0001	0.001034	0.000957	0.088104	0.001109	<0.0001	<0.001
3	Lori	Mets Parni	Flowing borehole	6/19/2023	0.0000915	0.00166	0.000918	0.105488	0.001313	<0.0001	<0.001
4	Lori	Nor Khachakap	spring	6/19/2023	0.0031733	0.000264	0.0006	0.244976	0.000779	<0.0001	<0.001
5	Lori	Darbas	spring	6/19/2023	0.0002946	0.000367	0.001672	0.45869	0.001207	<0.0001	<0.001
6	Lori	Saratovka	Flowing borehole	6/20/2023	0.0001977	0.000979	<0.0001	0.457745	0.00099	<0.0001	<0.001
7	Lori	Saratovka	spring	6/20/2023	0.0057041	0.002596	0.000841	0.474196	0.001852	<0.0001	<0.001
8	Lori	Tashir	Flowing borehole	6/20/2023	0.0003746	0.002568	0.000863	0.65161	0.001233	<0.0001	< 0.001
9	Lori	Stepanavan	Flowing borehole	6/20/2023	<0.0001	0.003886	<0.0001	0.071096	0.000849	<0.0001	<0.001
10	Lori	Getavan	Flowing borehole	6/20/2023	<0.0001	0.003356	<0.0001	0.068256	0.000669	<0.0001	<0.001
11	Lori	Lori berd	spring "Lusaghbyur"	6/20/2023	0.0003737	0.003197	0.000158	0.127164	0.000902	<0.0001	< 0.001
12	Lori	Tumanyan	spring ''Kobayr''	6/21/2023	0.0005844	0.002168	0.001616	0.352969	0.00709	<0.0001	<0.001
13	Lori	Shamlugh (Bendik)	spring ''Kakali taki''	6/21/2023	0.003078	0.000463	0.001042	0.836307	0.001459	<0.0001	<0.001
14	Tavush	Bagratashen	well	6/21/2023	0.0380557	0.002635	0.00055	0.18296	0.002202	0.000197	<0.001
15	Tavush	Berdavan	ground well	6/21/2023	0.0008934	0.00135	0.001951	0.837972	0.003067	<0.0001	<0.001
16	Tavush	Jujevan	spring («Darbnants»)	6/21/2023	0.0009358	0.000952	0.00157	1.547515	0.003398	<0.0001	<0.001
17	Tavush	Voskevan	spring	6/21/2023	0.0028692	0.001136	0.002262	0.823687	0.00218	<0.0001	<0.001
18	Tavush	Voskepar	spring («Gharasu»)	6/21/2023	0.0019854	0.000701	0.001235	0.45517	0.001526	<0.0001	<0.001
19	Tavush	Aygehovit	spring («Gyoli»)	6/22/2023	0.0080314	0.000794	0.00239	0.986748	0.006013	<0.0001	<0.001
20	Tavush	Vazashen	spring («Yolomi»)	6/22/2023	0.002529	0.001146	0.002724	1.101839	0.006907	<0.0001	<0.001
21	Tavush	Paravakar	spring	6/22/2023	0.0044145	0.001041	0.005035	0.986737	0.003859	<0.0001	<0.001

Sam ple ID	Provie nce	Location of observation point	Type of observation point	Sampling date	Zn mg/L	As mg/L	Se mg/L	Sr mg/L	Mo mg/L	Cd mg/L	Sn mg/L
22	Tavush	Verin Tsaghkavan	spring («Alposi»)	6/22/2023	0.0006243	0.000463	<0.0001	0.217132	0.004565	<0.0001	<0.001
23	Tavush	Navur	spring («Medz»)	6/22/2023	0.0002788	0.000759	0.00149	0.697539	0.001214	<0.0001	<0.001
24	Tavush	Berd	spring («Miji»)	6/22/2023	0.0002763	0.002378	0.001166	0.613379	0.00992	<0.0001	<0.001
25	Tavush	Lusadzor	spring («Zani»)	6/22/2023	0.001458	0.001454	0.001603	0.313737	0.001291	<0.0001	<0.001
26	Tavush	Lusadzor	ground well	6/22/2023	0.0021448	0.001095	0.002668	0.677773	0.002732	<0.0001	<0.001
27	Tavush	Gandzaqar	spring («Dudinyants»)	6/23/2023	0.0004931	0.000985	0.001175	0.590173	0.001661	<0.0001	<0.001
28	Tavush	Hovq	spring («Shnqar»)	6/23/2023	0.0310793	0.000264	0.001149	0.231137	0.000381	<0.0001	<0.001
29	Gegharkunik	Verin Chambarak	spring («Medz»)	6/23/2023	0.0003714	0.015435	0.001651	0.63548	0.001893	<0.0001	<0.001
30	Tavush	Margahovit	well	6/23/2023	0.0010771	0.000569	0.000953	0.324394	0.001001	<0.0001	<0.001
31	Tavush	Dilijan /Shamaghyan/	spring («Qor spring»)	6/23/2023	0.0058271	0.000488	0.000639	0.606628	0.002101	<0.0001	<0.001
32	Tavush	Dilijan	spring «Artsruni»	6/23/2023	0.0017132	0.00145	0.001718	1.056164	0.006008	<0.0001	<0.001

Sam ple ID	Provie nce	Location of observation point	Type of observation point	Sampling date	Sb mg/L	Ba mg/L	Pb mg/L	F mg/L	Br mg/L	Salinity ppt
1	Lori	Lernavan	Flowing borehole	6/19/2023	<0.0001	0.125492	<0.0001	0.0779	<0.03	0.26
2	Lori	Katnadjur	spring («Qung»)	6/19/2023	<0.0001	<0.01	<0.0001	0.0429	<0.03	0.15
3	Lori	Mets Parni	Flowing borehole	6/19/2023	<0.0001	<0.01	<0.0001	0.0579	<0.03	0.18
4	Lori	Nor Khachakap	spring	6/19/2023	0.000319	0.000387	<0.0001	0.0559	<0.03	0.16
5	Lori	Darbas	spring	6/19/2023	<0.0001	0.021228	<0.0001	0.0601	0.0357	0.26
6	Lori	Saratovka	Flowing borehole	6/20/2023	<0.0001	0.026209	<0.0001	0.0787	0.1784	0.62
7	Lori	Saratovka	spring	6/20/2023	0.000238	0.103138	0.000255	0.0457	<0.03	0.29
8	Lori	Tashir	Flowing borehole	6/20/2023	<0.0001	0.04904	<0.0001	0.0845	0.0394	0.31
9	Lori	Stepanavan	Flowing borehole	6/20/2023	<0.0001	0.00097	<0.0001	<0.03	<0.03	0.07
10	Lori	Getavan	Flowing borehole	6/20/2023	<0.0001	<0.01	<0.0001	<0.03	<0.03	0.06
11	Lori	Lori berd	spring "Lusaghbyur"	6/20/2023	<0.0001	<0.01	<0.0001	<0.03	<0.03	0.09
12	Lori	Tumanyan	spring "Kobayr"	6/21/2023	<0.0001	<0.01	<0.0001	0.1068	0.0654	0.39
13	Lori	Shamlugh (Bendik)	spring ''Kakali taki''	6/21/2023	<0.0001	0.030112	<0.0001	0.11	<0.03	0.36
14	Tavush	Bagratashen	well	6/21/2023	0.000161	0.028655	0.001866	<0.03	<0.03	0.12
15	Tavush	Berdavan	ground well	6/21/2023	<0.0001	0.111994	<0.0001	0.0917	0.0518	0.44
16	Tavush	Jujevan	spring («Darbnants»)	6/21/2023	<0.0001	0.049203	<0.0001	0.0901	0.034	0.43
17	Tavush	Voskevan	spring	6/21/2023	<0.0001	0.034158	0.000294	0.0813	<0.03	0.36
18	Tavush	Voskepar	spring («Gharasu»)	6/21/2023	<0.0001	0.0188	<0.0001	0.0572	<0.03	0.29
19	Tavush	Aygehovit	spring («Gyoli»)	6/22/2023	0.000233	0.017019	<0.0001	0.0909	<0.03	0.43
20	Tavush	Vazashen	spring («Yolomi»)	6/22/2023	0.000152	0.047645	<0.0001	0.1221	0.0484	0.53
21	Tavush	Paravakar	spring	6/22/2023	0.000122	0.021551	<0.0001	0.1536	0.116	0.95

Sam ple ID	Provie nce	Location of observation point	Type of observation point	Sampling date	Sb mg/L	Ba mg/L	Pb mg/L	F mg/L	Br mg/L	Salinity ppt
22	Tavush	Verin Tsaghkavan	spring («Alposi»)	6/22/2023	<0.0001	<0.01	<0.0001	0.1133	<0.03	0.52
23	Tavush	Navur	spring («Medz»)	6/22/2023	<0.0001	<0.01	<0.0001	0.0824	<0.03	0.42
24	Tavush	Berd	spring («Miji»)	6/22/2023	<0.0001	<0.01	<0.0001	0.0546	<0.03	0.34
25	Tavush	Lusadzor	spring («Zani»)	6/22/2023	0.00013	0.025071	<0.0001	0.0463	<0.03	0.27
26	Tavush	Lusadzor	ground well	6/22/2023	0.00011	0.054447	<0.0001	0.0642	0.0383	0.38
27	Tavush	Gandzaqar	spring («Dudinyants»)	6/23/2023	0.000109	0.043499	<0.0001	0.0471	<0.03	0.22
28	Tavush	Hovq	spring («Shnqar»)	6/23/2023	<0.0001	0.018564	0.000775	0.0443	<0.03	0.2
29	Gegharkunik	Verin Chambarak	spring («Medz»)	6/23/2023	<0.0001	0.056072	<0.0001	0.122	0.0319	0.31
30	Tavush	Margahovit	well	6/23/2023	<0.0001	0.023897	<0.0001	0.0337	0.0357	0.23
31	Tavush	Dilijan /Shamaghyan/	spring («Qor spring»)	6/23/2023	<0.0001	<0.01	<0.0001	0.0927	<0.03	0.21
32	Tavush	Dilijan	spring «Artsruni»	6/23/2023	0.000168	0.035881	0.000309	0.1736	0.0381	0.44





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