

General Overview: Kamaole Aquifer, South Maui Region
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The Kamaole Aquifer (KA) is a regionally extensive brackish aquifer (Chlorides exceeding 250 parts per million (ppm)) extending from North Kihei to Makena. It represents transition zone waters between fresher resources mauka and seawater. Numerous coastal wells (see map) produce more than 3.5 million gallons per day (mgd) of irrigation grade water. Salinities range from 350ppm/>1000ppm. These wells are within one mile of the shoreline.

Drilling records show that five wells have been drilled more than one mile, but less than two miles, from the shoreline. These wells have ranged from marginally potable to marginally brackish (chlorides 210-320ppm).

Growth pressure and limited potable water resources have developers looking at alternative sources of potable supplies for the South Maui area-this includes investigation of the KA. Much work needs to be done to determine just what volume and quality of water the KA is capable of producing. The aquifer has never been used as a significant potable water supply. Sustained pump testing at anticipated rates (i.e. 2.5 million gallons per day, (mgd.)) must be performed, water samples taken, and analysis rendered at state certified labs. Over the course of four to five days, the aquifer will begin to yield trends that can be plotted to extrapolate important reservoir characteristics; sustainable yield, projected salinity rise, drawdown, and aquifer thickness. These tests are best performed in conjunction with 4 to 5 nearby monitor wells to determine sustained pumping effects on down gradient wells. Most reports to date expect down gradient impacts from high volume pumping of the aquifer. Many South Maui resorts, condominiums and golf courses currently rely on this aquifer for non-potable uses such as irrigation. These wells are in some cases already of marginal use due to high chloride levels (1000ppm).

Remote detection technologies have in some cases been employed to help discover new water resources. These are technologies developed and refined in the petroleum industry and modified for use in water detection. These technologies cannot give more than a rough picture of potential. They do not prove the existence of a freshwater supply which can be developed. Only a bore hole (well) and pump test can do that.

Desalinization, specifically reverse osmosis (r.o.), has been mentioned as a technology for maintaining high quality drinking water from the brackish KA. There are numerous side effects that accompany r.o. use. These include, but are not limited to; expense, high energy consumption requirements, waste-stream creation, waste disposal issues and inherent inefficiencies. Generally, 2 to 3 gallons of untreated water are required to produce one gallon of potable product. There are many existing reverse osmosis plants in use world-wide. It has been shown to be effective, however, very expensive with a high inefficiency quotient.

This synopsis intends to bring an understanding of the KA and only scratches the surface. Much remains to be learned about the aquifer. This can only be done with initiative, time and money. WR-13 (Show me the water bill) will require proof of acceptable water resources prior to development. The current EIS for Wailea 670 (1988) does not address potable water supplies from the Kamaole Aquifer. In light of recent revelations concerning the Pookela well and its inability to hit target production levels, and also as depicted in The Maui News (07/08/07), pertaining to Maui's dire water situation, it is more important than ever to face the water issue with facts, not just promises.

Sources for this article include:

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