DRAFT WATER RESOURCES (JERSEY) LAW

SCRUTINY HEARING of THURSDAY OCTOBER 14, 2004-10-14

Summary Notes

These notes are intended as a summary of the main points to emerge from the hearings of October 14, not as a detailed minute or transcript. These hearings took the form of questioning of Drs Renouf and Nicholls who were part of the Review Group established in October 1989 to provide geological review of the Hydrogeological Survey of Jersey being undertaken by BGS. The chairman of this Review Group (Dr J Sharp) apologised for his inability to be present.

Chronology and Involvement in BGS Activities

- October 1989: Group established for review of BGS activity and conclusions
- 1991: Group contributed to the Riley Report and concurred with the view that the water resources of the island were under threat and endorsed the view that further information was required to understand the resource situation
- 1994: Group prepared 'Position Paper' based on review of BGS 1989-93 activity, the 'Lighthouse' Report the Reilly Report, WDEA Documents and Sutton's note on BGS documents.

This 'Position Paper' included 6 recommendations for filling, what were felt to be, gaps in the BGS work to date:

1. To consider deeper levels of water resource
2. To consider geological controls of water storage and movement and the means by which these could be investigated
3. To provide a more detailed appraisal of weathering
4. To look closely at the suitability of the MODFLOW groundwater model
5. To have geologists at new well sites
6. To take greater account of Driller's depths

Following this paper the Review Group had no further involvement and they do not accept the 1994 statement of their satisfaction with the BGS work as a true reflection of their position. They were not involved in the Trinity Catchment Study and believed that this study:

- Did not address variations between catchments
- Did not address deeper infiltration
- Supported the view that there was a serious risk to water resources particularly in drier periods.

The group feels that perhaps the stress on resources since 1994 has been less apparent because of improved rainfall.

Geological Comparison
Most direct and valid geological comparison is with Cotes d'Armor area of Brittany (copy of publication by Gilles Marjolet was provided to the Panel). In this area of very similar geology to Jersey around 20% of public water supply is obtained from wells 60 to 90m deep principally into volcanic (andesitic) rocks and yielding up to 300 m3/hour. This yield is obtained from vesicular and partly altered volcanic rocks below generally occurring beneath less permeable rocks and below the zone of surface weathering. The zones from which these deep groundwater yields are obtained are also separated laterally by vertical zones of relatively impermeable rock.
Recharge of groundwater into these zones is principally vertical and there is little or no lateral groundwater movement.
The occurrence and exploitation of this deep groundwater requires specific geological conditions very similar to those found in the Trinity/St Saviours area and possibly at depth through to the northeast coast. The geology beneath the Jersey Shale to the west is not known. The contribution that ongoing dialogue with well drillers could make to understanding of deeper geology was highlighted here.
The BGS were not sympathetic to investigation of similar resources in Jersey and believed that their conceptual model of a relatively shallow aquifer within the upper 30/40m (zone of recent weathering) represented the effective exploitable water resources of Jersey.
It is important to recognise that this 'deep groundwater' resource is not a new or additional resource it is dependant for renewal on the finite amount of rainfall that forms recharge. It may however, provide a from of 'balancing reservoir' that moderates the extremes of dry years or short drought periods.

Speed of Groundwater Movement and Water from France
Movement of water through the ground (not to be confused with flow of water into a well or excavation) is slow process (scale of metres/year) through pores and fissures and controlled by gradient and permeability (Darcy's Law). There is no likely hood of groundwater from France contributing significantly to the groundwater resources of Jersey.
The occurrence of groundwater under pressure and flowing to the surface (artesian flow) close to some of the highest points of the island was discussed, and the physical impossibility of groundwater of meteorological origin occurring under pressures higher than the surface of origin was unequivocally stated.
A lack of understanding of the origin of 'warm' groundwater in a few wells was stated.

Ecréhous Drilling
In response to questioning the Review group clearly stated that they saw little value in drilling at the Ecréhous. It would be of interest in establishing the subsurface geology but in view of the geological history of the last 1M years the presence or absence of fresh water would prove nothing. For most of the past 1M years (say 750000) Jersey and France were part of the same land mass connected by a coastal plain across which rivers flowed and valleys occurred. Much of the freshwater recharge from this period may have been flushed by seawater but it is probable that a fair proportion remains and it is likely that freshwater under what is now essentially the sea would be relic of this 'fossil' water. Use of tracers to try to establish a link to Jersey is unlikely to prove practicable because of time, distance and uncertainty.
Freshwater springs at some distance offshore are generally regarded as being related to the sub sea outcrop of 'aquifers' which receive their recharge at some distance inland.

Need for Legislation

(Present draft legislation has not been read by the Review Group representatives)

While recognising that the current trend is for obtaining resource relevant information is through cooperation rather than legislation there is no confidence that this approach would succeed in Jersey. It will almost certainly be necessary to introduce legislation to compel release of well geology, construction details and yields on a universal basis and to permit intrusive activities such as installation of flow and level recorders that will be necessary to build up a complete resource picture. The belief that resource management also requires legislative powers was also stated.

Following discussion of the recent cooperation between EPSC and WDEA and the States encouragement of the implementation of voluntary Codes of Conduct and Self Regulation the members of the Review Group present expressed their willingness to participate in the process establishing a system of voluntary submission of data starting with all new wells (cost to be included as part of drilling costs). It was recognised that there would be greater costs associated with data storage and analysis.

Copies of Minutes of EPSC Meeting with well drillers and preliminary proposals for extension of groundwater resource data study and investigation were given to Drs Renouf and Nicholls.

Stuart Sutton

14.10.2004