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Research clarifies threat to water sources

By *HARRY EAGAR* Staff Writer

KIHEI – Armed with much better information than was available in the past, the Department of Water Supply is closing in on an ordinance that would protect Maui County’s water supplies – surface and underground – from contamination.

The entire state is working toward a “source water assessment and protection program.” On Monday, the Safe Drinking Water Branch of the Department of Health held an informational meeting at Lihikai School.

Only four citizens showed up, which possibly understated the interest in the issue, since a larger number of volunteers on Maui and Lanai have been working for months with the department to assess the dimensions of the issue.

A team of University of Hawaii researchers led by professor Aly El-Kadi has been working on a numerical scoring system to evaluate what threats exist to water supplies and how imminent the threats may be.

Sushant Dhal, a member of the research team, explained that threats (potential contaminating activities, or PCA) are rated as medium, high or very high.

Gas stations, landfills, cesspools and pineapple fields are rated very high as potential contaminators. Sewer lines, golf courses and diversified agriculture are high threats.

Car washes, high schools and even parks are rated as medium threats.

Parks, explained another researcher, Robert Whittier, present threats because they have parking lots where leaking autos may send chemicals into the ground, because the grounds maintenance crews may use fertilizers or pesticides and because campers may pollute.

Maui County is fortunately free of the most serious pollutants, the kind generated by heavy industry.

Using GPS, data sets, planning documents and other sources, the research team has attempted to identify each PCA in each of the 63 water sources used by either government or private owners in the county. The danger area is determined in two ways, which give somewhat different results.

The older, rule of thumb method simply declares areas so many feet from the wellhead as part of the sensitive zone.

A newer method determines how easily the surrounding soils transmit pollutants and then models how far a molecule could travel in two, 10 or more years.

The smaller, two-year zone applies primarily to pathogens (bacteria, viruses), most of which will have died after two years in soil.

The larger zone is for organic or inorganic chemicals, most of which will degrade within a decade.

Although the assessment comes up with a numerical score for each well or surface source, the evaluation of risk calls for judgment.

“The more you look, the more you find,” said Bill Wong, chief of the Safe Drinking Water Branch. “Where do we stop?”

Chemicals that years ago were undetectable until they were present in parts per billion are now revealed at parts per trillion and even parts per quadrillion.

These studies, originally mandated by federal law, were originally supposed to be widely available, but that changed after Sept. 11, 2001.

“We’re very concerned about security from terrorism,” said Wong.

Wong said Maui County has been ahead of the rest of the state in evaluating safety of its water sources.

Ellen Kraftsow of the water department’s planning and analysis section, says the newer, better information has led to improvements in the draft wellhead protection ordinance, which is still being reviewed but should be submitted to the County Council soon.

“We are trying to draft an ordinance with community buy-in,” she said, which is why the volunteer advisory groups were formed on Lanai and Maui.

Molokai’s group is being organized; its start was delayed because the new water data was not available as early as it was for Lanai and Maui.

Among the questions still under discussion, she said, is whether to create protected zones larger than the 10-year travel time would call for, because “certain chemicals do last longer than 10 years.”

The work of the UH researchers is statewide, but Kraftsow said it may need to be adjusted to local conditions.

For example, residential neighbors rate fairly low as threats to water sources, but in some parts of Maui – Kahului, for example – subdivisions constitute the biggest total local problem, just because of their large size.

Another question is what to do with buildings in areas without sewer systems, which is most of Maui. The draft is considering whether to require minimum lot sizes of an acre or perhaps two acres in unsewered areas

Almost certainly existing development would be grandfathered. However, some mandatory degree of “best management practices” might be imposed on existing homes without sewer connections.

Monday’s meeting was the first of a series being held throughout the state that brings the assessment phase to an end. The Safe Drinking Water Branch will next embark on the protection phase.

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