AN APPROACH FOR IMPROVED GROUND WATER QUALITY PROTECTION IN CALIFORNIA

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The ground water resources of California are not being adequately protected from pollution by chemical contaminants that can render the waters unusable for domestic and some other water supply purposes. While state regulations have required for many years that the land disposal of wastes, such as in municipal and industrial landfills, protect ground water from impaired use for as long as the wastes represent a threat, there have been significant problems in the implementation of these regulations where regulatory agencies have allowed landfills to be constructed that, at best, will only postpone when ground water pollution occurs by landfill leachate.

Problems also exist with the regulation of the use of pesticides within the state for agricultural and industrial purposes where, under current regulations, it is necessary to pollute ground waters in a region by a pesticide before a pesticide management zone restrictions can be placed on the use of the pesticide in the region.

The use of nitrogen fertilizers on farmlands has caused significant pollution of ground waters with nitrate at several locations within the state. Also, in several parts of the state, the concentration of nitrate in ground waters is increasing as a result of unrestricted use of nitrogen fertilizers on farmlands. At this time, there are no regulations in California that can be used to control the amount of nitrogen fertilizers applied to croplands that can lead to pollution of ground waters under the land where the fertilizers are applied by nitrate. Further, while it is possible, under existing regulations, to prevent the pollution of ground waters by nitrate under adjacent property owners' lands, there are significant problems with the implementation of these regulations by regulatory agencies with the result that there is widespread pollution of the states waters by nitrate that is continuing to occur.

The importance of the ground water resources to the state of California water supply mandates that a highly proactive approach be taken to examine all activities that take place on lands that could lead to the impaired uses of ground waters within the state. This paper presents guidance on an approach that water utilities, water districts, and others should consider adopting in order to protect the ground water resources of interest to them. It also recommends legislative/regulatory approaches that, if implemented, will improve the protection of ground water resources from impaired use by chemical contaminants associated with municipal, industrial, and agricultural activities. A key component of this approach is the requirement that anyone who proposes to use or manage chemicals, including wastes that could potentially cause ground water pollution, would be required to convincingly demonstrate before use, using plausible worst-case scenario approaches for potential ground water pollution, that such use has little probability of causing impaired ground water use. Also, all users of such chemicals and waste management activities must develop and implement a highly reliable ground water monitoring program that will detect incipient ground water contamination by the use/management of the chemicals/materials before impairment of ground water use takes place.

Additional writings and publications on these and related issues are available on the authors' website, https://www.gfredlee.com/Groundwater_Quality.html

Copies of the poster items as well as hard copy versions of this paper are available from the authors. Phone: 916-753-9630, Fax 916-753-9956.

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