Supplementary Material

In Table S1: the criteria used in the probability of occurrence and severity of consequences scale for hazardous event risk matrix are presented.

Hazardous event	Probability of occurrence	Severity of consequences
1	Score 2 was applied because the sampling points exhibit semi-deciduous vegetation. The leaves of this vegetation fall annually [17].	A score of 1 was applied. Because the potential danger of color alteration does not have negative effects on people's health[17].
2	The score of 1 was applied when disease-causing animals were not identified at the sampling point during the study period and when there was a historical series of *E. coli* data below the reference values recommended by Brazilian legislation at that point (1.000 *E. coli* NMP/100mL). [17]. A score of 5 was applied when the presence of animals at the collection point was identified or when a historical series of *E. coli* was not identified. This is because when occurrence data and severity of consequences are insufficient to classify a risk, it should be considered high until investigations and collected data provide conditions to classify them [27]	A score of 5 was assigned to the collection points. This is because the region is endemic for the planorbid, *Biomphalaria glabrata* an intermediate host of the *Schistosoma mansoni* that causes schistosomiasis. The planorbid has a significant impact on public health [17]
3	Score 1 was applied to collection points situated in rugged and hard-to-reach terrain, where the identification of individuals is rare [17]. Score 3 was applied to collection points located in enclosed areas with easier access compared to those scored with 1. Score 5 was applied to collection points without isolation barriers, featuring less steep slopes and situated close to human habitation áreas	Score 5 has been applied to all sampling points. Human presence at sampling points may pose biological hazards that could impact public health [17].
4	A score of 3 was assigned to intake points experiencing monthly incidents of record breaches and/or theft of wires in the electrical network [17]. This information was based on personal communication. A score of 1 was assigned to points where such actions are not recorded.	Score 5 was applied to the intake points. Pipe or valve ruptures can cause turbidity changes in the water and introduce biological contaminants. These alterations may exhibit noticeable organoleptic effects on water quality and have harmful effects on people's health [17].
5	The score of 2 was applied to the collection points because in the city of Mariana, forest fires and drought occur annually between the months of September and October [17,33].	Score 5 was applied to collection points. Because droughts and forest fires can be associated with microbiological hazards (such as diarrhea, hepatitis A, gastrointestinal infections, poisoning, and intoxication) [13].

Table S1: Criteria used in the probability of occurrence and severity of consequences scale for hazardous event risk matrix are presented. Where: 1 physical obstacles such as a trash rack obstructed by leaves preventing the draining of water, 2 wildlife including birds and worms, 3 human access, 4 actions of vandalism and sabotage, 5 climatic events (drought and dry spell, forest fires).

Hazardous event	Probability of occurrence	Severity of consequences
6	A score of 2 was applied to collection points with steep slopes and featuring haplic cambisols—soils highly susceptible to erosion. A score of 3 was assigned to a collection point that requires dredging approximately once every 30 days. A score of 2 was given to collection points with steep slopes and haplic cambisols, which are highly erosion-prone but do not require dredging every 30 days. A score of 1 was applied to collection points lacking these characteristics [17].	Pontuação 3 was applied to the intake points because erosion causes turbidity alterations. Turbidity alterations result in evident organoleptic effects on water quality. However, they do not have long-term health effects on the population [17].
7	A score of 1 was applied when bovine animals or ducks were not identified at the sampling point and when there was a historical data series of *E. coli* below the reference values recommended by Brazilian legislation at that time (1000 E. coli NMP/100mL [38].A score of 5 was applied when the presence of bovine animals or ducks was identified at the collection point or when a historical data series of *E. coli* was not identified. This is because when occurrence data and the severity of consequences are insufficient to classify a risk, it should be considered high until investigations and collected data provide conditions to classify it [27].	A score of 5 was assigned to the intake points because the presence of cattle and ducks at the intake points may be associated with microbiological hazards that could impact public health [17].
8	A score of 5 was applied to the intake points where upstream areas lacked vegetation and are situated on private land. Since these intakes are located in areas not owned by the municipality, deforestation is considered to be aligned with the owner's interests, suggesting that these practices have likely occurred in the past, are occurring presently, and may occur in the future. Score 1 was applied to intake points that feature preserved vegetation. As they are located within conservation units, it is believed that the preservation of vegetation has likely occurred in the past, is occurring in the present, and may continue into the future [17].	Pontuação 3 was associated with capture points because the absence of vegetation can cause changes in water turbidity and flow that do not have long-term adverse effects on public health [17].
9	A score of 5 points was applied to intake points that exhibited precarious elevated level dams, absence of grates, or bottom discharge. Since all these intakes are over 15 years old, it can be considered that these characteristics have occurred in the past, persist in the present, and will continue to occur in the future [17]. Furthermore, there are no short-term management plans within the sanitation company aimed at improving these structures. The score of 1 was assigned to intake points equipped with reinforced concrete elevation dam, grating, and bottom discharge.	The severity score of 3 on the consequence scale at all intake points was based on changes in water flow and turbidity that can occur in the absence of adequate damming, screening, and bottom discharge. These changes can lead to noticeable organoleptic effects on water quality without causing long-term health effects on the population [17].

Table S1b: Criteria used in the probability of occurrence and severity of consequences scale for hazardous event risk matrix are presented. Where: 6 erosion with deposition of soils and sediments, 7 animal husbandry, 8 inappropriate

vegetation, 9 inappropriate intake and 10 mechanical, electrical and structural failures and communication difficul-ties, 11 compliance of water quality parameters.

Hazardous event	Probability of occurrence	Severity of consequences
10	Score 4 has been assigned to the intake points because they undergo maintenance at least once per week [17].	Punctuation 3 has been applied at the intake points due to potential turbidity changes. These alterations have evident organoleptic effects on water quality, but pose no long-term health effects on the population [17].
11	A score of 5 was applied to sampling points that either lacked a historical series of water quality parameter data or had maximum allowable values above those recommended by Brazilian legislation. Point 1 was applied to intake points that had a historical series of water quality parameter data or had maximum values permitted below those recommended by Brazilian legislation [38].	A score of 5 was assigned to sampling points lacking historical data series for water quality parameters [27].Other points scoring 5 exhibited water quality parameters above Brazilian legal limits, with implications for public health. A score of 1 was applied. Because the potential danger of color alteration does not have negative effects on people's health [17].

Table S1c: Criteria used in the probability of occurrence and severity of consequences scale for hazardous event risk matrix are presented. Where: 10 mechanical, electrical and structural failures and communication difficul-ties, 11 compliance of water quality parameters.

References

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