

**STATE WATER RESOURCES CONTROL BOARD
BOARD MEETING SESSION – DIVISION OF WATER QUALITY
APRIL 19, 2011**

ITEM 11

SUBJECT

INFORMATIONAL ITEM REGARDING THE LAWRENCE LIVERMORE NATIONAL LABORATORY PRESENTATION ON “FINDINGS FROM IMPLEMENTATION OF STATE WATER BOARD GROUNDWATER AMBIENT MONITORING AND ASSESSMENT (GAMA) PROGRAM SPECIAL STUDIES PROJECT”

DISCUSSION

The Groundwater Ambient Monitoring and Assessment (GAMA) Program was created in 2000 and expanded by the Groundwater Quality Monitoring Act of 2001 [Assembly Bill 599 (Liu)]. The goals of GAMA are to improve statewide groundwater monitoring and increase the availability of groundwater quality information to the public. GAMA has four active projects: GeoTracker GAMA information system; Domestic Well Project; Priority Basin Project with the U. S. Geological Survey (USGS) as technical lead; and Special Studies Project with Lawrence Livermore National Laboratory (LLNL) as technical lead. LLNL also supports the Domestic Well Project and the Priority Basin Project.

Proposition 50 identified funds to implement AB 599. The funds will be expended by the end of 2012. AB 2222 (Caballero, 2008) required the State Water Board to make recommendations for funding the GAMA Program through 2024. The AB 2222 GAMA Report to Legislature was released in late January 2011 and identifies funding needs and potential funding sources. The Priority Basin Project will end unless new funding is identified by 2013.

GAMA Special Studies address groundwater-quality concerns of statewide relevance through focused local studies of specific water quality issues. The GAMA Priority Basin Project comprehensively monitors groundwater that is used for the public drinking water supply.

For the Priority Basin Project, LLNL determines groundwater age (the travel time from recharge at ground surface to discharge in a supply well) by measuring tritium and the noble gases. This information can identify areas where groundwater is vulnerable to surface contamination (e.g., from leaking underground fuel tanks), areas where managed aquifer recharge is feasible, and, in some cases, areas where improperly constructed wells act as conduits for pollutants. One significant finding has been the much greater vulnerability of Central Valley aquifers relative to coastal aquifers.

For the Special Studies Project, LLNL has assessed nitrate contamination in groundwater, and has developed improved methods for characterizing groundwater recharge. The Special Studies Project uses a multi-disciplinary approach to assessing nitrate in groundwater that includes isotopic characterization of nitrate and water, quantification of de-nitrification, groundwater age dating, and low-level detection of nitrate co-contaminants. These Special Studies have focused on wastewater impacts on groundwater, and include assessment of impacts of municipal, septic system and agricultural wastewater discharge on groundwater

quality, the impact of dairy operations on groundwater in the Central Valley, and identification of sources of nitrate to coastal and Central Valley groundwater basins and public supply wells.

The Special Studies Project also develops improved methods for studying groundwater recharge that allow identification of areas of old groundwater vulnerable to overdraft and areas of young groundwater suitable for managed aquifer recharge. These studies have developed new tracers for characterizing aquifer recharge, and have demonstrated that arsenic can be mobilized under specific conditions of managed aquifer recharge in the Central Valley.

LLNL publishes information from Special Studies in reports available on the State Water Board's GAMA website. These reports are available through the State Water Board's GeoTracker GAMA information system, which also hosts extensive groundwater information from various sources, including monitoring data from the GAMA Program projects, CDPH, California Department of Pesticide Regulations and Department of Water Resources, and Water Board groundwater contaminant cleanup sites.

POLICY ISSUE

This is an Informational Item.

FISCAL IMPACT

None (Informational Item only).

REGIONAL BOARD IMPACT

None (Informational Item only).

STAFF RECOMMENDATION

None (Informational Item only).

Shared information related to this item will assist the Water Boards in reaching Goals 2 and 3 of the Strategic Plan Update: 2008-2012. Goal 2 is to improve and protect groundwater quality in high-use basins by 2030. Goal 3 is to promote sustainable local water supplies.