

**Current Title**

Electrical Section Lead  
Utility Telecom

**Professional Licenses**

Kansas, License # 18638  
California, License #18464

**Education**

BS, Electrical Engineering,  
University of Kansas,  
Lawrence, KS, 2001

**Years Experience**

11

**Managing Experience:*****Utility Telecom Engineering Section Lead  
2010-2011***

Responsibilities:

- Manage 30 electrical engineers and technicians
- Create proposals including time, material, and procurement estimates for project work.
- Interface with clients during proposal stages
- Provide overall training plans for the section
- Oversee each professional's development
- Staff projects with appropriate engineers
- Screen resumes and make hiring recommendations
- Advocate for promotions
- Address performance issues

**Project Experience:*****Private Land Mobile Radio System Site Survey and Documentation, Puget Sound Energy, Washington  
2010-2011***

*Lead Design Engineer.* After completing previous work with PSE, we noted some site deficiencies that could impact the performance of their planned radio system. As a result, Black & Veatch was invited to audit 23 sites and propose a scope of work to bring these sites up to compliance with the Motorola R56 standard for communication sites. Upon agreement of the scope of work, B&V performed the construction of the enhancements for PSE. Scopes included Grounding, Bonding, Lightning protection as well as replacing deteriorated shelters and generators.

***Radio Systems Relocation and Consolidation, United Illuminating, Connecticut  
2010***

*Lead Design Engineer.* UI has consolidated several offices into a new central facility. Our team identified all the radio communication systems and dispatch equipment at these existing facilities and provided a design to duplicate or improve on the functionality of all those existing systems at the new central facility location. This project included engineering, procurement and construction of the new equipment at the dispatch center, radio shelter, new monopole tower, and the antennas on the new tower.

***Corporate Security Design and Planning, United Illuminating, Connecticut  
2010***

*Lead Design Engineer.* Responsibilities include creating a NERC/CIP compliant security and monitoring system for the new central facility for United Illuminating. This security system also communicates and controls the security and access logging at 30+ electric substations and other critical infrastructure throughout the UI's service territory.

***Private Land Mobile Radio System Site Survey and Documentation, Puget Sound Energy, Washington  
2009***

*Lead Design Engineer.* Responsibilities included organizing and managing 4 site survey teams. B&V assessed the current state of 54 sites and gathered sufficient site information to create the following drawings for each site: Site Plans, Site Elevations, Tower Elevations, Access Road Plans, Interior Wall Elevations, Equipment Rack Elevations. My responsibilities included coordination of the site teams, creation of and managing consistent quality of the documentation from start to delivery to the client. This included coordination with graphics professionals in Pune, India in order to meet PSE's expedited schedule.

As a result of our efforts, PSE received standardized drawings for all their sites. This documentation allowed PSE to plan system upgrades to their mobile radio system and receive similar and accurate bids/estimates from multiple vendors.

### ***Private Land Mobile Radio System, Allegheny Electric Service Corporation, VA, WV, PA, MD 2008 – 2009***

*Lead Design Engineer.* Responsibilities included overseeing an engineering team to provide a detailed conceptual design of a PLMR system for AESC's entire service area. This utility covers over 20,000 sq. miles within four states. To meet the available budget, a total of 70 tower locations were chosen to provide coverage throughout 89% of the service territory. Along the way, we provided signal propagation maps and estimated expenses for signal strengths at levels of 80%, 85% and 95%. We created a detailed implementation plan and schedule, and created documents that could be sent as "request for bid" documents for a turn-key implementation. In addition, we acquired all the available VHF frequency licenses that were available to support the new system.

### ***Off-Grid Solar Electric System, NV Energy, Nevada 2009***

*Site Design Engineer.* Responsible for evaluating the current and future power requirements of telecommunication equipment at a remote telecommunications shelter. This shelter is required for critical voice communication of NV Energy's mobile radio system. Created design drawings for a local solar system integrator to install a system. The designed system will meet the demand loads for up to 4 days with no sunlight, after which time a propane generator will provide an alternate source of energy for approximately 30 days without refueling.

### ***Outside Plant Fiber, Honeyville Substation Crossover, PacifiCorp, Utah 2009***

*Site Design Engineer.* Responsible for identifying and designing a solution to interconnect two OPGW optical fiber lines at their point of intersection. This involved using ADSS optical fiber routed in underground conduit between the two towers and splicing them at each location. We provided drawings showing site layouts and elevations including pole elevations, splicing details, bills of material down to the minute detail level of specifying the bolts required to secure each piece of equipment. This project was a "turnkey" project where Black & Veatch's own construction crews did the construction work.

### ***SCADA Automation, Pacific Gas & Electric, California 2008 – 2009***

*Lead Design Engineer.* Responsibilities include planning, and designing upgrades of SCADA systems at 8 electrical substations. The purpose of the design is to replace older substation SCADA equipment with microprocessor based equipment. Equipment utilized for this project includes GE D.20 RTUs and SEL relays. As a result of this project, the utility can better monitor and control the substation equipment from a central location, which will provide faster response times and more efficient operation of their electrical system.

### ***Physical Security Design, Energy East, State of New York 2007 – 2009***

*Lead Design Engineer.* Performed on-site CIP-006-1 Physical Security evaluations and engineered a networked security system for a large electric utility. Responsibilities included planning, organizing and conducting field surveys of electrical transmission substations, as well as overseeing the design of a new security system which will meet the CIP-006-1 requirements. A total of 23 facilities were evaluated. At the completion of the site assessments, a detailed assessment report was created which identified vulnerabilities and threats to each facility and recommended security system improvements to reduce those vulnerabilities. The improvements were then incorporated into an overall design package that was networked to a central operations facility for off-site monitoring.

### ***Ten Year Communications Study, Pedernales Electric Cooperative, Inc., Johnson City, TX***

**2007**

*Communications Engineer.* Responsible for identifying probable communication needs for the future 10 years, and researching available alternatives to meet those expectations. Presented available alternatives to the client including estimated costs, and gave direction on advantageous plans to implement upgrades. Communications evaluated in this study encompassed Land Mobile Radio, Distributed SCADA, Substation SCADA, VOIP, and Corporate Local Area Networks.

### ***Missouri Statewide Radio System, Ameren & Missouri State Highway Patrol, MO***

**2007**

*Communications Engineer.* Responsible for conceptual design and cost estimation of trunked land mobile radio (LMR) system covering 95% of the state of Missouri. The public safety grade system had stringent requirements to ensure adequate radio coverage and high reliability of the radio system for the Missouri State Highway Patrol, Ameren electric utility and smaller public safety entities.

### ***Willow Lake Water Pollution Control Facility, Salem, OR***

**2006**

*Electrical Engineer.* Responsible for schematic design of motor/pump controls, interfacing input/output points with the Site Control System. Created one-line diagrams representing the wiring between all electrical devices and the Control/Monitoring Systems. Created power plans showing the physical layout of the electrical devices in the facilities.

### ***Transient Voltage Surge Suppression Retrofit, U.S. Army Engineering and Support Center-Huntsville, AL, Fort Greely, AK***

**2005 – 2006**

*Electrical Engineer.* Responsible for researching the existing site for locations that would benefit from TVSS protection. Specified and designed installation procedures and equipment for 17 facilities and created design drawings and specifications for a contractor to complete the installation. This design was cutting-edge at the time because we created graphical 3-D CAD renderings of the TVSS equipment onto photographs taken from each installation location.

### ***Power Quality Monitoring System, U.S. Army Engineering and Support Center-Huntsville, AL, Fort Greely, AK***

**2005**

*Electrical/Communications Engineer.* Responsible for design of a campus-wide Power Quality Monitoring System that utilized the existing IP communications infrastructure. Specified and designed equipment layout to be expanded in multiple stages as funding allowed for 12 facilities. Created design drawings and specifications for a contractor to complete the installation.

### ***Reliability and Maintainability/ Failure Modes Effects & Criticality Analysis Studies, U.S. Army Engineering and Support Center-Huntsville, AL, Fort Greely, AK, Eareckson AS, AK***

**2004 – 2006**

*Electrical Engineer.* Responsible for analyzing and compiling a reliability model of the electrical system for several facilities. Provided the client with a detailed report and a list of recommendations to increase reliability and availability as well as diminish downtime for repairs. Identified critical components within the system that would result in failures of the mission. Provided recommendations for redundant equipment that would prevent a mission failure.

### ***Facility Renovation, Confidential Client, Classified Location***

**2004 – 2005**

## **Jim Riddle – Electrical Engineer P.E.**

---

jim@JimRiddleElectricalEngineerPE.com

*Electrical Engineer.* Responsible for the design of the low voltage distribution including lighting, receptacles and other 120 Volt through 480 Volt facility equipment. Backup generators were incorporated to support critical equipment. This project required a Top-Secret security clearance.

### ***Ground-Based Midcourse Defense (GMD) System Program, U.S. Army Engineering and Support Center-Huntsville, AL, Fort Greely, AK***

**2004**

*Communications Engineer.* Responsible for the design of communication systems including fiber optics, telecommunication, and two-way intercom systems within two new facilities constructed for the National Missile Defense Program. The designs also included Outside Plant (OSP) cabling via reinforced concrete ductbank to route to and interface with existing buildings and their systems.

### ***Vulnerability Assessment, ITC Transmission, Michigan***

**2003-2004**

*Security Design Engineer.* Performed a vulnerability assessment for a large electric utility company using the Sandia Risk Assessment Method. Responsibilities included planning, organizing and conducting field surveys of electrical transmission substations. Together with 2 other teams 146 facilities were evaluated. The field surveys were performed safely with no impact to normal operations. At the completion of the vulnerability assessments, a detailed assessment report was created which identified vulnerabilities and threats to each facility and recommended security system improvements to reduce those vulnerabilities. The improvements were organized by which countermeasures would provide the highest benefit to cost ratio.

### ***Ground-Based Midcourse Defense (GMD) System Program, U.S. Army Engineering and Support Center-Huntsville, AL, Fort Greely, AK***

**2003**

*Security Design Engineer.* Performed a penetration analysis of the Fort Greely Missile Defense Complex. This project consisted of evaluating a specifically defined threat to the facilities and engineering timing calculations to ensure that patrol vehicles will have sufficient time to neutralize an adversary before they can destroy pre-defined assets at the site. In areas where assets were determined to be vulnerable to attack, upgrade deterrence recommendations were given that would provide adequate delay for the patrol vehicles to defeat their threat. Deliverables included a report with timing calculations and graphs as well as diagrams where deterrences should be located. A cost estimate was also provided for all recommended upgrades.

### ***Ground-Based Midcourse Defense (GMD) System Program, Initial Defense Operations Capabilities, Vandenberg AFB, CA***

**2003**

*Security Design Engineer.* Responsible for design of circuit and alarm matrix schedules, security device riser diagrams, equipment location plans and Elevations, and CCTV camera coverage layouts for a missile defense radar facility and its surrounding perimeter. Technologies utilized in this project included infra-red motion detection, microwave motion detection, fixed and Pan-Tilt-Zoom CCTV cameras, Digital Video Recorders, Card Readers with Keypads, Glass Break Detectors and Access logging. All data from the security was designed to be transmitted via redundant fiber optic paths to a secured campus location for monitoring.

### ***Vulnerability Assessment, City of Aurora Water Department. Aurora, CO***

**2002**

*Security Design Engineer.* Conducted Security Assessments at water utility facilities to identify weaknesses and problem areas where adversaries could compromise the safety of the community's water supply. Documented the vulnerability assessment using the Sandia method. Assisted the City of Aurora in identifying their mission goals and recommended countermeasures to protect these missions.

Recommended upgrades to the facilities were provided together with cost estimates and a priority schedule for the list of upgrades. The priority schedule allowed the city to perform upgrades as funding became available that would provide the highest protection benefit.

*Ground-Based Midcourse Defense (GMD) System Program, U.S. Army Engineering and Support Center-Huntsville, AL, Fort Greely, AK, Eareckson AS, AK  
2001 – 2002*

*Communication Engineer.* Responsible for the design of communication systems including fiber optics, telecommunication, public address and two-way intercom systems to serve new facilities constructed for the National Missile Defense Program. The design included interfacing the campus facilities with the on-site communications center.

*Eareckson Air Station Power Plant Upgrade, U.S. Army Engineering Corps of Engineers-Alaska, Eareckson AS, AK  
2001*

*Electrical Engineer.* Responsible for the sizing and layout of Motor Control Centers, circuit scheduling and routing, and lighting fixture layout. This project replaced an aging existing power plant with all new controls and updated equipment to ensure greater efficiency and reliability.