



Vera H. Nelson, P.E.

Vice President

Principal Civil Engineer

Hydrogeologist / Water Resources Engineer

Education

Stanford University, Degree of Engineer in Environmental

And Water Resources Engineering and Science, 1986

Stanford University, M.S. in Water Resources Engineering, 1985

Dartmouth College, B.A. in Engineering Science, 1983

Registrations/Certifications

Professional Engineer in California (#C47418)

Forty-hour HAZWOPER Training Course

Eight-hour Health and Safety Training for Supervisors

Summary of Experience

Ms. Nelson is a registered civil engineer with more than 26 years of professional consulting experience managing hydrogeologic and conjunctive use studies, groundwater and soil remedial actions, and water resources and water supply evaluations, and providing litigation support services. As Vice President and principal hydrogeologist, Ms. Nelson provides technical quality control and review of EKI projects involving hydrogeologic analyses and water resources. In support of these activities, she has performed extensive aquifer testing and analytical and numerical modeling to evaluate subsurface chemical transport and to design extraction and other groundwater remedial systems. Ms. Nelson utilizes many of these same skills and tools while performing water supply assessments (“WSAs”) and water resources evaluations for municipalities and developers of non-contaminated properties. Ms. Nelson has been a speaker at the UC Davis extension course on Conjunctive Use of Groundwater and Surface Water (March 2008), a panelist for the Association of California Water Agencies (“ACWA”) 2009 Spring Conference session on SB 610/221 Water Supply Assessments and the ACWA 2009 Fall Conference session on Urban Water Management Plans, and a speaker at the Groundwater Resources Association of California (“GRA”) 2010 Fall Conference.

Representative Experience

- **Groundwater Assessment for a Major New Community in Central California.** Ms. Nelson served as the principal hydrogeologist assessing groundwater supplies for a proposed major new community. She oversaw hydrogeologic studies conducted to assess the safe yield of the groundwater aquifer and evaluated its potential to serve the community as the primary water supply. These studies required evaluating sources of recharge to the aquifer, impact of drought conditions on water levels, current and projected demands on groundwater, and estimation of historical groundwater use based on cropping and climate data. Ms. Nelson was also involved in evaluation of potential supplemental water supplies for the community and associated technical, legal and political constraints associated with securing such supplies.
- **Groundwater Assessment, Kern County, California.** Ms. Nelson supervised and reviewed a basin safe yield analysis, aquifer test analyses, and water balance calculations for a large-scale residential development in semi-arid Kern County, California. Work included collection and interpretation of pumping test and remotely-sensed land use data; quantitative evaluation of wetland water demands; integration of multiple data sets into a conceptual model of aquifer structure and properties; and development of a quantitative model for predicted site-specific hydrologic processes.
- **Water Supply Assessments for the City of Santa Cruz.** Ms. Nelson led the preparation of Water Supply Assessments (“WSAs”) for the City of Santa Cruz’s Sphere of Influence (“SOP”) Amendment Project and its 2030 General Plan. Both projects are highly controversial and have received significant

scrutiny and opposition by portions of the community. The WSAs evaluated the availability of the City's water supply sources to meet long-range demands during both normal and dry years. The City's water supply sources include groundwater, surface water diversions, and a surface water reservoir. The City's water supplies are very limited and significant curtailment of water use is required during drought periods.

- **Conservation Model Development for the Bay Area Water Supply and Conservation Agency.** In 2009, water districts in California came under the new water conservation requirements of California Senate Bill x7-7 ("SB7"). Under Ms. Nelson's direction, EKI developed an interactive spreadsheet tool for the Bay Area Water Supply and Conservation Agency ("BAWSCA") and its member agencies to evaluate their historical water use and identify beneficial alliances with fellow agencies to comply with SB7 water conservation requirements. This interactive spreadsheet tool allowed historical water use and population data under baseline and current conditions to be calculated on a per capita basis. This tool further allowed estimating the benefits of forming conservation alliances between agencies to reduce the required water conservation determined following the complex formulas specified by SB7. BAWSCA and its member agencies relied on EKI's tool to develop longer-term strategies for SB7 compliance.
- **Groundwater Evaluation for the City of Burlingame.** Ms. Nelson served as principal hydrogeologist overseeing the evaluation of potential groundwater supplies for the City of Burlingame. The evaluation focused on assessing groundwater as a potential emergency supply in the event of a disruption of other water supplies. As part of this evaluation, groundwater models for the basin were reviewed, other users and their influence on the basin were evaluated, and a sustainable groundwater yield for the City of Burlingame was estimated.
- **City of San Bruno Urban Water Management Plan.** Ms. Nelson assessed availability of San Bruno's groundwater supplies as part of EKI's preparation of San Bruno's 2010 Urban Water Management Plan ("UWMP"). This UWMP describes the potential for development of a conjunctive groundwater use program that would increase San Bruno's water supply reliability in drought years. The UWMP discusses reliability of the City's surface water supplies and the potential long-term effect of salt water intrusion on the City's groundwater resources. She also evaluated vegetative water demands of landscape plantings and coordinated with BAWSCA to assess potential water conservation measures pursuant to SB7.
- **City of San Bruno Well 15 Replacement Project.** Ms. Nelson is the Principal Hydrogeologist and Project Officer for the City of San Bruno's Well 15 replacement project. The project involves construction and testing, for both water quality and aquifer/well yield, of two pilot wells, and then construction and testing of a municipal water supply well. As Project Officer, she is responsible for assuring that the project is successfully completed in accordance with the contract between EKI and the City of San Bruno. As Principal Hydrogeologist, Ms. Nelson provides technical quality control and review of hydrogeologic analyses.
- **Aquifer Storage and Recovery System Northern California.** Ms. Nelson was the principal hydrogeologist overseeing the assessment of a potential aquifer storage and recovery ("ASR") system at a 15,000-acre property located in Northern California. As part of this assessment, a conceptual model of the hydrogeology of the Basin was developed and tested. Ms. Nelson also aided the client in developing a strategy to facilitate the sale of surface water from its property. This work included the development of an approach to demonstrate that use by the Client of groundwater en lieu of surface water would not result in negative impacts to the local groundwater basin, as required under a new County Groundwater Ordinance.
- **Groundwater Evaluation in the Sierra Foothills Area.** Ms. Nelson is Project Manager for a groundwater yield evaluation for a proposed development in Amador County in California's Sierra Foothills. The project team implemented a groundwater monitoring program, developed a 3-D groundwater flow model for the area, and interacted with County staff on behalf of the private client. The monitoring program collected water level and water quality data from 17 private wells and interpreted trends and patterns. The modeling effort simulated transient groundwater flow under current and future conditions, including proposed extraction for the new development.