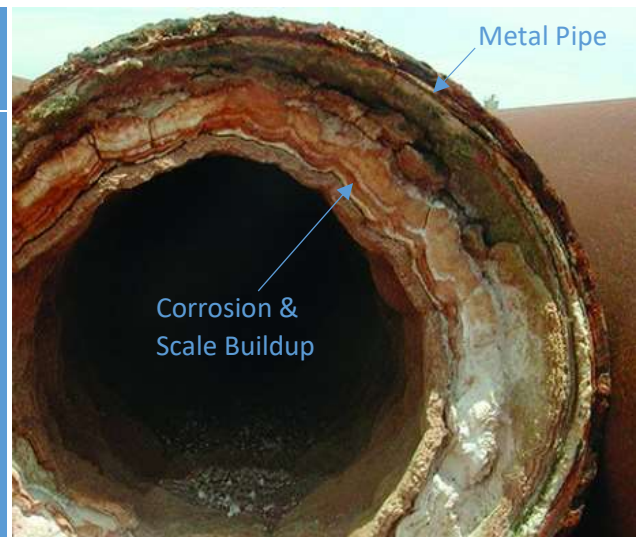


Are you aware of what impact **BACTERIA** can have on your operation?

<u>SOURING</u> OF THE FORMATION <sup>1,2</sup>	What does this lead to? 1. Increased Well <b>Life Cycle Costs</b> 2. Increased <b>Safety Issues</b> due to <b>H<sub>2</sub>S</b> 3. <b>Degradation</b> of Product 4. Loss of <b>Social License</b> 5. ... more <b>HEADACHES</b>
INCREASED <u>CORROSION</u> OVER TIME <sup>2,3</sup>	
<u>DEGREDDATION</u> OF FRAC CHEMISTRY <sup>2</sup>	

Call **1-855-537-3011** to avoid **HARMFUL AND EXPENSIVE** bacteria growth

<b>CHLORINE DIOXIDE (ClO<sub>2</sub>) ADVANTAGES</b>	
<ul style="list-style-type: none"> <li>✓ Effective over a wide pH range (2-10)</li> <li>✓ Limited reaction By-Products (NaCl and H<sub>2</sub>O)</li> <li>✓ Oxidizes Fe<sup>2+</sup> to Fe<sup>3+</sup> (removable form)</li> <li>✓ <i>Irreversibly</i> Neutralizes H<sub>2</sub>S</li> <li>✓ On-the-Fly Biocide Demand Monitoring</li> <li>✓ Reaction Time of 1-10 seconds</li> </ul>	<ul style="list-style-type: none"> <li>✓ Highly effective at killing <i>live bacteria, spores and biofilms</i> of:                             <ol style="list-style-type: none"> <li>(1) <b>Sulfate Reducing Bacteria (SRB)</b></li> <li>(2) <b>Acid Producing Bacteria (APB)</b></li> <li>(3) All other <i>bacteria species</i> responsible for <b>Microbial Induced Corrosion (MIC)</b></li> </ol> </li> </ul>



## Better Water. Clear & Simple.

<sup>1</sup> Vance, I., & Thrasher, D. R. (2005). Reservoir souring: mechanisms and prevention. In *Petroleum microbiology* (pp. 123-142). American Society of Microbiology.

<sup>2</sup> Malcolm, A. C., Dempster, S. P., Chandler, B., & Setiawan, S. (2015, October 20). Evaluation of Chlorine Dioxide as an Oxidative Biocide for Hydraulic Fracturing in Western Canada. Society of Petroleum Engineers. doi:10.2118/175945-MS

<sup>3</sup> Neria-González, I., Wang, E. T., Ramírez, F., Romero, J. M., & Hernández-Rodríguez, C. (2006). Characterization of bacterial community associated to biofilms of corroded oil pipelines from the southeast of Mexico. *Anaerobe*, 12(3), 122-133.