

**SubSurface Surveys & Associates, Inc.
2075 Corte Del Nogal, Suite W
Carlsbad, CA 92011**

Resume of Phil Walen
Chief Geophysicist

California Registered Geophysicist #917

PROFESSIONAL BACKGROUND

2004 to Present

Principal and chief geophysicist of SubSurface Surveys & Associates, Inc.

1991 to 2004

Subsurface Surveys, San Diego, CA

Senior geophysicist responsible for survey design, data acquisition, interpretation, and computer modeling for engineering, mining, environmental, groundwater, and geothermal investigations. Typical projects involved seismic reflection and refraction, gravity, magnetics, electrical, and electromagnetics (EM).

1989 to 1991

The Geophysics Group, San Diego, CA.

As staff geophysicist Mr. Walen was responsible for the design and implementation of environmental site assessments, groundwater resource evaluations, mining, and geothermal exploration.

1986 to 1989

Applied Hydrogeologic Consultants, San Diego, CA.

As project hydrogeologist Mr. Walen was the principal investigator in hydrocarbon plume characterization studies, evaluating underground field storage facilities, conducting geophysical surveys, and shallow ground water investigations. Served as principal investigator for several large projects with Centre City Development Corp. and the DOD at Camp Pendleton.

1980 to 1985

Ecosystems Management Associates, Carlsbad, CA.

As project geophysicist Mr. Walen was responsible for establishing and maintaining large computer databases, geophysical interpretation, and the preparation of EIR's. Projects include geohazard surveys, Hydrogeologic investigations, environmental impact studies, and pipeline route surveys both onshore and offshore.

1979

Fugro Gulf, Inc., Houston, TX.

As a geophysicist Mr. Walen conducted offshore high resolution geophysical surveys in the Bay of Campeche, Mexico. He provided quality control, onboard preliminary interpretation and acted as liaison to coordinate field work and provide progress reports to PEMEX.

1977 to 1979

Earth Technology Corp (ERTEC), Long Beach, CA.

As staff geophysicist Mr. Walen was responsible for planning and supervision of geophysical investigations employing seismic, gravity, magnetic, and resistivity methods. Project include soils and foundation studies, intermontane basin modeling, earthquake seismic response studies, and groundwater investigations. In charge of gravity data interpretation for the MX missile project.

1976

Cities Service Minerals Corp., Tucson, AZ

1974 to 1975

Mining Geophysical Surveys, Tucson, AZ

1973 to 1976

Cooksley Geophysics, Tucson, AZ

Field Geophysicist / Crew Chief for seismic, IP – resistivity, and gravity surveys. Explored for potential economic mineral deposits throughout the Western U.S. Major projects include participation in gravity studies to evaluate the geometry and areal extent of pediments within the Basin and Range Providence and seismic refraction investigations at the Palos Verde Nuclear Plate site in Arizona.

EDUCATIONAL BACKGROUND

Graduate course work at University of Arizona, Tucson, Arizona, 1976

Supplemental studies in geological engineering. Course work directed towards applied geophysics for Hydrogeologic and engineering investigations.

B.S., Geophysics from University of Arizona, Tucson, Arizona, 1973

PROFESSIONAL PAPERS / PRESENTATIONS

1981, Geophysical investigation for the Northern Guam Lens Study conducted for the Guam Environmental Protection Agency, with S. Biehler.

1990, Cave mapping from the surface of Kartchner Caverns, Arizona, presented in the proceedings of the Third Forest Service Remote Sensing Applications Conference in Tucson, Arizona , with A. Lange and R. Beucher.

Numerous proprietary reports