

**DECLARATION OF  
Paul Marshall**

I, Paul Marshall, declare as follows:

1. I am presently an employee of the California Energy Commission for the Siting Office of the Siting, Transmission and Environmental Protection Division as the Senior for the Water and Waste Unit.
2. A copy of my professional qualifications and experience is attached hereto and incorporated by reference herein.
3. I helped prepare the staff testimony on **Soil and Water Resources** for the Ivanpah Solar Electric Generation System project based on my independent analysis of the Application for Certification and supplements thereto, data from reliable documents and sources, and my professional experience and knowledge.
4. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue addressed therein.
5. I am personally familiar with the facts and conclusions related in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Dated: October 27, 2009

Signed: \_\_\_\_\_

At: Sacramento, California

# **Paul D. Marshall**

## **EDUCATION**

**SAN DIEGO STATE UNIVERSITY, CALIFORNIA**  
**Bachelor of Science Degree in Engineering Geology**  
**Completed post-baccalaureate courses in Engineering Geology**

**FRESNO STATE UNIVERSITY, CALIFORNIA**  
**Completed post-baccalaureate courses in Civil Engineering**

## **LICENSES**

**California Registered Geologist, No. 5718**  
**California Certified Engineering Geologist, No. 1817**  
**California Certified Hydrogeologist, No. 468**

## **EMPLOYMENT HISTORY**

### **CALIFORNIA ENERGY COMMISSION**

#### **Siting, Transmission, and Environmental Protection Division – Supervisor, Soil, Water Resources, and Waste Management Unit/ January 2008 -Present**

Supervise a multidisciplinary team of engineers and geologists responsible for analysis of potential environmental impacts from power plant construction and operation to soil and water resources and from waste management activities. Provide guidance and technical assistance to staff for complex analysis of power plant impacts on water supply, water quality, wastewater disposal, discharges to surface water and groundwater, development and utilization of groundwater, flood impacts and storm water management, and assessment of potential impacts on human health and the environment. Ensures staff work products are consistent with laws, regulations, and policies of the US EPA, US ACOE, SWRCB, RWQCB's, CDFG, DTSC, and other local ordinances. Contract with and direct the work of consultants conducting technical reviews of power plants. Schedule and confer with a multidisciplinary staff of planners, engineers, and scientists to ensure staff analyses are coordinated with other disciplines where there is overlap. Ensure product delivery in a timely manner. Hire and develop staff, complete probationary and performance reports, counsel and mentor staff. Take adverse actions when appropriate.

### **CALIFORNIA DEPARTMENT OF CONSERVATION**

#### **Office of Mine Reclamation – Supervisor, Compliance Unit/October 2006 – January 2008**

Supervise a team of engineering geologists responsible for ensuring compliance with mine reclamation plans and specifications. Review and approve staff work conducted to ensure plans and specifications were adequate and enforceable. Direct staff responsible for enforcement actions and preparation of data and reports for presentation to the State Mining and Geology Board. Oversight of staff review of cost estimates for mine reclamation and conduct statewide workshops outlining requirements for mine reclamation cost estimates. Implement Lead Agency review and audit program.

### **STATE WATER RESOURCES CONTROL BOARD**

#### **Division of Financial Assistance – Chief, Project Implementation Unit/January 2001 – September 2006**

Supervise a multidisciplinary team responsible for contract and project management associated with Prop 13, Prop 40, Prop 50, Water Bond 1986 and 1996, and the Federal Clean Water Act funding programs. Develop program policies and procedures for implementation and management of grant and loan programs and projects. Direct the work of staff and coordinate with state and federal agencies in the development of technical review criteria for selection of projects recommended for grant award. Direct the work of staff and contractors developing a Project Assessment and Evaluation Program used to evaluate program effectiveness. Provide guidance and technical support to stakeholders for project development. Represent SWRCB at public meetings and conduct training on program procedures. Ensure project integrity and compliance with State and Federal laws.

## **CALIFORNIA DEPARTMENT OF WATER RESOURCES**

### **Division of Local Assistance - Senior Engineering Geologist/ July 2000 – January 2001**

Manage multidisciplinary staff to identify and develop conjunctive water management programs throughout Southern California. Organize, guide, and support local stakeholder groups in development of conjunctive water management plans. Develop partnering opportunities with other local, state, and federal agencies to spread program benefits region-wide and implement CALFED goals and objectives. Write and review contract documents, task orders, grant applications, and provide input on program policy. Solicit and assist agencies with loan and grant applications for various Water Bond 2000 programs.

### **Division of Safety of Dams - Senior Engineering Geologist/October 1995 – June 2000**

Serve as an engineering geology consultant to a staff of 47 design and field engineers performing regulatory oversight of dam construction and operation. Evaluate existing and proposed dam sites for geologic and seismic hazards; review and comment on geotechnical site assessments and construction plans and specifications; act as technical adviser to staff during construction; inspect and document geologic conditions. Communicate findings to staff, consultants, and owners through written reports, briefings, and meetings. Give presentations to DSOD Board of Consultants on development of state-of-the-art procedures. Develop information and monitor changes in the regional geologic environment.

### **Division of Local Assistance - Associate Engineering Geologist/November 1993 - October 1995**

As a member of the Water Quality Assessment Program I independently performed surface and groundwater studies, and environmental site assessments for both DWR and federal and local government agencies. Negotiated contracts, authored task assignments, and oversaw the work of consultants. Authored reports with analysis of data from various types of exploration and sampling programs. Assembled a Department-wide Site Assessment Project Team and assisted in developing DWR policy for site assessments. Trained team members and gave staff presentations outlining program and team goals.

### **Division of Local Assistance - Associate Engineering Geologist/October 1992 - October 1993**

Under the auspices of the Proposition 82 Water Conservation Bond Law of 1988, I directed the Department's technical, environmental, and economic review of ground water recharge and water supply loan applications. Performed independent technical review and certified feasibility and construction loan applications. Provided assistance to public water agencies regarding compliance with environmental and water rights regulations, and institutional and legal requirements for project development. Coordinated Department's technical review and comment on various CEQA documents.

## **KLEINFELDER, INC.**

### **Project Geologist - 4 years**

Worked in regional offices throughout Central and Southern California, Western Arizona and Southern Nevada performing geotechnical investigations and environmental site characterizations. Supervised field exploration activities throughout the Central Valley and Central Coast of California. Directed water resource, groundwater recharge, geotechnical, and environmental site characterization studies. Marketed clients, determined scope of services, and prepared cost proposals. Monitored project schedules and billing. Briefed clients and supervisors on project status. Authored reports providing geotechnical recommendations for various federal, state, municipal, and commercial projects. Inspected remediation and stabilization projects. Other responsibilities included compilation of data using spreadsheets and databases, conducting literature and aerial photograph review, and writing reports.

## **EARTH SYSTEMS, INC.**

### **Staff Geologist - 3 years**

Designed and supervised installation of monitoring well arrays, extraction wells, drains, dewatering, and slope monitoring equipment throughout central and southern California. Directed subsurface exploration using various drilling and geophysical techniques. Conducted liquefaction, fault rupture hazard, and coastal bluff stability studies. Conducted special inspections of excavations, deep foundations, reinforced earth, and concrete. Performed numerical analyses for slope stability, liquefaction, and earthquake ground motion studies. Authored reports containing cross-sections, maps, and graphs presenting various types of water resource and geotechnical data.