

Water supply

The latest word — No overdraft!

By Bob Smith

There is no groundwater overdraft in mid-Santa Cruz County.

There is no evidence of seawater intrusion into the coastal wells serving the Soquel Creek County Water District and several private users.

Information given the water district by the U.S. Geological Service on groundwater levels is false.

The water district should start construction of an eight-well groundwater monitoring network along the coast to provide information on groundwater movement, and to give early warning of seawater invasion in the future.

Those were the principal conclusions of Joseph Scalmanini and Eugene Luhdorff, consulting engineers hired by the water district to evaluate four conflicting

reports on the groundwater basin, and then to tell district directors if they face an overdraft condition.

The conclusions, presented by Scalmanini Monday night, have already had a rippling effect.

Water directors will hold a public hearing Sept. 8 on a proposal to rescind the district's water connection moratorium that has been in effect for the last seven months.

Directors also delayed action on a planned doubling of its Storage and Transmission Fees (connection charges) that the district said were needed to build a \$6 million diversion dam on Soquel Creek and a water treatment plant east of Main Street between Bridge Street and Sevilla Avenue, Soquel.

They were scheduled to take final action on a resolution increasing the Storage and Transmission

charge from \$1,770 a house to \$3,890.

County Supervisor Robley Levy and County Environmental Coordinator Tom Burns, present at the water board meeting to hear the Scalmanini report, said separately that the county will follow the water district's lead begin taking action to rescind its well drilling ban in the Midcounty.

Mrs. Levy said that any changes in the county ordinance must undergo an environmental review before the supervisors can take action. That is underway, she added.

In an hour-long presentation to the water directors, Scalmanini dealt with the three major concerns of the water board and Midcounty residents, and the four sometimes conflicting reports, that have been prepared over the last 13 years on the Midcounty water situation.

Scalmanini would not make an estimate on the "safe annual yield" from either the Purisima or the Aromas Red Sands formations, but pointed out that there is no evidence of either an overdraft or seawater intrusion in either aquifer.

Scalmanini was critical, in turn, of each of the four reports, attacking the methodology used by the authors and their conclusions.

The first report on the Purisima groundwater formation was the Hickey report, written in 1968.

Scalmanini said Hickey was the only investigator who used a valid method to estimate the groundwater yield. But the report was flawed because he had very little data to base his conclusions on.

Hickey used data from just 25 wells to analyze the flow through the Purisima strata, and concluded that there was 7,000 acre feet a year of water flowing through the mid-depth Purisima "B" formation and 3,000 feet a year through the shallow "C" formation.

Scalmanini praised Hickey for qualifying his conclusions, and for recommending additional study in future years.

The Muir report used a different method — one that Scalmanini said was totally unsuitable for the "confined" Purisima formation aquifer.

The U.S. Geological Service geologist's report concluded that the district and other users of the Purisima groundwater formation were exceeding the basin's "safe annual yield" of 4,400 acre feet a year.

Water directors and county supervisors reacted to that report, slapping the water connection and well drilling moratoriums on the Midcounty.

Muir's method of computing water in storage versus water pumped over a 13-year period, and then finding that there was no change in water levels would be a valid analytical method only when dealing with an unconfined aquifer such as the Aromas Red Sands, Scalmanini said.

The method is not suitable in a confined aquifer where water pressure is sometimes capable of producing an

artesian well.

"To compare changes in storage with changes in pumping is basically an illegitimate approach in a confined aquifer," Scalmanini told the audience.

Muir, according to Scalmanini, committed a second mistake in his report when, as a check to his estimate of 4,400-acre feet-a-year yield, he compared pumping to water levels and concluded that because there was no decrease in water levels, safe annual yield was 4,100 acre-feet.

Because the Purisima formation is a confined aquifer, Muir's check method was also invalid, Scalmanini said.

"We can only conclude that the 4,100 acre feet (estimate) is not a solid value for the Purisima formation.

"In the unconfined Aromas Red Sands formation, it would be a proper analysis," Scalmanini said. "He concluded that 1,500 acre feet a year over 10 years production resulted in no changes in water levels — that is a good figure."

But Scalmanini said that may be too low of an estimate for the Aromas Red Sands.

"We believe that more may have been pumped out. Our contention is that 1,500 acre feet is too low. There has been no pumpage there that has approached the yield of Aromas Red Sands.

Geologist Richard Thorup, working for the Santa Cruz Builder's Exchange, used the inventory method — "how much comes in and how much goes out — to analyze the Purisima formation capacity.

The method estimates the total rainfall in the recharge areas, and then subtracts run-off, plant usage and direct stream diversion by users, Scalmanini said.

"What is left over is available as recharge," Scalmanini said. Thorup estimated that 12,000 acre feet is available for recharge throughout the recharge area.

But Thorup provided only an estimate — based on work he had done in the Seaside area — for the amount of water flowing through the aquifer and into Monterey Bay.

He also criticized Thorup's contention that the groundwater basin under the Central Santa Cruz County Water District is not in a state of overdraft.

Thorup told the Soquel Creek directors that after a cursory examination of the static water levels (which are steadily dropping) in the smaller district's wells, "I would have to conclude the opposite. But more study is needed," Scalmanini said.

Turning back to the Soquel Creek district, Scalmanini said the Purisima's "safe annual yield has not been reached and there is no information one can document that an overdraft has taken place."

Turning to the contention in the Muir report that there is seawater intrusion in the Opal Cliffs-Capitola area,

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