# Conference: PEMA Remediation Seminar 2023

# Title: *SVE Design & Operation in the Age of Vapor Intrusion*

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**Background**

Volatile organic compound (VOC) contamination at Brownfield sites is most commonly addressed through the use of soil vapor extraction (SVE). The technology is so well known and ubiquitous throughout the environmental consulting industry, it is often selected and approved as a presumed remedy on sites large and small.

The design of SVE systems is a science and data-based endeavor that relies on well-understood principles and concepts. Soil type and heterogeneity, contaminant properties, and depth to groundwater are important factors that must be incorporated into the design inputs. SVE is generally capable of removing the vast majority of VOC contamination in soil/soil vapor when applied correctly.

**Analysis**

The administration of VOC cleanup sites by regulatory agencies has been significantly altered by the emergent concept of vapor intrusion (VI) and increased estimates of human toxicity from exposure to breathing certain VOCs. VI is understood to occur when volatile chemicals enter enclosed spaces like homes and commercial buildings as a result of VOC contamination in soil, soil vapor, or groundwater contamination beneath.

The 99% removal achievements, which were sufficient for site closures in decades past are no longer successful enough to convince regulators that a site may be closed or that a redevelopment may proceed.

**Call to Action**

The state-of-the-practice for SVE feasibility analysis and design is outdated and does not provide sufficient consideration of the impossibly low target goals for VOC cleanup that now accompany VI guidance and contaminant screening values. The presenter will discuss these design steps and provide a new framework for evaluation of SVE and for design of effective systems, considering the difficulty of achieving no further action status on VOC sites.

**Biography**

**Jeremy Squire, MSc., P.E.,** is vice president and operations manager of Murex Environmental, Inc., a California-focused environmental consulting firm located in Irvine, CA. Mr. Squire has 25 years of experience in site characterization, remediation design and implementation, Brownfields redevelopment, and regulatory negotiations.