

# Reykjavík Energy

Atmospheric concentrations of H<sub>2</sub>S in populated areas and regulatory limits  
2024



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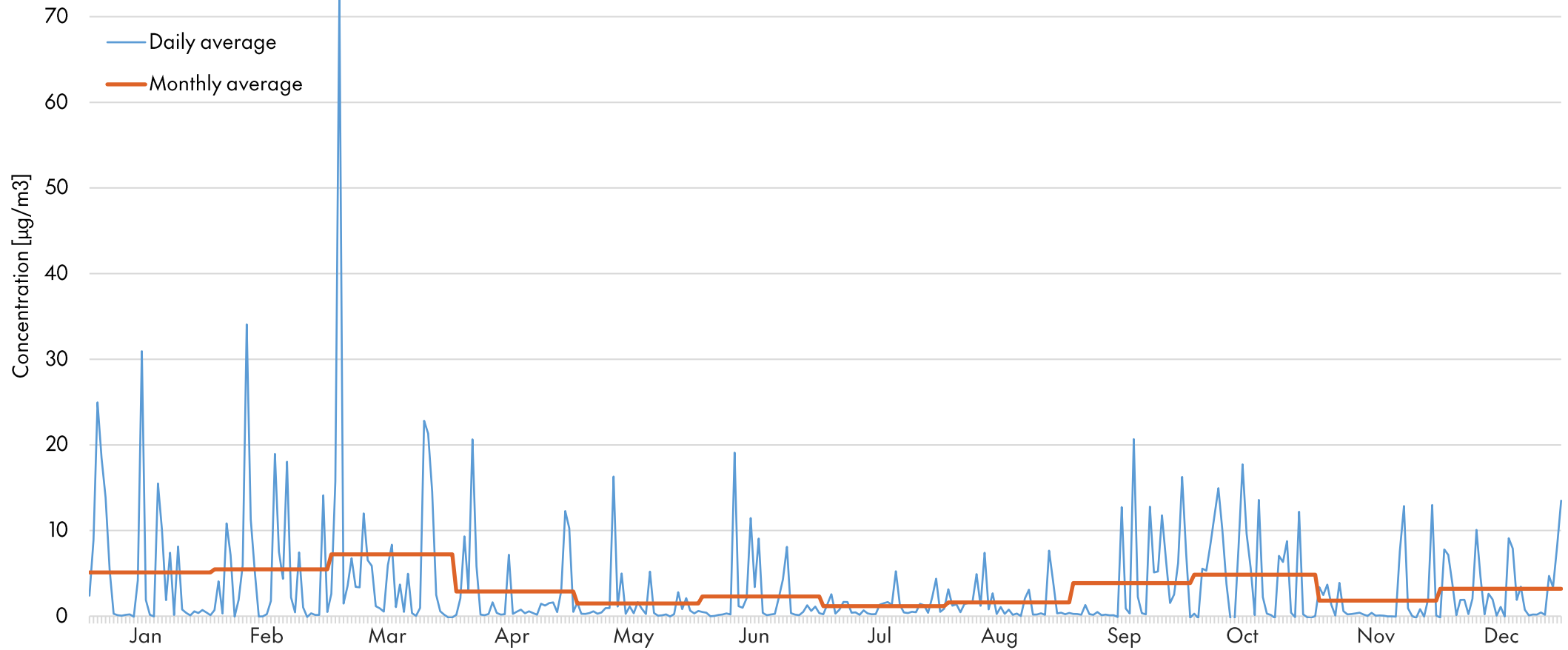
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Cover photo: Íris Eva Einarisdóttir

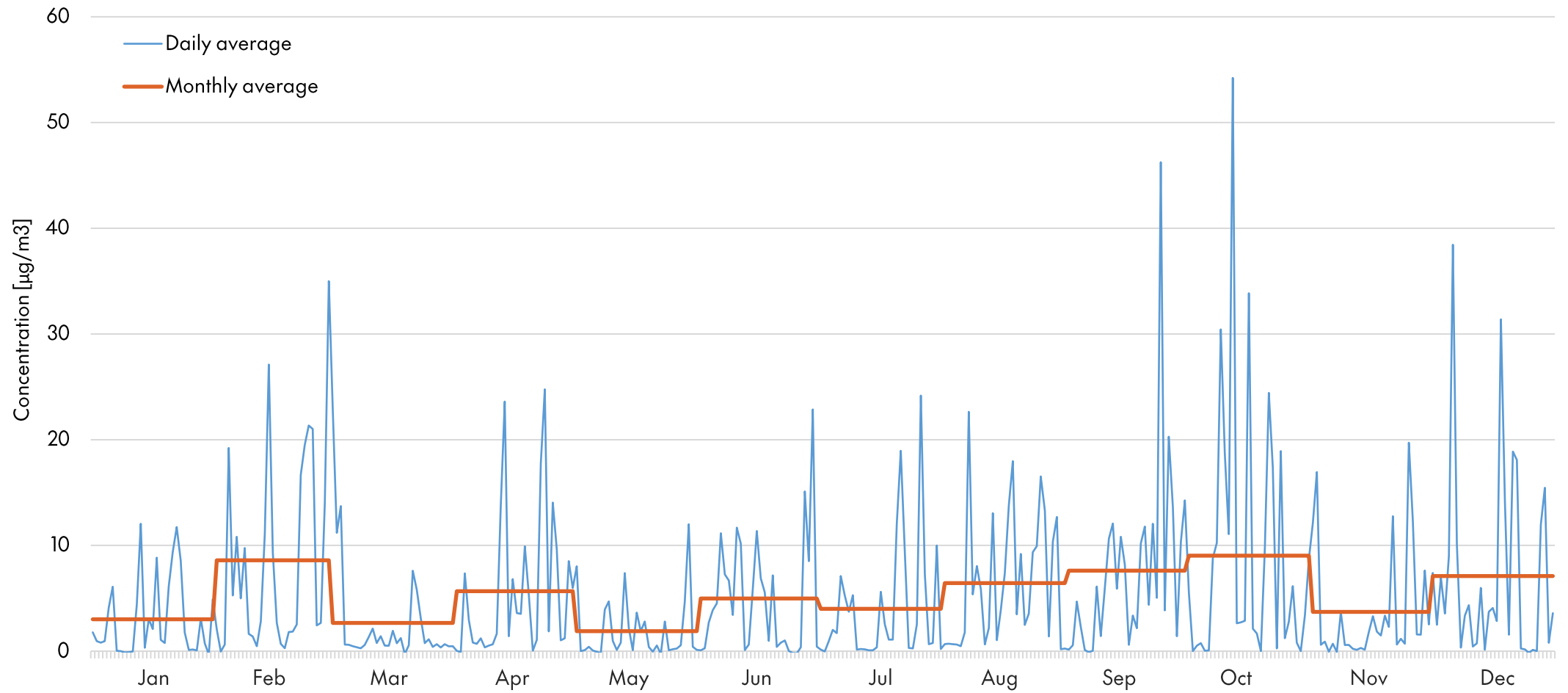
# Atmospheric concentration of hydrogen sulphide (H<sub>2</sub>S) in Nordlingaholt, Hveragerdi, Laekjarbotnar and Ulfarsardalur 2024

The figures show the daily and monthly averages of the measured concentration of hydrogen sulphide in the atmosphere.

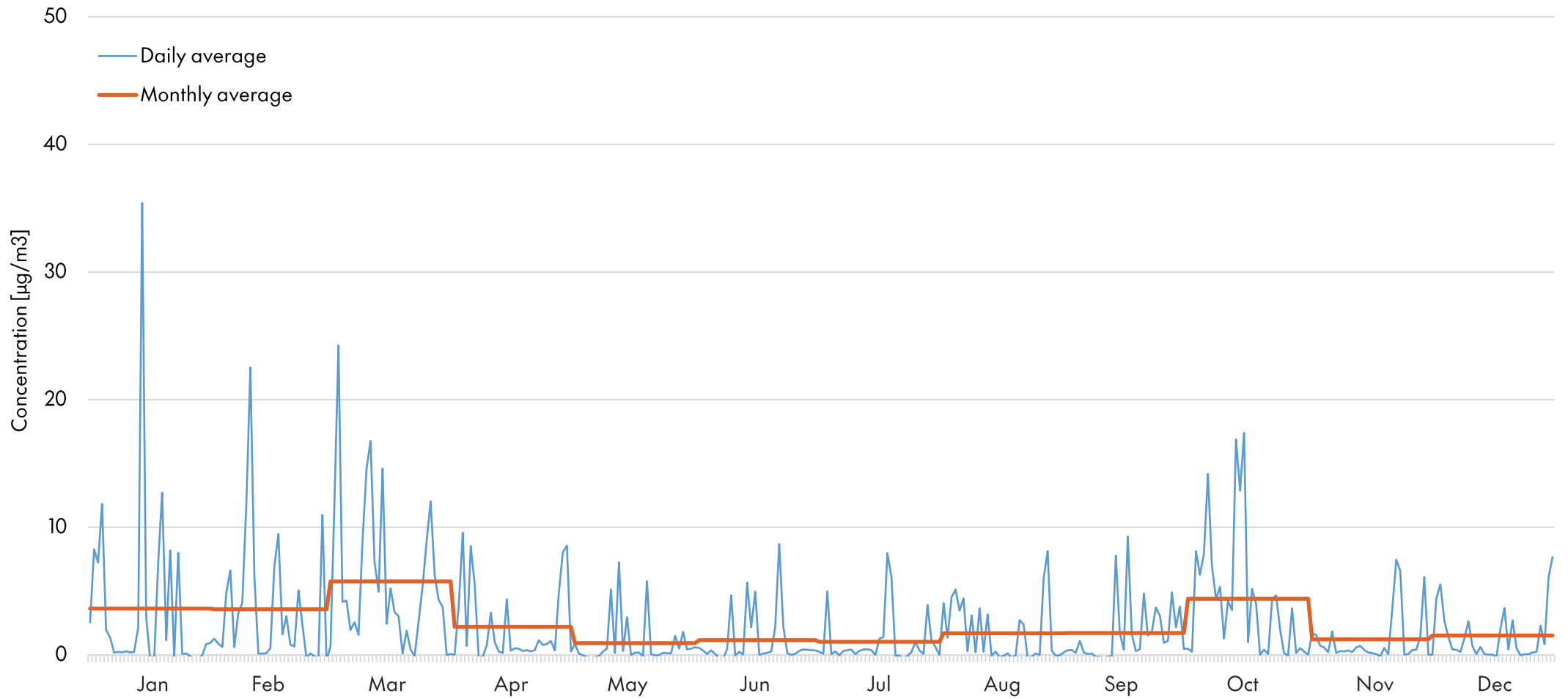
## Nordlingaholt



# Hveragerði



# Laekjarbotnar



# Úlfarsárdalur

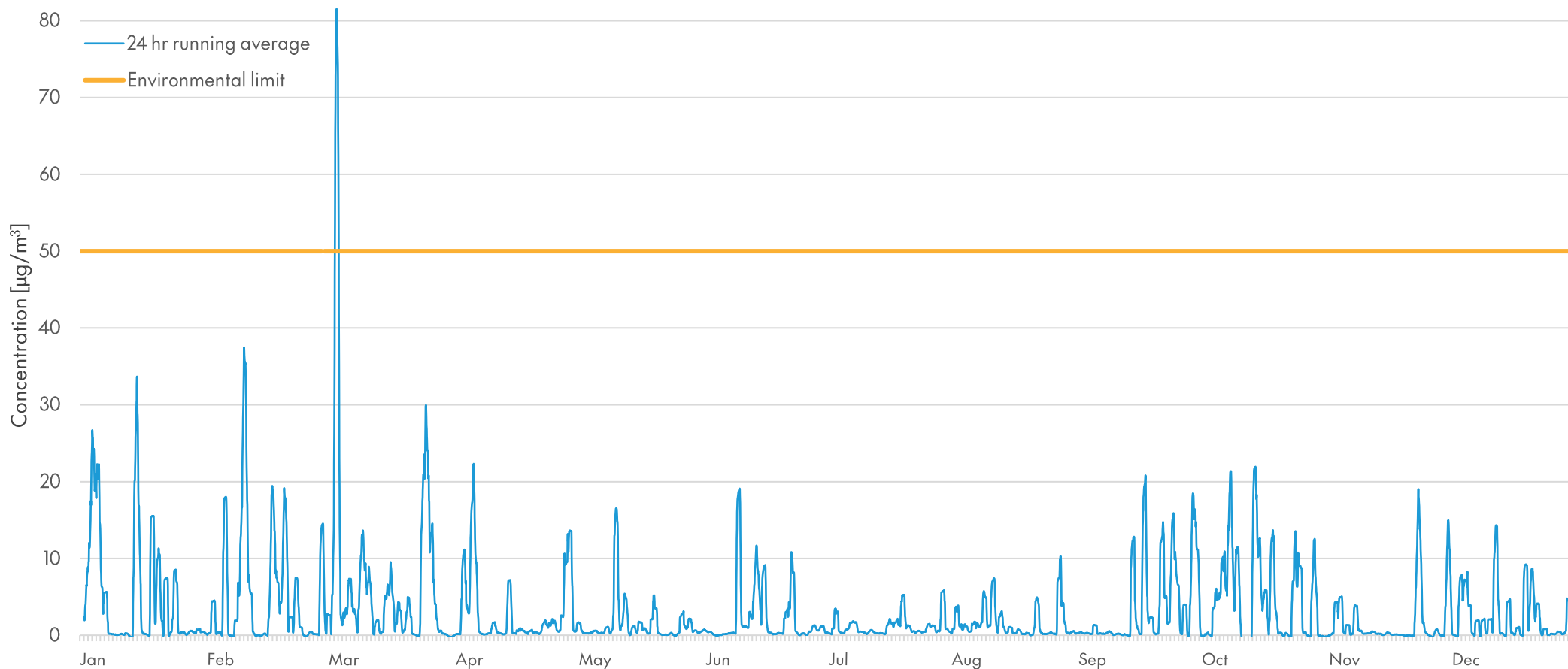
The gas meter in Ulfarsardalur was offline from October 15<sup>th</sup> 2023 to October 1<sup>st</sup> 2024 and no data was logged during that time.



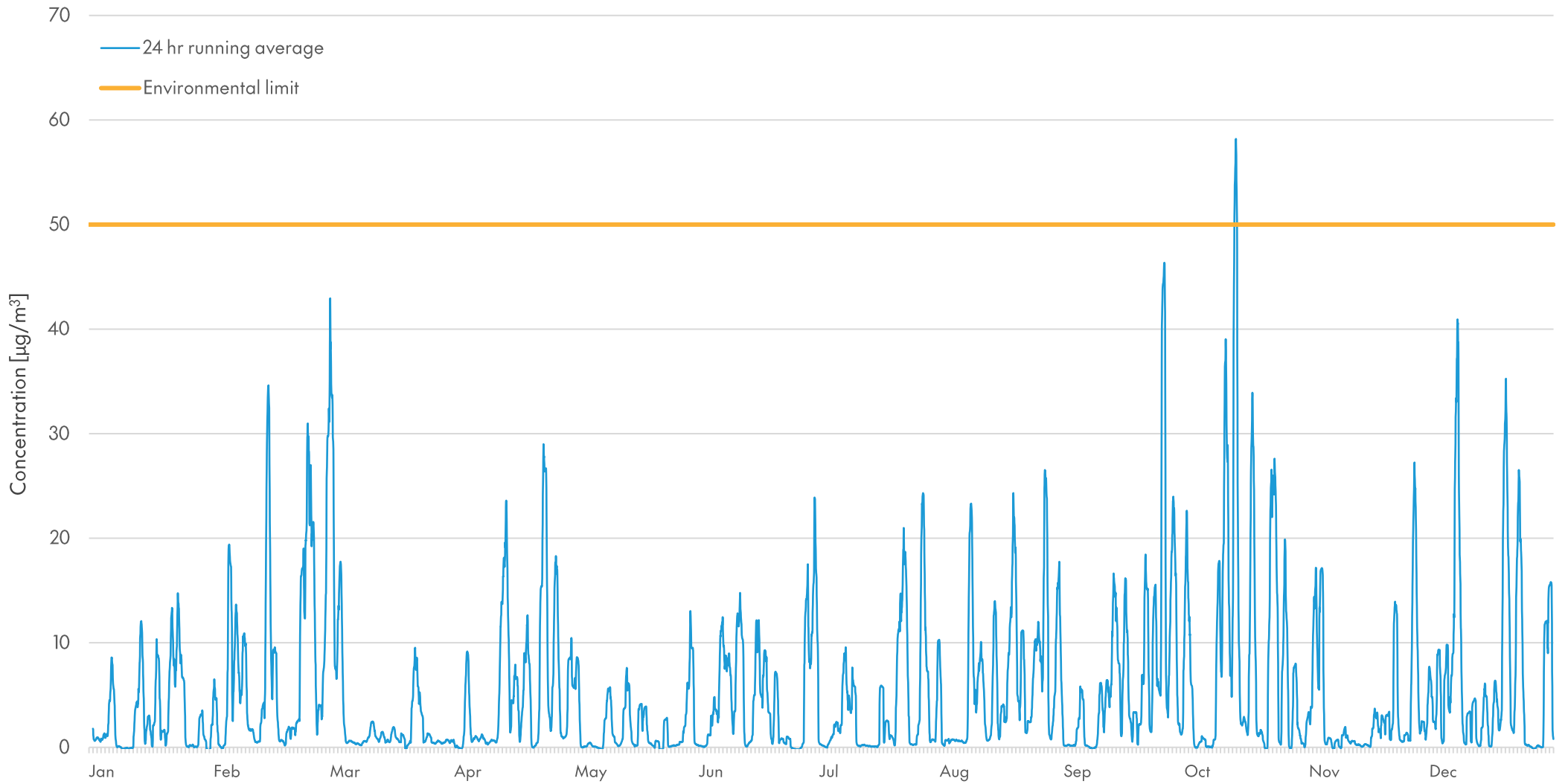
# Atmospheric concentration of hydrogen sulphide (H<sub>2</sub>S) in Nordlingaholt, Hveragerdi, Laekjarbotnar and Ulfarsardalur 2024.

In 2024 the atmospheric concentrations of hydrogen sulphide (H<sub>2</sub>S) exceeded environmental limits once at Nordlingaholt and once in Hveragerdi. Capture and reinjection of hydrogen sulphide from Hellisheidi power plant was approx 50% and approx. 1% from Nesjavellir power plant. The total amount of hydrogen sulphide emitted by the Nesjavellir and Hellisheidi power plants was around 11.7 thousand tonnes in 2024.

## Nordlingaholt

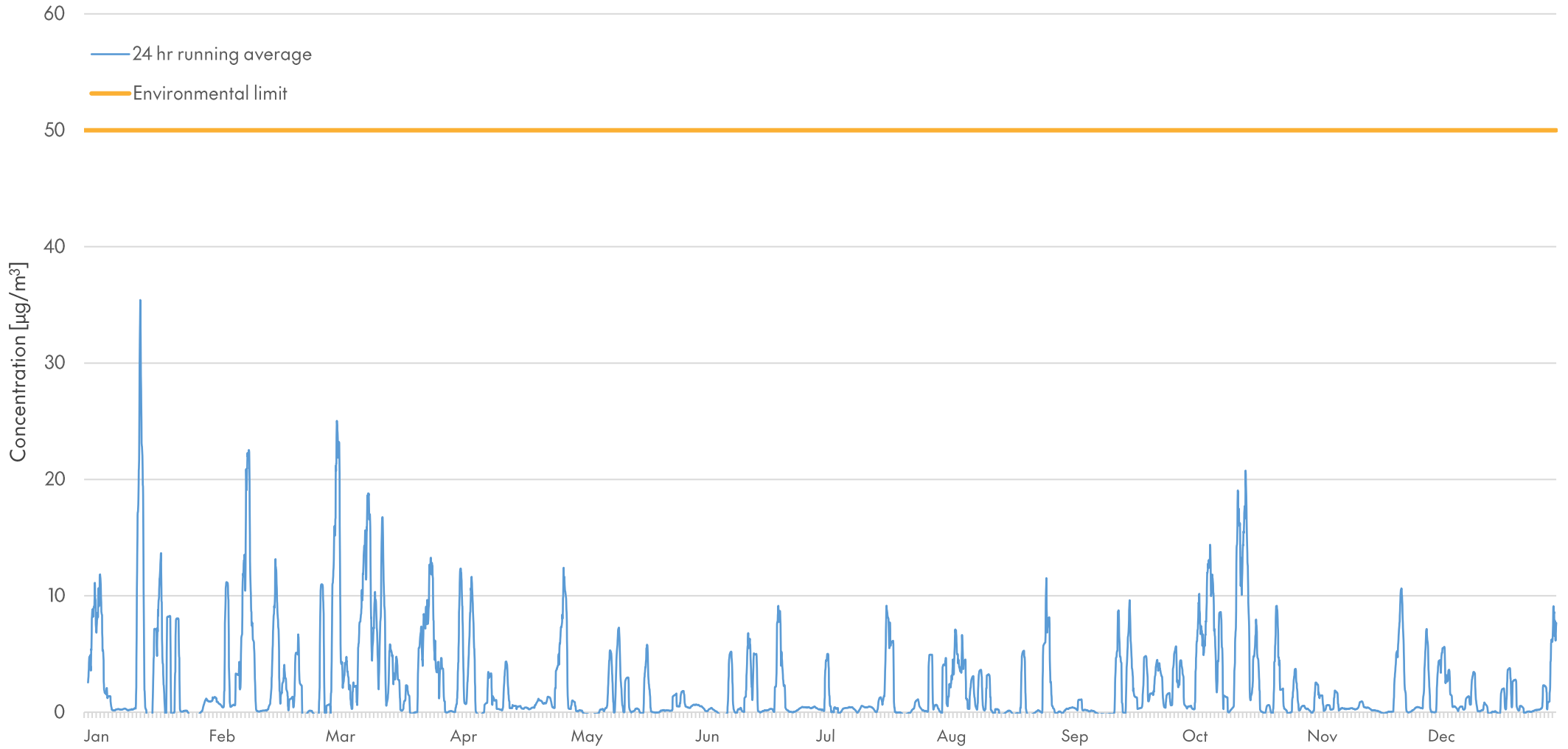


# Hveragerði

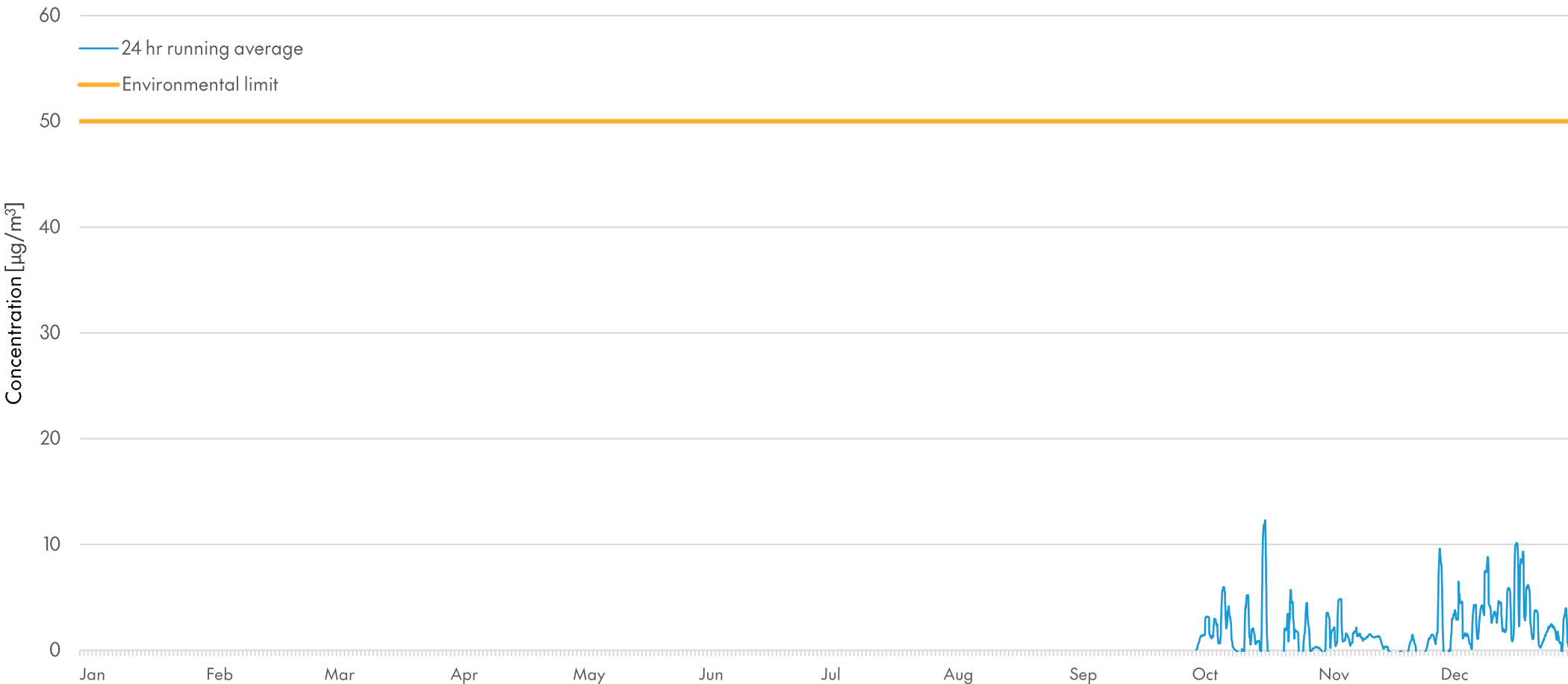




# Lækjarbotnar



# Ulfarsardalur



# 30 highest hourly averages for the atmospheric concentration of hydrogen sulphide in Hveragerdi, Nordlingaholt, Laekjabotnar and Ulfarsardalur

The table shows the 30 highest hourly averages for atmospheric concentrations of hydrogen sulphide in Hveragerdi, Nordlingaholt, Laekjabotnar and Ulfarsardalur in 2024 and their timing.

Hveragerdi Finnmörk 1a		Nordlingaholt Nordlingabraut 1	
Concentration [µg/m <sup>3</sup> ]	Date & time	Concentration [µg/m <sup>3</sup> ]	Date & time
240	12.10.2024 04:00	232	3.3.2024 04:00
211	24.9.2024 07:00	180	3.3.2024 03:00
202	24.9.2024 06:00	168	3.3.2024 07:00
196	6.12.2024 08:00	160	3.3.2024 05:00
184	12.10.2024 06:00	158	3.3.2024 00:00
165	24.9.2024 05:00	121	3.3.2024 09:00
144	24.9.2024 08:00	119	3.3.2024 06:00
129	29.2.2024 04:00	98	3.3.2024 13:00
121	2.11.2024 15:00	97	3.3.2024 08:00
115	12.10.2024 05:00	94	3.3.2024 01:00
112	29.12.2024 15:00	91	20.9.2024 11:00
111	4.2.2024 16:00	90	14.1.2024 05:00
109	26.8.2024 02:00	87	3.3.2024 02:00
107	22.2.2024 13:00	85	9.2.2024 15:00
99	1.3.2024 02:00	84	18.1.2024 03:00
98	1.3.2024 05:00	82	25.3.2024 04:00
97	1.3.2024 00:00	82	9.6.2024 05:00
96	24.2.2024 07:00	76	25.3.2024 06:00
91	1.3.2024 01:00	76	25.3.2024 07:00
90	16.7.2024 00:00	76	24.3.2024 02:00
90	23.2.2024 22:00	74	13.1.2024 23:00
88	18.12.2024 04:00	74	13.9.2024 07:00
87	24.9.2024 09:00	73	10.2.2024 01:00
85	6.12.2024 09:00	72	13.9.2024 08:00
83	29.2.2024 23:00	70	4.2.2024 22:00
83	29.2.2024 05:00	70	19.2.2024 19:00
82	23.4.2024 02:00	69	3.3.2024 10:00
81	16.10.2024 01:00	68	14.1.2024 06:00
81	9.10.2024 23:00	68	9.6.2024 03:00
81	20.10.2024 19:00	67	3.4.2024 05:00

Laekjarbotnar at Waldorfskoli		Ulfarsardalur at Lambhagi	
Concentration [µg/m3]	Date & time	Concentration [µg/m3]	Date & time
107	3.3.2024 13:00	54	19.12.2024 11:00
89	14.1.2024 18:00	53	19.12.2024 09:00
66	5.2.2024 00:00	50	10.12.2024 19:00
64	10.2.2024 06:00	48	17.10.2024 06:00
63	14.1.2024 23:00	47	4.12.2024 10:00
61	14.1.2024 19:00	43	18.12.2024 02:00
60	15.10.2024 18:00	37	10.12.2024 18:00
58	14.1.2024 00:00	37	17.10.2024 03:00
58	10.2.2024 05:00	37	18.12.2024 03:00
57	3.3.2024 18:00	32	17.10.2024 04:00
57	10.2.2024 04:00	31	17.10.2024 00:00
56	3.3.2024 14:00	31	7.12.2024 17:00
56	17.2.2024 12:00	30	4.11.2024 16:00
55	14.1.2024 20:00	29	4.11.2024 17:00
54	13.10.2024 10:00	28	18.12.2024 01:00
53	21.1.2024 13:00	27	23.10.2024 18:00
53	11.3.2024 05:00	25	18.12.2024 04:00
53	14.1.2024 03:00	25	3.10.2024 05:00
52	9.2.2024 09:00	25	29.11.2024 10:00
50	11.3.2024 10:00	25	22.12.2024 22:00
50	11.3.2024 06:00	25	7.10.2024 05:00
50	14.3.2024 21:00	25	17.10.2024 02:00
49	28.2.2024 14:00	24	7.10.2024 02:00
48	3.3.2024 16:00	24	4.12.2024 09:00
47	21.6.2024 05:00	23	29.11.2024 11:00
47	9.10.2024 02:00	23	20.12.2024 22:00
47	10.3.2024 00:00	22	25.10.2024 03:00
47	19.1.2024 09:00	22	19.12.2024 10:00
47	14.1.2024 02:00	22	17.10.2024 08:00
47	13.10.2024 18:00	22	16.12.2024 08:00

# Comparison between regulatory limits of hydrogen sulphide in $\mu\text{g}/\text{m}^3$ and ppm

According to the regulation no. 514/2010 regarding the Concentration of Hydrogen Sulphide in the Atmosphere, environmental limits are set at  $50 \mu\text{g}/\text{m}^3$ , based on the maximum daily running 24-hour average. The concentrations may exceed those limits three times per annum. Other environmental limits are that the maximum annual average shall be  $5 \mu\text{g}/\text{m}^3$  and the environmental authorities shall be notified when the concentration measured exceeds  $150 \mu\text{g}/\text{m}^3$  for three consecutive hours. Regulation no. 514/2010 does not apply to the industrial areas of the Hellisheidi and Nesjavellir geothermal power plants. There Regulation no. 390/2009 on Pollution Limits and Methods to Reduce Pollution in Workplaces applies. The pollution limit in a work environment is  $7,000 \mu\text{g}/\text{m}^3$  and depends on the average of an eight-hour workday, and  $14,000 \mu\text{g}/\text{m}^3$  when based on the average over a 15-minute period.

$\mu\text{g}/\text{m}^3$	ppm	Athugasemdir
5	0.0039	Maximum annual average
7-15	0.0054 – 0.012	Odour threshold
50	0.039	Maximum daily average
150	0.12	Notification limits (three continuous hours)
7.000	5.41	Limit in a work environment for an eight-hour workday
14,000	10.8	Limit in a work environment for a fifteen-minute period
>14,000	>10.8	Irritation in airway, sense of smell fades and other symptoms. <b>GET OUT OF THE SITUATION.</b>