

## **James M. Atwater, P.E.**

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### **Professional Registrations**

**AL** No. 36817; **SC** No. 22766; **GA** No. 29183; **NC** No. 029266; **VA** No. 39997; **CA** No. 19815; **FL** No. PE029183; **KY** No. 28261; **MN** No. 49526; **MS** No. 20583; **MT** No. 20428; **TN** No. 115471; **TX** No. PE110506; **VT** No. 018.0084143; **WV** No. 19820; **PA** No 084238; **DC** No. 908303; **MD** No. 46690; **MS** No. 20583; **OH** No. PE82070

### **Professional Affiliations**

Institute of Electrical and Electronics Engineers (IEEE)  
National Fire Protection Association (NFPA)  
National Council of Examiners for Engineering and Surveying (NCEES)  
Nuclear Quality Assurance-1 (NQA1)

Active International Passport

### **Education**

Bachelor of Science in Engineering, 1995  
University of South Carolina  
Columbia, South Carolina

### **Experience**

Ten plus years in the oilfields of Texas, Oklahoma, Louisiana, and Mississippi working as Ultrasonic and Magnetic NDT specialist for Baker Hughes International testing oilfield tubulars, refinery and nuclear piping. Over twenty-five years of experience consulting and managing multi-disciplined engineering teams for Heavy Industrial, Nuclear, Water and Wastewater, Medical, Manufacturing, Commercial, Municipal, and Military clients. Responsible for successful coordination of Mechanical, Electrical, Plumbing (MEP) designs; Energy Code analysis and implementation, electrical engineering with emphasis on Class-1 Div-1, and Div-2 areas, NFPA 820, Arc-Flash Hazard Analysis, Short Circuit – Coordination Studies, Low (0-600V) and Medium Voltage (601-44kV) power distribution, motor control, emergency and standby generator systems, radio communications, site lighting, grounding, lightning protection, and building commissioning. Duties include marketing, fee/contract negotiation, budget cost estimating, project scheduling, complete electrical analysis and design, preparation of plans and technical specifications, construction compliance, field observation, and record drawings.

### **Related Projects**

#### **Third Party Witness**

Topside MV Cables Testing; Santa Barbara Bay Drilling Platforms; ASR International; EXXON/Mobile-Houston, TX - Witness medium voltage (MV) cable manufacturing including constant vulcanization CV, jacketing. Witness MV cable testing including partial discharge, and voltage withstand, per requirements of ICEA. Interact closely with key project personnel, design-manufacturing and production

engineers.

Submarine MV Cable Qualification; ASR International; EXXON/Mobile–Houston, TX - Witness medium voltage (MV) cable qualification procedures including original and cyclic aging, AC Breakdown, and Hot Impulse testing to ICEA Standard S-97-682-2007 Section 10.1. Interact closely with key project personnel, design-manufacturing and production engineers.

## Commercial

GAP Inc. Various locations in Puerto Rico, NY, NJ, NC, SC, GA - Power, lighting,, energy compliance, fire alarm, and communication systems design for new stores and square footage reductions on existing stores.

Urban Outfitters-Union Square, San Francisco, CA, - Renovation of existing UA store on corner of Powell and Market Street, power, lighting, lighting energy compliance, fire alarm, and communication systems design.

Urban Outfitters-Toronto, Canada, - New construction, power, lighting, energy compliance, fire alarm and communication systems design.

Anthropologie, Santa Monica, CA, - Renovation of existing AN store on 3rd Street Promenade, power, lighting, lighting energy compliance, fire alarm, and communication systems design.

Warrior Fitness, Columbia, SC - Power, lighting, lighting energy compliance, and communication systems design for building upfit to new fitness facility.

Base 10 Fitness, Columbia, SC - Power, lighting,, lighting energy compliance, and communication systems design for building upfit to new fitness facility.

Charter Oaks Food Lion, Lexington, SC - Power, lighting, receptacles, fire alarm, communications, and site lighting for commercial chain grocery store and retail outlet spaces, including fire pump, and 208V, three phase, service entrance.

Q-Q Carwash, Stafford County, VA - Power, lighting and communications systems design for automatic carwash facility.

Southern Resources Management (SRM) Office Building, Fredericksburg, VA - Power, lighting and alarm systems shell design for three story office building.

Timberlake Plantation Golf Clubhouse; Chapin, SC – Electrical design of power distribution, lighting, receptacles, and site lighting for two story clubhouse, golf cart charging building and pool house.

San Jose Restaurant, Blythewood, SC – Electrical design of power distribution, lighting, receptacles, kitchen hood, and site lighting for commercial restaurant chain.

Lizards Thicket, West Columbia, SC – Electrical design of power distribution, lighting, receptacles, fire alarm, kitchen hood, and site lighting for commercial restaurant chain.

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Lizards Thicket, Blythewood, SC – Electrical design of power distribution, lighting, receptacles, kitchen hood and site lighting for commercial restaurant chain.

Wilson Building, Fredericksburg, VA - Power, lighting and fire alarm systems, shell design for three story condominium, retail space and private residence.

United Dominion Realty Trust, Forest Brook Apartment Complex, Springdale, SC - Power, lighting and new Service for fire-damaged apartment building.

Gilligan’s Restaurant, Lexington, SC – Power and lighting design for new commercial restaurant chain.

Nicholson Law Firm, Lexington, SC – Power and lighting design for second floor tenant upfit.

Pendleton Golf, Caroline County, VA - Power, lighting and fire alarm systems design for golf course maintenance building and fertilizer storage facility.

Ebenezer Church, Fredericksburg, VA - Power, lighting, fire alarm and communications systems design for three story church education center.

Honda Cars of America, Columbia, SC - Power, lighting, and communication systems design for complete renovation of existing car dealership.

Indigo Hotel, Knoxville, TN – Renovation of existing 6 story hotel on University of Tennessee campus including electrical design of new service and power distribution, lightning protection, grounding, lighting energy compliance, telephone systems

Mariott, Various locations in TX, TN, - Electrical design of power distribution, lightning protection, grounding, lighting energy compliance, telephone systems, and indoor and outdoor pool electrical.

T-Cubed; Columbia, SC – Electrical design of power distribution, lighting, receptacles, and lighting for 22,000sf IT company.

## Communications

MJA Westover, SC - Electrical design of power distribution, lightning protection, grounding, and telephone systems for cellular tower installations; Coordinated site requirements with local power and telephone utilities. Ordered and evaluated ground resistance studies.

KMC Telecom, FL, MS, LA, NC, SC - Electrical design of power distribution, lightning protection, grounding, and telephone systems for cellular tower installations. Ordered and evaluated ground resistance studies.

## Educational

Orangeburg Charter School, Orangeburg, SC – Power, lighting and fire alarm systems design for 12,000sf private school.

Lenoir Rhyne College, Columbia, SC – Power, lighting and fire alarm systems design for 24,000sf classroom building.

Lexington-Richland School District 5, Irmo, SC – Power and CAT6 communications additions for new classroom Smart ® boards in over ten schools located throughout the district, included transient voltage surge suppression (TVSS), and emergency standby generation.

Benedict College Fire Alarm Upgrade, Columbia, SC- Upgrade of existing fire alarm system in Gymnasium and Library, included special mounting requirements due to architectural conditions.

University of South Carolina School of Music; Columbia, SC – Upgrade of specialty lighting in music rehearsal and performance hall consisted of photometric studies to determine best type of fixtures to reduce glare and shadowing.

South Carolina State University; Orangeburg, SC – Upgrade of campus-wide site and security lighting, included roadway lighting, parking lot and area lighting. Main reason for upgrade was to improve security per request of University President.

South Carolina Governors School for Science and Mathematics, Hartsville, SC – Electrical design for campus expansion including power distribution, lighting, fire alarm, communications, and emergency standby generation

Meadowfield Elementary School, Columbia, SC- Power, lighting and fire alarm systems shell design for three story office building.

## **Government & Military**

Infrastructure Upgrade, South Carolina Army National Guard (SCARNG); Eastover, SC - Electrical design and project management of 23kV, 3 phase, underground power distribution system for 500-acre complex. Design included 25kV medium voltage switchgear, two 1250kW stand-by generators, 8-way concrete encased duct banks, S&C sectionalizing switches, site lighting, lightning protection, grounding, and telephone systems.

Carmouche Automated Tank Gunnery Range; Fort Benning, GA: Electrical Design for a fully-automated tank gunnery range for training of Bradley and Abrams tank commanders. Utilized 12470V medium voltage sub-transmission and 480V distribution to remote power centers. Provided power and communication to remote-controlled targets. Employed halo and counterpoise lightning protection systems.

Battle Simulation Center, South Carolina Army National Guard (SCARNG) - Electrical design of 480 volt, 3 phase, power distribution, lighting, lightning protection, grounding, stand-by generation, and telephone systems for state-of-the-art, regional battle simulation center. Project manager over ME&P disciplines.

Bloodhound Tracking Facility, South Carolina Law Enforcement Division (SLED); Columbia, SC: Electrical, Plumbing and HVAC design of new facility to house bloodhounds for South Carolina Law Enforcement Division.

Heliport Redesign, SLED; Columbia, SC – Upgrade of existing helicopter pad including FAA lighting and power distribution.

**Heavy  
Industrial**

Statewide Training Facility: South Carolina Fire Academy, Columbia, SC - Power, lighting, fire alarm, communications, and lightning protection systems design for new training facility.

Illinois Tool Works (ITW); Charlotte, NC - Electrical design of 480 volt, 3 phase, power distribution for new plasma cutting machines and welding stations including dust collectors, exhaust and make-up air rotational unit, interlocks with fire alarm system, new motor starters, and relay panels for 70,000sf manufacturing facility.

Carolina Power Transmission; Hickory, NC - Electrical design of 480 volt, 3 phase, service for 22,000sf heavy truck transmission design, repair, and sales facility.

Industrial Manufacturing Services (IMS); Lancaster, SC - Electrical design of 480 volt, 3 phase, services for multiple buildings to accommodate installation of new Bystronic laser cutting machines, and welding machines for 100,000sf Caterpillar welded-parts manufacturing facility.

Hengst North America, Camden, SC - Electrical design of 480 volt, 3 phase, power distribution, for new 300T chiller plant including two (2) Air Rotational Units. Construction cost in excess of \$2.0 M.

Sun Printing Solutions, Columbia, SC - Electrical design of printing facility including 480 volt, 3 phase, power distribution, LED lighting, fire alarm and telephone systems. Designed 3200A, switchgear. Project manager over ME&P disciplines. 100,000sf, large volume printing facility. Construction cost in excess of \$6.0 M.

Agru-America, Georgetown, SC - Electrical design of 480 volt, 3 phase, power distribution, indirect, lay-in and high bay lighting, lightning protection, counterpoise grounding, fire alarm and telephone systems. Designed 4000A, double ended (main-tie-main) switchgear fed from two separate utility substations. Project manager over ME&P disciplines. 85,000sf facility extrudes polyethylene and polypropylene liners, piping and fittings for landfills and mining operations. Construction cost in excess of \$6.0 M.

Agru America Addition, Georgetown, SC - Electrical design of 480 volt, 3 phase power distribution, power conditioning equipment specification, lighting, lightning protection, counterpoise grounding, fire alarm and telephone systems for new plant addition. Total plant connected load currently in excess of 8Mw.

Howden Fan, Camden, SC - Electrical design of 480 volt, 3 phase, power distribution, lighting, lightning protection, grounding, fire alarm and telephone systems. Design included cable tray, high bay lighting, welding stations, paint booth, and Class I, Div I hazardous areas. Project manager over ME&P disciplines. 300,000sf facility manufactures fans for the locomotive, mining and HVAC industry.

Fiber Cement Products (FCP), Monck's Corner, SC - Electrical design of 480 volt, 3 phase, power distribution, high bay and office lighting, lightning protection, grounding, fire alarm and telephone systems. Project manager over ME&P disciplines.

100,000sf facility is a major competitor of “Hardy Plank”, producing weather-resistant, cement siding.

Elan Technology, Hinesville, GA - Electrical design of 480 volt, 3 phase, power distribution, lighting, lightning protection, grounding, fire alarm and telephone systems. Electrical design for Class I, Div I areas. Project manager over ME&P disciplines. 55,000sf facility produces glass insulators for the aerospace and electronics industries.

Applied Rapid Technology, Stafford, VA - Power, lighting and fire alarm systems design for medium-sized manufacturing facility.

QM Plastics, Orangeburg, SC - Electrical design of 480 volt, 3 phase, power distribution, lighting, grounding, fire alarm and telephone systems. Project manager over MEP disciplines. 14,000 sf facility expansion.

### **Institutional**

Columbia Restitution Center for SC Dept. of Corrections (SCDC), Columbia, SC - Power, lighting, fire alarm, communications, and lightning protection systems design for renovation of existing inmate dormitory facility.

192-Bed Dormitory for MacDougal Correctional Facility, SCDC, Columbia, SC - Power, lighting, fire alarm, and communications systems design for new inmate dormitory facility.

192-Bed Dormitory for Watkins Correctional Facility, SCDC, Columbia, SC - Power, lighting, fire alarm, and communications systems design for new inmate dormitory facility.

### **Municipal**

Southerly First Stage Aeration Improvements: Cleveland, VA – Electrical design of 5kV switchgear, 900HP medium voltage reduced voltage starters (RVSS) for wastewater treatment facility blowers.

Waste Management Leachate Treatment Facility: Waverly, VA – Electrical design of 13.8kV:480 oil-filled utility grade transformers, 4000A main-tie-main with dual 2500kVA diesel engine generators, PLC automatic transfer, 3000A main-tie-main non-essential load switchgear, WIFI and wired Ethernet communications. Design included power and controls for GWL, LST, Aeration Basins, chemical feeds, Salt Works, and 10,000sf Process Building.

Wastewater Treatment Plant: Cayce, SC – Electrical design of power distribution, and PLC-based Supervisory Control and Data Acquisition (SCADA) system for new 25 MGD Wastewater Treatment plant including Headworks, Aeration, RAS, WAS, Centrifuge, Chlorination, two story Office building, emergency standby generation. 27kV double-ended metal-clad switchgear with generator control section, 23.9kV underground concrete-encased power loop, three phase, dead-front, pad mounted transformers, low voltage switchboards, motor control centers, TVSS, parallel 1500kW, 480V generators. Approximate project cost \$52M.

Wastewater Treatment Plant: Jessup, GA – Electrical design of power distribution and SCADA for new 3.5MGD Wastewater Treatment Plant including Bar Screens,

Aeration Basins, Sludge Holding, Centrifuge, Chlorine Contact chamber, Effluent Pump Station, and Office building. Variable Frequency Drives (VFDs) with dv/dt filters utilized to maximize process and minimize power consumption. Approximate project cost \$12M.

Wastewater Treatment Plants: BAHA Region - Saudi Arabia – Electrical design of power distribution and SCADA system for nine (9) new Sewage Treatment Plants (STPs) ranging in size from 1500 m<sup>3</sup> per day to 12,500 m<sup>3</sup> per day including Bar Screens, Aeration Basins, Membrane Thickeners, Sludge Holding, Centrifuge, Ultraviolet disinfection, Effluent Pump Station, and Chemical Storage and pumping. Variable Frequency Drives (VFDs) were utilized to maximize process and minimize power consumption. Approximate project cost \$65M.

Riverside Water Treatment Plant #1: City of West Columbia, SC – Electrical design of new 480V, 2500A, three phase, service entrance with provision for future emergency standby generator, power distribution, and PLC-based communications upgrade for Water Treatment Plant including new Blowers, Lime Silo, New MIOX disinfection system, upgrade of Flocculators and Sedimentation Basins, new Trac-Vacs, and new motor control centers. Approximate project cost \$9M.

Water Reclamation Facility (WRF): City of Myrtle Beach, SC– Electrical design of power distribution and communications upgrade for existing 17MGD facility including new 15kV service entrance switchgear, new automatic Bar Screens, new vortex Grit Chambers, new Screw Pumps, new Lime system, paralleling of two new 1500kW - medium-voltage emergency standby generators, and upgrade of existing PLC-based SCADA system. SCADA system design incorporated 10BASE-T Ethernet communications utilizing fiber optics, spread-spectrum radios and A/B SLC 505 Ethernet-ready programmable logic controllers (PLCs). Electrical construction cost in excess of \$2.5M.

Wastewater Treatment Plant: Dillon, SC – Electrical design of power distribution and communications upgrade for Dillon and Cypress Pond Wastewater Treatment Plant including new Bar Screen, new Aeration Basins, new Chlorine Contact chamber, new 10,000sf building, replacement of existing 250HP Reduced Voltage Autotransformer (RVAT) starters with new Variable Frequency Drives (VFDs)., new motor control centers, transient voltage surge suppression (TVSS), and new emergency standby generation to serve approximately 3MGD addition to plant treatment process.

Wastewater Treatment Plant: City of Hartsville, SC - Power, control and communications design for wastewater system improvements including addition of two Aeration Basins, Clarifiers, Bar Screens, Influent Structure. Design included 6000 square foot Laboratory Building.

Wastewater Treatment Plant (WWTP): City of Mullins, SC - System improvements including addition of three Aeration Basins, Pump Station, Bar Screen and remote Effluent Spray Fields. Utilized A/B DeviceNet™ to operate remote motorized valves at pre-programmed intervals.

Hanahan Water Treatment Plant: Charleston, SC Public Works – Electrical design of power distribution and communications upgrade for treatment plant including twenty

(20) year Electrical Master Plan, additions to serve approximately 4.5MW of new process equipment at 480V and 4160V, and addition of 2000kW natural gas emergency standby generation. Modified PLC-based SCADA system to accept new equipment I/O. Performed budget cost analysis of proposed improvements.

Water Treatment Plant for Industrial and Domestic (I&D) Water Supply: City of Savannah, GA - Designed upgrade including, Lime system, Raw Water flow meter, Rapid Mix, Chemical Injection, Trac-Vacs, Sedimentation Basins, Area lighting, Flocculators, upgraded existing SCADA system, integrated existing Foxboro DCS utilizing fiber optics and PLC for existing 100MGD facility. Electrical construction cost in excess of \$2.2M.

Booster Pump Station for Industrial and Domestic (I&D) Water Supply: City of Savannah, GA - Designed power and communication for new 200HP variable frequency drives (VFDs), low-voltage metal-clad draw-out switchgear, new 75-kW emergency standby generator, and integration of new equipment I/O into existing SCADA system.

Booster Pump Stations: City of Hartsville, SC - Electrical design of power distribution and communications upgrade for multiple stations ranging from 7HP to 500HP in size.

Booster Pump Stations: City of Bennettsville, SC – Electrical design of power distribution and communications upgrade for multiple stations ranging from 7HP to 500HP in size.

Platt Springs Elevated Tank: City of West Columbia, SC: Power distribution and communications upgrade for addition of altitude valve at existing elevated tank.

Elevated Tank and Booster Pump Station: Lee County, SC Economic Development Alliance - Electrical design for power, communications and ground ring for 250,000 gallon tank and associated pump station.

Greenhill Standpipe: City of West Columbia, SC – Electrical design for new emergency standby generator and automatic transfer switch, new service entrance, modifications to existing PLC-based SCADA system.

Concession Stand: City of Hartsville, SC - Power, lighting, and communication systems design for new two story concession stand. Provided power to sports lighting for multi-field complex

## Medical

CV-OBGYN Medical Center: Fredericksburg, VA - Power, lighting fire alarm and communications systems design for two story medical building including Laboratory, X-Ray, and Imaging.

Spring Valley Family Medical: Columbia, SC - Power, lighting and fire alarm systems design for single story Doctor's office including X-ray and CT scan lab.

McBee Medical Center: McBee, SC - Power, lighting, fire alarm, communications, and lightning protection systems design for medical center including Laboratory, X-Ray,

and Imaging.

Southmed, Inc: Irmo, SC – Code review and design approval of delayed and non-delayed egress door locking systems in North Carolina for Adult Care facilities, including patient wandering antennas, biometric readers, local and remote kill switches, nurse call stations, fire alarm control panels, and main power supplies.

### **Nuclear**

Carolina Metals Incorporated; Barnwell, SC: Electrical and Mechanical Design for nuclear pilot plant that processes depleted uranium. Provided utilities to various proprietary equipment utilizing 480V, 3-phase busway, motor starters, transformers, HEPA filtering, argon gas, propane gas, and chilled water.

Tritium Processing Facility: Savannah River Site (SRS); Aiken, SC - Electrical design of fire alarm system and lighting for tritium processing metallurgical laboratory. Developed contract documents for competitive bidding. Worked closely with SRS fire protection engineers and electrical engineers from General Physics Corporation.

Video Recording Studio: Savannah River Site (SRS); Aiken, SC - Electrical design of power distribution, lighting, and video/audio cabling for recording studio.

Salt Waste Process Facility (MOX); Savannah River Site, Aiken, SC: Document control per NQA1 for PC-1 Seismic Calculation performed on various HEPA filter-bank designs. Provided detailed reports.

### **Transportation**

Traffic Signal Shop Renovation; South Carolina Department of Transportation, Chester, SC - Project team management for Mechanical, Electrical and Plumbing Design, Construction compliance and close-out documents.

Indefinite Delivery Contract (IDC): SCDOT Columbia, SC - Project team management for Mechanical, Electrical and Plumbing Design, Construction compliance and close-out documents for various Department of Transportation projects.

Traffic Signal Shop: SCDOT, Columbia, SC - Project team management for Mechanical, Electrical and Plumbing Design, Construction compliance and close-out documents.