

**TO:** James L. App, City Manager  
**FROM:** Doug Monn, Public Works Director  
**SUBJECT:** 2010 Urban Water Management Plan  
**DATE:** March 16, 2010

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**NEEDS:** For City Council to consider a contract with Todd Engineers to update the City's Urban Water Management Plan (UWMP).

**FACTS:**

1. The California Water Code requires urban water suppliers to prepare Urban Water Management Plans, and update them every five years.
2. The City last updated its UWMP in 2005. The deadline for filing the 2010 UWMPs is July, 2011.

3. The UWMPs must:

- Describe the service area including current and projected population, climate, and other demographic factors affecting water management planning,
- Identify and quantify existing and planned sources of available water,
- Identify any groundwater basin from which groundwater is extracted,
- Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped and projected to be pumped,
- Describe the reliability and vulnerability of the water supply,
- Quantify past and current water demands by use sectors,
- Provide a description of conservation and water demand management measures,
- Outline actions to be taken in response to water supply shortages, and
- Describe actions to be taken during a catastrophic interruption of water supplies.

Additionally, the 2010 UWMP must address new laws including:

- SB 7x-7 (water conservation bill) that requires calculations of population growth estimates, base per capita water use, indoor water use, etc. using new methodologies not yet published.

Additionally, this bill requires a water conservation plan to reduce per capita water use 20 percent by 2020.

- AB 1465 that requires information related to recycled water and storm water recapture to offset water use.

**Analysis &**

**CONCLUSION:**

The UWMP is a primary water planning tool. In order to meet the requirements of the California Water Code and new legislation (as described above), it is necessary to obtain expert assistance. Todd Engineers has extensive experience in water planning and the preparation of UWMPs. They assisted the City with:

- Analysis of River underflow impacts associated with the proposed expansion of the Santa Margarita Dam,
- 2005 Ground Water Basin Study,
- 2005 UWMP,
- 2007 Integrated Water Resource Plan,
- 2007 Paso Robles Groundwater Basin Update,
- 2009 Groundwater Basin Pumping Update,
- Ongoing Groundwater Basin Management Plan development and Water Balance Update.

Consequently, Todd Engineers has unique and expert knowledge of area groundwater, as well as acknowledged credentials in urban water management planning.

**POLICY**

**REFERENCE:**

California Water Code Section 10610.

**FISCAL**

**IMPACT:**

Todd Engineers can complete the 2010 UWMP for a fee not-to-exceed \$65,000. Funding is available from the existing Water Fund budget.

**OPTIONS:**

- a. Adopt Resolution No. 10- awarding a contract with Todd Engineers for preparation of the 2010 Urban Water Management Plan.
- b. Amend, modify, or reject the above option.

**Attachments:**

Resolution,  
Todd Engineers proposal

RESOLUTION NO. 10-

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF PASO ROBLES AWARDING A CONTRACT WITH TODD ENGINEERS FOR PREPARATION OF THE 2010 URBAN WATER MANAGEMENT PLAN

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WHEREAS, The California Water Code requires urban water suppliers to prepare Urban Water Management Plans (UWMP).

WHEREAS, The City last updated its UWMP in 2005.

WHEREAS, The deadline for submitting the 2010 UWMP to the state is July, 2011.

THEREFORE, BE IT RESOLVED AS FOLLOWS:

SECTION 1. The City Council of the City of Paso Robles does hereby award a contract with Todd Engineers in the amount of \$65,000 for preparation of the 2010 Urban Water Management Plan.

PASSED AND ADOPTED by the City Council of the City of Paso Robles this 16th day of March 2010 by the following vote:

AYES:

NOES:

ABSTAIN:

ABSENT:

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Duane Picanco, Mayor

ATTEST:

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Lonnie Dolan, Deputy City Clerk

# TODD ENGINEERS

GROUNDWATER · WATER RESOURCES · HYDROGEOLOGY · ENVIRONMENTAL ENGINEERING

February 19, 2010

Mr. Christopher Alakel  
Water Manager  
City of Paso Robles  
1000 Spring Street  
Paso Robles, CA 93446

Re: Proposal to Prepare Paso Robles 2010 UWMP

Dear Mr. Alakel,

I am pleased to submit this proposal in response to the City's *Request for Proposal* for an *Update of the City of Paso Robles Urban Water Management Plan*. Our enclosed proposal includes Project Understanding, Scope of Work, Project Personnel, Budget, and Schedule sections plus appendices with additional supporting information.

Todd Engineers is uniquely qualified for the cost-effective and successful completion of the 2010 Urban Water Management Plan (UWMP). We bring the following attributes:

- Clear understanding of City and regional water supply and demand conditions and issues.
- Close working relationships with key City staff and concurrence with them on the purpose and direction of the 2010 UWMP.
- Hands-on experience with City data sources and water supply/demand analyses based on our work for the 2005 UWMP.
- Experience from other public water agencies in assessing land uses and water demands as part of successful UWMPs and water supply assessments.
- Working relationships with other local agencies and stakeholders, including the County of San Luis Obispo, local water agencies, PRIOR, and other landowners.
- Commitment to the successful completion of the 2010 UWMP. Our seasoned team includes Ms. Katherine White, PE, and Ms. Linda Spencer, RG, each of which has been involved in various projects for the City of Paso Robles. They would be assisted by Mr. Alain Boutefeu for graphics and Ms. Sheila Gould for administrative support. I would be pleased to serve as project manager/principal.

Additional information concerning our firm is presented in appendices to this proposal including Appendix A (Firm Identification), Appendix B (Resumes), and Appendix C (Project Descriptions).

2490 Mariner Square Loop, Suite 215 · Alameda, CA 94501-1080 · 510/ 747-6920 · Fax 510/747-6921

Todd Engineers does not have a conflict of interest with preparation of the 2010 UWMP. This proposal is valid for 90 days. We appreciate the opportunity to submit our qualifications to you.

Respectfully submitted,

A handwritten signature in blue ink that reads "Iris Priestaf". The signature is written in a cursive style with a large initial "I".

Iris Priestaf, PhD  
President  
Todd Engineers

## Project Understanding

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Since the adoption of the 2005 UWMP, the City has taken significant actions toward securing supply, reducing demand, and ensuring the long-term sustainability of water supplies. The City has recognized that water is a scarce resource that requires careful management not only in times of drought, but at all times. These actions include approving a comprehensive water conservation plan ordinance, adopting a water efficient landscape ordinance, and hiring a Water Conservation Manager. In addition, the City, together with San Luis Obispo County, has completed update of groundwater levels and pumping and is in the process of developing a groundwater management plan for the Paso Robles Groundwater Basin.

On November 4, 2009, California lawmakers passed four inter-related water policy bills (called the 2009 Water Package) that provide for new management of the Sacramento-San Joaquin Delta, set aggressive water conservation targets, establish a Statewide groundwater monitoring program, and dedicate funds for increased enforcement of illegal water diversions. Bills in the 2009 Water Package amend the Urban Water Management Planning Act and revise requirements of 2010 UWMPs.

Specifically, Senate Bill 7 (Statewide Water Conservation) establishes a goal of 20 percent reduction in statewide urban water use in gallons per capita per day by 2020 and includes new requirements for agricultural water suppliers. The 2010 UWMPs are to include baseline water use estimates, assess current water use, and develop water use targets to be met by 2015 and 2020. Senate Bill 7 requires that one of four methods be selected for calculating the 20 percent water use reduction: 1) 80 percent of the baseline per capita daily water use, 2) compliance with performance standards for indoor, landscape, and commercial/industrial/institutional per capita daily water use, 3) 95 percent of the target established by the Department of Water Resources (DWR) for the applicable hydrologic region, or 4) a new method to be published by DWR by December 31, 2010.

DWR is currently developing methodologies, criteria, and reporting formats for 2010 UWMPs. These should be available prior to the end of 2010. Accordingly, the City of Paso Robles 2010 UWMP will need to incorporate all applicable requirements and guidelines once they become available and will include the optimal method for calculating baseline and estimation of the required 20 percent water use reduction by 2020. The 2010 UWMP will also include an updated estimate of build-out water demands that will be used by the City for planning purposes beyond the UWMP, including the General Plan update and water connection fees.

### **Task 1 Plan Coordination and Data Acquisition**

Task 1 provides for data acquisition, close coordination with City staff, public outreach, review of ongoing water management efforts, and project management.

**1.1 Kickoff Meeting and Data Acquisition.** The project will start with a kickoff meeting with City staff to acquire needed information, gain guidance, and discuss potential issues. The kickoff meeting with key staff (e.g., from the City Manager's office, Public Works, and Planning departments) will include a discussion of the schedule, technical approach, identification of team member roles, and determination of agencies and interested parties to be included in the UWMP process. Obtaining and reviewing DWR UWMP guidance information and requirements, when they become available, is also included in this task.

**1.2 Working Meetings.** We propose that two working meetings with City staff be held after the kickoff meeting. The first meeting will focus on methods to estimate water demands at build-out and discuss requirements of the 20 percent water use reductions by 2020. The second meeting will present the Administrative Draft UWMP.

**1.3 Agency Coordination.** The 2010 UWMP will be prepared by the City, but may include coordination with other local agencies, water suppliers, and interested parties such as:

- Atascadero Mutual Water Company
- City of Atascadero
- California Regional Water Quality Control Board
- Paso Robles Imperiled Overlying Rights (PRIOR)
- San Luis Obispo County Engineering Department
- San Miguel Community Services District, and/or
- Templeton Community Services District.

We will help the City develop a list of interested parties and provide assistance in contacting them. Such contact may include notification of public meetings concerning the UWMP, providing a draft plan for review, or contacting with general questions or for data assistance. This coordination will be summarized in a table in the UWMP.

**1.4 City Council Meeting/Public Hearing.** After issuance of the Public Draft UWMP, Todd Engineers will provide an illustrated presentation summarizing the Public Draft UWMP and address questions and comments at a public hearing in accordance with Section 6066 of the Government Code. If substantive changes have occurred between the Draft and Final UWMPs, we can also be available to provide a final presentation to the City Council to describe changes since the Public Draft UWMP on a time and expense basis.

**1.5 Project Management.** This task includes regular communication with City staff and monthly reporting of technical progress, schedule and budget.

## **Task 2 Service Area Description and Water Supply Documentation**

In this task we will update the description of the City service area presented in the 2005 UWMP. Task 2 also includes documentation of the City's current and future water supply. Our proposal assumes that the DWR planning horizon will be 2030. We can extend projections (population, supply, demand, etc) to 2035, if required in DWR guidance documents due before the end of 2010.

**2.1 Service Area Description.** Building on the past UWMP and other available pertinent documents, we will provide a description of the City service area, including a brief discussion of potential future developments and annexations. Climatic conditions such as average monthly rainfall, evapotranspiration, and temperature, as required by the yet unavailable DWR guidance documents, will also be updated. Population data will be presented in five-year increments between 2010 and 2030. We will work with City staff to develop future population projections.

**2.2 Water Supply Documentation.** In this task we will document water supply sources and facilities. The UWMP will contain discussion of the existing groundwater sources and the status of delivery of Nacimiento supply. It will also contain an integrated discussion of water supply sources, including conservation, and how the supply will develop over time to meet demand. The discussion of all existing and planned water sources will account for not only normal supply conditions, but also a single dry year and the driest three-year period of record. The tables generated for this task will be for normal supply while reliability and potential climatic impacts to supply will be analyzed in Task 5, Water Reliability Assessment.

Past, current, and future Paso Robles Groundwater Basin pumping and Salinas River underflow pumping will be documented and estimated as required (most likely the last five years and future pumping in five-year increments from 2010 to 2030). Based on input from City staff, the UWMP will include a discussion of the City's plans for use of reclaimed water. To be responsive to the water code, we will describe opportunities for use of desalinated water (which includes ocean water and brackish groundwater) and for transfers or exchanges with other water agencies. A summary table will be developed that quantifies all existing and planned water sources for every 5 years likely extending to 2030.

Because groundwater is an existing source of supply, the water code requires a description of the groundwater basin. The discussion will address the groundwater basin perennial yield and potential for overdraft as well as basin-wide groundwater supply conditions and the declining groundwater levels in the Estrella subarea, as documented in the *Evaluation of Paso Robles Groundwater Basin Pumping* (Todd Engineers, 2009).



## **Task 3 Water Demand Documentation**

**3.1 Water Demand Documentation.** The water demand discussion from the 2005 UWMP will be updated with current water demands by specific water use sectors (e.g., single family residential, commercial, landscape, etc.). This will include reporting of number of water connections and water use in acre-feet per year. Unaccounted-for water (system losses) also will be documented.

We will support the City staff's work to develop future water demands in five-year increments to 2030. The methodology to be used is being evaluated by the City and it's anticipated that the City will use a customer demand based approach, based on user categories. A GIS-based approach using water duty factors is another option. While this cost estimate assumes nominal input from Todd Engineers in determining build-out demands, we can develop a separate task and cost estimate to assist the City in these calculations and estimations if requested.

Future water use/demand is also tied into requirements of the 2009 Water Package legislation where baseline water use is to be documented and 20 percent use reductions by 2020 are required as presented in Task 3.2 below. Tasks 3.1 and 3.2 will occur concurrently and the future demand projections presented in this task will incorporate the 2009 Water Package requirements due before the end of 2010.

We will compare the City's build-out demands to those calculated previously, including the *City of Paso Robles 2005 UWMP*, *Paso Robles Groundwater Basin Study - Phase II* (Fugro, 2005) and the *AIWRP* (Boyle Engineering, 2005).

### **3.2 Development of Baseline Water Use and 20 Percent Use Reduction by 2020.**

Senate Bill 7 requires, among other things, 2010 UWMPs to include estimations of baseline water use, estimations of current water use, and development of water use targets for 2015 and 2020. Available information indicates that Paso Robles can calculate their baseline water use (in gallons per capita per day) in two ways: 1) average water use over a 10-year period that ends between December 31, 2004 and December 31, 2010, or 2) average water use over a 5-year period that ends between December 31, 2007 and December 31, 2010. Per capita water use (compliance daily per capita water use) for the final year of the reporting period must also be calculated.

These compliance water use estimates will be used to determine compliance with 2015 and 2020 water use targets. There are four options for calculating the 2020 water use target which approximates a 20 percent water use reduction: 1) 80 percent of the baseline per capita daily water use, 2) compliance with performance standards for indoor, landscape, and commercial/industrial/institutional per capita daily water use, 3) 95 percent of the target established by DWR for the applicable hydrologic region, or 4) a new method to be published by DWR by December 31, 2010. The 2015 target is the midpoint between the base daily per capita use and the 2020 target.

Todd Engineers will work with the City to determine optimal baseline and target reduction water use values. We will most likely use the methods and procedures available now to develop draft demand summary tables while waiting for final DWR guidance documents. The tables can be updated if a new procedure is determined to be a better method for the City. This task will occur concurrently with Task 3.1.

#### **Task 4 Comparison of Water Supply and Demand Under Normal Conditions**

Building on the supply and demand tables generated in Tasks 2 and 3, we will compare supply and demand under normal climatic conditions in five-year intervals between 2010 and 2030. These comparisons will provide the basis for evaluation of the reliability of City water supply and its vulnerability to seasonal or climatic shortage.

#### **Task 5 Water Reliability Assessment**

**5.1 Documentation of Drought Water Supply and Demand.** The evaluation of water service reliability will address an extreme, single-year drought, taking into account expected changes in water demand by sector (for example, increasing landscape water use as well as effects of water conservation or rationing). Comparisons of water supply and demand for a single-year drought will be conducted every five years to 2030. Similarly, the evaluation of a multiple-year drought will involve comparison of water supply and demand over five-year increments, for example, droughts ending in, 2015, 2020, etc, or as required by the future DWR requirements.

**5.2 Water Reliability Issues.** This task will involve a summary of factors that could affect water reliability. These include water quality, legal, environmental, and climatic factors. An evaluation of the City's schedule of proposed water supply facilities and key supply-related capital improvements projects in light of these water reliability issues is included in this task.

#### **Task 6 Water Shortage Contingency Plan**

Task 6 will describe the City's *Water Conservation and Water Shortage Contingency Plan Ordinance* (adopted June 2, 2009) that specifies actions to be taken in response to short-term shortages, including single and multiple dry years and emergencies such as a regional power outage or earthquake.

This task will summarize shortage and rationing stages from the City's 2009 ordinance in the event that the City determines there will be a supply shortage based on a projected imbalance in available water supply and projected peak demand. Depending on the level of severity of the supply shortage, there are four stages of actions that anticipate reducing consumer demand up to 10, 20, 30, or 50 percent.

Consumption reduction measures, prohibitions and penalties, actions to prepare for an emergency, and actions to be taken when the emergency occurs will also be described. Mechanisms for determining actual reductions in water use will be summarized. The 2010 UWMP will discuss potential impacts on the City's revenues and expenditures of emergency actions and water conservation. We will work with the City to identify measures that the City can take to mitigate financial impacts.

## **Task 7 Water Demand Management Measures**

The City will be joining the California Urban Water Conservation Council (CUWCC) and, accordingly, will be developing CUWCC Best Management Practices to reduce water demands. Urban suppliers that are CUWCC members can submit their CUWCC annual report that identifies water demand management measures currently being implemented, or scheduled for implementation, to satisfy UWMP requirements. We will review the City's CUWCC Best Management Practices Report for attachment to the 2010 UWMP.

## **Task 8 Draft and Final Plans**

**8.1 Draft UWMP.** We will prepare and submit five bound copies of the Administrative Draft UWMP for City staff review along with an electronic copy. Following inclusion of staff comments, we will provide five bound copies of the Public Draft UWMP and one electronic copy of the entire report to the City for distribution to interested parties and the public.

**8.2 Final UWMP.** We will compile both written and verbal comments on the Public Draft UWMP. Comments received during the circulation period and at the public hearing will be addressed in the Final UWMP. We will assemble an appendix with comment letters, transcribed verbal comments, and responses to comments, as appropriate. The Final UWMP will be delivered to the City in ten bound copies, one unbound copy, and an electronic copy. In addition, we will assist with the DWR certification process.

## PROJECT PERSONNEL

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The qualifications, experience, and project roles of key staff are summarized below. The academic training and additional experience of key staff can be found in Appendix B.

**Dr. Iris Priestaf**, President, will serve as Project Manager. She will be responsible for ensuring technical progress, tracking the budget and schedule, and for regular communication with City staff. She will provide overall guidance and technical review and will be available as needed for presentations to the City Council. Dr. Priestaf has considerable experience with UWMPs and Water Supply Assessments (WSAs), including five recent WSAs for the City of San Jose. She has managed similar projects including development and implementation of groundwater basin management plans and preparation of UWMPs for two water agencies relying on groundwater for all or part of their water supply. The UWMP for the City of Paso Robles provided an evaluation of the City's Salinas River subsurface flow and percolating groundwater resources and also considered future water supply options that included recycled water and imported water. She also prepared two UWMPs for Scotts Valley Water District, which relies solely on groundwater for its potable supply and on recycled water for irrigation.

**Ms. Katherine White**, PE, Senior Engineer, will serve as Project Engineer working under the direction of Dr. Iris Priestaf. She will lead the analysis of water demand, water supply, and the preparation of deliverables. Ms. White has considerable experience preparing UWMPs and WSAs for a variety of water agencies including the counties of San Benito and Marin and City of Paso Robles. For Marin County, she led the water supply evaluation for the County's general plan update and associated Environmental Impact Report (EIR). The EIR was recognized by the Association of Environmental Professionals as its *2008 Outstanding Environmental Analysis Document*.

**Ms. Linda Spencer**, RG, Senior Geologist, will serve as Project Geologist working under the direction of Dr. Iris Priestaf. She will assist in the data gathering and assessment of historic and projected water demand. She will also assist with GIS analysis of land use data, as needed. She was Project Geologist on both the *Update for the Paso Robles Groundwater Basin Conditions Report (2007)* and the *Evaluation of Paso Robles Groundwater Basin Pumping (2009)*. For the 2009 evaluation, she coordinated closely with San Luis Obispo County planners to calculate water demand at a build-out scenario based on a GIS analysis of the County Assessor's parcel database. For a recent Santa Clara Valley Water District groundwater vulnerability project, she led the effort to analyze zoning and general plan land use GIS data from thirteen cities in Santa Clara County.

**Mr. Alain Boutefeu**, Graphics Coordinator, will provide graphics for the Draft and Final UWMPs as well as for presentations.

## Budget

The project budget of \$65,000 is based on an estimate of costs to complete the tasks outlined in the Request for Proposal received February 10, 2010. The table below is a project budget with staff hours and costs by task. Our cost estimate assumes that:

- The DWR revised guidelines for preparing an UWMP will be similar to the 2005 Guidelines.
- The City of Paso Robles will take the lead on preparing the Water Demand Management Measures and in developing build-out water demand.

TASK #	TASK NAME	ESTIMATED STAFF HOURS	TOTAL COST
		hours	\$
1	Plan Coordination and Data Acquisition	112	\$19,868
2	Service Area Description and Water Supply Documentation	50	\$8,039
3	Water Demand Documentation	58	\$10,618
4	Comparison of Water Supply and Demand Under Normal Conditions	10	\$1,838
5	Water Reliability Assessment	21	\$3,784
6	Water Shortage Contingency Plan	10	\$1,816
7	Water Demand Management Measures	8	\$1,459
8	Draft and Final Plans	105	\$17,579
	<b>TASKS TOTAL</b>	<b>374</b>	<b>\$65,000</b>

Three meetings and one public hearing are included in the cost estimate. Additional work can be done on a time and expense basis. Our Schedule of Fees is included in Appendix D.






Todd Engineers submits invoices on a time and expense basis. We will not bill over the agreed-upon amount unless authorized. Invoices are submitted monthly and due and payable in 30 days.

## Schedule

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Our proposed schedule results in completion of the Urban Water Management Plan in May 2011. The schedule, shown on the next page, shows meetings and deliverables as well as timelines for specific tasks. This schedule assumes timely provision of information by the City and other cooperating agencies; on our part, we will support the schedule with the commitment of our key staff and regular communication. In addition, the schedule is dependent on issuance of DWR Guidelines prior to December 31, 2010 and that the Guidelines do not contain substantive changes.

Task	2010												2011				
	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May		
<b>TASK 1 Plan Coordination and Data Acquisition</b>																	
1.1 Kickoff Meeting and Data Acquisition																	
1.2 Working Meetings																	
1.3 Agency Coordination																	
1.4 City Council Meeting/Public Hearing																	
1.5 Project Management																	
<b>TASK 2 Service Area Description and Water Supply Documentation</b>																	
2.1 Service Area Description																	
2.2 Water Supply Documentation																	
<b>TASK 3 Water Demand Documentation</b>																	
3.1 Water Demand Documentation																	
3.2 Development of Baseline Water Use and 20 Percent Use Reduction by 2020																	
<b>TASK 4 Comparison of Water Supply and Demand Under Normal Conditions</b>																	
<b>TASK 5 Water Reliability Assessment</b>																	
5.1 Documentation of Drought Water Supply and Demand																	
5.2 Water Reliability Issues																	
<b>TASK 6 Water Shortage Contingency Plan</b>																	
<b>TASK 7 Water Demand Management Measures</b>																	
<b>TASK 8 Draft and Final Plans</b>																	
8.1 Draft UWMP <sup>1</sup>																	
8.2 Final UWMP																	

 Meeting
  City Council Presentation
  Admin Draft
  Public Draft
  Final

<sup>1</sup> Schedule dependent upon DWR Guidelines becoming available prior to 12/31/10

**Appendix A**  
**Firm Identification**

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## Todd Engineers

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**Address:**

Todd Engineers  
2490 Mariner Square Loop, Suite 215  
Alameda, CA 94501-1080

**Project Contact Person:**

Iris Priestaf  
phone: 510/747-6929 x 109

**Location of Office for Project:**

2490 Mariner Square Loop, Suite 215  
Alameda, CA 94501-1080

## Principals

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***Iris Priestaf, PhD, President***

Dr. Priestaf has more than 25 years of experience in groundwater investigations, combining research and teaching at the university level and consulting on a variety of water management issues. A doctoral student of Dr. David Keith Todd, she was Todd Engineers' first employee and worked with Dr. Todd for 28 years, becoming Vice President in 1989 and President in 2003.



She has consulted on numerous projects involving groundwater basin characterization, development, and management, with particular emphasis on issues of perennial yield and development within the context of the basin management, including service as an expert witness. Her expertise has been built on academic training in climatology, meteorology, hydrology, soil science, geomorphology, biogeography, and related disciplines. She has managed basin studies all across California in a variety of environments and using multiple techniques relevant to the issues at hand.

**Academic Background:**

PhD, Geography, University of California at Berkeley, 1983  
MA, Geography, University of California at Berkeley, 1976  
BA, Geography, University of California at Santa Barbara, 1974

***Phyllis Stanin, Vice-President and Principal Geologist***



Ms. Stanin has been a professional geologist for 30 years with expertise in hydrogeology and groundwater basin management. She became Principal Geologist and Vice President with Todd Engineers in 2003.

Phyllis has consulted on numerous projects involving regional hydrogeologic assessments, groundwater storage, and conjunctive use. Her expertise includes fate and transport of contaminants in groundwater including emerging compounds and a variety of inorganic and organic constituents; she has served as expert witness on several cases involving alleged groundwater contamination. Phyllis has significant experience in groundwater development and management including well siting and design, geophysical logs, and all aspects of the hydrogeologic characterization of a groundwater basin. She is recognized for her exceptional dedication to her clients.

**Professional Credentials and Academic Background:**

Professional Geologist California, No. 5311  
Certified Engineering Geologist California, No. 1899  
Certified Hydrogeologist California, No. 482  
Registered Geologist Arizona, No. 45605

MS, Environmental Management, Hydrogeology thesis, University of San Francisco, 1999

BS, Geology, University of North Carolina, 1978

***Sally McCraven, Principal Hydrogeologist***

Ms. McCraven has almost 30 years of professional geologic and hydrogeologic experience. While her work encompasses the full range of surface and groundwater studies including development, management, and protection, her special area of focus is on water quality issues. As such, she has an extensive background in soil, groundwater, and surface water contamination investigations. She has characterized a variety of complex hydrogeologic systems and associated contaminant transport. She has assessed the fate and transport of many contaminants including ubiquitous chemicals such as trichloroethene and tetrachloroethene as well as emerging contaminants such as perchlorate, n-nitrosodimethylamine (NDMA), and 1,4-dioxane, which tend to be highly mobile in groundwater.



**Professional Credentials and Academic Background:**

Professional Geologist California, No. 5427  
Certified Engineering Geologist California, No. 1744  
Certified Hydrogeologist California, No. 356

MS, Environmental Management, University of San Francisco, 1993

BS, Geology, Wayne State University, Michigan, 1979

*Todd Engineers Paso Robles 2010 UWMP*

***Ray Will, Principal Engineer***



Mr. Will has over 35 years of engineering experience. He has extensive experience in groundwater and surface water evaluation and management, and has managed many water quality investigations ranging from salt loading to acid mine drainage to contaminant plumes.

Ray has particular expertise in water issues related to mining; his experience has included geologic exploration, environmental evaluation, design, construction, operation and reclamation of domestic and international mining and construction projects. Ray also has developed considerable experience in matters involving surface water/groundwater relationships, including storm water recharge, seepage, flooding, and drainage issues. He has served as an expert witness at depositions, hearings, arbitrations, and trials on numerous cases involving mining, seepage, and flooding issues. He has considerable experience with water rights application and issues.

**Professional Credentials and Academic Background:**

Registered Civil Engineer California, No. C026005

Registered Professional Engineer Arizona, No. 40076

Registered Professional Engineer Colorado, No. 9173

Registered Environmental Assessor California, No. 1298

Registered Professional Hydrologist, United States, American Institute of Hydrology, No. 1504

MS, Mining Engineering, Colorado School of Mines, 1968

U.S. Army Corps of Engineers, Officers Basic Course, 1965

BS, Mining Engineering, Mining/Geology Option, University of Texas, 1964

## Appendix B Resumes

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## **Iris Priestaf, PhD**

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### **President**

### **Education**

PhD, Geography, University of California at Berkeley, 1983

MA, Geography, University of California at Berkeley, 1976

BA, Geography, University of California at Santa Barbara, 1974

### **Professional Summary**

Iris Priestaf, PhD, has more than 25 years experience in groundwater investigations, combining research and teaching at the university level and consulting on a variety of water resource management problems. She has managed or provided technical review for numerous projects including:

### **Water Supply Reliability**

- Team lead for the groundwater supply and reliability sections for an Urban Water Management Plan (UWMP) for the Hollister Urban Area in San Benito County, California. The groundwater supply assessment projected groundwater pumping and provided a thorough discussion of the ongoing groundwater management in the basin and the basin's overdraft history and future sustainability. The groundwater reliability portion of the UWMP documented the projected effect that single dry years and extend droughts would have on the groundwater aquifer. Water quality of the groundwater was also examined as a factor that may pose a threat to the water supply.
- Project manager for two water supply assessments (WSAs) for the City of San José Municipal Water System: the North San José project involving extensive redevelopment for residential, commercial, and industrial uses and the Evergreen East Hills Vision Strategy included analysis of six potential development scenarios. Both assessments were prepared in compliance with Senate Bill 610 and with significant positive interaction with the Santa Clara Valley Water District. The assessments included descriptions of the service areas, evaluation of water demands, and assessment of water supply under normal rainfall and drought conditions. Both assessments documented sufficient water supply with water conservation and water recycling.
- Technical advisor for the Water Supply and Demand Assessment of the Marin Countywide Plan Update Environmental Impact Report (EIR). This EIR used a comprehensive approach to evaluate development alternatives in a County-wide context, including assessment of water supply and demand. Todd Engineers provided a comprehensive description of County water supplies including local surface water, imported water, and groundwater resources. Analysis focused on water demand and supply in unincorporated areas now and into the future, and addressed potential water-related impacts for various development

alternatives. The EIR was recognized by the Association of Environmental Professionals as its *2008 Outstanding Environmental Analysis Document*.

- Project Manager for the 2000 UWMP prepared for the Scotts Valley Water District (SVWD). The plan documented water supplies and demands within SVWD under historic, existing, and possible future conditions and presented best management practices for water conservation. The plan contained a Water Shortage Contingency Plan to be implemented during times of water shortage. The Contingency Plan also recognized and addressed potential impacts resulting from anthropogenic contamination in a key well field.
- Project manager for groundwater-related sections of a Final EIR/Environmental Impact Statement (EIS) and WSA for a manufacturing facility and quarry in Imperial County, California. The proposed project would involve increased groundwater use from a desert basin characterized by chronic groundwater level declines. Todd Engineers provided an independent review of the hydrogeologic setting, including the water balance and the influence of faults on groundwater flow and quality. The review also addressed the numerical groundwater flow model developed to assess potential impacts on groundwater. A water supply assessment also was prepared. Dr. Priestaf presented the independent review to the Imperial County Planning Commission and to the Board of Supervisors. The project was approved.

### Groundwater Basin Management

- Project manager of several projects for the City of Paso Robles, which overlies a portion of the 640-square-mile Paso Robles groundwater basin. Recent projects have included analysis of groundwater storage changes in the basin, which is intensively developed for agricultural, rural and urban uses. Dr. Priestaf also provides ongoing technical support on water rights issues. The City uses subterranean flows of the Salinas River and pumps groundwater from the Paso Robles basin. Dr. Priestaf has helped protect and optimize use of subterranean flows in order to establish water rights, including provision of testimony before the State Water Resources Control Board. Dr. Priestaf also has worked with City water counsel to establish a groundwater basin agreement with San Luis Obispo County and local landowners to support groundwater basin management and to reduce the risk of overdraft and litigation.
- Project manager for preparation of the Annual Groundwater Report for the San Benito County Water District. This report provides the District and community with a regular update on conditions of the local groundwater basin, including amount of pumping, need for purchase of imported Central Valley Project water, and water charges. The 2007 report also included an update of groundwater quality conditions, while the 2008 report includes analysis of the water balance.
- Project manager for a groundwater balance study for the Northern Cities Area (Arroyo Grande, Grover Beach, Oceano and Pismo Beach) of San Luis Obispo County, which uses groundwater, imported water, and Lopez Reservoir supply. This study began with a systematic review of

previous studies and then developed an independent methodology to document inflows to the basin, outflows from the basin, and change in groundwater storage. The water balance documented no net change over the study period, indicating a balance of inflows and outflows. The study indicated the potential for some increased use, predicated on improved monitoring and management to prevent seawater intrusion. A new monitoring program is under preparation.

- Project manager for a groundwater study supporting environmental review of the Canon Manor residential development near Rohnert Park, Sonoma County, California. Issues involved long-term impacts of project water demands on limited groundwater supplies, effects of septic tanks on groundwater quality, and short-term impacts of increased pumping on nearby domestic wells. Todd Engineers' *Groundwater Study* provided unexpected insights into groundwater supply and quality conditions, including documentation of lowered, but stable, groundwater levels and delineation of an extensive nitrate plume. The environmental review process, marked by intense public debate over groundwater supply, resulted in successful certification of the EIR. An assessment district has been established and improvements are underway.

### Water Quality Studies

- Project manager for the *Stinson Beach Hydrologic Study*, which involved evaluation of onsite wastewater disposal impacts on groundwater and local streams and wetlands in a complex near-shore environment, including tidal interaction of fresh groundwater and salt water. The survey recommendations resulted in improved monitoring of groundwater and surface water. A subsequent study focused on potential sources of coliform bacteria in the local creek, applying multiple techniques including sampling with analysis for coliform bacterial DNA, which showed the specific contributions of domestic animals, wild animals and humans.
- Project manager for a salt migration study in the Alameda Creek watershed evaluating the salt loading impacts of recycled water irrigation on downstream artificial recharge facilities and municipal wells. This evaluation was based on development and application of a series of mathematical models representing bedrock groundwater flow, surface water flow, and groundwater flow in two groundwater basins. The study was applied to allocation of salt loading impacts among agencies.
- Project manager for the Newport Coast groundwater seepage study. Seepage along the beach cliffs and coastal streams can be a problem by fostering out-of-place vegetation and creating pools of poor quality, stagnant water. Todd Engineers documented upstream landscape and golf course irrigation as the seepage source using a multi-faceted approach including evaluation of the hydrogeologic setting, a water balance study, and field investigation including water sampling for geochemical fingerprinting of water sources and seeps.

## Groundwater Resource Development

- Project manager for the *Comprehensive Hydrologic Study* for Rancho San Carlos in Monterey County, focusing on development of a comprehensive water balance. Soil moisture balances were developed for the major watersheds on the ranch as the basis for evaluation of impacts on water resources of the planned residential development.
- Project manager for an evaluation of groundwater supply for the proposed Cañada Woods North development in Monterey County, focusing on development of a water balance to assess impacts on the downstream Carmel Valley and long-term sustainability of supply.
- Project manager for assessment of a small groundwater basin on the San Mateo County coast for Coastside County Water District. The assessment included documentation of the hydrogeology, analysis of the water balance, evaluation of test wells, and preliminary design and costing of facilities to develop groundwater supply.

## Groundwater Expert Witness Experience

- Expert witness for San Luis Obispo County and The Northern Cities (Arroyo Grande, Pismo Beach, Grover Beach, and Oceano Community Services District) in the Santa Maria Groundwater Basin adjudication. Deposition and courtroom testimony focused on the benefits of conjunctive water management, including artificial recharge of local runoff, use of State Water Project water, use of Lopez Reservoir water, and pumping of groundwater. The final judgment confirmed the Northern Cities' independent groundwater management and quantified their prior and paramount groundwater rights.
- Expert witness for the City of Paso Robles before the State Water Resources Control Board in a hearing concerning impacts on groundwater of enlargement of Salinas Dam and increased export of water from the Paso Robles basin. Testimony and cross-examination focused on the significance of dam releases to groundwater recharge. The dam has not been enlarged and local agencies are now collaborating on groundwater studies and development of Nacimiento Reservoir supply for municipal uses.
- Designated expert witness on behalf of San Benito County and San Benito County Water District in *Sandman v. County of San Benito*, a lawsuit regarding sand mining in the San Benito River channel near Hollister. Specific issues involved water table exposure and potential reduction of high quality natural river recharge to the groundwater basin.
- Designated as an expert witness in *Jordan et al. vs. City of Santa Barbara et al.* (1993), a lawsuit involving issues of overdraft and groundwater salinization in Lompoc Valley, California. Evaluated the basin's water balance and causes of overdraft, and assessed sources of groundwater salinization including seawater intrusion, wastewater disposal, and intensive irrigation and agricultural practices. Prepared a declaration and provided technical support to attorneys during depositions. The trial was decided unambiguously in favor of Todd Engineers' client, Vandenberg Village Community Services District.



## Selected Publications and Presentations

*Groundwater in the Southern Santa Rosa Plain Basin*, with D. W. Abbott, invited Public Session Panel on Sonoma County Groundwater, Groundwater Resources Association 13<sup>th</sup> Annual Meeting, Rohnert Park, California, September 23-24, 2004.

*Quality + Quantity = One Issue*, Proceedings of the Association of Ground Water Agencies and the Water Education Foundation conference on Managing Ground Water Basins for Water Quality and Supply, April 2002, Ontario, CA.

*Challenges to Conjunctive Use Programs*, with D.K. Todd and P. Stanin, invited Conference Talk, Conjunctive Use: Successful Experiences and New Frontiers, educational conference sponsored by Association of Ground Water Agencies and the American Ground Water Trust, April 11-12, 2001, Ontario, California.

*Scotts Valley: Water Recycling for Sustainable Use*, with R. Ross and J. P. Sansing, Proceedings for the 2000 Annual WaterReuse Symposium, Napa, September 2000.

*Salt Migration Study: Evaluating Effects of Recycled Water Application on a Downstream Water Supply*, with R. Harris, L. Toth, and B. Michalczyk, Proceedings of the 2000 WaterReuse Conference, San Antonio, Texas, January 2000.

*Evaluation of Salt Loading on Downstream Artificial Recharge, Alameda Creek Watershed, California*, with Mehrdad Javaherian and the DERWA/ACWD Technical Review Committee, Proceedings of the Ninth Biennial Symposium on Artificial Recharge of Groundwater, Tempe, Arizona, June 1999.

*Role of Conjunctive Use in Groundwater Management*, with David Keith Todd, Proceedings, American Water Resources Association Symposium on Conjunctive Use of Water Resources: Aquifer Storage and Recovery, October 1997.

*Groundwater and the Surface Water Treatment Rule: The Case of Healdsburg, California*, with David W. Abbott, GRA Annual Meeting Publication, 1994.

*Water Recycling in Livermore-Amador Valley, California, Proceedings*, Sixth Symposium on Artificial Recharge in Arizona, University of Arizona Water Resources Research Center, May 1993.

*Groundwater Management in Santa Clara Valley, Proceedings*, Symposium on Groundwater Contamination in the Santa Clara Valley, California, American Society of Civil Engineers, San Francisco Section, 1991.

*Identification of Sources of Saline Intrusion in a Confined Aquifer System, Salinas Valley, California*, with Jerry Snow, *Proceedings*, Groundwater Management and Wellhead Protection Conference, National Water Well Association, 1990.

*Recharge Programs: A California Overview, Proceedings*, Second Symposium on Artificial Recharge in Arizona, University of Arizona Water Resources Research Center, May 1985.

*An Assessment of the Effect of Seepage on Crops and Cropping Patterns along the Sacramento River*, Report to the Department of Water Resources, Northern District, Red Bluff, California, June 1981.

## **Katherine L. White, PE**

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### **Senior Engineer**

### **Education**

MS, Civil Engineering, University of California, Berkeley, 1987  
BS, Agricultural Engineering, University of Illinois, Urbana, 1983

### **Registrations**

Registered Civil Engineer, California, No. C44262

### **Professional Summary**

Kate White has been a practicing engineer for more than 20 years. She has been responsible for a broad range of projects involving groundwater management, water supply reliability, water resources engineering, water quality and groundwater contamination investigations, water rights and litigation support. Listed below are selected projects with which Ms. White has been involved:

### **Water Supply Reliability**

- Project manager for the water supply sections of an Environmental Impact Report (EIR) for Marin County's Countywide Plan Update (CWP), which includes various alternatives for residential development in unincorporated areas of the County. The analysis was modeled on state-mandated Urban Water Management Plans (UWMPs) and SB 610 Water Supply Assessments (WSAs). It included not only a focused evaluation of water demand, water supply, and potential water-related impacts for the specific alternatives, but also a comprehensive description of baseline water supply conditions in the County. Potential impacts (direct, indirect, and cumulative) were identified and evaluated and mitigations were suggested. The EIR was recognized by the Association of Environmental Professionals as its *2008 Outstanding Environmental Analysis Document*.
- Project engineer for an UWMP prepared for Scotts Valley Water District (SVWD), in northern California. The plan presented best management practices for water conservation and provided guidance for SVWD's water conservation efforts. A Water Shortage Contingency Plan was prepared to be implemented during times of water shortage. The Contingency Plan also recognized and addressed potentially disruptions resulting from anthropogenic contamination in a key well field.
- Project engineer for a WSA for a confidential client in Northern California. The WSA incorporated the past, current, and estimated future water supply and demand of numerous cities, community water systems, and rural, and agricultural users. Supplies included groundwater, surface water and imported water and are dependent upon climatic, environmental and legal issues. Inconsistent data from numerous entities and sources were made consistent and tabulated into linked

spreadsheets. Scenarios were developed for potential future supply and demand conditions.

- Provided engineering support for preparation of several WSAs for the City of San José Municipal Water System. The WSAs included analysis of potential water supply scenarios that examined potential sources of water supply including imported water, groundwater, and recycled water for both irrigation and industrial, and demand conservation. The assessments were prepared in compliance with Senate Bill 610 and included descriptions of the service areas, evaluation of water demands, and assessment of water supply under normal rainfall and drought conditions.
- Project engineer for an UWMP for the City of Paso Robles in San Luis Obispo County. The plan described the City's current and projected water demands and provided a comparison of water demands to available water supplies. The water shortage contingency portion of the plan considered the impact on the City's water supply of drought and catastrophic water supply interruption, and presents guidelines for the City's response. The plan also described water demand management measures for water conservation (such as water waste prohibitions, plumbing retrofits, and public information) in terms of the City's current implementation along with recommendations for continuation, enhancement, or future implementation. As required by law, Todd Engineers updated the plan five years later at the request of the City. The updated plan extended the assessment to 2025 and accounted for recent changes in the water code and recent local efforts including a general plan update and a groundwater basin study.
- Project manager for several hydrogeologic studies in Northern Monterey County. The studies focused on potential impacts of proposed developments on groundwater and associated surface water resources and the availability of sufficient groundwater resources to support property development. Analysis has included determination of the availability of sustainable long-term water supply for the project, local water and nitrate balance calculations, identification of potential effects the project may have on the quantity and quality of groundwater, and suggestion of mitigation measures to reduce the potential for impacts and optimize water use.

### **Groundwater Basin Management**

- Prepared a groundwater management plan in accordance with AB 3030 requirements for Scotts Valley Water District. The plan addressed the management of groundwater supplies to meet present and future demands as well as the protection of water quality and remediation of existing groundwater contamination.
- Project manager since 1998 providing ongoing engineering, hydrogeologic, and water rights support to the San Bernardino Valley Water Conservation District (District), which is responsible for artificial recharge of Santa Ana River and Mill Creek water in Southern California. Technical work has included analysis of basin capacities and associated potential artificial recharge volumes, evaluation of the operation of the

recharge basins, and comparison of historical flows and historic recharge. Ms. White has also provided California Environmental Quality Act (CEQA) support and development of a groundwater recharge operations plan. She served as project manager for installation of dedicated monitoring wells, funded through an AB 303 grant obtained by a joint effort of the District and Todd Engineers. Most recently, she assisted the District in preparation of their 2006-2007 and 2007-2008 Engineering Investigation of the Bunker Hill Basin reports which document basin water use and change in storage and provide future water use projections and estimates of the groundwater replenishment necessary to meet these projections.

- Project engineer for two projects providing hydrogeologic support to the Mojave Water Agency. Ms. White and Dr. David Keith Todd prepared a report describing the water resources of the upper Mojave River Basin northeast of Los Angeles, including review of previous investigations; statistical analyses of streamflow and precipitation data; characterization of hydrogeology; and evaluation of possible causes for changes in streamflow such as increased pumpage, drought, upstream dam operation, wastewater practices, and changes in consumptive use. In a subsequent project, Todd Engineers was retained to analyze groundwater conditions, examine hydrologic aspects relative to the occurrence and discharge of base flow, and address other concerns of the water producers. Ms. White analyzed hydrogeologic data including basin geology, stream flow measurements, historical and recent precipitation records, production history, wastewater disposal and return flows, and participated in technical committee meetings.
- Project engineer for a two-phased study for Sunnyslope County Water District in San Benito County. Phase 1 of the study involved the characterization of groundwater resources and identification of groundwater management issues. Phase 2 of the study focused on the evaluation of long-term groundwater supply by conducting regional and local water balances for the area. Considerations included the impacts of local faulting, river gravel mining, and wastewater discharge on groundwater. Ongoing work has included installation of test wells and production wells and working with the San Benito County Water Resources Association, a group of local agencies collaborating on groundwater and surface water management in San Benito County.
- Project engineer providing water rights litigation support to San Benito County Water District. A production well in San Benito County, California was installed by a developer to provide water supply for a planned residential development. However, local farmers and the water district challenged these plans, asserting the groundwater development constituted water export from an overdrafted basin. Ms. White provided technical support services to the water district in the ensuing litigation. Technical work included performance of a pumping test on the developer's well with numerous observation wells, evaluation of hydrogeologic conditions in the valley and development site, assessment of the valley's water supply situation, and preparation of testimony and exhibits.

## Water Quality Studies

- Project engineer for assessment of impacts on local groundwater from a proposed development in North Livermore, California. Water supply for the proposed development was to include both potable and non-potable sources. A computer-based spreadsheet model was developed to calculate changes in stream total dissolved solids (TDS) due to urban irrigation in North Livermore and subsequent impacts to the downstream groundwater basins due to percolation and recharge of higher TDS water. Impacts were quantified in terms of changes in TDS concentrations in surface water, and total tons of salt added to the groundwater basins on an annual basis. Impacts evaluated included potential percolation from a reservoir to store recycled water and salt loading impacts from the proposed recycled water irrigation in urban and agricultural areas.
- Project manager for a hydrogeologic investigation of the potential for saltwater intrusion into underlying aquifers resulting from proposed deepening of Oakland harbor shipping channels in northern California. The investigation examined how potential saltwater intrusion into underlying aquifers could affect the groundwater in these aquifers and established a groundwater quality baseline. The investigation involved compilation and review of existing hydrogeologic data; field investigations which included boring and well installation, geologic and geophysical logging, water level monitoring, water sampling, tidal influence study, aquifer testing, and geotechnical laboratory testing; development of a conceptual model of the groundwater system; and assessment of the potential impacts of channel deepening on groundwater through analytical calculations and numerical modeling. The study was presented to the San Francisco Regional Water Quality Control Board.
- Project manager of the field investigation portion of a large contamination investigation involving a complaint filed by the U.S. Department of Justice and the U.S. Environmental Protection Agency against an oil company alleging damages resulting from discharge of crude oil and petroleum products from facilities, predominantly pipelines, into navigable waters. Ms. White evaluated data relating to these discharges and provided a preliminary assessment of impacts to soils, surface water, and groundwater quality. In addition, the persistence of petroleum compounds in the environment over time and potential long-term environmental impacts was evaluated. The work included review of spill data from 295 spills, a literature review, field observations across the three midwestern states, and sample collection and analysis from selected representative spill sites. A report summarizing findings was prepared.
- Co-Project manager for a groundwater contamination investigation which involved estimating the timing of contaminant releases (primarily trichloroethylene) at various plant sites across the U.S. for a large semiconductor company. Refining the time of the release was key to lawsuit settlements because of the limited period of insurers' liability coverage.

## **Linda Le Seur Spencer, PG**

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### **Senior Geologist**

#### **Education**

MS, Geology, University of Iowa, 1985

BS, Geology and Environmental Studies, St. Lawrence University, 1981

#### **Registrations**

Professional Geologist, California, No. 5553

#### **Professional Summary**

Ms. Spencer has more than 15 years experience in groundwater investigation and management. She has participated in a broad range of projects involving groundwater basin management, monitoring, regulation, and remediation. Her experience includes projects with the San Francisco Bay Regional Water Quality Control Board (RWQCB), Alameda County Water District, Todd Engineers, and Illinois State Water Survey. Listed below are several projects with which Ms. Spencer has been involved:

#### **Regional Groundwater Basin Management and Basin Studies**

- Project geologist for the Pumping Update for the Paso Robles Groundwater Basin in San Luis Obispo County (SLO), California. This study included an estimate of agricultural, municipal, commercial, and rural domestic pumping. Agricultural pumping—the major groundwater use in the basin—was estimated from a detailed geographical information system (GIS) analysis of land use data from Monterey County and SLO Agricultural Commissioner Office permits plus crop-specific water use information. The methodology for estimating rural water use (a local concern) was coordinated closely with SLO and included an in-depth analysis of each parcel from the SLO county parcel database.
- Project geologist for the Paso Robles Groundwater Basin Update. The Basin Update provided an overview of current conditions including rainfall, groundwater levels and storage, groundwater quality, and groundwater management.
- Project geologist for a Groundwater Vulnerability Study conducted for the Santa Clara Valley Water District in Santa Clara County, California. The vulnerability of groundwater in the county was characterized based on intrinsic hydrogeologic properties (sensitivity) and potentially contaminating activities (PCA) risk.
- Project geologist for development of a Roadmap for Groundwater Monitoring Program and Salt Management Plan for the City of Los Angeles. The Roadmap outlines a comprehensive approach for

monitoring the numerous salt sources within the San Fernando Groundwater Basin. It further details an approach for refinement of the existing salt mass balance and development of strategies to reduce salt loading impacts to the Basin.

- Project geologist for a feasibility study of wastewater recharge facilities conducted for the County Sanitation Districts of Los Angeles County (Sanitation Districts). The Sanitation Districts operated seven wastewater treatment facilities in the Raymond, San Gabriel, Central, and West Coast groundwater basins. As part of long-term planning, the Sanitation Districts requested a feasibility study to assess new sites for surface and subsurface recycled water recharge facilities. The study included hydrogeologic characterization of the basins with respect to recharge potential. Screening criteria were identified and five surface water spreading and three subsurface injection sites/projects were identified for further evaluation.
- Project manager for a U.S. Environmental Protection Agency (USEPA) funded study that developed a groundwater protection strategy for the Napa River Watershed in northern California. Using GIS, this study highlighted areas vulnerable to pollution from agricultural chemicals, septic systems, and wastewater ponds. Monitoring and management strategies were developed to protect this pristine groundwater basin.
- Project manager for a RWQCB study to refine beneficial use designations for groundwater basins in San Francisco and Northern San Mateo counties. The study also developed a regulatory management scheme for cleanup of pollution sites based on a hydrogeologic framework of geology and land use.
- Co-Project manager for a RWQCB groundwater beneficial use designation for the East Bay Plain in Alameda and Contra Costa counties. This study took a comprehensive look at groundwater use, contamination, and beneficial use designations. Recommendations were developed for site-specific regulatory strategies actions based on the regional setting.
- Project manager for Alameda County Water District's salt water monitoring and aquifer reclamation programs including supervision of field staff, analysis of data, and preparation of annual status reports.
- Project engineer for design of 1.2 million gallons per day water supply well. Developed design specifications and bid package for a planned emergency supply well for Alameda County Water District.
- Assisted with development of a basin-wide management strategy in the Santa Clara Valley, including the Santa Clara, Coyote, and Llagas Subbasins. The strategy identified groundwater management and protections zones and highlighted the need to protect the subbasins.
- Assisted in developing regional characterization of the hydrogeology in greater Rockford, Illinois. The closure of four public water supply wells and over 100 private wells triggered a regional investigation of the underlying aquifer. A methodology for investigations was developed that was applicable across the state.

- Co-author of the Illinois State Water survey investigation of groundwater quality in Illinois. Over 85 percent of Illinois' public water supply systems rely on groundwater. Using GIS, the study highlighted areas of hazardous substance activities in proximity to sensitive aquifers. The investigation targeted areas for regional groundwater monitoring.

### **Watershed Management**

- Project manager for the San Francisco Estuary Regional Monitoring Program of the RWQCB. This pioneering monitoring program is funded by Bay Area surface water dischargers to monitor water quality trends in San Francisco Bay. Responsibilities included leading the board of directors, supervising subcontractors, and providing project oversight.
- Watershed Management Initiative Coordinator for RWQCB for preparation of the annual Watershed Management Initiative Report highlighting priority watershed protection needs and the status of existing watershed programs for the nine Bay Area Counties in northern California. Project manager for watershed grants that were awarded to local agencies. Participated in statewide ranking and selection of Clean Water Act Section 319h grants.

### **Groundwater Contamination Investigations**

- As project geologist, provided technical support for a confidential litigation involving perchlorate contamination. Work included assessment of isotope data collected to fingerprint groundwater sources and review of documents provided by the opposing side to support preparation of expert and rebuttal reports. The case was settled out of court prior to trial.
- Regulatory oversight of over 30 contaminated sites at the RWQCB (lead agency) and Alameda County Water District (local agency). Assisted responsible parties with regulatory compliance and provided technical expertise into contaminant investigations.
- Hydrogeologic investigations to support David Keith Todd's expert testimony on complex contaminant sites including Stringfellow Acid Pits, Tucson Airport, and McClellan Air Force Base.

### **Selected Publications and Presentations**

*VOC Remedial Objectives Based on a New Method of Designating Groundwater Beneficial Uses.* Bartow, G., L.L. Spencer, et al., in Risk, Resource, and Regulatory Issues. Battelle Press, Columbus, Ohio, 1998.

*New Framework for Designating Groundwater Beneficial Use in the San Francisco Bay Area.* Proceedings from the Groundwater Resource Association Fifth Annual Meeting, October 1996.

*A Groundwater Protection Strategy for the Napa River Watershed. A Geographic Information System Demonstration Project.* RWQCB Staff Report prepared under USEPA Contract, April 1996.



*A New Method for Designating Beneficial Uses of Groundwater: A San Francisco Area Application.* Bartow, G. and L. Spencer. Conference Proceedings, National Groundwater Association Convention and Exposition, Las Vegas, Nevada, December 8-11, 1996.

*San Francisco and Northern San Mateo County Pilot Beneficial Use Designation Project,* RWQCB Groundwater Committee. ( L. Spencer, Committee Chair). Draft Staff Report, April 1996.

*Hydrogeology of an Alkaline Fly Ash Landfill in Eastern Illinois.* Spencer, L.L. and L.D. Drake. Groundwater. Vol 25, No. 5, pp. 519 -526, September -October 1987.

*Groundwater Management in Santa Clara Valley.* David Keith Todd Consulting Engineers. Prepared for the Santa Clara Valley Water District, April 1987.

*Prioritizing Areas of Statewide Groundwater Monitoring.* Le Seur, L., et al. Journal of Water Resources Planning and Management. American Society of Civil Engineers, Volume 113, No. 2, March 1987.

*An Assessment of Ground-Water Quality and Hazardous Substance Activities in Illinois with Recommendations for A Statewide Monitoring Strategy.* J.M. Shafer, ed., M.D. Broten, A.M. Johnson, L.P. Le Seur. Illinois State Water Survey Contract Report 367, July 1985.

*Groundwater Contamination from Industrial Waste Disposal* Harris, G., C. Garlock, L. Le Seur, S. Mesinger, and R. Wexler. Journal of Environmental Health. pp. 287-295, May June 1982.

## Appendix C Project Descriptions

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## City of Paso Robles 2005 Urban Water Management Plan, San Luis Obispo County, California

Todd Engineers was contracted to prepare the 2005 Urban Water Management Plan for the City of Paso Robles in San Luis Obispo County. Iris Priestaf served as Project Manager and Kate White as Project Engineer.



The Plan evolved to incorporate the Integrated Water Resources Plan process adopted in May 2007 and to discuss the water shortages that occurred in the summer of 2007. The Plan describes the City's current and projected water demands and provides a comparison of water demands to available water supplies. The water shortage contingency portion of the Plan considers the impact on the City's water supply of drought and catastrophic water supply interruption, such as earthquakes and facility limitations. The Plan also describes water demand management measures for water conservation along with recommendations for continuation, enhancement, or future implementation.

## Hollister Urban Area 2005 Urban Water Management Plan, San Benito County, California

Todd Engineers prepared the groundwater supply and reliability sections for an Urban Water Management Plan (UWMP) for the Hollister Urban Area in San Benito County, California. We were retained by the City of Hollister, Sunnyslope County Water District, and San Benito County Water District. Iris Priestaf was Team Leader for this project.



The groundwater supply portion of the UWMP focused on the three agencies' current and projected groundwater pumping and provided a thorough discussion of the ongoing groundwater management in the basin. The Hollister Urban Area currently relies on imported surface water from the Central Valley Project and on the San Benito portion of the Hollister-Gilroy Groundwater Basin. Before imported water was delivered to the basin in 1987, the groundwater basin was

considered to be in overdraft. With the advent of imported water supplies and smart groundwater management the basin has fully recovered. The groundwater supply section discusses the basin's overdraft history and future sustainability. The groundwater reliability portion documents the projected effect that single dry years and extend droughts would have on the groundwater aquifer. Water quality of the groundwater was also examined as a factor that may pose a threat to the water supply. The groundwater has marginal water quality due to the highly mineralized nature of the aquifer.

### **Scotts Valley Water District 2000 Urban Water Management Plan, Santa Cruz County, California**

Todd Engineers prepared the 2000 Urban Water Management Plan (UWMP) for the Scotts Valley Water District (SVWD). Iris Priestaf was the Project Manager and Kate White served as the Project Engineer. This plan documented water supplies and demands within SVWD under historic, existing, and possible future conditions.



The plan presented best management practices for water conservation, including two new practices regarding high-efficiency washing machine rebate programs and wholesale agency programs. The plan also provided guidance for SVWD's water conservation efforts to the year 2005 and contained a Water Shortage Contingency Plan to be implemented during times of water shortage.

The water shortage contingency plan accounted for shortages resulting from one-year and multi-year droughts and, given SVWD's location near the Loma Prieta earthquake epicenter, also from catastrophes such as earthquakes. The Contingency Plan also recognized that water supply can be potentially disrupted as a result of anthropogenic contamination in a key well field. The plan indicated that the likelihood of such occurrences without prior warning could be reduced considerably through preparation of a Drinking Water Source Assessment and Protection Program (DWSAP).

### **Water Supply and Demand Assessment for Marin Countywide Plan, Marin County, California**

Todd Engineers was retained by Marin County to prepare the water supply sections of the Environmental Impact Report (EIR) for the Countywide Plan Update. Kate White served as Project Manager, with Iris Priestaf as principal in charge. Analysis focused on water demand and supply in unincorporated areas now and into the future—following SB 610 WSA guidelines—and addressed potential water-related impacts (direct, indirect, cumulative) for the various alternatives. The EIR process included considerable public



*Todd Engineers Paso Robles 2010 UWMP*

participation; Todd Engineers assisted the County with public meetings and provided responses to comments for the Final EIR. The EIR was successfully certified and the General Plan Update was adopted by the Marin County supervisors in November 2007. Subsequently, the EIR was recognized by the Association of Environmental Professionals as its *2008 Outstanding Environmental Analysis Document*.

## **San José Water Supply Assessments, City of San José, Santa Clara County, California**

Todd Engineers was retained by David J. Powers & Associates, consultants to the City of San José, to prepare two Water Supply Assessments (WSAs). The WSAs were both prepared for the City of San José Municipal Water System (SJMWS) and involved the North San José redevelopment project and the Evergreen East Hills Vision Strategy. In addition, the City of San José Municipal Water System retained Todd Engineers directly for three additional WSAs for the Coyote Valley Specific Plan, Gavilan College Expansion, and the Envision San José 2040 General Plan Update. Iris Priestaf served as Project Manager on two WSA's, and Kate White was technical reviewer.

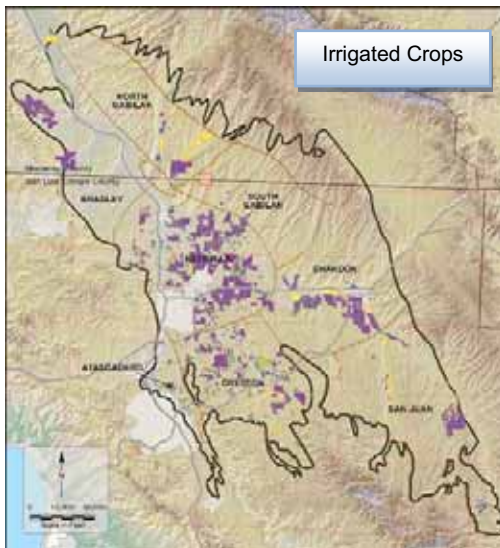
The North San José project involves extensive redevelopment of North San José. The Evergreen East Hills Visioning Strategy included the analysis of six potential scenarios of development, each with a unique blend of proposed land uses. The Coyote Valley Specific Plan project involved three alternate water supply portfolios as potential methods to meet the increase in future demand. The Envision San José 2040 General Plan Update WSA included all four of SJMWS's service areas and five scenarios of development.



In all projects, the City's assessment involved important coordination among water agencies. The assessments all concluded that water supply was sufficient for the water demand of the City and discussed how additional development of supplemental sources, including water conservation and water recycling, could benefit the water supply.



## Paso Robles Pumping Update, San Luis Obispo County, California



Todd Engineers was retained by the City of Paso Robles and County of San Luis Obispo (SLO) to prepare an update of groundwater pumping in the Paso Robles Groundwater Basin. Iris Priestaf was Project Manager and Linda Spencer was Project Geologist. The primary purpose of the report was to document and compare pumping in 2006 with that of 1997, when basin-wide pumping had last been assessed. The report also addressed potential future scenarios.

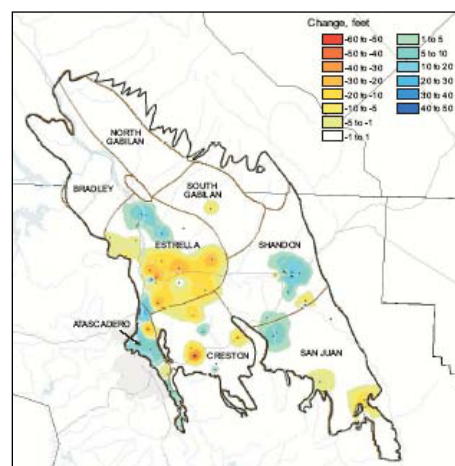
Documentation of pumping included major categories: agricultural, urban, rural, small commercial, and community uses. Agricultural pumping—the major groundwater use in the basin—was estimated from a detailed GIS

analysis of land use data from Monterey County and the SLO Agricultural Commissioner Office permits plus crop-specific water use information. The methodology for estimating rural water use (a local concern) was coordinated closely with SLO and included an in-depth analysis of each parcel from the SLO County parcel database. The results supported the City's water planning, SLO's Resource Conservation Study and Master Plan Process, and the joint Groundwater Basin Management Plan process.

## Paso Robles Groundwater Basin Conditions Update, San Luis Obispo County, California

Todd Engineers was retained by the City of Paso Robles and San Luis Obispo County to prepare the Basin Conditions Update. Iris Priestaf was Project Manager and Linda Spencer was Project Geologist.

The Basin Update provided an overview of current conditions including rainfall, groundwater levels and storage, groundwater quality, and groundwater management. The Basin Update documented localized groundwater level declines that have persisted from 1981 to 2006. As shown in the map, groundwater level declines are focused in the central portion of the basin, which has been an area of intensive vineyard expansion and agricultural pumping, plus municipal and rural groundwater use.



## Appendix D Schedule of Fees

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# TODD ENGINEERS

GROUNDWATER • WATER RESOURCES • HYDROGEOLOGY • ENVIRONMENTAL ENGINEERING

## SCHEDULE OF CHARGES

*January 2010*

### Professional Services

#### Hourly Rates

Principal Consultant	\$190.00 - \$195.00
Principal Engineer	\$200.00 - \$205.00
Principal Geologist/Hydrogeologist	\$190.00 - \$195.00
Senior Engineer	\$155.00 - \$175.00
Senior Geologist/Hydrogeologist/Geochemist	\$150.00 - \$190.00

### Technical Services

CAD/GIS/Graphics Specialist	\$ 90.00 - \$100.00
GIS/Drafting Support	\$ 80.00 - \$ 85.00
Clerical	\$ 82.00

#### **Communications**

*2% of Professional Services*

#### **Travel Time**

*Travel time will be charged at regular hourly rates.*

#### **Litigation, Depositions, and Testimony**

*Deposition and trial testimony are charged at twice hourly rates.*

*Rates are subject to adjustment Semi-annually, in January & July*

#### **Outside Services**

*All services not ordinarily furnished by Todd Engineers, including printing, subcontracted services, local mileage, travel by common carrier, etc. are billed at cost + 15%. Local mileage is billed at the current Federal mileage rate. (\$ 0.50 POV mileage rate for the period starting 1/1/2010)*