

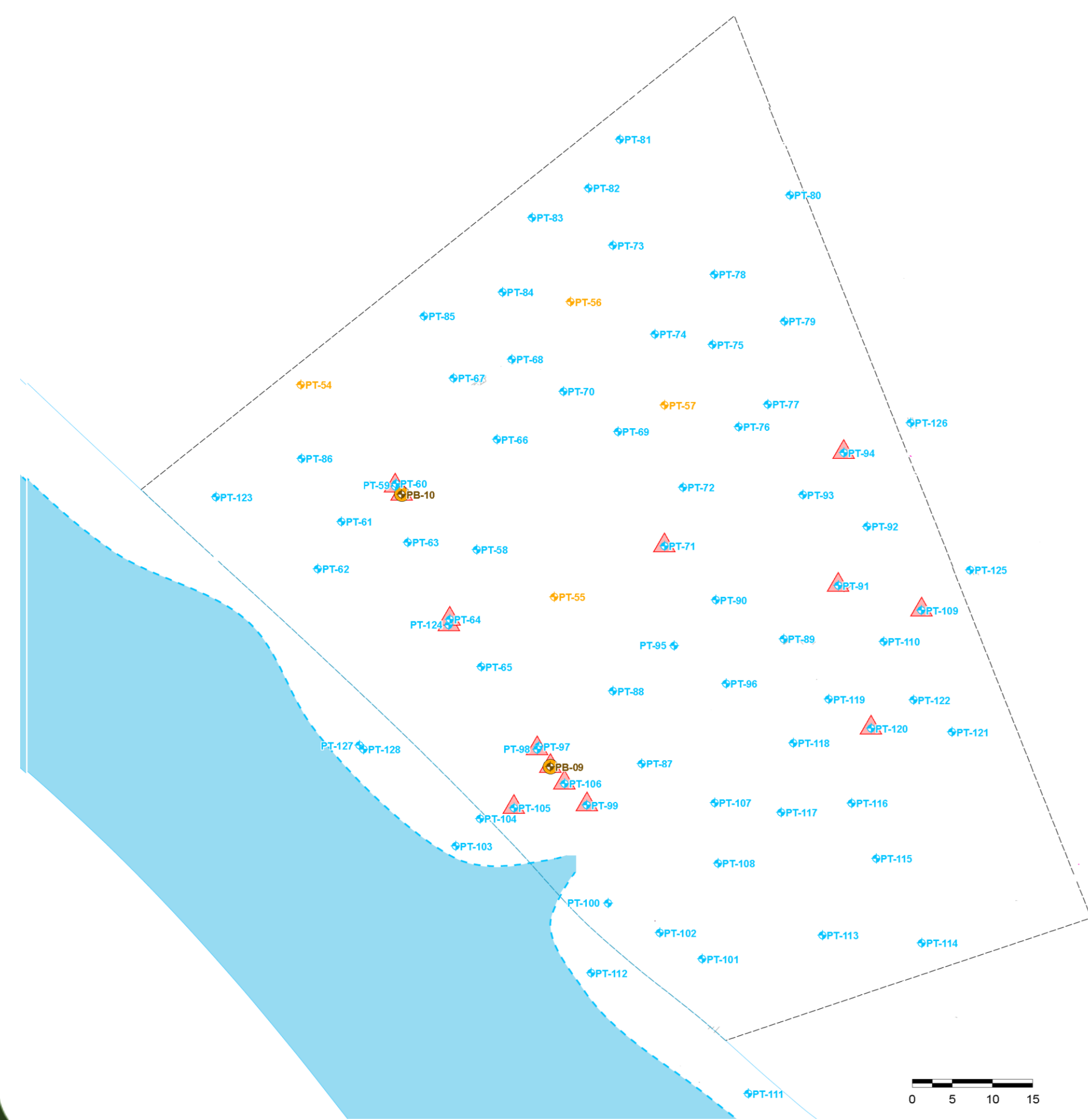
THE TRADITIONAL PUMP AND TREAT CAN PROVIDE EXTRAORDINARY RESULTS

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STEP 1: DATA ACQUISITION

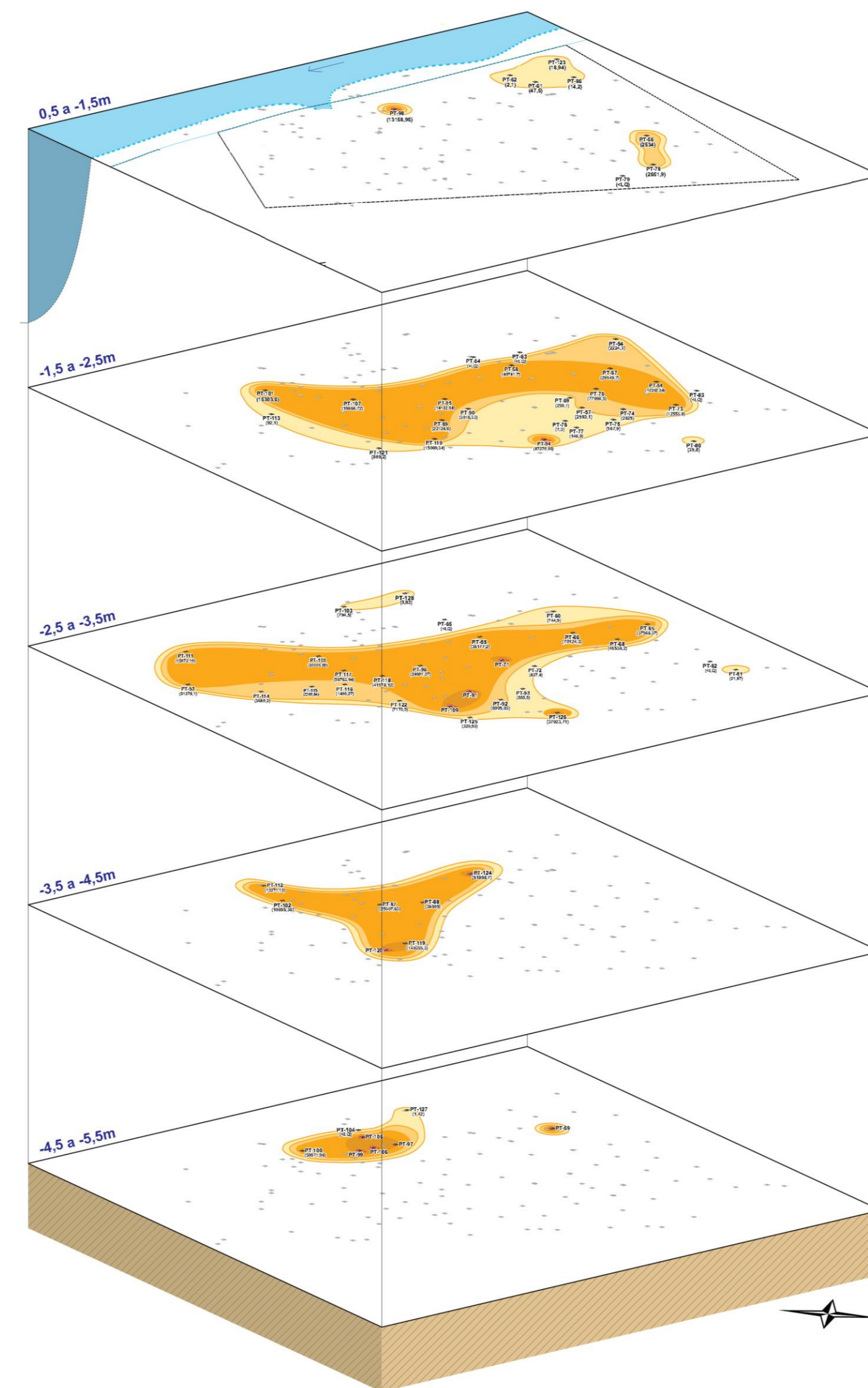
Three months of investigation:

- 71 temporary monitoring wells
- 14 occurrences of DNAPL detected through soil and groundwater detailed mapping



STEP 2: DATA INTERPRETATION

Dissolved Phase of chlorinated organic solvents + DNAPL distributed within a sandy layer above a clayey layer



STEP 3: EVALUATION OF THE AVAILABLE DNAPL VOLUME

1. NAPL Saturation

Estimated as 0.7 (DNAPL flow threshold saturation = 0.5)

2. Total Porosity

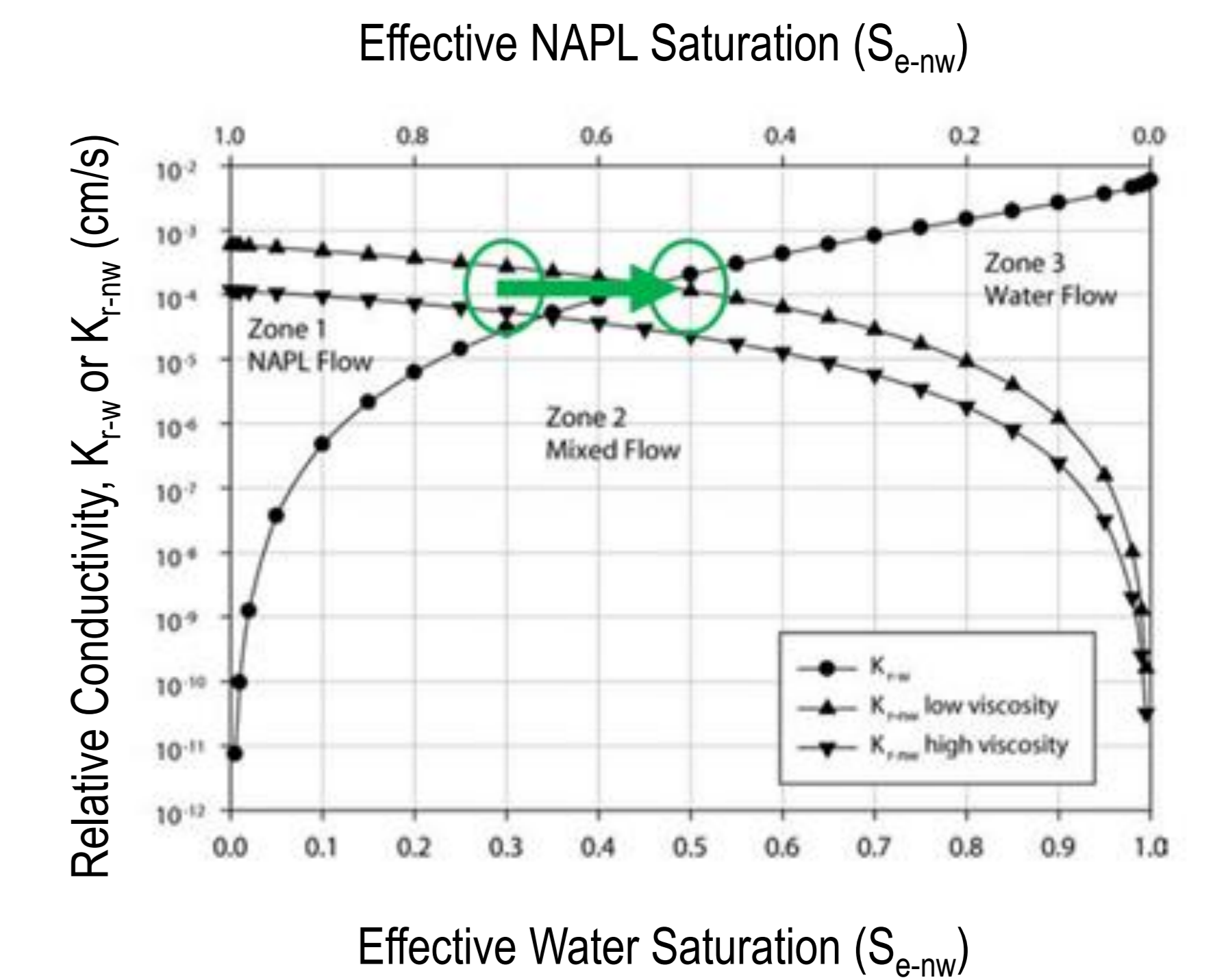
0.3 at the sandy layer

3. Top and Bottom Definition

Bottom: delineated by the sandy/clay contact
Top: defined by DNAPL thickness measured in the wells

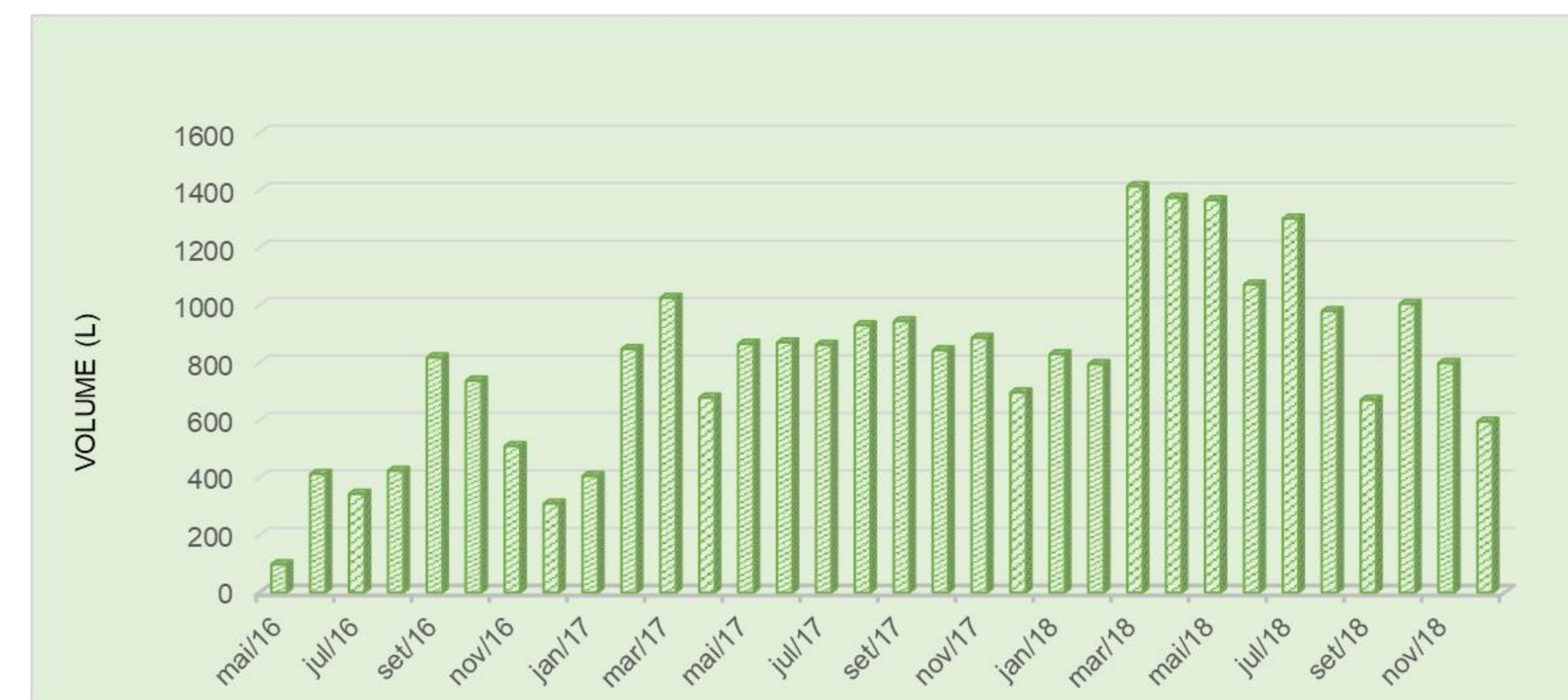
4. Interpolation Results

~ 37m³ of DNAPL available (above saturation threshold)



Source: Payne, Fred C., Joseph A. Quinnan, and Scott T. Potter. 2008

DNAPL EXTRACTION RECORD



Approximately 26m³ of DNAPL removed by 3 pumping wells installed in the hot spots

Results: Preliminary studies suggested that it should be possible to remove additional 11 m³ of DNAPL. This should take place over the next 1.5 years of operation.

Lesson Learned: Based on a robust conceptual model and adequate design and implementation, the traditional technique (P&T) can achieve significant mass removal, at a low cost and with little operational complexity.