

Inland Geological Society

Newsletter of the Inland Geological Society

Volume 23 No. 6

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This Meeting:
Wednesday
June 6th

Time:

Social: 6:00pm
Dinner: 7:00pm
Lecture: 7:30pm

Location:

LSA Associates
1500 Iowa Ave
Suite 200
Riverside, CA
92507
(Map on Pg.5)

Coming to Dinner?

Please RSVP:
By Monday 6/4
(951) 782-3295
food@inlandgeo.org
or
dclass@waterboards.ca.gov

June Speaker:

Gerard Thibeault, Executive Officer
California Regional Water Quality Control Board
Santa Ana Region

Development of Updated Groundwater Basin Boundaries and Water Quality Objectives for the Santa Ana River Watershed

In many semi-arid areas with significant development or with extensive historic or current irrigated agriculture, such as the Santa Ana River Watershed, salt management is critical to long-term water quality and water supply sustainability. Salt management is even more important when significant quantities of imported water are added to the equation. Anthropogenic activities almost always add or concentrate salts in water supplies. Unless there is appropriate salt management of wastewaters and water supplies, the build up of salts in ground and surface waters can result in the loss of beneficial uses.

In 2004, the Santa Ana Regional Board adopted amendments to its Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) incorporating the work of a stakeholder-driven Nitrogen/Total Dissolved Solids (N/TDS) Task Force. This was a multi-year, multi-million dollar effort to update groundwater basin boundaries, evaluate all historic and current water quality data available within the watershed, establish anti-degradation objectives for the revised groundwater basins, and finally to establish alternative groundwater objectives that integrate critical desalination, wastewater recycling, conjunctive use, and stormwater capture and recharge projects, as part of integrated water supply and treatment programs.

This project was designed from the start as a transparent and collaborative process between the Regional Board, Board staff, and any stakeholders within the watershed who wished to participate in the effort. More than 30 different stakeholder agencies from throughout the region contributed to the process by participating in task force meetings and providing financial support for the effort. Environmental groups were invited to

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participate at no cost. The Regional Board directed senior management staff to attend the task force meetings, closely monitor and participate in the process, and to frequently bring updates back to the Board in public meetings. During the task force meetings, frank and open discussions were held concerning the development of the Basin Plans during the early 1970's, the science used during that effort, the subsequent evolution of the hydrogeological sciences and technologies, the availability and value of historic and more recent data, rigorous data utilization protocols, and computerized and automated computation metrics.

The guiding principle of the task force effort was that all work products and proposed Basin Plan amendments would be in strict conformance with all existing laws and policies. That is, success for the project would not depend on waivers or changes to laws, regulations or policies. Next, the task force effort was notable in that it first sought agreement on the science and engineering processes to be used in the review of the basin plan, before any data evaluation was undertaken. That is, there was agreement on appropriate scientific methods for evaluating and revising the Basin Plan before opinions were colored by the results of the analyses. Given this agreement on methods and process, it was then agreed that all parties would live with the results of the effort, a monument to the open and collaborative process.

The task force and its consultants proceeded to evaluate and revise groundwater basin boundaries and water quality objectives in conformance with the requirements of the California Water Code and State Board policies, including State Board Resolution 68-16, the Policy with Respect to Maintaining High Quality Waters in California, often referred to as the state's antidegradation policy. It was found that the more rigorous scientific approach, utilizing significantly more data than were available and more powerful modeling and computing capability than what was available in the early 1970's, resulted in groundwater objectives that were, in many cases, remarkably similar to those that were developed for the 1972 Basin Plan. Moreover, evaluation of current ambient water quality demonstrated very little assimilative capacity for discharge of pollutants to the groundwater, with few exceptions. Since groundwater during the period before 1970 was of high quality in most areas, the resultant antidegradation objectives were very low throughout most of the region. Pursuant to State Board Order No. 73-4, the Rancho Caballero Decision, the absence of assimilative capacity throughout most of the region meant that discharge limits were required to be no less restrictive than the water quality objective. With the very low objectives in many areas, opportunities for groundwater recharge by recycled water, or even imported water in many cases, were very limited or not even an option, since the recycled water or imported water quality was, in a great number of cases, poorer quality than the groundwater objectives.

This situation precluded many options that were being explored for integrated water supply plans, such as conjunctive use options and the use of recycled water for groundwater recharge. It was clear that, for these alternatives to be utilized, groundwater objectives would need to be raised. The open and collaborative process utilized by the N/TDS Task Force provided the forum for the exploration of alternative water quality objectives, including the development of objectives higher than the antidegradation objectives. Discussion concerning alternative water quality objectives at both Regional Board and at Task Force meetings allowed all stakeholders to have their concerns aired and discussed. State Board Resolution 68-16 provides for alternative water quality objectives if: (1) the new objectives would not result in the loss of beneficial uses and (2) the new objectives are consistent with the maximum benefit to the people of the state. These are referred to as "maximum benefit," as opposed to the previously described "antidegradation" objectives.

There is no guidance in California law, regulation or policy concerning what tests may be applied to determine whether proposed alternative water quality objectives are "...consistent with the maximum benefit to the people of the state." This collaborative process allowed for the exploration of the meaning of "maximum benefit to the people of the state." It was left for the Regional Board, in open public meetings with repeated opportunities for public participation, to decide whether a proposal is "consistent with the maximum benefit." Stakeholders requested alternative water quality objectives for three groundwater basins to allow for conjunctive use, recharge of recycled water, and recharge of State Project Water. In order to demonstrate maximum benefit, stakeholders made firm commitments for (1) at least three desalter projects to remove and treat groundwater previously contaminated by salts from agricultural and industrial sources, (2) enlargement and construction of dozens of stormwater capture and recharge basins (in excess of \$30 million in construction costs), (3) construction of a groundwater extraction system to hydraulically isolate areas of contaminated groundwater from better quality downstream groundwater, and (4) commitments for extensive real-time monitoring of these basins to verify model projections, including triennial updates of analyses for ambient groundwater quality throughout the region.

The basin plan amendment that incorporated new water quality objectives, basin boundaries and Maximum Benefit Objectives was adopted by the Regional Board, and approved by the State Water Resources Control Board and the Office of Administrative Law without opposition. There is no precedent for the unopposed adoption of such an extensive basin plan amendment, and this is a testament to the collaborative process used to develop the updated regional salt management plan.



Biography:

Gerard Thibeault is the Executive Officer of the California Regional Water Quality Control Board, Santa Ana Region. Gerard has both an undergraduate from Cal Poly Pomona and a graduate degree from Stanford University in Civil Engineering and has been a registered professional engineer in California since 1976. He has been a regional water quality control board staff member for more than 31 years, joining the regional board staff in 1975. In 1988, the Santa Ana Regional Board appointed Jerry to be their Executive Officer, and he has since served in that capacity.

Announcements/Upcoming Events

A special **Thank You** to all those who helped organize, coordinate, and execute as well as all those who participated in the recent IGS/AEG short-course on Earthquakes and Seismic Hazards at UCRX. We appreciate the effort it takes to make these continuing education courses both meaningful and successful and look forward to more such courses in the near future.

AEG Inland Empire Meeting

Dr. Jim Finegan, Sr. Hydrogeologist, Geosyntec Consultants, "Municipal Landfill and Groundwater Contamination in Southern California," Country Garden Restaurant, Temecula, CA, Wednesday, June 20, 2007
<http://www.aegsc.org/chapters/inlandempire/meetings/>

SME SoCal Mining Section Meeting July Beach Party

Portuguese Bend Beach Club
Saturday, July 14, 2007
<http://www.mine-engineer.com/socalmining/meet.htm#JUL>

AEG Anniversary Meeting—Golden Anniversary in the Golden State

September 24-29, Los Angeles, CA
<http://www.aegsc.org/2007-meeting>

Job Opening



C.H.J. Incorporated

Staff Geologist Position

C.H.J., Incorporated, a geotechnical industry leader in the Inland Empire for over 40 years, has an immediate opening for a Staff-level geologist in our Colton and/or Victorville offices. The successful candidate will participate in a variety of engineering geologic and geotechnical investigations for commercial, industrial, residential and municipal projects. Requires Bachelor's degree in geology or related geoscience. The successful candidate will conduct field investigations, drilling and sampling, geologic mapping, fault trenching, seismic hazard evaluations, rippability studies, slope stability/landslide investigations, and geologic in-grading observations. Candidates should enjoy field work, be teamwork-oriented and willing to learn. Excellent written and verbal communication skills are required. Competitive salary, health benefits and field vehicle are provided.

Please e-mail resume and cover letter to Jay J. Martin at jmartin@chjinc.com, or fax to (909) 824-7209.

No phone calls please.

C.H.J., Incorporated is an equal-opportunity employer.

Upcoming IGS Talks

July 5, 2007 (Thursday)
No meeting scheduled this month

August 1, 2007 (Wednesday)
TBA/Unscheduled (need suggestions)

September 6, 2007 (Thursday)
Roy Herndon, Orange County Water District
"Geochemical Imaging of Flow Near An Artificial Recharge Facility,
Orange County, California"

October 3, 2007 (Wednesday)
TBA/Unscheduled (need suggestions)

November 1, 2007 (Thursday)
TBA/Unscheduled (need suggestions)

December 5, 2007 (Wednesday)
TBA/Unscheduled (need suggestions)



Inland Geological Society Seeks Speaker Topics and Speakers

Informative and interesting talk topics and speakers on subjects in the earth sciences have always been a highlight and purpose of regular monthly meetings of the Inland Geological Society for over 20 years. Local and regional topics and speaker programs are essential for a group that meets monthly and is comprised of local or regional residents or employees, professionals, and interested parties alike.

Currently, IGS is seeking suggestions for future talk topics and suggestions for potential speakers. Your suggestions and ideas are very important, so that we can cover a cross-section of subjects and interests

As you can see, we need help identifying speakers and/or speaker topics. Please forward your ideas and suggestions to [Thomas Deane](mailto:deanehydro@verizon.net) at deanehydro@verizon.net.

IGS MEETING LOCATION:

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