

## **Annex 8**

### **Background concentrations in groundwater**

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Background concentration (values) of several substances in fresh Latvian groundwater, µg/l. Here the MPV for drinking water is used as a threshold value, but another value may be chosen.

The threshold values may be chosen on the national level, the level of river basin district or the level of groundwater body.

Micro-element	Average (median) concentration	95% confidence value	5% confidence value	Percentage of samples exceeding MPV	MPV* in Drinking water, µg/l
As	1	<0.5	4.5	0	10
B	100	Insufficient data		0	1000
Cd	0.02			0	5
Cr	0.2			0	50
Cu	2			0	2000
F <sup>-</sup>	200	70	800	0	1500
Hg	< 0.01	<0.01	0.01	0	1
Mn	20	6	150	28	50
Ni	0.5	<0.5	3	0	20
N/NH <sub>4</sub> <sup>+</sup>	160	70	800	10	390
N/NO <sub>2</sub> <sup>-</sup>	1	<0.2	10	0	150
N/NO <sub>3</sub> <sup>-</sup>	< 5	<2	300	0	11000
Pb	0.2	<0.2	0.7	0	10
Sb	Insufficient data				5
Se					10

MPV: Maximum Permissible Value

### Remarks:

- 5% confidences values of nitrates and, especially, of nitrites, are higher as in fact, because it is problematic fully prevent the oxidation of ammonia during transportation of samples and chemical analyses. Within typical pH-Eh condition, dominating in Latvian confined aquifers, nitrites and nitrates are thermodynamically unstable.
- Only for microelements naturally occurring in groundwater the background concentrations are given in the table. For compounds not occurring in nature the background concentrations is zero.
- The samples mentioned in fourth column were taken by SGSL within Basic Groundwater Monitoring and investigations of groundwater reserves in 1990-ties – 2000-ties.
- Data about boron in fresh groundwater is very limited.
- Fluoride typically exceeds MPV in saline groundwater. There is no adequate data about selenium and antimony in Latvian fresh groundwater. Besides, it may be presumed, based on pH-Eh conditions and chemical composition of groundwater, that background concentration of these elements in fresh Latvian groundwater are 20 times lower than MPV.