

## **Supporting Information (SI)**

### **Manuscript Title: Application of waves for remediation of contaminated aquifers**

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#### **Detailed description of the shockwave used in the third setup.**

The third setup (Figure 1 SI) was a simple shock tube, 5-m long (40 mm diameter) composed of two sections: A) a 2.5 m long high-pressure tube that was separated from B) the low pressure tube by an instant-opening pneumatic valve with an electric starter (ISTA Inc. Petersburg, Russia). The low-pressure tube consisted of three sections: a) the lower 75 cm was filled with saturated quartz sand (Table 1), b) the next 75 cm was filled with saline water (EC of 2 mS/cm), and c) the rest of the tube (1m long) remained empty and was used to reduce the influence of the refraction waves.

Electrical conductivity gauges (as in the second setup) were attached 5, 8, and 14 cm (channels 1, 2, and 3 respectively) from the top of the sand layer. Pressure transducers (Kistler Instrument Co. NY, USA) were located at the same heights as the EC gauges. Pressure profiles and EC were recorded by a computerized GageScope registration system

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that was composed of multi CompuScope 225-128K cards and GageScope version 2.2 software (Gage Applied Inc. Lachine QC Canada).

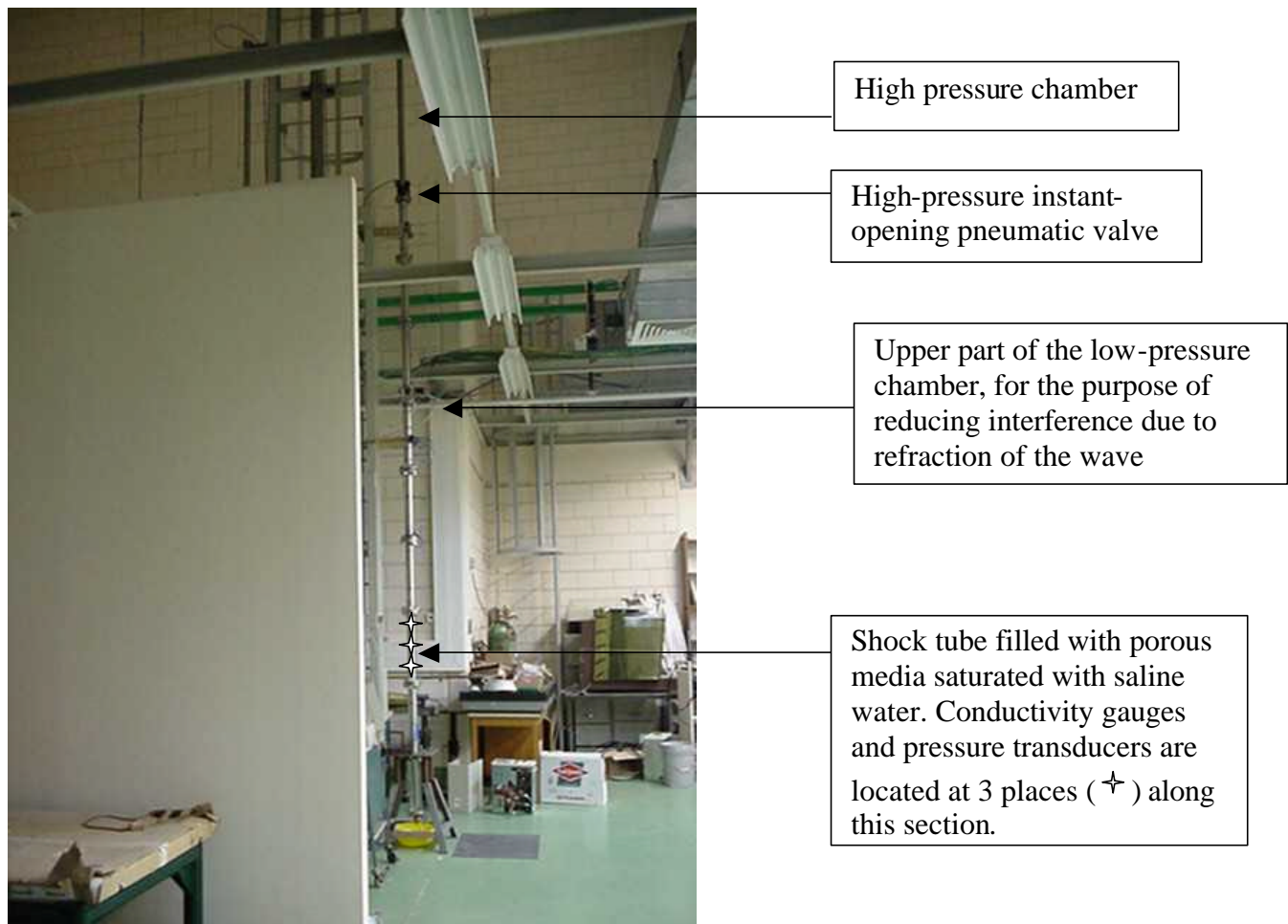
Saturated sand was introduced in a manner similar to the second setup. In addition, bubbles were also removed by applying a jet from the bottom of the low-pressure column. The shock waves originated at the top of the column and propagated downward.

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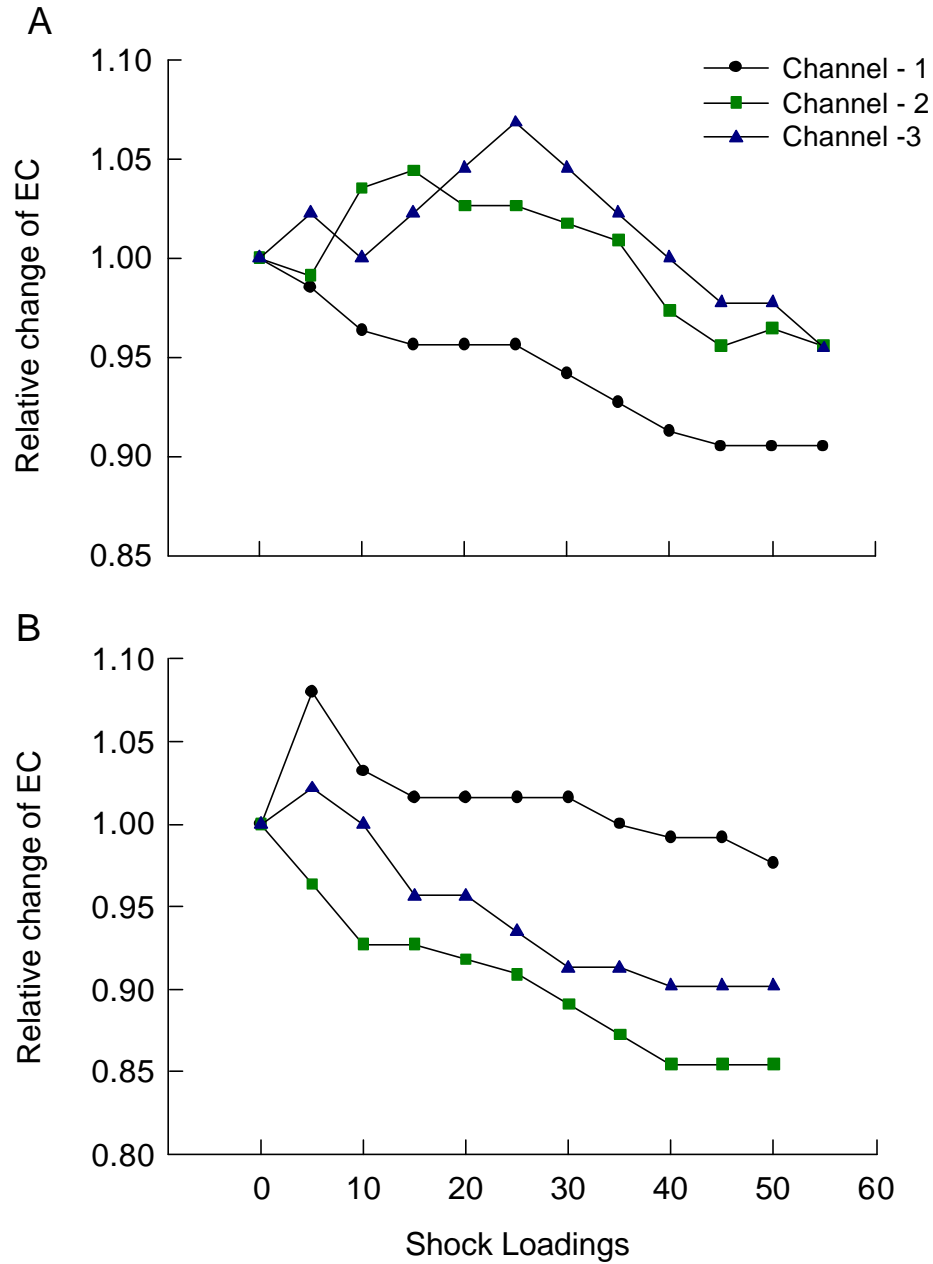
**Table S1. Properties of the sand that was used in the first setup.**

<b>Chemical Composition</b>	<b>Percentage (%)</b>
SiO <sub>2</sub>	98.5
FeO	0.12
Al <sub>2</sub> O <sub>3</sub>	0.5
CaO + MgO	0.15
Na <sub>2</sub> O + K <sub>2</sub> O	0.1
Granule Size	Distribution
Greater than 0.85 mm	50
Less than 0.6 mm	50

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**Figure S1.** Shock tube apparatus used in the third setup. High pressure from the pressure chamber was applied to the low-pressure column by releasing an instant-opening pneumatic valve triggered by an electromagnetic starter.



**Figure S2.** Cumulative relative (to the initial level) changes in electrical conductivity at three stations located along the shock tube column of the third setup after a set of shock wave emissions. Channels 1, 2, and 3 were located 5, 8, and 14 cm, respectively, below the sand surface,. Graph A depicts results that were in line with the theory (1) and graph B depicts deviations from the expected pattern (see text for explanation).