

27.01.2021

## Zrenjanin Water Factory Deviations Summary

### Executive Summary

- PUC provided low quality raw feed water; parameters **exceeded the contract values at least 30 times out of less than 80 samples we received in delay.**
- PUC changed water sources and raw water quality without informing “Fabrika Voda”, In contrast to contract obligation.
- PUC did not provide the new wells water analysis, **despite** our repeating request for information.
- PUC did not provide water quality at real time ignoring our repeating request.
- Submission of water lab reports was consistently in delay, In contrast to the obligation in the contract.
- PUC did not report the presence and concentration of Methane at the feed water, In contrast to the obligation in the contract.
- Missing analysis: Although our repeating request, the PUC did not provide more than 20 days of reporting both feed water and product drinking water (see section 3 for detailed dates).
  - Form few product waters analyses we received a not logical standard deviation appear (find below) - for example sample hi amounts of chlorine when factory doesn't have source for such quantities.
  - Sample that head problem with color where organic matter in that sample was in the standard.

During the period of operation (dated 30.9.2020 – 14.12.2020) water analysis was done by the public health lab. Product water quality

1. The deviations from the drinking water regulation are a result of the poor feed water quality as described in this letter.

2. As described and explained here, the PUC hid the bad quality, neither report or provided critical raw water parameters.
3. We believe that the exceeding water parameters were caused due to imbalance raw water of poor quality.
4. Deviations of supplied water were caused due to lab mistakes, as it may accrue from time to time/ In such cases the analysis must be repeated and case of confirmed quality, the false result must be neglected.

#### Conclusion:

- Deviation of product water were caused due to deviations in raw water standards. Due to the high frequent of event We have a reason to believe that delivering or poor raw water was done deliberately by PUC.
- On most of the days Despite of deviations in raw water standard from Agreement still the factory succeeded to provide water under the standard.
- without visible and transparent raw water analysis at real time factory cannot secure 100% of success.
- Sampling should be under grate care and international standards.
- The water must be tested according to accredited labs & methods and must be reviewed accordingly.

### Description in Detail

Official water analysis were reviewed for exceeding water quality parameters Vs. the contract and Vs. the Serbian Drinking Water Regulation.

Results are detailed hereby:

#### 1. Exceeding Feed Water Quality Parameters

	Date	Analysis.	Parameter	unit	Value	Contract value
1	05/10/2020	6-3015/ 2383	pH		8.36	7.20 <pH< 8.1
2	05/10/2020	6-3015/ 2384	pH		8.35	7.20 <pH< 8.1
3	05/10/2020	6-3016/2384	As	mg/l	0.145	0.05 - 0.13

4	06/10/2020	6-3028/ 2396	As	mg/l	0.142	0.05 - 0.13
5	06/10/2020	6-3028/ 2396	pH		8.28	7.20 <pH< 8.1
6	07/10/2020	6-3038/2406	As	mg/l	0.147	0.05 - 0.13
7	10/10/2020	6-3084/ 2433	pH		8.3	7.20 <pH< 8.1
8	10/10/2020	6-3084/ 2433	As	mg/l	0.138	0.05 - 0.13
9	11/10/2020	6-3086/ 2435	pH		8.13	7.20 <pH< 8.1
10	11/10/2020	6-3087/ 2436	pH		8.26	7.20 <pH< 8.1
11	11/10/2020	6-3087/ 2436	As	mg/l	0.148	0.05 - 0.13

12	18/10/2020	6-3200/ 2530	pH		8.16	7.20 <pH< 8.1
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13	18/10/2020	6-3201/ 2531	pH		8.32	7.20 <pH< 8.1
14	18/10/2020	6-3201/ 2531	As	mg/l	0.144	0.05 - 0.13

15	23/10/2020	6-3295/ 2620	pH		8.15	7.20 <pH< 8.1
16	23/10/2020	6-3297/ 2622	pH		8.2	7.20 <pH< 8.1
17	23/10/2020	6-3299/ 2624	pH		8.12	7.20 <pH< 8.1

18	10/11/2020	6-3469/ 2785	Turbidity	NTU	1.28	0.2 - 1.0
19	10/11/2020	6-3483/ 2799	pH		8.22	7.20 <pH< 08.1
20	10/11/2020	6-3500/ 2815	pH		8.25	7.20 <pH< 08.1
21	10/11/2020	6-3060/ 2414	Turbidity	NTU	1.63	0.2 - 1.0
22	10/11/2020	6-3060/ 2414	Iron (Fe)	mg/l	0.88	0.2 - 0.8
23	10/11/2020	6-3061/ 2415	pH		8.23	7.20 <pH< 8.1
24	10/11/2020	6-3061/ 2415	As	mg/l	0.135	0.05 - 0.13

25	29/11/2020	6-3744/ 3029	Turbidity	NTU	1.54	0.2 - 1.0
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26	01/12/2020	02-11343/20	Turbidity	NTU	4.8	0.2 - 1.0
27	01/12/2020	02-11343/20	Ammonia	mg/l	2.5	0.7 - 1.9
28	01/12/2020	02-11343/20	Iron (Fe)	mg/l	0.81	0.2 - 0.8

Remarks for date 1/12/2020:

At the same day the As result at the product was high, due to consumption of chlorine for oxidizing Ammonia. At this date we received high chlorine at the product, this was due to the bad raw water quality and no indication of this deviations by the PUC.

29	02/12/2020	32/2020/ 6-2775	Iron (Fe)	mg/l	1.03	0.2 - 0.8
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30	06/12/2020	6-3795/ 3074	Turbidity	NTU	1.88	0.2 - 1.0
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## 2. Product deviations from drinking water regulation

Date 1.12.2020, the produced water quality fault was due to poor inlet water quality.

Date 4.12.2020 results is unreasonable and needs further validation

Date 6.12.2020 fault is negligible

In detail:

01/12/2020	6-3763	As	mg/l	0.015	0.01
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Remarks for date 01/12/2020:

At the same day the Ammonia concentration at the feed water was very high, it consumed the chlorine and due to that the Arsenic at the product exceeded the quality level.

04/12/2020	32/2020/ 6-3783	Color	mg/l Pt	10
		KMnO4	mg/l	2.21

Method for colour:

SRPS EN ISO 8778/2009

- This method does not comply to the "Standard Method for the examination of water & wastewater".
- This is unreasonable result. Source for colour is KMnO4/ Organics. In such low organic content, colour
- This result needs to be repeated.

04/12/2020	32/2020/ 6-3784	Color	mg/l Pt	10	Up to 5.0
		KMnO4	mg/l	3.35	Up to 12

Method for colour:

SRPS EN ISO 8778/2009

- a) This method does not comply to the “Standard Method for the examination pf water & wastewater”.
- b) This is unreasonable result. Source for colour is KMnO4/ Organics. In such low organic content, colour
- c) This result needs to be repeated.

06/12/2020	6-3797/ 3076	Turbidity	mg/l	0.54	0.5
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A negligible deviation

### 3. Missing reports:

the following reports of analyis were not sent to us:

*October:*

- 21/10
- 22/10
- 27/10
- 28/10

*November:*

- 15/11
- 16/11
- 17/11
- 18/11
- 19/11
- 20/11
- 21/1
- 22/11
- 23/11
- 24/11

- 25/11

- 26/11

*December:*

- 7/12

- 8/12

- 9/12

- 10/12

- 11/12

- 12/12

- 13/12

- 14/12

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MERIMON WATER