Supplementary Material S1: Quantification **(NMP/mL)** of bacteria in the cultures, and the application of the mathematical equation to obtain the results

Table 1. Quantification of Acid-Producing Bacteria (APB), Sulfate-Reducing Bacteria (SRB), and General Anaerobic Heterotrophic Bacteria (GANB) in Produced Water (PW) samples.

Microbial Group	**Quantification (NMP/mL)**	
	p_1.00	**p_2.75**
	Water	Water
APB	4.3×10^6	4.3×10^6
SRB	2.3×10^5	2.3×10^5
GANB	2.3×10^5	2.3×10^5

Sample Points (height): 1.00 m (p_1.00); 2.75 m (p_2.75).

For quantification, mathematical equations were used, based on the Poisson's law. It is assumed that bacteria are distributed in a dilution following a Poisson distribution. Thus, the average number of bacteria can be calculated by equation 1.

$$P_0 = e^{-\lambda} \qquad (Eq. 1)$$

Therefore, applying the equation above for more than one dilution, equation 2 is developed:

$$\sum_{j=1}^{K} \frac{g_j m_j}{1 - exp(-\lambda m_j)} = \sum_{j=1}^{K} t_j m_j \qquad (Eq. 2)$$

Where:
λ = average number of bacteria (MPN);
P_0 = rate of negative bottles relative to the total number of bottles;
K-j = number of dilutions;
g-j = number of positive tubes in the j-th dilution;
m-j = volume of sample applied to each tube in the j-th dilution;
t-j = number of tubes in the j-th dilution.