OR Annual report 2022

Appendices

Reykjavík Energy

Water utilities and water protection issues

Carbfix

LJÓSLEIÐARINN
REYKJAVIK FIBRE NETWORK

ON POWER

VEITUR

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Cover photo: Atli Már Hafsteinsson

OR and subsidiaries' area of operations

Water utilities of Veitur Utilities and ON Power

The water utilities of Veitur Utilities and ON Power and information on the supervisory procedures applied to the water situation in each area, water volume, comments and improvements.

VEITUR'S WATER UTILITIES

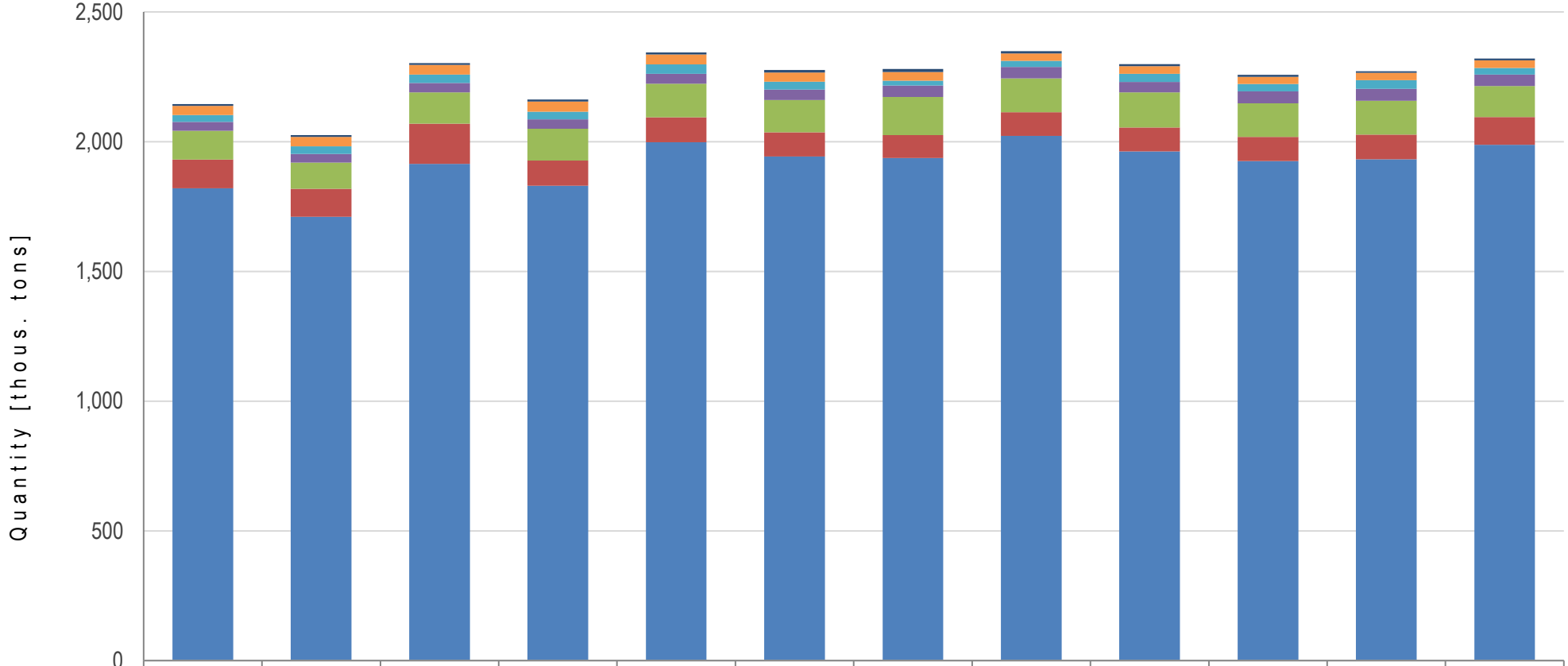
AREA	UTILITY	WATER SUPPLY	MONITORING METHOD	ANNUAL PRODUCTION thous. tons	ANNUAL PRODUCTION l/s	COMMENTS	IMPROVEMENTS
Capital area	Reykjavik Seltjarnanes Mosfellsbaer	Gvendarbrunnar, Myllulaekur and Vatnsendakriki	Well sampling	22,653	718	UV purification of water from Gvendarbrunnar, Jadar area og Myllulaekur.	A chemical monitoring unit installed for both main pipelines in Heidmork in the autumn of 2020 and two cell flow monitors were added to the utility. Tests performed in Vatnsendakriki to assess the effects of increased production on nearby water supply areas.
	Alftanes	Vatnsendakriki	Well sampling	331	10	Water purchased from Gardabaer.	
West Iceland	Akranes	Berjadalur, Slaga and Os utility	Overflow	1,226	39	UV water purification.	Work in progress for improvements in water production
	Borgarnes, Bifrost and Munadarnes	Grabrok, Seleyri as back-up for Borgarnes	Well sampling	1,501	48	UV water purification.	Two research wells planned at Grabrok and renewal of two wells planned at Seleyri in 2022.
	Grundarfjordur	Grund	Well sampling	344	11	UV water purification.	UV unit installed.
	Hvanneyri	Fossamelar	Overflow	42	1		Well protection area will be expanded in 2022. UV unit purchased and the planning of a new pumping station is underway.
	Reykholt and Kleppjarnsreykir	Steindorsstadir	Well sampling	345	11	UV water purification. Water level unusually low in December.	
	Stykkisholmur	Svelgsarhraun	Overflow	397	13	UV water purification.	
South Iceland	Hlidarveita	Bjarnarfell	Overflow	96	3	Blaskogabyggd is unable to provide water to OR in case of shortages	

ON POWER'S WATER UTILITIES

AREA	UTILITY	WATER SUPPLY	MONITORING METHOD	ANNUAL PRODUCTION thous. tons	ANNUAL PRODUCTION l/s	COMMENTS	IMPROVEMENTS
Hengill	Hellisheidi Nesjavellir	Engidalur Gramelur	Well sampling Tank sampling	79,763	2,529	Thermal pollution at Nesjavellir	Actions were taken to substantially reduce thermal pollution at Nesjavellir. Awaiting results.

Water extraction per month in the distribution areas of Veitur Utilities in 2022

Granting everyone access to healthy potable water with negligible outages is one of the prerequisites for a healthy population and flourishing economic activity in a modern society, see the sustainable development goals of the United Nations.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Hlid utility	7	7	8	8	8	9	12	9	8	7	6	7
Stykkisholmur	35	36	37	40	39	36	33	28	29	28	28	29
Grundarfjordur	27	30	32	29	35	30	19	24	31	29	33	25
Rural Borgarfjordur	34	33	37	37	39	41	44	44	40	45	47	44
Borgarnes	110	101	120	123	129	124	147	131	135	130	131	120
Akranes	111	108	155	97	96	93	89	91	92	93	95	106
Capital area	1,820	1,711	1,914	1,830	1,998	1,943	1,937	2,022	1,963	1,925	1,932	1,988

Microbes and chemical composition of potable water in the capital area in 2022

Reykjavik's Department of Environment and Planning (RDEP) regularly collects samples to monitor water quality. Samples are also collected for a complete chemical composition analysis.

Microbe analysis

Microbial properties	Unit	Max. recommended value	Lab	Well V-01, Jadar area	Well V-13, Myllulaekur	Well VK-01, Vatnsendakriki	Kjalarnes	Well V-23 Gvendarbrunnar	Well V-05, Jadar area	Well VK-05, Vatnsendakriki	RDEP microbial samples
Total number of microbes	Number			1	1	1	1	1	1	1	111
Total microbes 22°C	Average	100/ml	MATÍS	0	0	0	0	0	1	0	0.24
	Highest value	100/ml	MATÍS	0	0	0	0	0	1	0	4
	Lowest value	100/ml	MATÍS	0	0	0	0	0	1	0	0
Escherichia coli (E. Coli)	Average	0/100 ml	MATÍS	0	0	0	0	0	0	0	0
	Highest value	0/100 ml	MATÍS	0	0	0	0	0	0	0	0
	Lowest value	0/100 ml	MATÍS	0	0	0	0	0	0	0	0
Enterococci	Average	0/100 ml	MATÍS	0	0	0	0	0	0	0	0
	Highest value	0/100 ml	MATÍS	0	0	0	0	0	0	0	0
	Lowest value	0/100 ml	MATÍS	0	0	0	0	0	0	0	0

Chemical composition of potable water

Physiological and chemical properties	Unit	Max. recommended value	Sk.	Lab	Well V-01, Jadar area	Well V-13, Myllulaekur	Well VK-01, Vatnsendakriki	Kjalarnes	Well V-23 Gvendarbrunnar	Well V-05, Jadar area	Well VK-05, Vatnsendakriki
Sample no.					R22-1076-1	R22-1076-2	R22-1076-3	R22-2085-1	R22-2421-1	R22-2421-2	R22-2421-3
Sampling date					10.5.2022	10.5.2022	10.5.2022	14.9.2022	18.10.2022	18.10.2022	18.10.2022
Colour of sample	mgPt/l			ALS	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Turbidity	NTU	adequate	(1)	MATÍS	0.49	0.11	0.59	<0.10	0.10	0.34	0.40
Temperature	°C	25		MATÍS	3.80	3.60	3.60	11.10	4.10	3.90	3.90
Acidity (pH)	pH unit			MATÍS	8.80	8.85	8.80	8.95	8.50	8.95	8.85
Conductivity	µS/cm	2,500		MATÍS	95.00	91.00	83.00	87.00	98.00	97.00	86.00
Chloride (Cl)	mg/l	250		ALS	11.70	10.90	9.77	10.50	11.20	10.50	9.74
Sulphate (SO_4)	mg/l	250		ALS	<5.00	<5.00	<5.00	<5.00	<6.00	<6.00	<6.00
Fluoride (F)	mg/l	1.5		ALS	<0.200	<0.200	<0.200	<0.200	<2.00	<2.00	<2.00
Nitrate (NO_3)	mg/l	50		ALS	0.14	0.15	0.13	0.17	0.22	0.16	0.16
Nitrite (NO_2)	mg/l	0.5		ALS	0.03	0.03	0.03	0.04	0.05	0.04	0.04
Ammonium (NH_4-N)	mg/l	0.5		ALS	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
TOC	mg/l	no abnormal changes		ALS	<0.50	0.72	<0.50	<0.50	<0.50	<0.50	<0.50
Calcium (Ca)	mg/l	100	(3)	ALS	5.08	5.49	5.20	5.43	4.94	5.18	5.52
Iron (Fe)	mg/l	0.2		ALS	0.00	0.02	<0.0004	0.07	0.00	<0.0004	<0.0004
Potassium (K)	mg/l	12	(3)	ALS	<0.4	<0.4	0.42	0.42	0.43	<0.4	0.46
Magnesium (Mg)	mg/l	50	(3)	ALS	0.92	0.87	0.92	0.87	1.22	0.91	0.94
Sodium (Na)	mg/l	200		ALS	13.30	12.00	10.10	9.70	12.60	12.20	10.20
Sulphur (S)	mg/l		(4)	ALS	0.78	0.73	0.73	0.73	0.79	0.74	0.76
Silica (Si)	mg/l		(4)	ALS	6.84	6.82	6.91	6.98	6.88	6.82	7.10
Aluminium (Al)	µg/l	200		ALS	15.90	14.80	21.60	30.70	13.70	17.40	17.90
Arsenic (As)	µg/l	10		ALS	<0.05	0.06	0.07	<0.05	<0.05	0.05	0.06

Physiological and chemical properties	Unit	Max. recommended value	Sk.	Lab	Well V-01, Jadar area	Well V-13, Myllulaekur	Well VK-01, Vatnsendakriki	Kjalarnes	Well V-23 Gvendarbrunnar	Well V-05, Jadar area	Well VK-05, Vatnsendakriki
Boron (B)	µg/l	1,000		ALS	<10	<10	<10	<10	<10	<10	<10
Barium (Ba)	µg/l	700	(3)	ALS	0.02	0.24	0.08	0.34	0.25	0.04	0.07
Cadmium (Cd)	µg/l	5.0		ALS	<0.002	0.00	<0.002	<0.002	<0.002	<0.002	<0.002
Cobalt (Co)	µg/l		(4)	ALS	<0.005	0.01	<0.005	0.04	<0.005	<0.005	<0.005
Chromium (Cr)	µg/l	50		ALS	1.10	1.02	1.00	0.87	0.93	0.96	0.87
Copper (Cu)	µg/l	2,000		ALS	<0.1	0.16	<0.1	0.15	1.02	0.19	<0.1
Mercury (Hg)	µg/l	1.0		ALS	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Manganese (Mn)	µg/l	50		ALS	0.06	0.65	<0.03	5.82	0.06	<0.03	<0.03
Molybdenum (Mo)	µg/l		(4)	ALS	0.08	0.08	0.07	0.07	0.06	0.06	0.08
Nickel (Ni)	µg/l	20		ALS	0.08	<0.05	<0.05	0.10	0.05	<0.05	<0.05
Phosphorus (P)	µg/l	5,000	(3)	ALS	14.30	20.60	23.90	21.40	16.60	14.70	20.10
Lead (Pb)	µg/l	10		ALS	<0.01	0.02	0.01	0.07	0.09	<0.01	<0.01
Antimon (Sb)	µg/l	5.0		ALS	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
Selen (Se)	µg/l	10		ALS	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Strontium (Sr)	µg/l		(4)	ALS	3.12	<2	3.23	3.45	5.30	3.11	3.34
Sink (Zn)	µg/l	3,000	(3)	ALS	0.68	1.82	13.40	0.96	0.69	0.31	<0.2
Vanadium (V)	µg/l			ALS	15.20	15.90	19.50	17.40	12.80	13.70	17.40
Benzene	µg/l	1.0		ALS	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	µg/l			ALS	<0.2	<0.2	<0.2	<0.2	0.50	0.50	0.50
Ethylbenzene	µg/l			ALS	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
m,p-xylene	µg/l			ALS							
o-xylene	µg/l			ALS							
Sum xylene	µg/l			ALS	<0.2	<0.2	<0.2	<0.2	0.70	0.80	0.60
Dichloromethane	µg/l			ALS	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070
1,1 - dichloroethane	µg/l			ALS	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
1,2 - dichloroethane	µg/l	3.0		ALS	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010

Physiological and chemical properties	Unit	Max. recommended value	Sk.	Lab	Well V-01, Jadar area	Well V-13, Myllulaekur	Well VK-01, Vatnsendakriki	Kjalarnes	Well V-23 Gvendarbrunnar	Well V-05, Jadar area	Well VK-05, Vatnsendakriki
Trans 1,2 - dichloroethane	µg/l			ALS	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cis 1,2 - dichloroethane	µg/l			ALS	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
1,2 - dichloropropane	µg/l			ALS	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Trichloromethane	µg/l	100		ALS	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Tetrachloromethane	µg/l			ALS	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
1,1,1 - trichloroethane	µg/l			ALS	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
1,1,2 - trichloroethane	µg/l			ALS	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Trichloroethane	µg/l	10	(2)	ALS	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Tetrachloroethane	µg/l	10	(2)	ALS	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Vinyl chloride	µg/l	0.5		ALS	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
1,1 - dichloroethane	µg/l			ALS	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060	<0.00060
Naphtalen	µg/l			ALS	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Acenaphtylene	µg/l			ALS	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Acenaphtene	µg/l			ALS	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101
Fluorene	µg/l			ALS	<0.00295	<0.00295	<0.00295	<0.00295	<0.00295	<0.00295	<0.00295
Phenanthrene	µg/l			ALS	<0.00715	<0.00715	<0.00715	<0.00715	<0.00715	<0.00715	<0.00715
Anthracene	µg/l			ALS							
Fluoroathene	µg/l			ALS	<0.00450	<0.00450	<0.00450	<0.00450	<0.00450	<0.00450	<0.00450
Pyrene	µg/l			ALS	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250	<0.00250
Benz(a)anthracene	µg/l			ALS	<0.00310	<0.00310	<0.00310	<0.00310	<0.00310	<0.00310	<0.00310
Chrysene	µg/l			ALS	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzo(b)fluoranthene	µg/l	0.1	(5)	ALS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Benzo(k)fluoranthene	µg/l	0.1	(5)	ALS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Benzo(a)pyrene	µg/l	0.01		ALS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Dibenzo(ah)anthracene	µg/l			ALS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Benzo(ghi)perylene	µg/l	0.1	(5)	ALS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Indeno(123-cd)pyrene	µg/l		(5)	ALS	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10

Physiological and chemical properties	Unit	Max. recommended value	Sk.	Lab	Well V-01, Jadar area	Well V-13, Myllulaekur	Well VK-01, Vatnsendakriki	Kjalarnes	Well V-23 Gvendarbrunnar	Well V-05, Jadar area	Well VK-05, Vatnsendakriki
Sum PAH 16 (EPA)	µg/l			ALS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Sum PAH cancerogene	µg/l			ALS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Sum PAH other	µg/l			ALS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Sum PAH 4	µg/l			ALS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Sum PAH L	µg/l			ALS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Sum PAH M	µg/l			ALS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Sum PAH H	µg/l			ALS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Tribromomethane	µg/l			ALS	<0.20	<0.20	<0.20	<0.20	<0.20	0.21	<0.20
Dibromochloromethane	µg/l			ALS	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bromodichloromethane	µg/l			ALS	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Sum trihalomethane	µg/l			ALS	<0.250	<0.250	<0.250	<0.250	<0.250	0.21	<0.250
Cyanide (CN total)	µg/l	50		ALS	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010

Commentary:

(1) Adequate for consumption and no uncharacteristic changes

(2) Maximum value for sum of thrichloroethane and tetrachloroethene

(3) Maximum value in older Icelandic regulations 319/1995 (void)

(4) Maximum value not in Icelandic regulations

(5) Maximum value for the sum of the following substances: benzo(b)fluoranthene, benzo(k) fluoranthene, benzo(ghi)perylene, indeno(123cd)pyrene

Laboratories:

MATÍS: Matís ohf, Research laboratory

ALS: ALS Scandinavia AB (Sweden)

Microbes and chemical composition of potable water in West and South Iceland in 2022

Local health departments in each area regularly collect samples to monitor the quality of water. Samples are also collected for complete chemical composition and microbial analysis.

Microbe analysis

Microbial properties	Unit	Max. recommended value	Lab	Hellisheidi	Haumelalindir	Steindorsstadir	Grundarfjordur	Stykkisholmur	Grabrok	Akranes
Total number of microbes	Number			2	4	1	4	4	4	7
Total microbes 22°C	Average	100/ml	MATÍS	0	0	0	0.25	1	0	0.14
	Highest value	100/ml	MATÍS	0	0	0	1	2	0	1
	Lowest value	100/ml	MATÍS	0	0	0	0	0	0	0
Escherichia coli (E. Coli)	Average	0/100 ml	MATÍS	0	0	0	0	0	0	0
	Highest value	0/100 ml	MATÍS	0	0	0	0	0	0	0
	Lowest value	0/100 ml	MATÍS	0	0	0	0	0	0	0
Enterococci	Average	0/100 ml	MATÍS	0	0	0	0	0	0	0
	Highest value	0/100 ml	MATÍS	0	0	0	0	0	0	0
	Lowest value	0/100 ml	MATÍS	0	0	0	0	0	0	0

Chemical composition of potable water

Physiological and chemical properties	Unit	Max. recommended value	Sk.	Lab	Hellisheidi	Haumelalindir	Steindorsstadir	Grundarfjordur	Stykkisholmur	Grabrok	Akranes
Sample no.					R22-2302-1	R22-179-1	R22-951-2	R22-1012-5	R22-1012-6	R22-1150-1	R22-2283-6
Sampling date					4.10.2022	24.1.2022	26.4.2022	3.5.2022	3.5.2022	17.5.2022	3.10.2022
Colour of sample	mgPt/l			ALS	14.90	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Turbidity	NTU	adequate	(1)	MATÍS		0.28	0.55	0.27	0.21	0.24	0.17
Temperature	°C	25		MATÍS	5.90	3.60	3.20	4.40	3.80	3.50	6.20
Acidity (pH)	pH unit			MATÍS	8.28	7.59	7.27	6.95	7.64	7.37	7.80
Conductivity	µS/cm	2500		MATÍS	107.50	173.80	68.18	80.63	65.58	77.30	136.30
Chloride (Cl)	mg/l	250		ALS	7.01	9.90	6.77	12.60	10.50	10.00	16.10
Sulphate (SO_4)	mg/l	250		ALS	<5.00	12.40	<5.00	<5.00	<5.00	<5.00	<5.00
Fluoride (F)	mg/l	1.5		ALS	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Nitrate (NO_3)	mg/l	50		ALS	0.16	0.24	0.04	<0.27	<0.27	0.13	0.40
Nitrite (NO_2)	mg/l	0.5		ALS	0.04	0.05	0.01	<0.060	<0.060	0.03	0.09
Ammonium (NH_4-N)	mg/l	0.5		ALS	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
TOC	mg/l	no abnormal changes		ALS	<0.50	<0.50	<0.50	0.82	0.63	0.73	0.57
Calcium (Ca)	mg/l	100	(3)	ALS	5.22	18.00	2.87	3.20	1.93	3.31	7.75
Iron (Fe)	mg/l	0.2		ALS	0.00	<0.0004	0.01	0.00	0.00	0.01	0.00
Potassium (K)	mg/l	12	(3)	ALS	0.88	<0.4	<0.4	0.63	0.61	<0.4	0.42
Magnesium (Mg)	mg/l	50	(3)	ALS	2.73	1.81	1.44	1.77	1.34	1.51	2.43
Sodium (Na)	mg/l	200		ALS	6.68	7.64	6.75	6.47	6.14	7.73	13.20
Sulphur (S)	mg/l		(4)	ALS	0.84	4.11	0.36	0.56	0.49	0.67	1.17
Silica (Si)	mg/l		(4)	ALS	11.00	2.98	5.92	4.28	4.46	4.01	8.04
Aluminium (Al)	µg/l	200		ALS	0.91	3.05	2.05	0.55	2.58	7.11	<0.2
Arsen (As)	µg/l	10		ALS	<0.05	0.16	<0.05	<0.05	0.06	<0.05	0.09
Boron (B)	µg/l	1,000		ALS	<10	<10	<10	<10	<10	<10	<10

Physiological and chemical properties	Unit	Max. recommended value	Sk.	Lab	Hellisheidi	Haumelalindir	Steindorsstadir	Grundarfjordur	Stykkisholmur	Grabrok	Akranes
Barium (Ba)	µg/l	700	(3)	ALS	0.57	0.03	0.15	0.96	0.44	0.91	0.02
Cadmium (Cd)	µg/l	5.0		ALS	<0.002	0.00	<0.002	<0.002	0.01	<0.002	<0.002
Cobalt (Co)	µg/l		(4)	ALS	<0.005	0.01	0.01	0.02	<0.005	0.01	0.01
Chromium (Cr)	µg/l	50		ALS	0.44	0.32	0.24	0.22	0.09	0.03	0.64
Copper (Cu)	µg/l	2,000		ALS	2.00	0.13	0.82	0.62	0.60	1.34	0.16
Mercury (Hg)	µg/l	1.0		ALS	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Manganese (Mn)	µg/l	50		ALS	<0.03	0.13	0.34	0.25	0.04	0.63	0.68
Molybdenum (Mo)	µg/l		(4)	ALS	0.15	0.69	0.07	0.15	0.20	0.13	0.08
Nickel (Ni)	µg/l	20		ALS	1.10	1.20	0.06	0.45	0.22	0.15	<0.05
Phosphorus (P)	µg/l	5,000	(3)	ALS	44.50	1.22	3.58	7.37	31.90	2.14	5.78
Lead (Pb)	µg/l	10		ALS	0.08	0.02	0.10	0.18	0.17	0.11	0.02
Antimon (Sb)	µg/l	5.0		ALS	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01
Selen (Se)	µg/l	10		ALS	<0.3	0.53	<0.3	<0.3	<0.3	<0.3	1.74
Strontium (Sr)	µg/l		(4)	ALS	11.00	24.80	4.00	14.10	8.71	9.18	<2
Sink (Zn)	µg/l	3,000	(3)	ALS	7.01	1.90	3.13	7.48	11.60	3.67	3.53
Vanadium (V)	µg/l			ALS	7.97	1.38	3.75	0.43	13.30	0.45	5.09
Benzene	µg/l	1.0		ALS	<0.2	<0.20	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	µg/l			ALS	<0.2	0.21	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	µg/l			ALS	<0.2	<0.10	<0.2	<0.2	<0.2	<0.2	<0.2
m,p-xylene	µg/l			ALS							
o-xylene	µg/l			ALS							
Sum xylene	µg/l			ALS	<0.2	<0.150	<0.2	<0.2	<0.2	<0.2	<0.2
Naphtalen	µg/l			ALS	<0.0070	<0.0070	<0.0070	<0.0010	<0.0010	<0.0070	<0.0070
Acenaphtylene	µg/l			ALS	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Acenaphtene	µg/l	3.0		ALS	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Fluorene	µg/l			ALS	<0.0010	<0.0010	<0.0010	<0.00017	<0.00017	<0.0010	<0.0010

Physiological and chemical properties	Unit	Max. recommended value	Sk.	Lab	Hellisheidi	Haumelalindir	Steindorsstadir	Grundarfjordur	Stykkisholmur	Grabrok	Akranes
Phenanthrene	µg/l			ALS	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Anthracene	µg/l			ALS	<0.0010	<0.0010	<0.0010	<0.00017	<0.00017	<0.0010	<0.0010
Fluoroathene	µg/l	100		ALS	<0.0010	<0.0010	<0.0010	<0.00017	<0.00017	<0.0010	<0.0010
Pyrene	µg/l			ALS	<0.0010	<0.0010	<0.0010	<0.00017	<0.00017	<0.0010	<0.0010
Benz(a)anthracene	µg/l			ALS	<0.0010	<0.0010	<0.0010	<0.00017	<0.00017	<0.0010	<0.0010
Chrysene	µg/l			ALS	<0.0010	<0.0010	<0.0010	<0.00017	<0.00017	<0.0010	<0.0010
Benzo(b)fluoranthene	µg/l	10	(2)	ALS	<0.0010	<0.0010	<0.0010	<0.00017	<0.00017	<0.0010	<0.0010
Benzo(k)fluoranthene	µg/l	10	(2)	ALS	<0.0010	<0.0010	<0.0010	<0.00017	<0.00017	<0.0010	<0.0010
Benzo(a)pyrene	µg/l	0.5		ALS	<0.0010	<0.0010	<0.0010	<0.00016	<0.00016	<0.0010	<0.0010
Dibenzo(ah)anthracene	µg/l			ALS	<0.00060	<0.00060	<0.00060	<0.00017	<0.00017	<0.00060	<0.00060
Benzo(ghi)perylene	µg/l			ALS	<0.00030	<0.0030	<0.00030	<0.00017	<0.00017	<0.00030	<0.00030
Indeno(123-cd)pyrene	µg/l			ALS	<0.00030	<0.0030	<0.00030	<0.00017	<0.00017	<0.00030	<0.00030
Sum PAH 16 (EPA)	µg/l			ALS	<0.0101	<0.0101	<0.0101	<0.00302	<0.00302	<0.0101	<0.0101
Sum PAH cancerogene	µg/l			ALS	<0.00295	<0.00295	<0.00295	<0.000590	<0.000590	<0.00295	<0.00295
Sum PAH other	µg/l			ALS	<0.00715	<0.00715	<0.00715	<0.00243	<0.00243	<0.00715	<0.00715
Sum PAH 4	µg/l			ALS							
Sum PAH L	µg/l			ALS	<0.00450	<0.00450	<0.00450	<0.00150	<0.00150	<0.00450	<0.00450
Sum PAH M	µg/l			ALS	<0.00250	<0.00250	<0.00250	<0.000840	<0.000840	<0.00250	<0.00250
Sum PAH H	µg/l			ALS	<0.00310	<0.00310	<0.00310	<0.000675	<0.000675	<0.00310	<0.00310
Dichloromethane	µg/l			ALS	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,1 - dichloroethane	µg/l	0.1	(5)	ALS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
1,2 - dichloroethane	µg/l	0.1	(5)	ALS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Trans 1,2 - dichloroethane	µg/l	0.01		ALS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cis 1,2 - dichloroethane	µg/l			ALS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
1,2 - dichloropropane	µg/l	0.1	(5)	ALS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Trichloromethane	µg/l		(5)	ALS	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Tetrachloromethane	µg/l			ALS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020

Physiological and chemical properties	Unit	Max. recommended value	Sk.	Lab	Hellisheidi	Haumelalindir	Steindorsstadir	Grundarfjordur	Stykkisholmur	Grabrok	Akranes
1,1,1 - trichloroethane	µg/l			ALS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
1,1,2 - trichloroethane	µg/l			ALS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Trichloroethane	µg/l			ALS	<0.020	<0.020	<0.020			<0.020	<0.020
Tetrachloroethane	µg/l			ALS	<0.020	<0.020	<0.020			0.18	<0.020
Vinyl chloride	µg/l			ALS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
1,1 - dichloroethane	µg/l			ALS	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Tribromomethane	µg/l			ALS	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	µg/l			ALS	<0.10		<0.10	<0.10	<0.10	<0.10	<0.10
Bromodichloromethane	µg/l			ALS	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Sum trihalomethane	µg/l			ALS	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
Cyanide (CN total)	µg/l	50		ALS	<0.005	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010

Commentary:

(1) Adequate for consumption and no uncharacteristic changes

(2) Maximum value for sum of thrichloroethane and tetrachloroethene

(3) Maximum value in older Icelandic regulations 319/1995 (void)

(4) Maximum value not in Icelandic regulations

(5) Maximum value for the sum of the following substances: benzo(b)fluoranthene, benzo(k) fluoranthene, benzo(ghi)perylene, indeno(123cd)pyrene

Laboratories:

MATÍS: Matís ohf, Rannsóknastofa

ALS: ALS Scandinavia AB (Sweden)

Transport of hazardous substances

The quantity of gasoline and sludge transported through the capital area's water protection areas under supervision 2019-2022 is marked by *. Quantity of asbestos transported for landfilling in Fiflholt, West Iceland and sludge in West Iceland for Veitur Utilities. Quantity of gasoline, chlorine and sludge transported for ON Power's geothermal power plants in the Hengill area.

Site	Category	Unit	2019	2020	2021	2022
Nesjavellir power plant	Oil	liters		1,300	13,400	2,500
Hellisheidi power plant	Oil	liters		1,000	2,200	
Blafjoll, ski area*	Oil	liters	40,000	40,000	27,000	93,400
Ellidavatn, forestry*	Oil	liters	1,400	1,400	1,700	2,400
Vatnsendakrikar*	Oil	liters				
Construction Heidmork	Oil	liters			2,500	
Total oil		**liters**	**41,400**	**43,700**	**46,800**	**98,300**
Blafjoll, ski area*	Gasoline	liters	2,000	2,000	2,000	2,000
Total gasoline		**liters**	**2,000**	**2,000**	**2,000**	**2,000**
Hellisheidi power plant	Sludge	liters	36,000	36,000	32,000	15,600
Nesjavellir power plant	Sludge	liters	29,000	60,000	76,000	69,000
West Iceland	Sludge	liters	108,000	280,000	161,000	237,500
Ellidavatn, forestry*	Sludge	liters				
Gvendarbrunnar*	Sludge	liters	2,000	2,000	2,000	
Vatnsendakrikar*	Sludge	liters				
Water tank T-4*	Sludge	liters				
Total sludge		**liters**	**175,000**	**378,000**	**271,000**	**322,100**
Hellisheidi power plant	Chlorine	liters	18,000	12,000	14,000	13,000
Nesjavellir power plant	Chlorine	liters	5,000	2,000	11,000	8,000
Total chlorine		**liters**	**23,000**	**14,000**	**25,000**	**21,000**
West Iceland	Asbestos	kg	196,000	554,000	120,000	453,200
Total asbestos		**kg**	**196,000**	**554,000**	**120,000**	**453,200**

* The water protection supervisor escorted 23 transports of hazardous substances in 2022.