

Alexa Terrell, M.S.
Hydrogeologist

Professional Experience

Ms. Terrell is a hydrogeologist with seven years of professional and academic experience within the environmental and hydrological sciences, and with over three of those years in professional consulting practices. She has a professional focus in the hydrogeological sciences relating to water resource development including extensive data collection, well siting and design, oversight on well drilling in alluvial and hard rock environments and well construction, discharge permitting, aquifer pumping test analysis, catchment-scale groundwater flow simulations, spring, surface and groundwater monitoring and regional scale hydrogeological assessments. She specializes in monitoring network planning, spatial data analysis and representation. Her experience is focused mainly in California and Nevada with international experience in Germany and the Middle East. She has additional work experience in aspects of project management, and field and laboratory experience in environmental studies and surface hydrology. Ms. Terrell has worked on projects for local, county, state and federal government, as well as private land developers, golf courses, ski resorts, non-profits and academic research.

Education

M.S., Hydrogeology, University of Goettingen, Germany, 2018.

B.S., Environmental Studies, University of California, Santa Barbara, 2012.

Certifications and Training Courses

OSHA, 29 CFR 1910 40-Hour, Hazardous Waste Operations and Emergency Response (HAZWOPER)

Mine Safety and Health Administration (MSHA) Part 48, Surface Miner Training

NEPA/CEQA Integration Course for Professionals

Relevant Professional Experience

Well Drilling, Design and Aquifer Testing

- **Washoe County South Meadows Arsenic Mitigation Study** - Project oversight on the well network design and installation of 31 monitoring wells in roadways around South Reno. Developed and sampled the groundwater in the wells for constituents of concern and monitored water levels monthly. Took soil samples from monitoring wells during drilling as well as hand augered samples to create a representative network. Responsible for the analysis and visual representation of soil and water chemistry and water level results and data management.
- **NDOW, Mason Valley Fish Hatchery Production Well** – Project oversight on old well abandonment, well drilling, design, construction and aquifer testing for a large production well for the fish hatchery facilities. Including analysis of a three monitoring well network and the effects of pumping on water temperatures within the production and monitoring wells.

- **NDOW Mason Valley Fish Hatchery Domestic Well** – Collection of well log, and water chemistry data to determine aquifer properties, site mapping, existing well water quality sampling, new domestic well construction oversight and conducting of an aquifer pumping test.
- **Carson River Induction Test Wells** - Oversight of three test wells drilling, well design and construction, conducting pumping tests, water sampling and data analysis. Installation of a six piezometer monitoring network for surface water level monitoring during TW-A pumping test.
- **Northern Nevada Industrial Center Test Well #4** – Project oversight on drilling and well construction, conducting pumping tests and water sampling for a test well, to be future industrial well. Spring monitoring for water chemistry parameters and discharge before during and in the recovery of the TW-A pumping test. Obtained discharge permits for discharge into an ephemeral drainage.
- **Resort at Squaw Creek golf course well rehabilitation and pumping tests** – Conducting pumping tests on three rehabilitated golf course irrigation wells. Additionally, monitoring a network of 16 monitoring wells during the pump tests.
- **Squaw Valley Monitoring**- Monthly, spring through fall, manual monitoring of water levels in a network of piezometers along with transducer continuous water level data management.
- **Webber Lake Campground Well** – Project oversight on drilling, well construction, and aquifer testing of a low-capacity transient-occupancy well. Permitting of discharge to land surface application.
- **Battle Mountain Golf Course** – Oversight on pumping test setup and aquifer testing analysis. Permitting of discharge to land surface application.
- **Grizzly Lake Community Service Department Delleker Test Well**- Project oversight on the drilling, well design, construction and pumping test of a dual-zone test well. Analysis for water quality and quantity of the two zones tested.
- **Sierra Brooks Municipal Well No. 3** - Well drilling, design and construction oversight for a municipal well.

Local and Regional Hydrogeological Assessment

- **Tahoe Keys Pump Station** construction dewatering- Data collection of well logs, groundwater chemistry and water levels as well as research papers into local groundwater contamination and groundwater flow models for data input into a localized groundwater flow model for dewatering.
- **Walker Ridge Wind Farm** construction well feasibility study - Data collection of geological maps, well logs, and remote sensing of fault features for well siting and hydrogeological interpretation for potential groundwater yield.

- **City of North Las Vegas Garnet Valley** – Lower White River Flow System regional hydrogeological assessment, evaluation of water rights, pumping inventories, water level monitoring data, water chemistry data, springs in Garnet Valley and nearby hydrobasins for use in a hydrographic basin groundwater flow model to assess static, pumping, and pump and recharge scenarios. Mapping of the regional and hydrographic basin, calculating localized aquifer transmissivities for regional groundwater resource analysis.
- **Gold Mountain Community Service District** Test Well Siting - Remote sensing using aerial imagery of fault zone features and use of geological maps to site test wells around the community for future municipal water supply well.
- **Mt. Rose Ski Tahoe Snowmaking Well #3** – Snow making well siting using geological maps, and aerial imagery.
- **Sugar Bowl Ski Resort**- Test well site selection for snow making wells using geological maps, well logs, and remote sensing of fault zones in aerial imagery.
- **Granite Peak Ranch** - Data collection and analysis on water chemistry of springs and wells basin-wide to determine water chemistry types.
- **Lemmon Valley Water Reclamation Facility**- Data availability assessment for permitting discharge of reclaimed water into Swan Lake. Collection of well logs, water chemistry and water level data and on-site verification of existing wells for a future monitoring plan.
- **Sierra County Calpine** - Data collection of geological maps, well logs, water chemistry, for siting of a small municipal well.

Map Creation - GIS

- Historic River Maps digitization of the San Joaquin River channelization using ArcGIS.
- Use of ArcGIS for determining optimal study site locations for an endangered species habitat study in Sierra County.
- Digitization of water utility easements for Sacramento County using ArcGIS.
- Delineation and analysis of numerical model scenarios for groundwater catchments in the Lower Jordan valley transboundary aquifer using ArcGIS for the SMART-MOVE integrated water resource management in the Lower Jordan rift valley.

Spring and Hydrology Studies

- Weekly karstic spring network monitoring of nine local springs, including two used in the City of Goettingen's water supply. Monitored all springs for electrical conductivity, pH and temperature as well as taking water samples.
- Stream flow stage monitoring for a storm water hydrograph study near Fort Bragg, CA.

Numerical and 3-D Modelling

- Creation of a 3-D hydrogeological model of the karstified Weendespring catchment using ArcGIS.
- Numerical simulation of saturated flow dynamics of the karstified Weendespring system, Goettingen, Germany using COMSOL Multiphysics. Creation of a catchment scale inverse saturated flow model using gathered and available data for spring discharges, weather data, geology, fault zones and water chemistry to determine hydrogeological properties of the system and understand the role which fault zones could play in groundwater flow.

Laboratory Experience

- Water quality laboratory testing for inorganic, organic and microbial constituents for ISO standards of post-treatment and in-system drinking water for the City of Bitola.
- Verification of laboratory and field chemistry data from hundreds of central valley and central coast farms for input into the Central Valley Regional Data Center.
- Preparation of rock and water samples for isotope and constituent analysis for the isotope chemistry laboratory at University of Goettingen.

Environmental Work

- Sorting of benthic macroinvertebrate for determining water quality based on analysis of diversity and quantity for the Center for Watershed Sciences at University of California, Davis.
- Field work collecting water samples from flood irrigated fields for a sediment transport study for the State of California to compare erosion of flood versus drip irrigation at multiple farms in the central valley. Included running settleable solids analysis on the water samples to determine transport of soil in the irrigation water.

Conference Posters

- Terrell, A., Veltri, M., Sauter, M., Schmidt, S., Kordilla, J., 2017, **Preferential flow paths in a karstified spring catchment: A study of fault zones as conduits to rapid groundwater flow**. American Geophysical Union Fall Meeting 2017, New Orleans, USA, December 11-15. Poster.
- Veltri, M., Terrell, A., Kordilla, J., Schmidt, S., Sauter, M., 2018, **Effects of fault systems on unsaturated and saturated flow dynamics in karst aquifers**. FHDGG Meeting, Bochum, Germany, March 21-24. Poster.