

DOCKETED

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DECLARATION OF
Abdel-Karim Abulaban

I, **Abdel-Karim Abulaban**, declare as follows:

1. I am presently employed by the California Energy Commission in the Siting, Transmission and Environmental Protection Division as an **Associate Civil Engineer in the Water section**.
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**, for the **High Desert Power Plant Amendment (97-AFC-1C)**, based on my independent analysis of the Petition to Amend 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(s) 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: February 4, 2016

Signed: 

At: Sacramento, California

AbdelKarim Abulaban

Education

Ph.D. Civil Engineering, University of Minnesota (*Hydrology and Water Resources*).

Thesis title: Modeling the transport of sorbing chemicals in heterogeneous porous media.

M.S. Civil Engineering, Yarmouk University, Irbid, Jordan (*Water Resources*).

Thesis Title: Developing Intensity-Duration-Frequency Curves for Irbid Region.

B.S. Civil Engineering, Yarmouk University, Irbid, Jordan (*water resources stream*).

Senior Project: Design of Water Supply and Sewer Systems for the Northwestern Part of Irbid City (population 100,000).

Registration:

Registered Professional Engineer (Civil) in the state of California (Lic. No. 76030)

Certification for "Qualified SWPPP Developer and Practitioner" (QSD/QSP), California

Stormwater Quality Association (CASQA) - Cert. # 1160.

Experience - Professional

June 2010-Present:

Associate Civil Engineer

CA Energy Commission,
Sacramento, CA, USA.

- ❖ Reviewing and evaluating the construction, operation, and maintenance of energy facilities and power plants for water supply, wastewater disposal, waste, water quality, and stormwater to assess the potential impacts to human health and the environment.
- ❖ Reviewing sensitive project sites that may have issues involving flooding and stormwater management, discharges to impaired water bodies, depleted groundwater and surface water resources, and wastewater management and disposal methods.
- ❖ Responding to soils or water resources issues that may arise regarding power plant operations.
- ❖ Conducting investigations to determine if any violations of the program's regulations, the Energy Commission's conditions of certification, or the CA Environmental Quality Act (CEQA) have occurred.
- ❖ Analysis of one of the largest solar projects in the world for environmental impacts on soil and water resources. This project is designed to generate 500 megawatts using solar energy to generate steam that runs a turbine to generate electricity.
- ❖ Analysis of another solar project, also one of the largest projects in the world, that uses photovoltaic (PV) technology and is designed to generate 1000 megawatts.
- ❖ Currently analyzing a cutting-edge project that proposes to minimize the green house impact of the project by injecting the generated CO2 gas underground for long term sequestration. The CO2 would be injected to depths of 5000 ft. or more below ground surface. This project is the first of its kind in the USA and would set the stage for other projects to store CO2 in geologic formations to reduce green house gas emissions.

Dec. 2006-May 2010:

Water Resources Engineer

CA Dept. Water Resources,

- ❖ In charge of hydraulic modeling and sediment transport for the San Joaquin River restoration project.
- ❖ Performed 1- and 2-D hydraulic analysis to support restoration

Fresno, CA, USA.	of the San Joaquin River for the purpose of improving spawning/rearing habitat, enhancing floodplain connectivity, and improving riparian corridor.
<u>Dec. 2001-Dec. 2006:</u> Retained Hydrologist J.L. Nieber & Associates, Hydrologic Consultants, Lindstrom, Minnesota, USA.	<ul style="list-style-type: none"> ❖ Performed hydrologic analysis and assessment of environmental impact of contamination incidents on ground water resources, as well as design of remediation plans. ❖ Contaminants analyzed included hydro-carbons, chlorinated solvents, as well as agrichemicals.
<u>Dec. 90 – Dec. 93:</u> Retained Hydrologist. BAUMGARTNER ENVIRONICS, INC, Olivia, Minnesota, USA.	<ul style="list-style-type: none"> ❖ Performed assessment of the environmental impact of contamination incidents on groundwater resources, and design of action plans.
<u>Jun. 84 - Sep. 84: Civil Engineer</u> WESTON International, Inc, Irbid Wastewater Treatment Facility, Irbid, Jordan.	<ul style="list-style-type: none"> ❖ Conducted material quality control, performing both laboratory and field quality control tests.

Experience - Academic

<u>Sep. 2003-Sep. 2005:</u> Assistant Professor, Hashemite University, Zarqa, Jordan.	<p>Taught the following courses:</p> <ul style="list-style-type: none"> ❖ Water and Wastewater Treatment Methods (Senior) – 1 semester ❖ Wastewater Engineering (Senior level) – 2 semesters ❖ Statics - 3 semesters ❖ Engineering Drawing - 4 semesters ❖ Visual Communication - 4 semesters
<u>June – August, 96, 97, 98, 2000:</u> Army High Performance Computing Research Center, Minneapolis, Minnesota.	<ul style="list-style-type: none"> ❖ The Summer Institute is a summer course offered to promising upper class students from member institutions. The summer course included a ground water flow and transport group that normally had about 4 students from different backgrounds. ❖ Taught and helped teach the Summer Institute course in hydrology and transport in porous media. ❖ Was part of the team that trained the students to use a particle tracking solute transport code which I developed. ❖ Also trained the group to use the DoD's Ground Water Modeling System, GMS. ❖ In the summer of 2000 I was fully in charge of the whole group. ❖ More information about the projects can be on the Summer Institute web site at: http://www.arc.umn.edu/education/SummerInst/
<u>August, 1997:</u> Short course for practitioners, University of Minnesota, Minneapolis, Minnesota, USA.	<ul style="list-style-type: none"> ❖ Taught a short course on the application of the Department of Defense's Ground Water Modeling System, GMS, offered by the American Society of Agricultural Engineers and attended by about 40 professionals and academicians from around the United States as well as several countries around the world.
<u>Mar. 88 - Dec. 92:</u> Teaching Assistant, Dept. of Civil Engineering,	<ul style="list-style-type: none"> ❖ Teaching assistant for the senior courses of Hydrology and Hydrologic Design, and Water Resources Engineering.

University of Minnesota, Minneapolis, Minnesota.	
<u>Sep. 84 - Sep. 86:</u> Teaching Assistant, Civil Engineering Dept., Yarmouk University, Irbid, Jordan.	❖ Teaching assistant for the courses of Statics, Engineering Graphics, Fluid Mechanics, Hydraulics, Sanitary Engineering, Applied Hydraulics, and Groundwater Hydrology.
<u>Jan. 87 - Jun. 87:</u> Instructor, Institute of Allied Health Sciences, Irbid, Jordan.	❖ Teaching a senior level course on the principles of environmental engineering.

DECLARATION OF
Paul Marshall

I, Paul Marshall, declare as follows:

1. I am presently employed by the California Energy Commission in the Siting, Transmission and Environmental Protection Division as Supervisor of the Geosciences 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 the Soil and Water Resources Section, for the High Desert Power Plant Amendment (97-AFC-1C), based on my independent analysis of the Petition to Amend 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(s) 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: 2/12/16

Signed: 

At: Sacramento, California

Paul D. Marshall

EDUCATION

SAN DIEGO STATE UNIVERSITY, CALIFORNIA
Geological Sciences with Emphasis in Engineering - 1985

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, Geosciences Unit/ January 2008 - Present

CALIFORNIA DEPARTMENT OF CONSERVATION

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

STATE WATER RESOURCES CONTROL BOARD

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

CALIFORNIA DEPARTMENT OF WATER RESOURCES

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

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

Division of Local Assistance - Associate Engineering Geologist/November 1992 - October 1995

KLEINFELDER, INC. (California)

Project Geologist - 4 years

EARTH SYSTEMS, INC. (California)

Staff Geologist - 3 years

DECLARATION OF
Matthew S Layton

I, **Matthew S Layton**, declare as follows:

1. I am presently employed by the California Energy Commission in the Siting, Transmission and Environmental Protection Division as a **Supervising Mechanical Engineer** in the **Engineering Office**.
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 **High Desert Power Plant Amendment (97-AFC-1C)**, based on my independent analysis of the Petition to Amend 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(s) 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: Feb 10, 2016

At: Sacramento, California

Signed: Matthew S Layton

MATTHEW S. LAYTON

Experience Summary

Thirty three years of experience in the electric power generation field, including regulatory compliance and modification; research and development; licensing of nuclear, coal-fired, peaking and combined cycle power plants; and engineering and policy analysis of regulatory issues.

Education

B.S., Applied Mechanics, University of California, San Diego.

Registered Professional Engineer - Mechanical, California.

Experience

2009-present – Supervising Mechanical Engineer, Engineering Office, Siting, Transmission and Environmental Protection Division, California Energy Commission.

1987-2009 – Senior Mechanical Engineer, STEP Division, California Energy Commission. Review and evaluate power plant proposals, identify issues and resolutions; coordinate with other agencies; and prepare testimony, in the areas of:

- Air quality resources and potential impacts, and mitigation measures;
- Public Health; and
- Transmission Line Safety and Nuisance.

Prepared Commission demonstration project process; contributed to the Energy Technology Status, Energy Development, and Electricity Reports; Project Manager for demonstration projects; evaluated demonstration test plans, procedures, data and reports; disseminated test results; and managed research and development contracts.

1983-1986 – Control Systems Engineer, Bechtel Power Corporation. Managed a multi-disciplined effort to environmentally qualify client's safety related nuclear plant equipment. Performed analyses, calculations and reviews against vendor test reports, NRC guidelines and plant normal and postulated accident conditions.

1981-1983 – Engineer, GA Technologies, Inc. Supervised design and procurement of full-scale test assembly used to evaluate design changes to operating reactor graphite core assembly. Conducted experiment to determine the relationship of graphite oxidation rate to water concentration, temperature, and helium pressure. Environmentally qualified essential and safety related nuclear power plant equipment to comply with NRC guidelines.