

APPENDIX B

Gordon Revey (Revey Associates, Inc.) Resume

GORDON F. REVEY, P. ENG*

Registered in Province of Ontario, Canada

PRINCIPAL – REVEY Associates, Inc.

9250 E. Morning Star Place

Parker, CO 80134-5611

Phone: (303) 470-0416 Fax: (303) 791-0140 E-mail: grevey@earthlink.net

BLAST-ENGINEERING & VIBRATION-NOISE CONSULTING QUALIFICATIONS

Providing consulting services to the mining and heavy construction industry and its Engineering and Management Firms. Services include all blasting related design, training, environmental impact controls, and risk management work.

EXPERIENCE

1996--

Professional Blasting & Vibration/Noise Engineering Consultant

Providing explosives related training, design, and risk management services.

1987—1996

Technical Manager—Western Division ICI Explosives USA, Western Division (formerly Atlas Powder Company, now ORICA Inc.)

- Worked in a number of subordinate positions leading to appointment as Div. Technical Manager.
- Provided and coordinated technical services and training to the mining and construction industry.
- Responsible for explosives, safety and blasting application technical support to major construction and mining sites where damage and vibration control were critical.
- Supervised and lectured at more than twenty Blasters License Training Courses. Certified as trainer in the states of Kentucky, Colorado, Montana, California, New Mexico, Hawaii and Nevada.

1985--

General Manager, Atlas Blasting Services—Millersville, Tn.

Managed explosives sales and service business operating throughout the State of Tennessee. Directly supervised crews performing contract-blasting services to quarries and construction projects. Also directly responsible for on-site storage and over-the-road explosive transportation operations.

1984--

Technical Sales Representative, Atlas Powder Company – Madisonville, Ky.

Provided direct technical support to surface coal mining, and underground coal mining development projects.

1983--

Training Specialist, Atlas Powder Company – Tamaqua, Pa.

Developed company safety and application training programs. Served as editor for “Explosives and Rock Blasting” handbook.

1981—

Research Engineer, INCO Metals Mines Research – Copper Cliff, Ont. Canada

Directed all underground blasting research to improve mining methods and developed specialized state-of-art blast vibration/air-overpressure monitoring and control systems.

EXPERIENCE Continued

1980—

Mine Planner, INCO Metals – Copper Cliff South Mine, Copper Cliff, Ont. Canada

Responsible for mine-planning work and methods development.

1975—76

Driller, INCO Metals -- Frood Mine, Sudbury, Ont. Canada

Operated various hand held and automated drilling equipment and performed blasting work in various mining and development operations.

PROJECT CONSULTING EXPERIENCE (Very limited listing – less than 10% of overall projects.)

Center for Disease Control Building 23 Project – 2007-2008, Atlanta, GA. Developed controlled blasting plans and directed a team of on-site inspectors that oversaw critical close-in blasting work for a deep foundation excavation located within 10 feet of adjacent buildings. Contractor: Turner Construction Co.

Atlanta Sewer Separation Project – 2006, Atlanta, GA. Developed controlled blasting plan and oversaw work for excavation of a tunnel in rock 65 feet below the CSX Railway line. Engineer: Montgomery Watson Harza.

San Vicente Water Tunnel – 2005-07, Escondido, CA. Developed blasting plans for excavations of rock in mixed-face tunnel conditions and for surface portal excavations. Contractor: Traylor-Shea J.V.

Denk and GI Water Pipelines – 2004, Escondido, CA. Developed controlled blasting plans for safe trench blasting for installation of new water pipes installed in trenches located as near as 10 feet from existing water pipes. Blasting work was done for M.J. Baxter Drilling Company under a subcontract with prime contractor for the Olivenhain Municipal Water District (OMWD).

Northeast Cape Fear River Project – 2003-2007, Wilmington, NC. Developed specifications for underwater rock blasting excavation work to deepen the Cape Fear River in areas near historic buildings, bridges, utilities and commercial operations. Estimated cost of drill-blast work and presented a one-day workshop on underwater blasting methods and environmental issues. Client: Wilmington District – USACE.

Howard Hanson Dam Fish Bypass facility – 2003-06, Tacoma, WA. Developed plans for blasting rock located within five feet of the Intake Tower providing water supply for City of Tacoma, WA. Work included design of underwater blasting. Contractor: Traylor Pacific, Inc.

Croton Water Treatment Plant – 2003-05, New York, NY. Evaluated potential impacts of controlled blasting operations needed to excavate 1,000,000-cyd of rock at the Moshulu City Park in the Bronx. Estimated drill-blast costs and developed specifications to ensure the blasting is done safely and without damage to neighboring property.

El Cajon Dam Project – 2003-04, State of Nayarit, Mexico, Provided blast design services for underground and surface excavations, including diversion tunnels, chambers, spillways, shafts and other excavations. Provided evaluation of blasting impacts on new concrete from concurrent nearby rock blasting operations, prepared blasting recommendations for the spillway and borrow area excavations, and developed rock containment strategies to prevent blasted rock from damaging existing facilities.

Hetch Hetchy Water & Power Upgrade Projects – 2003, Yosemite National Park, CA. City of San Francisco. Reviewed blasting plans and directly oversaw blasting work for blasted excavations in a shaft above a critical penstock pipe supplying water for city of San Francisco at the O'Shaughnessy Dam; and oversaw blasting for rock excavations located within 5 feet of the water intake tower at Priest Reservoir.

McAlpine Lock and Dam Replacement Project – 2003, Louisville, KY. TGM, JV – Contractor to Louisville District of US Army Corps of Engineers. Authored blast plan submittals and developed controlled blasting plans designed to protect a critical swing bridge, existing lock walls and other structures. Also designed submerged and surface demolition blasts for removing coffer cells to open the lock entry.

San Francisco – Oakland Bay Bridge Project – 2002, San Francisco, CA. Earth mechanics, Inc./Fugro West JV – under contract with CalTrans. Designed and executed blasting demonstration program used to characterize environmental impacts of blasting to existing bridge piers, US Coast Guard Structures and to area flora and fauna. Study included measurements of ground vibration, air and water overpressure that were used to develop site-specific regression curves. Conclusions from this study were used to develop controlled blasting specifications for new bridge pier excavations on Yerba Buena Island. Designed multiple-stage air-curtains for attenuation of transient water pressure pulses caused by pile driving.

Bath Iron Works Land Level Transfer Facility Project – 2000, Bath ME. Atkinson Construction Company. Developed controls designed to protect endangered Short Nosed Sturgeon from the effects of underwater blasting and to win regulatory permitting approvals.

Allied Pipeline Project – 2000, Mankato, MN. Welded Construction Co. and Universal Ensco. Investigated potential vibration effects on nearby buried gas pipeline and developed blasting recommendations that allowed the work to proceed without incident.

San Roque Multi-use Dam Project (Philippines)– 2000. Evaluated extremely challenging geological conditions and developed controlled blasting methods to reduce overbreak in power plant and dam-spillway excavations.

Cougar Lake Diversion Tunnel Upgrades Project – 1999. Defined controlled blasting methods and wrote specifications for development of a gate-chamber excavation and lake-tap blast designed to facilitate controlled water-temperature releases from the upstream reservoir to the McKenzie river. This blast-engineering work was performed for the Portland District of the US Army Corps of Engineers, under the coordination of INCA Engineers, Inc.

Lake Mead Intake Intake No. 2 Project –1998-99. Designed air-curtain for attenuation of peak water overpressure generated by a large underwater ditch blast, developed controlled blasting methods for rock excavation work near new concrete repairs, and developed extremely controlled blasting methods for a series of elbow connection blasts designed to complete a lake-tap connection between a drilled shaft and a tunnel. These design services were done for the project contractor—Lake Mead Constructors, Inc.—a consortium of Kiewit Companies.

TransColorado Pipeline Project – 1998. Due to concerns about blast effects on springs supplying water to reservoirs for the cities of Palisade and Grand Junction, Colorado, rock blasting was prohibited for the excavations in a nine-mile section of the pipe trench on the Grand Mesa. While excavating the trench in the no-blast zone, U.S. Pipeline, Inc., the contractor encountered many large basalt boulders that could not be removed with conventional excavating equipment. Investigated potential blast-induced vibration effects on nearby water resources and the rock and ground slopes. and recommended practical blasting controls.

Sonoma County Landfill Expansion Project – 1998. Investigated and reported on potential rock blasting impacts on site facilities, neighboring property, people and farm animals. Investigations included analysis of blast-induced ground motion and air-overpressure impacts on; buried leachate and methane gas piping systems, stability of landfill slopes, quality and supply of water in area wells, residential and agricultural structures, and dairy cows. Specific blasting controls, designed to prevent damage and minimize complaints and claims, were also recommended. GEOTEK's findings and recommendations were incorporated into the Sonoma County Environmental Impact Report.

Folsom Dam Air-Intake Tunnel Project – 1997. Developed blasting and vibration control and monitoring program for the construction of a tunnel excavated through concrete. Specially designed blasting rounds were executed without damaging critical dam structures. Blasts occurred very near to the dam's radial gates, trunnion anchors, and other important dam facilities. Work was performed for Dillingham International and the US Bureau of Reclamation, the project contractor and owner, respectively.

Boston Metropolitan Water District METRO-WEST tunnel project – 1997. Evaluated tunnel blasting vibration and noise effects, developed special blasting controls, performed public relations work, and provided claim investigation services to Shea-Traylor-Healy, the contractor.

Bill Emerson Bridge project – 1996-2002 Cape Girardeau, MO Bridge Project 1996. Developed unique submarine blasting plans and bubble-curtain water-pressure mitigation measures for bridge pier excavation blasts below 60 feet of water and sand in the Mississippi river.

Los Angeles METRO Project – 1996-98. Designed an underground explosives storage plan to facilitate a CAL-OSHA variance request for Traylor Bros. Inc./Frontier Kemper Constructors, Inc. J.V.—the contractor. After the plan was approved by the California Standards Review Board, the magazine facility was built and the blasting work was completed without incident. Also provided specialized training and blasting consulting services to JMA (Jacobs Engineering Group, Mott McDonald Hatch, and ACG Environments Joint Venture – Construction Manager).

H-3 Highway Tunnels, Halawa Valley, Hawaii -- April 1991 to 93. Blasting Consultant for Hawaiian Dredging, the contractor; approved by Parsons, Brinckerhoff, Quade & Douglas and Hawaii DOT. Prepared blasting plans and evaluated procedures.

D.H. Blattner & Sons, Cobre Mining, Silver City, New Mexico (surface copper)– 1996. Audited the blasting practices and prepared design change recommendations that improved blasting safety, pit slope stability, and mine productivity.

Nashville Airport Quarry Fill Project -- Metric Construction Company, Nashville, Tennessee. Responsible for Safety Training Program and Vibration/Airblast Control. Consultant to contractor, approved by Nashville Airport Authority. Five million cubic yards of rock was blasted in this project and it included a tunnel for water and utilities.

Hanging Lake Tunnels Project -- 1989 to 1990. Blasting Consultant for Hanging Lake Joint Venture, the contractor; approved by Parsons, Brinckerhoff, Quade & Douglas Inc. and Colorado DOT. Developed controlled blasting plans for surface bridge abutment cuts, portal development cuts and multiple face underground tunnel rounds. Approved all Blasting Supervisor qualifications and loading procedures.

Barrick Meikle Mine, Carlin, Nevada - 1996. Audited the development heading blasting practices and provided practical design improvements that increased round advance rates and reduced overbreak. Presented recommendations concerning safe blasting in hot ground and centralized blasting systems.

Stillwater Mining Company, Nye, Montana – 1994 to 1996. Aided the development and introduction of narrow vein long hole stope mining. Developed controlled blasting techniques designed to minimize dilution from a very weak hanging wall. Provided practical recommendations for controlling ammonia and nitrate losses from explosives.

TRI-MET Light Rail Tunnel Project - October 1993 to present. Blasting Consultant for Frontier/Traylor joint venture. Prepared all blasting plans and vibration/noise mitigation and monitoring systems for this large tunnel and shaft blasting project in Portland, Oregon.

PROJECT CONSULTING EXPERIENCE Continued

Yucca Mountain Nuclear Waste Repository Project -- 1992. Provided controlled blasting designs and information for Raytheon and Kiewit-Parsons Brinkerhoff. This work was for the TBM starter tunnel and the ongoing storage cavern excavations.

Hoover Dam Elevator Shaft Project - August 1990 through April 1991. Blasting Consultant for Frontier Kemper Constructors – contractor. Prepared a Blasting Program designed to meet stringent vibration and flyrock control requirements. Approved all blasting supervisor qualifications and Blast designs.

Roosevelt Dam Retrofit -- 1991 to 92. Developed controlled blast plans for J.A. Jones, the contractor, at this U.S. Bureau of Reclamation project in Arizona.

Seven Oaks Diversion Tunnel -- June 1992 to 93. Blasting Consultant for Tutor-Saliba and Dynatec Mining; the contractors. Prepared the blast plans for the diversion tunnel, valve chamber, and surface excavations at this project in Highlands, California.

Hoover Dam Aeration Slots -- Frontier Kemper Constructors, Boulder City, Nevada, 1986. Responsible for Blasting Safety Program and Blast Vibration Control measures. Consultant to the contractor, approved by U.S. Bureau of Reclamation.

Southdown, Inc., Houston, Texas – 1998. Conducted Blast Design and Risk Management Workshop for quarry managers at annual national meeting—Longmont, CO. Topics included principles of blast design, controlled blasting techniques and measures for preventing blast vibration and air-overpressure damage claims or litigation.

Barretts Minerals, Inc., Dillon, Montana – 1998. Performed Blasting Practices Audit and recommended improvements designed to prevent losses of explosives to groundwater that might cause potential ammonia and nitrate pollution.

INCO Limited -- "Smoothwall" Tunneling Project 1981. Conducted Blasting Method Research at eight different mines to establish Smoothwall Tunneling standards for INCO development and large chamber opening.

Minidoka Dam Replacement Powerplant & Switchyard Project - January 1996 to present. Providing blast design and blast affects control services to Superior Blasting, Inc. and Pirini Corporation, the blasting and prime contractors, respectively, at this very challenging U.S. Bureau of Reclamation project in Idaho.

EDUCATION

B. Eng., Mining Engineering, 1980, Laurentian University, Sudbury, Ontario, Canada

PUBLICATIONS, TRAINING AND PRESENTATIONS

Biannually Conducted ROCK BLASTING TECHNOLOGY AND RISK MANAGEMENT COURSE. This two-day program, sponsored by ASCE, is designed specifically for project managers, engineers, attorneys and government agency professionals. The course covers explosives technology, controlled blast design, identification of blasting risk and management strategies, specification development, and cost estimating.

Published "Underground Bulk Mining Blast Design and Vibration Monitoring at INCO Metal's Sudbury Operations." Printed, August 20, 1981. Prepared for Canada Center for Mineral Energy and Technology.

Editor and Contributing author to "Explosives and Rock Blasting," a comprehensive hard cover blasting handbook published by Atlas Powder Company in 1987.

PUBLICATIONS, TRAINING AND PRESENTATIONS Continued

Presented paper titled, "Controlled Blasting at the Hanging Lake Tunnels Project" at the annual Society of Explosives Engineers meeting in Las Vegas, NV, January, 1991.

Presented "Controlled Excavation at the Trans-koolau Halawa Tunnels" paper at the Society of Explosives Engineers annual meeting in San Diego, California, January, 1993.

Presented "Controlled Blasting at the TRI-MET tunnels" paper at the International Society of Explosives Engineers annual meeting in Nashville, Tennessee, January 1995.

Presented "Practical Methods for Controlling Explosives Losses and Ammonium Nitrate Pollution" paper at the Society of Mining Engineers annual meeting, Denver, Colorado, March 1995. Published in MINING ENGINEERING Journal, July-96.

Presented "The Effects and Control of Overbreak In Underground Mining" at Society of Mining Engineers annual meeting, Denver, Colorado, March 1997. Published in MINING ENGINEERING Journal, Aug-98.

Presented "Blasting a Tunnel Through Folsom Dam," a paper describing controlled blasting, planning, and testing methods used to successfully blast an air-intake tunnel through the Folsom Dam. Despite blasting under the pressure of a very tight schedule and near many critical structures--including radial gates, trunnion anchors, a roadway, and a concrete spraywall, all blasting occurred without damage. ISEE Annual Conference, Nashville, TN, February 1999.

Contributed "To Blast or Not to Blast" to the American Society of Civil Engineer's new Practice Periodical on Structural Design and Construction. This article outlines the liability risks associated with urban construction blasting, and it offers a practical approach for managing these risks. 2000.

Published "Managing Blasting Risk" in the ASCE Practice Periodical on Structural Design and Construction Journal, Vol. 6, No.1, 2001. Article describes methodology for evaluating blasting risks, developing specific controls, and ensuring the work is supervised and overseen by qualified persons. Includes 3 case histories illustrating how methods were used at three projects with extreme blasting risk.

Presented "Controlled Blasting Methods for Excavating Rock and Concrete near Critical Structures" at European Federation of Explosives Users Conference, Prague, CZ, September 2003.

By Special Invitation, Presented "Managing Rock Blasting Work in Urban Environments" At a specialty Seminar by ASCE Metropolitan Section Geotechnical Group and the Geo-Institute of ASCE, New York City, May 2005.

Conducted Controlled Blasting and Risk Management Course for North Carolina Department of Transportation. Two 2-day programs for over 70 staff members held at Asheville and Sylva, NC. December-05 and Jan-06. Program covered principles of blast design, controlled blasting methods, vibration and air-overpressure control, specifications, and risk management systems.

Presented "Blasting Near New Concrete – 3 Case Histories" at ISEE Annual Conference, Dallas, Texas, February 2006.

PROFESSIONAL MEMBERSHIPS

1. Association of Professional Engineers of Ontario, Canada -- PEO
2. International Society of Explosive Engineers – ISEE (Elected to National Board of Directors - 2001)
3. American Society of Civil Engineers – ASCE