

**STATE OF NEW MEXICO  
BEFORE THE WATER QUALITY CONTROL COMMISSION**

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**In the Matter of:** )  
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**PROPOSED AMENDMENT** )  
**TO 20.6.2 NMAC (Copper Rule)** )  
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**No. WQCC 12-01(R)**

**EXHIBIT SCOTT – A**



## James C. Scott, P.E.

Principal Engineer

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### Areas of Expertise

Geotechnical Engineering  
Tailing Dams and Storage Facilities  
Mine Closure and Reclamation  
Engineered Risk Assessment  
Due Diligence Review  
International Opportunities

### Years of Experience

With URS: 36 Years  
With Other Firms: 0 Years

### Education

MS/Civil Engineering (Geotechnical Engineering)/1977/Purdue University  
BS/Civil Engineering/1975/Arizona State University  
AA/Engineering/1972/Phoenix College

### Registration/Certification

Professional Engineer/CO  
Professional Engineer/NM  
Professional Engineer/AZ  
Professional Engineer/British Columbia

### Overview

Mr. Scott has over 35 years of civil and geotechnical experience including engineering analyses and design for many types of development, operation, reclamation and closure projects for the mining industry. He has managed and participated in numerous projects that have included geotechnical investigations, site characterization, siting and design, and construction oversight of mine processing and mine waste facilities from mills to tailing impoundments. His project experience includes services for base metals, precious metals, phosphate, coal, uranium, and oil shale resources.

Mr. Scott's representative activities and projects include:

- URS Principal-In-Charge for work at the Bagdad Mine. Projects have included tailing dam operational support; tailings facility inspections; tailing deposition system evaluations; stability evaluations of the Mammoth, Upper Mammoth, and Mulholland tailing impoundments; monitoring and construction testing; and design for conversion of the existing Mammoth facility to upstream construction.
- Engineered Risk Assessment (ERA) team member at five gold mines in Montana. Evaluated risks associated with open pits, heap leach pads, waste rock repositories, tailings disposal areas, and solution handling facilities. The ERAs evaluated the potential for failure of an engineered component of each facility and the relative impacts that would occur as a result of an engineered system failure.
- Due diligence review for mine sites in central Florida (phosphate) and British Columbia, Canada (molybdenum).
- Project Manager for design of a 1600-acre upstream method tailing dam and 9,000-foot long diversion channel at Chino Mines Company, Hurley, New Mexico. An overbank flow protection berm was designed for erosion protection of the tailing pond during overbank floods from the diversion channel. Responsibilities included geotechnical investigations, static and seismic stability analyses, and preparation of plans, specifications and construction cost estimates.
- Project Engineer for design of a 326-acre gypsum disposal field near Tampa, Florida, including starter dam, clayey soil lining overlain by a leachate collection and removal system, perimeter collection drain, and slurry cutoff wall. Responsibilities included geotechnical investigations and preparation of plans and specifications for the slurry cutoff wall; preparation of plans and specifications for construction of the gypsum field; lining grade option studies; evaluation of sands and gravels for drain construction and evaluation of clayey soils for lining construction.
- Project Manager for engineering services to evaluate cutoff mitigation measures associated with unconsolidated deposits for a phosphate mine in North Carolina. Mitigation measures included slurry cutoff wall,



interceptor cutoff wall, jet grouting, deep soil mixing, and chemical grouting.

- Project Engineer responsible for foundation grouting, pile driving, and earthwork quality control for a uranium recovery plant, DAP manufacturing building, acid plant, PFS storage tanks, and ammonia pressure storage terminal at an agricultural chemicals plant near Tampa, Florida.
- Project Manager for engineering services to review design plans, specifications, and cost estimates associated with the reclamation of three gypsum stacks near Joplin, Missouri.
- Project Manager responsible for monitoring and documenting seismic effects generated by blasting operations over a two-year period at a surface coal mine near Sheridan, Wyoming.

Other large projects include Climax Mine, Climax, Colorado; an earth dam for the Sohio Oil Shale Company, Utah; Tyrone Mine Tailing Dam 1, and No. 9B North Oxide Leach Facility, Tyrone, New Mexico; Morenci Mine West Tailing Dams, Morenci, Arizona; Bagdad Mine, Bagdad, Arizona; Miami Mine, Claypool, Arizona; Reservoir 3A, Hanover Creek Dams 10 and 11, and an SX-EW plant near Santa Rita, New Mexico; Cobre Mine Storm Water Systems, Hanover, New Mexico; New Cornelia Mine, Ajo, Arizona; UNOCAL Oil Shale Project, Parachute Creek, Colorado; Pine Grove Deposit Shaft Workings near Milford, Utah; Mt. Hamilton Mine Road, White Pine County, Nevada; Endako Mines, Endako, British Columbia; Midnight Mine, near Wellpinit, Washington; Questa Mine, Questa, New Mexico; Ashton Hydro Project, Ashton, Idaho; Lake DeSmet Dam near Buffalo, Wyoming; Antelope Valley Power Station, near Beulah, North Dakota; Craig Station, Yampa Project near Craig, Colorado; San Juan Station near Fruitland, New Mexico; Southeast Generating Station near Las Animas, Colorado; Cherokee Station, Denver, Colorado; Shoshone Dam Interchange Structures, Glenwood Canyon, Colorado; Kuperuk Airfield and Development Area, Alaska; Tucker Lake Dam, Arvada, Colorado; Cle Elum Dam, Cle Elum, Washington; and Arvada Reservoir, Colorado.

## **Project Specific Experience**

### **International Experience**

- Project Manager for geotechnical studies for the Sansu Oxide Plant, Ashanti Goldfields Corporation (Ghana) Limited, Obuasi, Ghana. Major project facilities included crusher area retaining wall, crusher, ball mill, leach adsorption tanks, and gold room/acid/eluante/roaster area.
- Peer Reviewer, Zhong Tiao Shan Tailing Embankment, BGRIMM/China-Australia Research Institute for Mine Waste Management, Anhui Province, China.
- Peer Reviewer, Phosphogypsum Tailing Dam, Société Industrielle d'Acide Phosphorique et d'Engrais (SIAPE) de Gabès, Tunisia.
- Consultation Services, Heap Leach Pad Stability Evaluation, Honduras.



- Project Manager for geotechnical studies for the Jin Mao Project, Ocean Light Project, Kinghill Plaza, and Zhangjiang Hi-Tech Park Automobile Equipment Factory in Shanghai, China; the Industrial and Commercial Bank of China and Wang Fu Jing Shopping Arcade in Beijing, China; and the Budweiser Wuhan International Brewing Co., Ltd., Wuhan, China.
- Peer Reviewer/Project Coordinator for environmental site assessments in Shanghai, Guangzhou, Hangzhou, Huzhou, Qingdao, Suzhou, Tianjin, and Chengdu, China.
- Developed Memorandums of Understanding with leading institutes and universities in Shanghai and Beijing, China.
- Project Manager for geotechnical studies for the Plaza Rakyat Project in Kuala Lumpur, Malaysia.
- Peer Reviewer for geotechnical studies for the Vision City Project in Kuala Lumpur, Malaysia.
- Provided geotechnical consultation for the Saigon Center Project in Ho Chi Minh City, Vietnam.
- Project Manager for evaluation of methods for foundation treatment, Ulchin Units 3 and 4, Korea.
- Project Engineer for geotechnical studies for the Domestic Water Project, Northern Region, near Irbid, Jordan. Project facilities included two low-head and three high-head pumping stations, a water treatment plant, a 24-km (14-mile) main carrier pipeline, a 10-km (6-mile) long collector pipeline, and a terminal reservoir. Also provided consultation services during construction.
- Project Engineer for geotechnical studies for the Domestic Water Project, Southern Region, near Amman, Jordan. Project facilities included an intake structure located on the East Ghor Main Canal near Deir Alla, a water treatment plant, a 34-km (21-mile) main carrier pipeline from the East Ghor Main Canal to a terminal reservoir near Suweilih, a 5-km (3-mile) pipeline from the terminal reservoir to an existing distribution reservoir within the Amman city limits, and five booster pumping stations. Also provided consultation services during construction.
- Peer Reviewer for geotechnical studies for the Cabinda Airport expansion, Cabinda, Angola.
- Geotechnical Design Input, Parking Loop Pipeline, Sakhalin Island, Russia.
- Geotechnical Engineer for an early oil pipeline terminal and export pipeline, Azerbaijan International Operating Company, near Baku, Azerbaijan.
- Project Coordinator, Environmental Due Diligence/Site Assessments, Manufacturing Facilities, Russia (Chelyabinsk, Ekaterinburg, Krasnoyarsk, Nizhny Novgorod, Novosibirsk, and Volgograd).



- Planned, documented, and obtained World Bank assignments for the Feasibility Study and Master Plan, Slovenia Environment Project and the Metropolitan Municipality of Izmir, Türkiye Sewage System/Treatment Plant Project.
- Participated in business development and marketing efforts throughout Asia and in the Kingdom of Saudi Arabia
- Consultation Services, Hotel Complex, Aruba.

### **Professional Societies/Affiliates**

American Society of Civil Engineers and Colorado Section (ASCE)  
International Society for Rock Mechanics (ISRM)  
International Society of Soil Mechanics and Foundation Engineering (ISSMFE)  
Southeast Asian Geotechnical Society (SEAGS)  
Deep Foundations Institute (DFI)  
Canadian Dam Association (CDA)  
Colorado Association of Geotechnical Engineers (CAGE)  
Mining History Association (MHA)

### **Awards**

Order of the Engineer, Purdue University, April 1977  
Graduated with Distinction, Arizona State University, 1975

### **Specialized Training**

MSHA New Miner Training  
Improvement of Soils In Situ, University of Wisconsin-Milwaukee  
Construction Project Administration and Claims Avoidance, Construction Administration Institute  
Pacific Rim Management Program, Doing Business with China, University of Southern California  
Superpave: Building Roads for the 21<sup>st</sup> Century, The Asphalt Institute, FHWA, and AASHTO  
Pressuremeter and Foundation Design, Texas A&M University  
Risk Assessment Methodology for Dams (RAM-D), Sandia National Laboratory

### **Publications**

Influence of Organic Terrain on Military Operations (with Fred Matich).  
Draft currently under preparation. 2013.  
Tailing Dam Design, Construction, and Operation. Technical Committee Presentation. Copper Rules Advisory Committee. May 2012.  
Closure Discussion Tailing Dams and Mine Rock Stockpiles. Technical Committee Presentation. Copper Rules Advisory Committee. June 2012.



- Load Tests of Bored Piles in Weathered Bedrock (with D. Riley, S. Newman, and C. Dann). 32nd Annual Conference on Deep Foundations. DFI. Colorado Springs, Colorado. October 2007.
- Becker penetration testing for liquefaction evaluation of existing dams - two case studies (with K.A. Finke and D. Curran). 2000 West Region Annual Conference and Technical Seminar. Association of State Dam Safety Officials, May 2000.
- Environmental investigations in China, Working with regulatory agencies in China, and Environmental control in China. China & East Asia Resources 2000 Symposium. Denver, Colorado. January 2000.
- Foundations in expansive soils. Presentation to Turkish transportation engineers. Denver, Colorado. April 1999.
- Analysis of load capacity of deep test piles in Shanghai alluvium (with Warren Pump). Eighth Australian/New Zealand Conference on Geomechanics. Tasmania. February 1999.
- Installation and loading of deep piles in Shanghai alluvium (with Warren Pump and Stan Korista). Seventh International Conference & Exhibition on Piling and Deep Foundations. DFI. Vienna, Austria. June 1998.
- Due diligence review implementation. Presentation at AlliedSignal's DDR Process Workshop. Morristown, New Jersey. November 1997 and March 1998.
- Establishing successful operations in China: case studies of Colorado companies. China Roundtable. Denver, Colorado. July 1997.
- Environmental investigations in China. Presentation at the Air and Waste Management Association's 90th Annual Meeting, Toronto, Ontario. June 1997.
- Environmental troubleshooting. China Business Review. January-February 1997.
- Global forum. Construction Industry Institute. St. Louis. June 1996.
- Forming strategic alliances in Asia - lessons learned in China. Presentation at World Trade Day 1996, Denver, Colorado. May 1996.
- Working with regulatory agencies in Asia's developing countries - lessons learned in China. Presentation at Far East Environmental Laws & Regulations, Government Institutes, Inc. San Francisco. December 1995.
- Environmental investigations in China - lessons learned. Presentation at Superfund XV. Washington, D.C. December 1994.
- Environmental control in the People's Republic of China. Presentation at the Tenneco Environmental Conference. Houston, Texas. November 1994.
- Load tests of deep piles in Shanghai alluvium. Presentation at the 1994 Woodward-Clyde Technical Symposium. Tempe, Arizona. October 1994.



- Seismic retrofit - installation of gravel drains at the upstream slope of Kingsley Dam. Presentation at the Association of State Dam Safety Officials Annual Conference. New Orleans, Louisiana. October 1990.
- Kingsley Dam rehabilitation - preliminary investigation. Presentation at the Nebraska Dam Safety Seminar. Ogallala, Nebraska. October 1989.
- Chinese executive management seminar. Presentation on Geotechnology Transfer. Denver, Colorado. July 1989.
- Japan slope protection association. Presentation on Geotechnology Transfer. Denver, Colorado. June 1989.
- Effects of dust suppressants on tailing sand permeability. Geotechnical Testing Journal. ASTM. March 1984.
- Soaked strength of laboratory compacted clay (with A.G. Altschaeffl and C.W. Lovell). Journal of the Geotechnical Engineering Division. ASCE. November 1979.
- Examination of the variability of the soaked strength of a laboratory compacted clay. Joint Highway Research Project Report No. 77-8. Engineering Experiment Station. Purdue University. May 1977.
- Regression analysis of soil compressibility. Soils and Foundations. Japanese Society of Soil Mechanics and Foundation Engineering. December 1976.

### **Chronology**

- 1977 – Present: URS, Staff Engineer to Principal Engineer
- 1975 – 1977: Purdue University, Graduate Research Assistant (Joint Highway Research Project)
- 1972 – 1975: City of Phoenix, Arizona, Engineering Department, Materials Section, Engineering Aide