

Figure.S1. TDEM resistivity profiles and interpretation in the northern site (1a) and in the southern site (1b) from the west (spots 12 and 2, at shoreline) to the east (spots 1 and 14, 70 m from shoreline), respectively. F- Fresh water, B – Brackish water, FB – fresh-brackish, S – Saline water, C – Clay layer.

well name	aquifer	level behavior	number of tests	aquifer type	average hydrological conductivity (m/day)
71-1	C	dynamic	5	confined	<b>66.0</b>
71-2	B	dynamic	5	confined	<b>45.4</b>
72	B	dynamic	6	confined	<b>40.9</b>
73	B	dynamic	4	confined	<b>47.8</b>
71-3	A	exponential	6	phreatic	<b>13.2</b>

Table S1 App. Slug test. For more about level behavior type see [Lutski and Shalev \(2010\)](#).

well name	aquifer	T (m <sup>2</sup> /day)	S	aquifer	solution
71-1	C	1197	0.00160	confined	Cooper-jacob
71-2	B	750	0.00012	confined	Cooper-jacob
72	B	800	0.0001	confined	Cooper-jacob

Table S2 App. Interference recovery test

Slope	A (m <sup>2</sup> )	V (m <sup>3</sup> )	v* (m/hr)	v*	v corrected	R <sup>2</sup>
			=slope/(A/V)	m/day	m/d	
0.82	0.88	0.11	0.10	2.36	5.9	1.00

Table S3 App. Horizontal groundwater velocity in well 71-3 which interpreted from Point dilution test by the procedure described in [Ward et al \(1998\)](#).

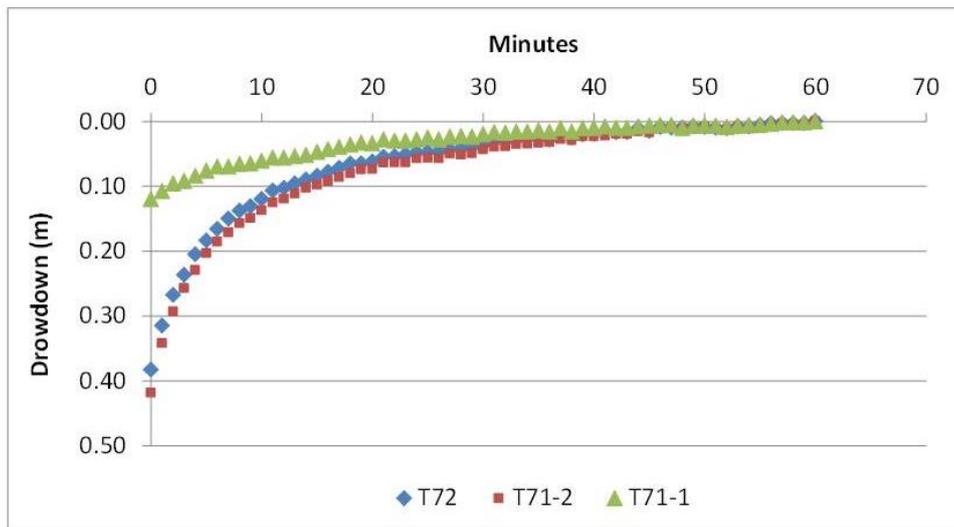


Figure S2 Interference Recovery test in wells 71-2, 71-1 and 72. X – axis is the time after the pumping in well 211 was stopped.

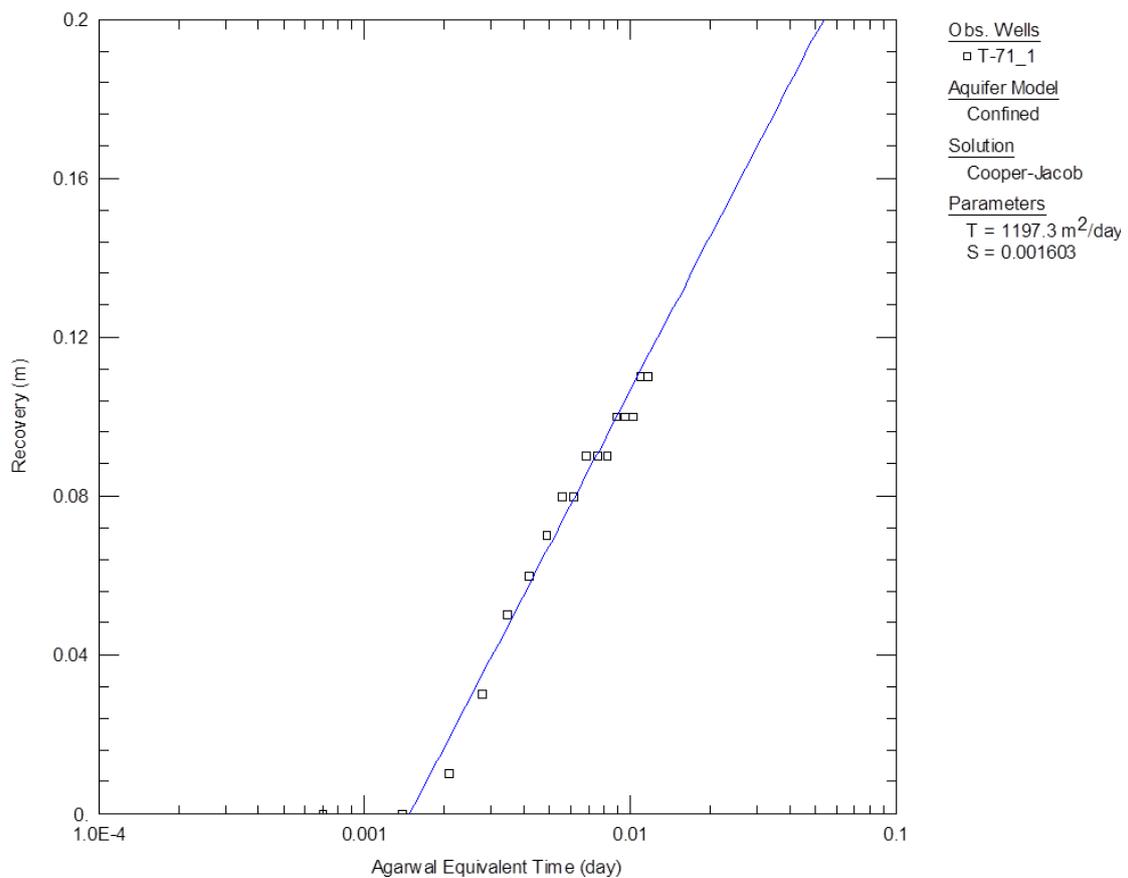


Figure S3. Interpretation of interference recovery test in well 71-1 (unit C).

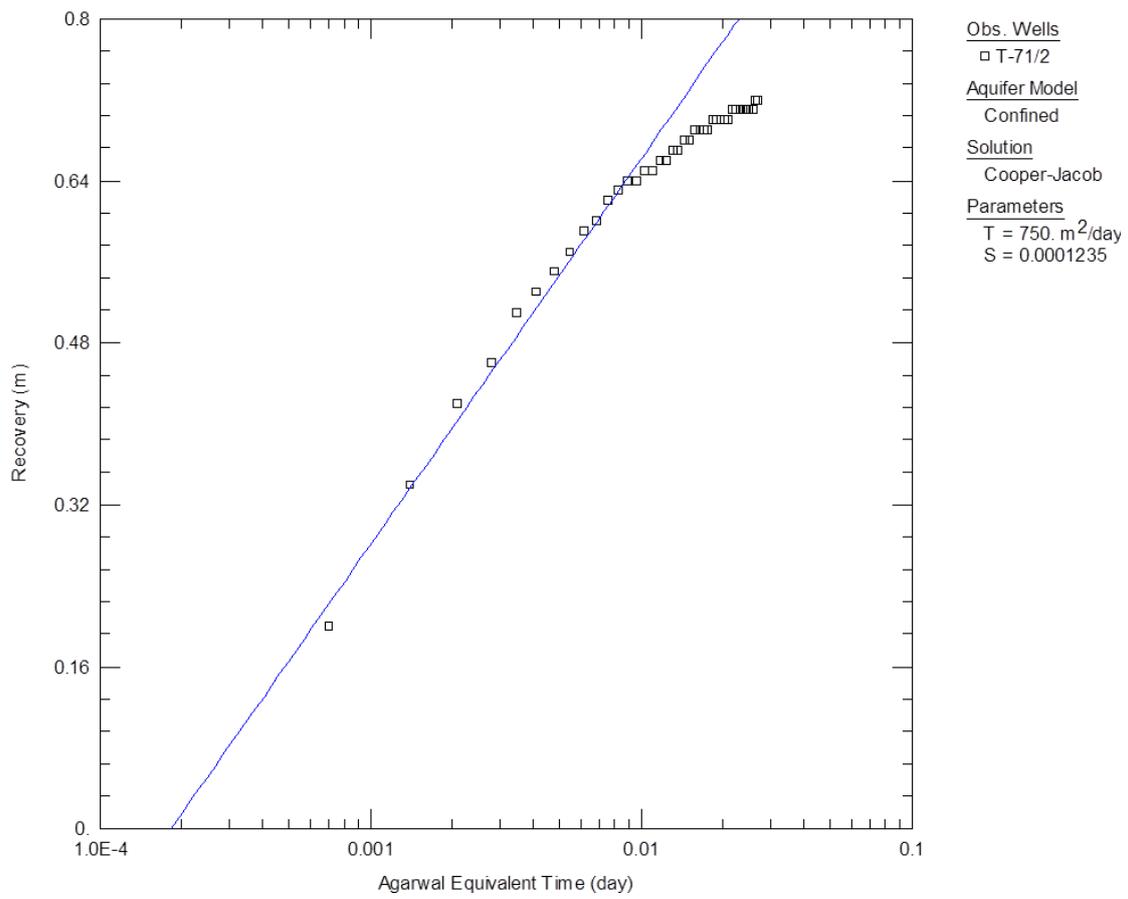


Figure S4. Interpretation of interference recovery test in well 71-2 (unit B).

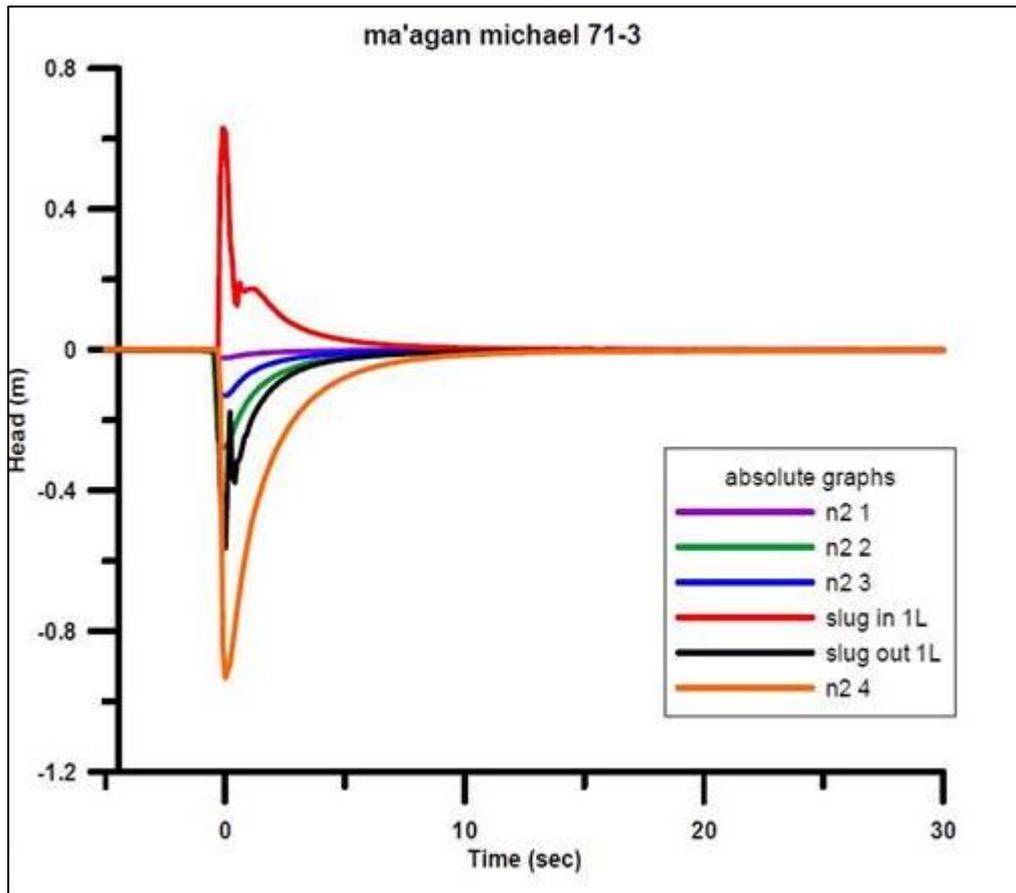


Figure S5. Slug test in well 71-3 (unit A, phreatic). n2 1-4 is for nitrogen injections in different pressure .

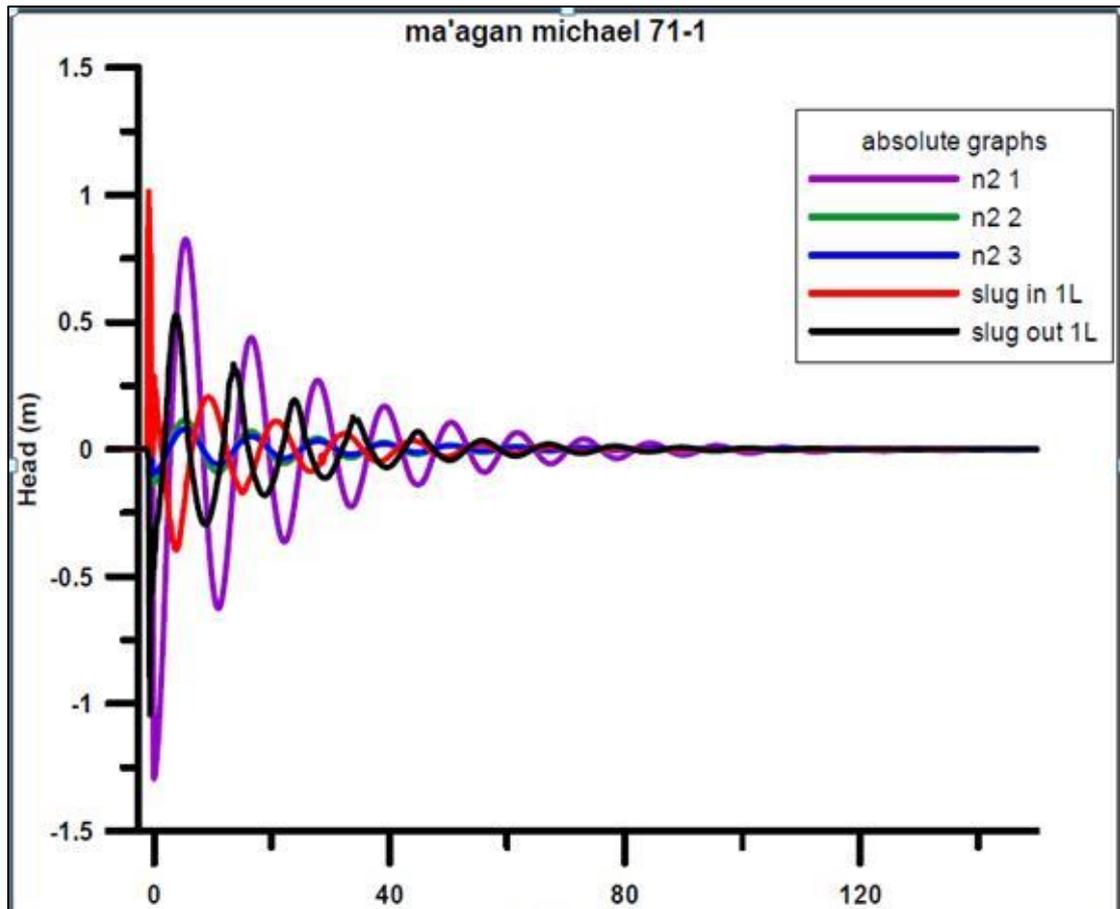


Figure S6 Slug test in well 71-1 (unit C, confined). n2 1-3 is for nitrogen injections in different pressure .

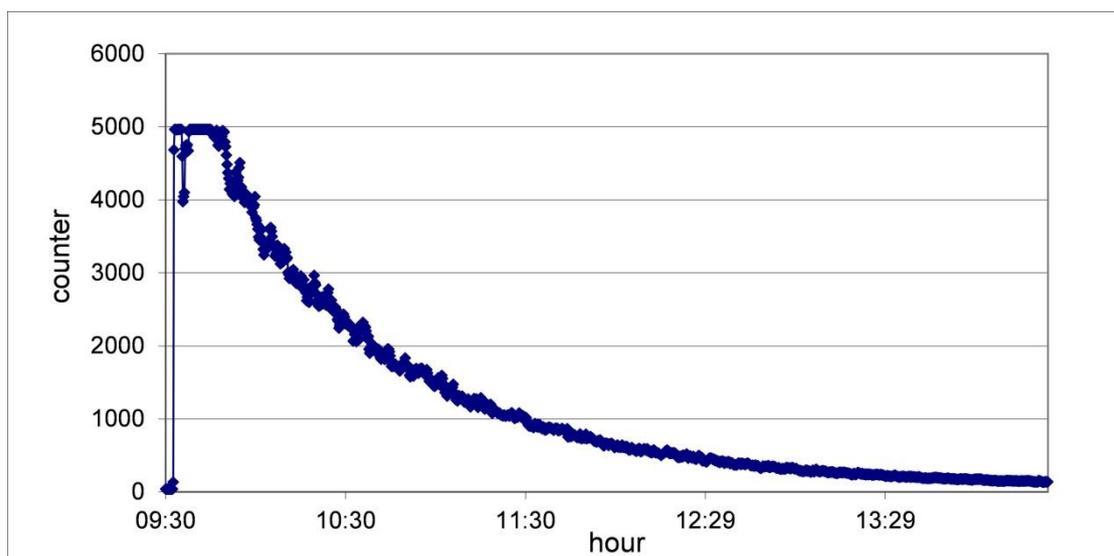


Figure S7 Fluorometer counter after time from injection (hour).

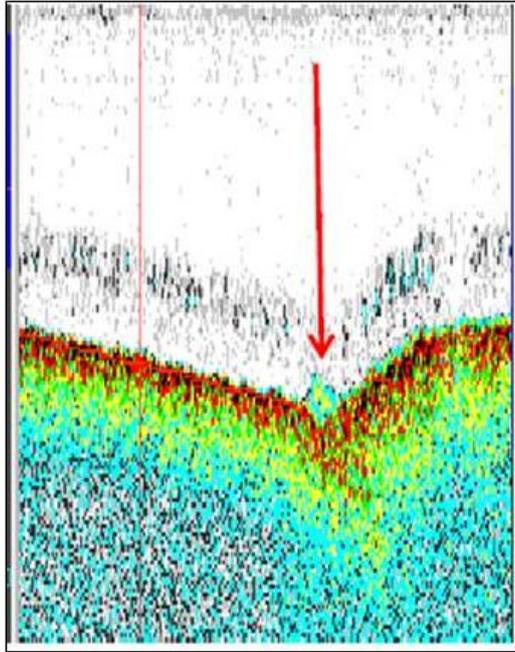


Figure S8 Location of SGD (red arrow) which recognized on line 3 in the chirp survey (see figure 8 ), in a place where the Kurkar rock is exposed.



Figure S9 Radon activity (dpm/L) in the shallow sea. High activity (10.9 dpm/L) was measured in the northern area (191087/718969), 700 m from shoreline, where the Kurkar ridge is exposed .