Education

MS Hydrology, New Mexico Institute of Mining and Technology, 1990

BS Geology, high honors, New Mexico Institute of Mining and Technology, 1987

Professional Certifications and Registrations

Registered Professional Geologist, Wyoming (PG-3268)

Registered Professional Geoscientist, Texas (PG-3820)

Mine Safety and Health Administration (MSHA) certification #598-96

Hazardous Materials Refresher (8-hour, 29 CFR 1910.120) 2004

Hazardous Waste Site Investigation Training (OSHA 29 CFR 1910.120)

CPR and First Aid Training

MSHA Certified Safety Training (Surface)

Golder Associates Inc. – Albuquerque

Senior Hydrogeologist

Todd Stein, P.G. is a senior hydrologist with more than 28 years of experience and expertise in mine land reclamation, mine seepage investigations, mine seepage/toe control system designs, mine permitting, and environmental compliance. Areas in which he has specialized include: mine closure/closeout planning and development; hydrogeological and surface water characterization investigations to support permit compliance and reclamation design and planning at mine sites; water resources evaluations; stormwater and seepage control management planning, design, and construction administration; contaminated soil and groundwater remedial investigation project design; and litigation support. He has worked on various RCRA and CERCLA projects throughout the United Sates supporting various clients with regulatory permitting, RI/FS project management, hydrogeologic investigations, groundwater modeling, site closure planning and permitting.

Employment History

Golder Associates Inc. – Albuquerque, New Mexico
Senior Hydrogeologist (2004 to Present)

Senior hydrogeologist involved in multiple closure studies for mines located in southwestern New Mexico. Investigations include closure/closeout planning and development, cover design studies, seepage investigations, seepage control system designs, sludge management studies, and various groundwater studies.

Tetra Tech EMI – Albuquerque, New Mexico
Senior Hydrogeologist (2001 to 2004)

Senior hydrogeologist involved in a variety of water resources and mine closure studies in the southwestern United States. Senior groundwater hydrogeologist for remedial investigation, remedial design, and remedial action projects at various NPL sites located within EPA Region VI.

Daniel B. Stephens & Associates, Inc. – Albuquerque, New Mexico
Senior Hydrogeologist (1992 to 2001)

Environ Corporation – Emeryville, California
Senior Associate (1989 to 1992)

New Mexico Institute of Mining & Technology – Socorro, New Mexico
Graduate Research Assistant (1987 to 1992)

Bureau of Land Management – Socorro, New Mexico
Hydrotechnician (1987 to 1987)

New Mexico Institute of Mining & Technology – Socorro, New Mexico
Hydrology Field and Laboratory Assistant (1984 to 1987)

EXHIBIT
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PROJECT EXPERIENCE – MINE RECLAMATION AND CLOSURE PLANNING

New Mexico Copper Corporation/Closure-Closeout Support New Mexico	Project Manager and technical lead involved in the development of the Mine Reclamation and Closure Plan for the proposed Copper Flat Mine located near in Sierra County, New Mexico. The reclamation and closure plan describes the approach for reclamation of all of the disturbed areas described in the Copper Flat Mine Operations and Reclamation Plan.
Confidential Mining Client/Closure-Closeout Support New Mexico	Project Hydrogeologist involved technically with several phases of work preparing closure/closeout plans for mines in New Mexico. The work entailed preparing closure/closeout plans, preparing a site-wide groundwater study, managing a tailings pond and stockpile seepage investigation program, developing conceptual closure designs for reclamation, and managing several site characterization studies.
Confidential Mining Client/Cover Design Studies New Mexico	Project Hydrologist for the design and implementation of comprehensive cover design test plot studies at mine sites in southwestern New Mexico. Involved the development of work plans for regulatory approval, design and installation of automated vadose zone monitoring systems to measure infiltration of incident precipitation for various cover systems, and evaluation of data collected from the monitoring systems.
Confidential Mining Client/Cover Design Studies Arizona	Project Hydrologist for the design and implementation of comprehensive cover design test plot study at a reclaimed tailing impoundment facility in southeastern Arizona. Involved the design and installation of automated vadose zone monitoring systems to measure infiltration of incident precipitation for various cover systems, and evaluation of data collected from the monitoring systems.
Chevron EMC, Questa Mine/ CERCLA and State Permitting Support New Mexico	Project manager and technical lead involved in the performance of several Early Design Actions under CERCLA for the Chevron Questa Mine Superfund Site in northern New Mexico. Projects include the development of construction design quality assurance plans, design of field-scale soil cover test plot programs, and as-built construction documentation.
Laramide Resources/La Jara Mesa Environmental Baseline and EIS Support New Mexico	Water resources task leader for a proposed mine with responsibilities that include project effects to surface waters and water quality. Responsible for preparing EIS sections including affected environment, environmental effects, cumulative effects, and mitigation measures. Issues include water source, effects to existing perennial and intermittent waters, and waste water routing.
Bingham Canyon Mine Closure Studies Utah	Technical lead for a comprehensive evaluation of proposed reclamation practices for waste rock dumps and tailing facilities at the Bingham Canyon Mine as part of an integrated closure study. The projects included order of magnitude level and pre-feasibility level cover designs and revegetation strategies, development of post-closure reclamation maintenance and monitoring programs, and recommendations to advance the cover designs and vegetation strategies to the feasibility study level.

PROJECT EXPERIENCE – MINE RECLAMATION AND CLOSURE PLANNING (CONTINUED)

Bingham Canyon Mine Stockpile Toe Collection Assessment and Mine Closure Planning
Utah

Technical lead for closure planning for the large-scale copper mine waste rock and tailing facilities. Also involved in the assessment of historical stockpile toe collection systems at the mine and the performance of new toe collections installed in 2016. Technical lead involved in the evaluation of geochemical and material hydraulic properties of the waste rock, tailings, and cover sources and the development of test plots for the evaluation of amendments, soil water relations, and vegetation success.

Williams Energy/ Nacimiento Mine Site
New Mexico

Technical lead involved in the preparation and implementation of a Stage 1 abatement plan, and evaluation of closure options for various facilities at the abandoned Nacimiento copper mine site. Compiled and reviewed existing site environmental information, identified aquifers and surface waters of concern, and developed/implemented an investigation to define extent and magnitude of potential contamination. Evaluated various closure options for individual facilities at the site.

Alamos Gold Inc./Closure Planning and Cover Designs
Turkey

Project manager and technical lead for development of cover system designs and associated design criteria for closure of waste rock dumps and heap leach facilities at a proposed gold mine in Çanakkale, Turkey. Project involved the assessment of available borrow sources and liner materials and predictive modeling to evaluate the performance of various cover alternatives. The proposed cover systems were designed to be compliant with Turkish mining regulations.

Potash Mine Closure Planning and Hydrologic Support
New Mexico

Project manager and technical lead for various groundwater and surface water investigations at an operating potash mine located in southeastern New Mexico. Technical lead for the development of a closure plan for the potash mine in support of the mines discharge permit renewal.

Ambrosia Lake Closure Planning and Climate Change Assessment
New Mexico

Technical lead involved in the assessment of applicable federal and state regulatory guidance associated with climate change in mine assessments. Project was conducted in support of client's dam safety surveillance and risk assessment program for a closed uranium mine site in northwestern New Mexico.

PROJECT EXPERIENCE – HYDROLOGY/WATER RESOURCES

U.S. Navy Southwest Division/Base-wide Hydrogeologic Study
California

Project Hydrologist for a large basin-wide hydrogeology study designed to better understand the Navy's groundwater resources across the NAWS China Lake facility in California. Involved in the oversight of drilling and well installation activities at over 24 sites with completion depths over 1,000-feet deep. Responsible for design and implementation of all aquifer testing and analyses associated with this program.

PROJECT EXPERIENCE – HYDROLOGY/WATER RESOURCES (CONTINUED)

California Dept. of Water Resources/Basin-wide Hydrogeologic Study
California

Project Hydrologist for a large basin-wide hydrogeologic study for the State of California Department of Water Resources and Eastern Kern County Resource Conservation District. Involved in the review and compilation of various hydrologic data and recharge estimates for the Indian Wells Basin, a watershed of nearly 900 square-miles. Data gaps were presented and recommendations to the basins water utilities for future groundwater management strategies and priorities were made as part of this program.

USDA. Office of Surface Mining/Well Study
Kentucky, Virginia, West Virginia

Project Manager for a national OSM study to determine the effects of surface coal mine blasting on the water quality and well yield of domestic wells in the Appalachians. Responsible for negotiating the scope of work for the program with multiple regulatory agencies and managers at five mine sites. Program included the evaluation of water quality trends and variations in yields of domestic wells located adjacent to surface coal mine sites. Responsible for presenting investigation results to regulators and the public.

City of Tucson/Drainage Analysis
Arizona

Project Manager for a drainage analysis for proposed stormwater detention basins in Tucson, Arizona. Program included the evaluation of existing design reports and geotechnical data collected at the site and development of a numerical model to simulate seepage flow beneath the drainage basins.

Confidential Mining Client/Seepage Study
New Mexico

Project Manager and technical lead for a comprehensive copper mine tailings and stockpile seepage investigation. Project involved the collection of temporal and spatial hydrologic and geochemical data to accurately measure the stockpile and tailings pond water balances and to assess the response of seepage flow from particular stockpiles and tailings ponds to individual precipitation/snow-melt events.

Tucson Airport Authority/TIA Superfund Site
Arizona

Project Manager at a federal Superfund site in Arizona. Responsible for various phases of work associated with an RI/FS program at the site. RI included the evaluation of the nature and extent of environmental impacts to soils, surface water, and groundwater at the site, and impacts to the regional water supply of the surrounding community. Manager of field and office activities associated with the RI/FS and responsible for presenting investigation results to regulators.

Various Clients/Cover Design Studies
USA

Project Hydrologist responsible for the analysis of cover systems for various sites throughout the U.S. Analysis included the evaluation of various alternative cover systems and the simulation of the performance of these systems using various vadose zone cover performance models, including UNSAT-H, HELP, and Soil Cover.

PROJECT EXPERIENCE – HYDROLOGY/WATER RESOURCES (CONTINUED)

Various Clients/Litigation Support
USA

Project Manager and technical lead for several environmental litigation projects. Projects involved the review and analysis of published technical reports and data in conjunction with hydrologic analyses to develop expert opinions in legal cases. The opinions focused primarily on the evaluation of various environmental impacts at sites, including impacts to regional water resources.

New Mexico Environment Department/Project Management
New Mexico

Project Manager for multiple LUST sites in New Mexico. Responsible for investigation phases through corrective action. Responsibilities included data analysis and compliance reporting, supervision of internal project staff and external subcontractors, budget tracking, and project regulatory compliance.

U.S. EPA/RI-FS Technical Support
Region IV United States

Groundwater modelling technical support lead for remedial actions at various NPL sites within EPA Region VI. Projects involved the evaluation of various groundwater flow models, preparation of groundwater technical memoranda, simulation of capture zones and associated groundwater flow lines for various groundwater injection/extraction scenarios at the sites, and evaluation of natural attenuation of contaminants at the sites. Remedies evaluated included in-situ bioremediation, various extraction and injection scenarios, monitored natural attenuation, in-situ thermal desorption, and permeable reactive barriers. The results of the modelling allowed for the optimization of the remedial designs and provided information on exposure pathways for risk assessment.

U.S. EPA/Groundwater Hydrology Technical Support
Texas

Senior Groundwater Hydrogeologist for Many Diversified Interests Superfund Site. Responsibilities included oversight of RI activities, design and implementation of aquifer testing program, and evaluation of monitored natural attenuation of contaminated groundwater at the site.

Tucson Airport Authority/TIA Superfund Site RI/FS
Arizona

Project Hydrologist involved in a comprehensive study to develop groundwater recharge estimates at a CERCLA site in Arizona. The project involved the utilization of vadose zone monitoring instruments to obtain recharge estimates from a variety of locations, including groundwater recharge from local drainages. Conducted detailed hydrologic analyses of subsurface soils and groundwater regionally within area of site.

Los Alamos National Laboratory/RCRA Facility Investigation
New Mexico

Project Hydrogeologist for RCRA Facility Investigation performed at former landfill at the Los Alamos National Laboratory. The Project involved installation of vadose zone monitoring network designed to allow determination of several subsurface parameters of importance in assessing possible contaminant migration from landfill. Prepared a report for the RCRA Facility Investigation detailing installation and monitoring of the vadose zone instruments.

PROJECT EXPERIENCE – HYDROLOGY/WATER RESOURCES (CONTINUED)

Jacobs Engineering/Rifle Colorado UMTRA Site Investigation Colorado	Performed vadose zone permeability tests at proposed uranium mine tailings disposal site in Rifle, Colorado. The tests were run to establish design limits for the future disposal facility and to ensure that the base material permeabilities were sufficiently low for the disposal of uranium mine tailings at the facility.
NM State Engineers Office/Roswell Groundwater Basin Model New Mexico	Participated in the analysis and compilation of data used to construct, calibrate, and verify a multilayer numerical model of the Roswell Groundwater Basin to assist the New Mexico State Engineer with water rights adjudication. The purpose of the modelling is to develop a simulation capability for predicting base flow gains to the Pecos River.