



ROBIN WILLIAM DAVIS

472 Forest Edge Trail, Kalispell, Montana 59901
rdavis@davismhs.com; +1 520 465 1881

Citizenship

United States of America

Education

MS Finance, University of Wyoming, Laramie, Wyoming, USA, in progress

Coursework for a Masters of Water Resources, Hydroscience Concentration, University of New Mexico, Albuquerque, New Mexico, USA

BS Geology, University of Texas at San Antonio, San Antonio, Texas, USA, 2003

Certifications

MSHA 5000-23 Surface Metal, Non-Metal

Applications

GoldSim

AQTESOLV

SEEP-W

ArcGIS

Vulcan

MineSight

Deswik

Languages

English-Native

Spanish-Basic

Career Profile

Mr Davis is a Senior Mining Hydrogeologist with over 18 years of experience. His skill set draws from a mix of consulting, operational and contracting roles on various projects, spanning all phases of mining (i.e. study, development, operations and closure). He has been involved with mining projects in the United States, Australia, Equatorial Guinea, Lao PDR, Peru, Colombia, Uruguay, French Guiana and Argentina. Robin's expertise is in aquifer characterization and mine water management with practical experience in drilling oversight (core, sonic, rotary and dual-rotary), hydraulic testing, VWP installations (fiberglass rod and conventional methods), groundwater exploration, hydro-geophysics, water balance modeling, planning/installation of groundwater monitoring systems, and staff training.

Employment History

Davis Mine Hydro Services

Independent Field Hydrogeologist (April 2013—)

Client list:

- Itasca Denver, Inc. (Dr. Daniel Stone and Braden Hanna)
- Flo Solutions (Michael Gabora and Doug Oliver)
- Ausenco North America (Joel Carrasco)
- SRK Denver & Vancouver (Paul Williams, Amy Prestia, Roger Howell, Michael Royle)
- Neirbo Hydrogeology (Grady O'Brien)
- Tierra Group International (Jared Purdy)

MMG-LXML Sepon Copper and Gold Mine – Lao PDR

Senior Hydrogeologist (July 2011 to April 2013)

Created and managed: hydrogeological field programs; CAPEX/OPEX budget SHEC management plans; procurement of capital project equipment (e.g. centrifugal pumps); and, water management plans. Trained, managed and developed Lao national staff. Implemented business improvement projects for horizontal drilling, site wide lime dosing and hydro-data management.

Ausenco Vector SAC – Lima, Peru

Project Hydrogeologist (2010 to 2011)

Designed and managed major field programs; contributed to hydrogeological interpretations, EIS, and mine feasibility studies; mentored and trained junior staff.

Golder Associates Pty Ltd – Brisbane, Australia

Hydrogeologist (2008 to 2010)

Contributed to hydrogeological interpretation studies; managed field programs; developed conceptual groundwater models; analyzed pumping tests and aquifer hydraulic tests; mentored junior staff; planning and implementation of groundwater monitoring programs and generated mine water management plans.

Earth Tech Inc – San Jose, California, USA

Hydrogeologist (2006 to 2007)

Conducted field and office work to support senior staff; task manager for various field projects; technical lead for borehole geophysics.



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PROJECT EXPERIENCE – HYDROGEOLOGY

**Barrick Gold
(subcontractor for
Itasca), Goldrush
Project,
Eureka County, Nevada**

Installed deep vibrating-wire-piezometers (VWPs), up to 4000-feet, utilizing fiberglass-rod system in exploration core holes. Supervised the installation of piezometers in HQ-sized core holes. Conducted hydraulic testing (IPI STX-60 system). Conducted infiltrometer testing for proposed RIB sites. Supervised the drilling and construction of production and monitoring wells. Conducted long-term constant rate pumping tests. Performed quarterly groundwater monitoring (i.e. water-level data and groundwater sampling with Bennett pumps) for the site.

**Newmont Mining
(subcontractor for
SRK), Long Canyon
Hydrogeological
Study,
Elko County, Nevada**

Performed hydraulic testing (Lugeon and constant rate injection tests) on select core holes using IPI SWiPs packer system. Installed VWPs on BQ-sized tremie pipe in deep HQ-sized core holes (up to 2500-feet). Conducted routine groundwater sampling with QED Micro-Purge, low-flow sampling pumps.

**Freeport-McMoRan Inc
& BHP (subcontractor
for DHI), TJ Pit Water
Management
Assessment, Miami,
Arizona**

Planned and generated scope-of-work for Supplemental Characterization Plan (SCP), a 2.7-million-dollar field program, entailing the drilling, construction and hydraulic testing of 17 piezometers and one test well. Supervised dual-rotary drilling, and piezometer and test well construction. Conducted hydraulic testing (air-lift yield testing during drilling). Installed external casing VWPs and In-Situ, salinity compensating pressure transducers.

**Teck Resources
(subcontractor for
SRK-Vancouver), Red
Dog Exploration
Aktigiruaq-Anarraaq
Drilling Program,
Northwest Arctic
Borough, Alaska**

Performed hydraulic testing (constant-rate and constant-head injection tests) on select HQ-sized core holes (up to 3450-feet) using IPI SWiPs packer system. Installed fiber optic DTS cables in completed boreholes for permafrost monitoring.

**ASARCO
(subcontractor for
Neirbo Hydrogeology),
Mission Mine, Pima
County, Arizona**

Supervised horizontal drilling (1000-feet) for pit depressurization project. Assisted with planning of horizontal drill holes (HDHs) and generated field forms for data collection.

**Minera Sonora Borax,
(subcontractor for
DHI), Sonora Lithium
Project,
Sonora, Mexico**

Conducted detailed review on hydraulic testing data (packer testing) provided by field staff. Analyzed 41 air-lift recovery tests with AQTESOLV. Generated reporting deliverable on validation of hydraulic conductivity values produced from packer testing.

**Nordgold
(subcontractor for
SRK), Montagne d'Or
Feasibility Study,
French Guiana**

Performed hydraulic testing (Lugeon injection testing) on select HQ-sized exploration core holes using IPI SWiPs packer system. Installed multiple monitoring wells and stand-pipe piezometers across project site.



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Tyler Resources
(subcontractor for
Ausenco), **Bahuerachi**
Copper Project-
Hydrogeological
Investigation,
Chihuahua, Mexico

Reviewed packer testing field data for quality assurance. Generated air-lifting SOP for field staff. Contributed to feasibility study deliverable.

Newmont Mining
(subcontractor for
Neirbo Hydrogeology),
Dawn Mill Site
Remediation,
Buckhorn, Washington

Conducted hydraulic testing (i.e. slug-testing), collected groundwater samples and developed 19 monitoring wells located on uranium remediation site.

Minera Andes Inc,
Hydrogeological Study
for Los Azules Copper
Project,
San Juan District,
Argentina

Managed field program and team. Program consisted of: installation and completion 10 monitoring wells and six vibrating-wire-piezometers (up to 400-meters in diamond core holes); stream-gauging; pneumatic slug tests; air-lift tests; and groundwater sampling.

Zamin Minerals,
Hydrogeological
Baseline Study for
Valentines Iron Ore
Project,
Valentines,
Florida District, Uruguay

Supervised the installation and completion of 36 regional monitoring wells, and two test production wells.

Bear Creek Mining,
Groundwater Supply
Study for Santa Ana
Silver Project,
Huaculani
Puno District, Peru

Managed field program and team. Program consisted of: installation and completion of two test production wells and two monitoring wells; and two, 72-hour constant rate pumping tests. Gained experience with dual-rotary drilling methods and working at high altitude (4800-meters).

BHP, Cerro Matoso
Hydrogeological Study
for Heap Leach
Expansion, Cerro
Matoso,
Cordoba, Colombia

Managed field program and team. Program consisted of: installation and completion of two test production wells, 12 monitoring wells; two, 72-hr constant rate pumping tests; 12 falling-head tests; and groundwater sampling.

Reed Property Group,
Basement Dewatering
Modeling,
Maroochydore
Queensland, Australia

Developed conceptual hydrogeological model and SEEP-W model (2D finite element groundwater modeling package) for the design of a semi-tanked basement for a proposed multi-use development. Wrote reporting deliverable.

Cougar Energy,
Aquifer Hydraulic
Testing, Kingaroy
Queensland, Australia

Provided oversight and direction to pumping test contractor for step-test and constant rate pumping test. Taught junior staff pumping test theory and protocols. Analyzed data with AQTESOLV and produced report.



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**Satori Resorts Pty Ltd,
Groundwater
Exploration Program,
Ella Bay
Queensland, Australia**

Conducted remote sensing analysis for groundwater exploration drilling program. Managed field program, comprised of groundwater exploration drilling, production and monitoring bore installations, and pumping tests. Analyzed pumping test data using AQTESOLV. Provided numerical modeling support. Compiled and wrote reporting deliverable.

**BMA, Downhole
Hydraulic Testing of
Coal Seams, Lotus Pit
Norwich Park, Australia**

Conducted falling head and injection tests using wireline pneumatic packers to determine hydraulic properties of coal seams. Analyzed data using Hvorslev solution for future modeling efforts. Provided preliminary cost estimates for dewatering infrastructure.

**LXML, Hydrogeological
Investigations
Thengkham Copper
Expansion Project,
Sepon
Savannakhet, Lao PDR**

Installed multiple standpipe piezometers and vibrating wire piezometers. Conducted slug testing on standpipe piezometers. Analyzed slug test data using AQTESOLV. Installed data loggers for vibrating wire piezometers.

**Solway Water Services
Pty Ltd, Groundwater
Resources Evaluation,
Carbrook
Queensland, Australia**

Planned and implemented 72-hour constant rate pumping test. Trained junior staff on pumping test theory and protocols. Analyzed pumping test data using AQTESOLV. Developed groundwater management strategy for operation of production bores.

**Hydration Solutions
LLC, Aquifer Test
Analysis
Texas/Van Zandt
County, USA**

Analyzed pumping test data using AQTESOLV for water supply study. Produced report for two constant rate pump tests to support client's decision on real estate transaction.

**AFCEE, Aquifer Test
Analysis, Edwards
AFB
California, USA**

Analyzed pumping test data using AQTESOLV for a petroleum hydrocarbon LUST site. Conducted six analyses using both Cooper-Jacob and Theis solutions. Produced report to aid in future site remediation planning and design.

**AFCEE,
Hydrogeological
Investigation for Site
15 ABRES-B Launch
Complex
California, USA**

Project geologist for comprehensive DPT program. Advanced 60 boreholes by direct push technology and sampled groundwater to delineate vertical and horizontal extent of chlorinated solvent contamination.

**ConocoPhillips,
Aquifer Test, Golden
Eagle (Avon) Refinery,
Martinez
California, USA**

Performed step-drawdown test and 24-hour constant rate pumping test to determine local aquifer characteristics. Analyzed pump test data using AQTESOLV and produced report.

**AFCEE, Aquifer Test,
Site 15 ABRES-B
Launch Complex,
Vandenberg AFB
California, USA**

Planned and implemented 24-hour constant rate pumping test. Design of test included a 3,200-foot pipeline (with pumps in series) for production water disposal. Problematic site due to limited access and ecological constraints. Analyzed pumping test data using AQTESOLV and produced report.



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PROJECT EXPERIENCE – MINE WATER MANAGEMENT & RECLAMATION

**Kinross Gold
(subcontractor for
Ausenco), Tasaist Gold
Mine-Water Balance
Modeling,
Mauritania**

Reviewed existing water management plans for site and generated water-balance schematic for planned process plant expansion.

**Terramin, Oued
Amizour Zinc Project
Water Management
Plan,
Tala Hamza, Algeria**

Created water balance and wrote water management plan for proposed zinc mine utilising GoldSim. Plan included water treatment options, dewatering system design, erosion and sediment control measures, storm water management, water supply options, socio-economic impacts, and water management of tailings storage facility.

**Phelps Dodge, Borrow
Source
Characterization,
Tyrone Mine, Tyrone
New Mexico/Grant
County, USA**

Provided oversight for borrow source soil excavation for stockpile cover. Surveyed over 300 locations in active, borrow source pit with Trimble GPS equipment. Conducted soil pH testing to dynamically monitor active borrow pit.

**Phelps Dodge,
Infiltration Collection
System Construction,
Tyrone Mine, Tyrone
New Mexico/Grant
County, USA**

Coordinated with subcontractor foreman and provided construction oversight for design specifications of infiltration collection systems.

**Phelps Dodge, Tailing
Pond Monitoring,
Tyrone Mine, Tyrone
New Mexico/Grant
County, USA**

Calibrated, installed, and programmed Campbell Scientific sensors and data loggers for vadose zone monitoring of various mine tailing ponds. Developed VISUAL BASIC macros for data base management. Set up telemetry system for real-time, remote communication of data-loggers.

**Phelps Dodge,
Abandoned Mine
Survey, Cobre Mine,
Silver City
New Mexico/Grant
County, USA**

Provided field work consisting of surveying abandoned mine locations using GPS. Surveyed 45 locations and developed base map for future mine closure activities.

PROJECT EXPERIENCE – GEOTECHNICAL ENGINEERING

**SEQWATER,
Hydrogeological
Investigation of
Proposed Wyaralong
Dam Site,
Beaudesert,
Queensland, Australia**

Installed test production bore for 72-hour pumping test. Planned and implemented 72-hour pumping test. Analyzed pumping test results utilising AQTESOLV. Installed 4 vibrating wire piezometers for future geotechnical monitoring.



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**Marathon Oil,
Geotechnical
Investigation for LNG
Construction**
Bioko Island, Equatorial
Guinea

Advanced 30 deep boreholes by hollow stem auger. Installed two inclinometers, and three piezometers. Produced detailed borehole logs for geotechnical analyses. Collected rock core and soil samples for geotechnical lab analyses.

PROJECT EXPERIENCE – GEOPHYSICS

**AFCEE, Geophysical
Investigation for Site
15 ABRES-B Launch
Complex, Vandenberg
AFB**
California, USA

Proposed, planned and implemented Electrical Conductivity (EC) probe investigation. Advanced 16 boreholes to a depth of 90-feet by direct push technology in combination with an EC probe. Created conceptual model with EC logs for site characterisation.

PROJECT EXPERIENCE – ENVIRONMENTAL INVESTIGATIONS

**Tesoro, Subsurface
Investigation, Waste
Management Unit 5,
Golden Eagle (Avon)
Refinery, Martinez**
California, USA

Conducted subsurface investigation to determine lateral extent of historic landfill. Advanced 17 boreholes by direct push technology (DPT) to a total depth of 136-feet. Conclusions from investigation used for future closure activities.

**AFCEE, Field
Modification Report for
Site 1, Vandenberg
AFB**
California, USA

Wrote and prepared work plan for an additional subsurface investigation at Site 1, a former LUST site. Presented an unconventional investigative method which incorporated "air knife" and direct push technologies to determine if buried utilities created preferential pathways for contamination. Created THA (task hazard analysis) for investigative method.

**Tesoro, Subsurface
Investigation, Waste
Management Unit 8,
Golden Eagle (Avon)
Refinery, Martinez**
California, USA

Performed a subsurface investigation to characterize waste in a historic landfill. Investigation was comprised of advancing 13 boreholes utilizing direct push technology (DPT) and soil sampling at selected intervals. Generated report to aid in future site closure activities.

**San Jose
Redevelopment
Agency, Subsurface
Investigation, Main
Yard Terminal, San
Jose**
California/Santa Clara
County, USA

Task manager and project geologist for supplemental subsurface investigation at the Main Yard Terminal, a former LUST site. Scheduled and planned logistics with subcontractors for investigation. Advanced 13 boreholes using direct push technology. Sampled soil and groundwater at selected intervals for comparison to historical data.



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**Moore and Van Allen
PLLC, Phase II
Environmental Site
Assessment, American
Building Company
Site, Carson City
Nevada/Carson County,
USA**

Advanced nine borings to the first encounter of groundwater and conducted Phase II subsurface soil and groundwater investigation of recognized environmental conditions determined from previous Phase I assessment at the ABC manufacturing building.

**Tesoro, Subsurface
Investigation,
AMORCO Wharf Basin,
Martinez
California, USA**

Conducted subsurface investigation to further define vertical and horizontal extent of groundwater contaminated with MTBE. Constructed and developed groundwater wells for future aquifer testing. Advanced boreholes by sonic drilling techniques to a total depth of 65-feet.

**Santa Clara Valley
Transportation
Authority, Subsurface
Investigation, Newhall
Yard, San Jose
California/Santa Clara
County, USA**

Advanced 35 boreholes and collected soil samples from a former rail road yard for metals analysis. Produced figures using ArcGIS to represent contamination zones.

PROJECT EXPERIENCE – ENVIRONMENTAL MONITORING

**San Jose
Redevelopment
Agency, Groundwater
Monitoring, Main Yard
Terminal
California/Santa Clara
County, USA**

Conducted quarterly groundwater sampling at the Main Yard Terminal. This site is a documented fuel leak site with known soil and groundwater contamination. Generated quarterly monitoring report and prepared documents for IDW (investigation derived waste) management.

**ConocoPhillips,
Groundwater
Monitoring, AMORCO
Wharf Basin, Martinez
California, USA**

Conducted a groundwater sampling event at a refinery bulk storage facility. Collected groundwater samples from 10, previously installed groundwater monitoring wells and produced a report

**AFCEE, Groundwater
Monitoring in Operable
Units 5, 7, 8, and 10,
Edwards AFB,
California
California, USA**

Conducted a groundwater sampling event utilising low-flow sampling techniques and nitrogen gas operated bladder pumps. Collected groundwater samples from 30 previously installed groundwater monitoring wells and produced report.

**Tesoro, Quarterly
Groundwater
Monitoring Reporting,
Navy Drive Bulk
Terminal, Stockton
California, USA**

Prepared documents and coordinated groundwater sampling event for a quarterly environmental surveillance report. Prepared groundwater contour figures for CAD reproduction

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PROJECT EXPERIENCE – WATER AND SANITATION (PRO BONO)

**Engineers Without
Borders, Arombe
Water Project,
Arombe Kwe**
Migori District, Kenya

Provided technical review on background reports and advice on design criteria for community wells.

**Living Water
International, Kambaa
Community Water
Project,**
Kambaa, Kenya

Provided technical review on geophysical reports for groundwater exploration study.

TRAINING

Applications of Drilling Technology for Developing Communities
Short Course, San Luis Valley, Colorado, 9/7/2005 (40-hours)

Applied Hydrogeology Field Course
University of Arkansas, Fayetteville, Arkansas, 5/8/2006 (six-weeks)

GoldSim Water Balance Modeling Workshop
Short Course, Brisbane, Australia, 6/11/2011 (40-hours)

Pumping Systems for Mine Water Management
Short Course, Sepon, Lao PDR, 6/11/2012 (40-hours)

Introduction to MineSight for Geology
Short Course, Sepon, Lao PDR, 7/16/2012 (40-hours)

Introduction to Vulcan for Mine Planners
Short Course, Sepon, Lao PDR, 11/5/2012 (40-hours)

Introduction to Deswik for Mine Planning
Short Course, Sepon, Lao PDR, 11/12/2012 (40-hours)

Dewatering and Production Well Design Workshop
IMWA Short Course, Golden, Colorado, 8/5/2013 (eight-hours)

Remote Sensing Applications for Mine Tailings & Waste Rock Water
AHS Short Course, Tucson, Arizona, 9/13/2016 (eight-hours)

Baroid Drilling Fluid Workshop for Water Wells
Short Course, Houston, Texas, 1/15/2017 (40-hours)

Johnson Screens Groundwater & Wells Design Class
Short Course, Golden, Colorado, 3/14/2017 (24-hours)

WATSAN Engineering: From Emergency Towards Development
ICRC Short Course, Neuchatel, Switzerland, 6/24/2017 (72-hours)