

Meeting with Water Diviner and Well Drillers

On 31st August 2004 at Howard Davis Farm

Present: Mr L De La Haye - Well Driller
Mr G Langlois - Water Diviner
Deputy S Ferguson
John Richardson - CEO E & PSD
Chris Newton – Divisional Director, Environment
Gerry Jackson - Assistant Director
Deputy J Hilton - Vice Present E & PSC

Objectives

1. Open a dialogue for an exchange of views with the Drillers and Diviners (D & D).
2. Gain an understanding of the 'model' of Water Resources on the Island as understood by the D & D.
3. Establish the evidence base for the views held by the D & D.
4. Determine experimental investigations that would add to our knowledge about the nature and extent of deep groundwater on the Island.

Discussion

- i. D & D sceptical of the invitation to dialogue as thought they had been there before with no recognition of their views resulting.
- ii. Deputy Hilton assured them of real intent to listen and explore.
- iii. D & D's 'model' of Island water resources captured by CN on flip chart. Key features being:
 - a) Accept standard model of rainfall, stream flows, rain fed aquifers;
 - b) In addition propose a deeper layer of water, not recharged from local rainwater, originating in France and flowing under the sea bed.
 - c) Believe this water flows in 'streams' and the streams were described as being 'up to 1 mile wide' and 'from 200-600ft deep'.
 - d) The streams were not flowing through a void (although some subterranean caverns do exist) but through a rock matrix as evidenced by drilling logs.
 - e) As well as water from France there is an extinct volcano at Rozel with a layer of water at its core. Top layer is sulphurous but below this the water is clear and usable.
 - f) Unclear as to whether the deeper layer is physically unconnected to the shallow rainfall aquifers. For instance in respect of the St Ouen's Gravel

Aquifer it was thought that pumping of deep water could 'pull down' water from the shallower aquifer.

- g) Extraction rates from a deep borehole were limited by borehole size and pump capacity but also by the local recharge rate which behaved in normal fashion i.e. a cone of depression.
 - h) Flow rates from deep boreholes were in the order of 1,200-3,000 gallons per hour, (although after the meeting a higher flow of 9,000 was rated for a 'private site' at Trinity).
 - i) Depths considered "deep" ranged from 150 feet to 600 feet.
- iv. Construction details of a typical deep borehole were explained by Mr De La Haye.
- Steel lined through shallow aquifer to prevent infiltration, typically for 60 feet.
 - Impermeable liner down to zone of abstraction.
 - Pumping zone has resin filter/liner sitting on a wooden plug.
 - Top of borehole has a steel cap through which electricity cable to the pump and outlet pipes are glanded.
- v. Evidence base for D & D's views on deep water
- (a) D & D not willing to divulge specific client information quoting infringement of their human rights.
 - (b) However were able to identify a range of deep borehole sites at which it was possible to state the depth and maximum yield.

Site	Depth in Feet	Yield in Gallons per hour
Besco Laundry	305	3,000
Jersey Milk x 2	200	2,500
Cote du Nord	500	2,000
Cheval Roc	500	1,500
5 Mile Road, wooden houses	200	1,200
Corbiere Weather Station	305	1,500
Handois	?	?
Les Varines (artesian)	?	?
Old JEC site x 4	?	?
Hastings Road, St. Helier	200	1,000
Trinity, private site	750	9000

- vi. Water from France: Evidence base.
- a) The direction of water deep flow under Jersey determined by divining.

- b) Existence of freshwater at Ecrehous Islands cited as evidence of flow between France and Jersey.
- c) A belief that such flows relate to Jersey is historical connection to the French mainland. Thought to have been as recent as 709 AD.
- d) Anecdotal stories of 'experiments' that had been conducted by dosing water courses in France and detecting the dosed chemical in Jersey groundwater. These stories revolved around an experiment that linked the Pyrenees to the South Coast of England (1984-1988), an experiment that linked the Petit Suisse region to Jersey and story concerning a pollution incident on mainland Europe in 1936 which affected the water quality in Jersey.
- e) An understanding that the driving force for the movement of groundwater under the sea bed was the moons gravitational effect.

vii. Experimental Investigation

Options discussed included:

- j) Detailed measurements and test pumping of existing deep boreholes.
- k) New boreholes drilled into the deep aquifer, for example in the St. Ouen's aquifer.

L De La Haye believed such a borehole at 8 inches could deliver 10,000 gph and offered to carry out the drilling on a no yield/no fee basis.

- l) A deep borehole on the Ecrehous to demonstrate an undersea freshwater connection

E&PS agreed to consider best options and carry out the necessary experiments in liaison with the D & D.