

STATEMENT ON ZONE 7 GROUNDWATER MANAGEMENT

August 19, 1987

Summary of Requirements and Policies

The groundwater basin, with its stored water, is a valuable resource and an integral part of the water supply system of the Livermore-Amador Valley. This resource is important because:

- o It can be used conjunctively with other water supplies to improve the overall reliability of the Valley's water supply sources;
- o It is a needed backup or reserve against infrequent but possibly extended periods of water shortages; and
- o It is a very economical water source.

Therefore, it has been the Zone's goal to manage the basin so that it may be utilized for these purposes both now and in the future. Accordingly, general operational and maintenance policies are:

- o To maintain the balance between the combination of natural and artificial recharge and withdrawal.
- o To maintain water levels high enough to provide emergency reserves adequate for the worst credible drought.
- o To protect and enhance the quality of the groundwater.
- o To develop information, policies and procedures for the effective long-term management of the groundwater basin.
- o To inform the public and relevant governmental agencies of the Zone's water supply potential and management policies, and to solicit their input and cooperation.

Background and Ongoing Activities

The central portion of the groundwater basin in Zone 7 underlies portions of the cities of Pleasanton and Livermore and is generally in the area between Vineyard Avenue and Interstate 580. This resource was the only water supply to the valley until the Zone began to import water via the State Water Project (SWP) in 1962. The need for the importation of water was created by a gradual depletion of the groundwater prior to 1960. To counteract this situation the Zone implemented a program of recharging imported water into the basin along with regulating municipal pumpage. It took several years to reverse the trend of dropping water levels.

After assignment of the Arroyo del Valle Water Rights Permit from the Pleasanton Township County Water District in the early 1970's, the Zone had an additional water source available for direct use or banking into the central portion of the groundwater basin. From 1978 to 1983 the recharge program was accelerated by using imported and local Arroyo del Valle waters to get the basin as full as possible and to avoid potentially higher costs for importing water after 1983. This returned the basin to an acceptable water level and for the last few years, the Zone has recharged only small quantities of local water.

The current estimated annual groundwater use is nearly equal to the average annual natural replenishment of 14,000 acre-feet annually (AFA). About half of this amount is pumped by the City of Pleasanton and California Water Service Company for distribution in their respective service areas; this amount of pumpage is generally referred to as the Independent Quota (IQ) agreed to by Zone 7. The remaining portion is used by the Zone, County Fairgrounds, Castlewood, agricultural irrigators, sand and gravel producers and other individuals and entities. It is important to note that individuals and entities are entitled to withdraw groundwater for "beneficial use" on their own land under California law. The Zone monitors, but does not directly control, such uses.

Quantity

The various sources of water supply in the Zone 7 area include State Water Project (SWP) imported water, groundwater, conserved local runoff and reclaimed wastewater. The amount of groundwater can be increased by artificial recharge with either imported water or local runoff.

It is the policy of Zone 7 to ensure that the average annual withdrawal of groundwater does not exceed the average annual natural and artificial recharge. Depletion of the resource will be prevented by using groundwater levels and estimates of withdrawals to manage the Zone's artificial recharge program. With the presently adequate supply of imported water the Zone has only had to use the groundwater basin for peaking during summer high demand periods and for emergencies. Therefore, the artificial recharge program has been reduced to maintenance levels.

In the future, additional withdrawals may be required, dependent upon availability of SWP imported and other waters and demands of population growth. If water consumption increases and approaches the quantity of available water, there will be greater reliance on the groundwater basin for banking and storing suitable waters for subsequent withdrawal; however, basin management cannot increase the total amount of water available, and other additional supplies may have to be acquired.

The Zone is looking for ways and opportunities to increase existing supplies to ensure a more adequate and reliable future supply for the Valley. Potential sources include, but are not limited to, entitlement transfers and exchanges with other SWP contractors and other water suppliers, the proposed Los Vaqueros Project, federal water, reclamation of wastewater, and undeveloped local water. Completion of the State Water Project could improve the quantity and reliability of existing supplies; however, there are no immediate projects to accomplish this, except for a groundwater banking project and off-aqueduct storage project which could provide a measure of help.

Zone 7 considers an interim groundwater elevation range of 280 feet to 300 feet in the Alameda Fairgrounds area to be an acceptable operating level. This is but one indicator selected to provide a simplified reference point. In practice, year-to-year variations in natural recharge, in the availability of water for artificial recharge, and in groundwater withdrawal cause the water levels to vary over a much wider range. The specific location of recharge and withdrawals in addition to the geologic makeup of the groundwater basin are other variables affecting water levels. The normal acceptable lower limit on the water table elevation is determined by the groundwater reserves required to sustain the Zone through the worst credible drought. Again using the simplified reference point, this is presently estimated to be approximately 250 feet at the Fairgrounds.

It has been estimated that an extended drought lasting for 6 years has a 0.25-1.0% probability of beginning in any given year. In such a drought, which the Zone defines as the worst credible drought, an extra 75,000 to 130,000 AF would have to be pumped from the groundwater basin to compensate for the reduced availability of imported water and local runoff. This amount of water is within the capacity of the basin if the groundwater level is maintained at or above 250 feet at the Fairgrounds.

The Zone will acquire in the future a chain-of-lakes, the product of the completion of mining sand and gravel in the Valley. Zone 7 will use it for water management purposes. Such a facility will enable the Zone to capture storm runoff which is now lost from the valley and to store and to transport stored water for subsequent recharge into the groundwater basin beneath Pleasanton. Zone 7 will permit a temporary lowering of the water table in order to facilitate deep gravel mining and development of the chain-of-lakes. This short-term accommodation entails minimal risk to the water supply, since it is expected to be completed well before water demand approaches the limits of our SWP imported water supply. The Zone will receive fees from the quarry operators in proportion to lost water to purchase water for recharge in the future.

Quality

While the natural quality of groundwater pumped for municipal purposes is good, it is generally harder and contains more dissolved minerals than imported supplies. The Zone has effected and will continue to effect programs to improve the quality of water. The artificial recharge program, in addition to maintaining quantity, improves quality by replacing withdrawn groundwater with surface water containing fewer dissolved salts. The policy of maintaining relatively high water levels also serves to slow the intrusion of saline water from the fringe areas of the basin.

In addition to these ongoing programs, the Zone's policy is to investigate and plan for possible active programs for the future. These include: (1) Recharging high quality filtered water into Zone 7 production wells when excess water treatment plant capacity is available for subsequent extraction during high demand summer months; (2) Demineralizing groundwater for use with disposal of the concentrated salts by export; and (3) Selectively recharging into the groundwater when the available water is of the highest quality.

In addition to natural water quality, the impact of human activities is a matter of concern. As part of its Wastewater Management Plan, the Zone has set water quality targets and criteria for various parts of the basin, and has developed policies relating to the use of septic tanks and local reuse or disposal of sewage effluent. In general, any practice which results in the recharge of reclaimed wastewater to the groundwater is discouraged as being potentially detrimental to groundwater quality.

Industrial chemicals and toxic wastes are also of concern, although the Zone does not have primary responsibility for monitoring or correcting problems of this sort. Zone 7 maintains close contact with the Regional Water Quality Control Board and the County Health Department, and closely monitors the progress of groundwater problem assessments and remediation.

The Zone does administer and enforce the Groundwater Protection Ordinance (73-68) to ensure the proper construction and destruction of wells. This reduces the potential for surface and near-surface toxic chemical problems to contaminate the groundwater resource.

Management

To enhance the understanding of the behavioral characteristics of the groundwater basin, collection and evaluation of water quality and quantity data are essential. Reliable bases for future groundwater management decisions are necessary if we are to ensure the greatest possible supply of good quality groundwater at a sustainable rate. Annual reports of the Zone's water data collection and evaluations programs include the following:

- o Precipitation monitoring
- o Surface water monitoring
- o Groundwater level monitoring
- o Groundwater quality monitoring
- o Del Valle Reservoir operations
- o Groundwater basin hydrologic inventory
- o Mining area monitoring
- o Groundwater Protection Ordinance enforcement
- o Groundwater basin land and water use
- o Groundwater level contours
- o Groundwater basin natural yield

In addition to the above annual reports, the Zone maintains records on wells, precipitation and streamflow, geologic data, recharge capacities, evaporation, sand and gravel mining, storage factors, water level and quality variations, and toxic site investigations and drainage. These data are available for review on request and are used by Zone 7 staff to develop and refine management strategies, particularly when water supply limitations and future water demands will require more stringent management techniques.