

Brett Board, PE

AREAS OF EXPERTISE

MR. BRETT D. BOARD, PE HAS TECHNICAL EXPERIENCE IN THE FOLLOWING GENERAL AREAS:

- Medium and Low Voltage Power System Design
- Arc Flash Analysis
- Protective Device Coordination
- Protective Relaying
- Ground Grid Design
- Power Factor Correction
- Harmonic Mitigation
- Transients Mitigation
- Large Motor Starting
- Lighting Design
- Safety Analysis/Regulatory Compliance

REPRESENTATIVE EXPERIENCE

Mr. Board has over 20 years of experience and progressive responsibility in electrical and safety engineering consulting. His qualifications include extensive hands-on planning, field investigation, design, permitting, cost estimating, and project management. Mr. Board's background includes extensive service to the oil and gas, mining, and nuclear industries. He currently serves in the capacity of Electrical Engineering Manager with responsibility for the technical functions of the department including all calculations, drawings, specifications, scopes of work, schedules, engineering estimates, project control, and staff performance and development.

Enterprise Products, Four Corners Arc Flash – Multiple Sites (Lead Engineer: 2015)

Mr. Board served as Lead Engineer for arc flash assessment of multiple pump stations. This contract involved providing a senior-level technical specialist for a wide variety of tasks including collecting on site data, collecting utility source impedance data, developing accurate electrical models, analyzing the model data, determining corrective actions to minimize the arc flash hazard, and developing a new reporting and label format compliant with industry and company specifications. Mr. Board also developed a training program about arc flash hazards for the field technicians.

Access Midstream, Bucking Horse Refrigeration Plant – Douglas, WY (Lead Electrical Engineer: 2013 - 2015)

Mr. Board served as Lead Electrical Engineer for the power system design of a natural gas midstream processing facility. This contract involved 7000 hp of electric driven refrigerant compressors, four synchronous transfer medium voltage VFD systems to start the compressors within the facility, 8 MW temporary power plant until utility power became available, de-tuned power factor correction, 5 kV switchgear with protective relays, and Ethernet based motor control.

Anadarko, Fort Lupton Compressor Expansion – Ft. Lupton, CO (Lead Electrical Engineer: 2013 - 2015)

Mr. Board served as Lead Electrical Engineer for the power system design of a natural gas compressor facility expansion. This contract involved 18000 hp of electric driven compressors, synchronous transfer medium voltage VFD to start the compressors within the facility, de-tuned power factor correction for the compressor motors, and a 20 MW unit substation for supply with switchgear and protective relays, and Ethernet based motor control.

Molycorp, Mt. Pass Mine Project Phoenix – Mt. Pass, CA (Lead Electrical Engineer: 2011 - 2012)

Mr. Board served as Lead Electrical Engineer for the power system design of the crushing, milling, and paste tails facilities for Project Phoenix. This contract included design of the utility interface with an automatic recloser for service entrance, 12kV distribution including switchgear, ball mill motor starting system, and low voltage motor control.

Gold Resource Corp, Gold Mill – Oaxaca, Mexico (Electrical Engineering Consultant: 2009 - 2010)

Mr. Board served as consulting Electrical Engineer for the power system design of the gold mill facility. This contract included developing a reactive support starting system for a large grinding mill motor connected to a weak (generator based) source.

EDUCATION

BS, Electrical Engineering, Washington State University

ME, Electrical Engineering, University of Idaho

PROFESSIONAL REGISTRATIONS/CERTIFICATIONS

Professional Engineer: Colorado, California, Virginia, New Mexico, Nebraska

PROFESSIONAL AFFILIATIONS

Institute of Electrical and Electronics Engineers, Industry Applications Society, Power and Energy Society

SPECIALIZED TRAINING

- Arc Flash Analysis
- SKM Power Tools
- Power System Protection and Relaying
- Competent Toastmaster

PREVIOUS EMPLOYERS

- Willbros Engineers/TRC Solutions / 2012 to present
- ProConn Engineering / 2012
- Lyntek Inc / 2009 to 2012
- Jacobs Engineering / 2008 to 2009
- CH2M HILL/Trigon EPC / 2005 to 2008
- Enserca Engineering /2004 to 2005
- Qwest Communications / 2003 to 2004
- Excalibur Associates / 2001 to 2003
- Informatics Corporation / 1998 to 2001
- Duke Engineering & Services Hanford / 1996 to 1998
- Westinghouse Hanford / 1993 to 1996

SELECTED PUBLICATIONS AND PRESENTATIONS

Board, B. D., "Grounding: Theory and Application to Mining Operations," Western Mining Electrical Association Conference, November 2013.

Board, B.D., "Harmonics: Two Sides of the VFD Coin," Western Mining Electrical Association Conference, November 2016.