

# Exploration Techniques in a Hydrogen Sulfide-Rich Cave

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## Abstract

The unusually toxic environment in Cueva de Villa Luz (a.k.a. Cueva de las Sardinias), Tabasco, Mexico, presents unique challenges. The H<sub>2</sub>S concentration in the cave atmosphere typically ranges from 4 - 200 ppm. The O<sub>2</sub> level is only 9.6%. The recorded CO level has reached 3.2%. Moreover, formaldehyde may be released<sup>2</sup> from some water inlets. Monitors also indicate frequent bursts of carbon monoxide. Gypsum deposits, microbial colonies, and water drips range from pH 0-3 and have caused chemical burns to the skin and eyes of cavers. One passage contains an unidentified substance which irritates the skin and causes an itchy rash for several days after contact. Precautions used by researchers include: 1) carrying a 4-gas continuous monitor; 2) using gas mask filters rated for acid gases and organic vapors; 3) carrying belt-size scuba tanks for emergency evacuation; and 4) wearing Tevek exposure suits under some conditions.