Will Ayers, P.E.

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Marine Electrical Engineer

Analytically minded and process oriented professional with extensive experience in marine electrical engineering. Meticulous and detail oriented but also articulate and a team player. Works well with people of any level, regardless of challenging situations or personalities. Always seeks out other stakeholder's opinions and ideas. Carefully documents work in a way that shares information with others. Very inquisitive and, in a sea of information, able to drill down at the right points to the right depth to get technical answers in an efficient and timely manner. Relies on industry and regulatory standards as a basis for engineering decisions, but also able to identify weaknesses or conflicts in such requirements.

Engineering Experience

Washington State Ferries; Electrical Engineer (2004 – present)

Worked in support of Electrical Section Supervisor or Chief Naval Architect in scoping, specifying, or designing all phases of marine systems. Oversaw manufacturer submittals, worked with shipyards during installation phases, and followed up installations afterwards. Responsibility for numerous electrical packages including stamping drawings with personal Professional Engineering license. Relied upon to interface with subcontractors, to uncover design disconnects, and recommend solutions. Worked extensively with various WSF software systems including MPET, AOSS, Techlib, and FIRS.

Designed the electrical side of diesel generator sets, propulsion motors, auxiliary motor controls, including two-speed (consequent pole and separate winding) and reduced voltage start, and watertight door systems. Designed four motor control centers for MV Hyak. Involved with installation and modifications of propulsion motor VFD driven cooling fans. Designed 24VDC control power systems including ground fault relays, DC-DC converters for isolation, surge suppression devices, and various methods of redundancy. Scoped out, designed, or troubleshot impressed current protective systems for five vessels. Worked with and designed various vessel communications systems typical of a large vessel including public address, general alarm, intercoms, sound powered phone systems, private automatic branch exchange (PABX) telephone systems, Wifi antenna, and cell phone systems.

Involved with all aspects of electrical drawing development typical of large vessels: onelines, load analyses, fault current studies (including DC short circuit), OCPD coordination studies, voltage drop calculations, FMEA, DVTM, and PSTP's, ripouts, cable pull lists, installation block diagrams, plan and elevation arrangement drawings, and all types of wiring schematics. Also involved overseeing a contractor's arc flash study including pointing out critical corrections needed relative to rotational inertia limits. Performed and stamped rotational inertia calculations as part of that process. Later investigated and shared various facets of the NFPA 70E standard. Helped guide organization towards hybrid options for MV Hyak, crafted RFI letter seeking vendor input, and currently writing its RFP specifications.

System designs involved propulsion, alarm and monitoring, datalogging, and other computerized systems. Created I/O point lists for development of AMS systems for three vessels and PCS systems on MV Elwha. Wrote the technical specifications for the latter's $1.5million PCS control upgrade. Reviewed that contractors's entire PCS drawing submittal, suggesting changes and corrections, prior to their release for manufacture. Attended a Basler two day class followed by downloading DECS-100 setpoints and assisting crews in verifying optimal settings. Worked with Digital Systems Port Engineer in the installation of a datalogging system for MV Evergreen State. Worked with same and a senior designer in the upgrade of a fire door PLC system on MV Elwha. Designed, with minimal involvement of Digital System Port Engineer, a 23 sheet drawing detailing the successful installation of a PLC based bilge valve control system for MV Elwha.

General Electric Automation Services (Marine Projects); Project Engineer (2000 –2004)
Involved in all phases of the design, manufacture, and installation of propulsion and alarm monitoring systems for the Tillikum, Klahowya, Elwha, Spokane, and Walla Walla ferries and the cruise ship Empress of the North. For the latter three, performed all design work for their Engineer's Operating Stations, a vessel's central control console. Entrusted with much of the RFQ development and bidding by contractors. Performed various testing on all manufactured systems and solved punch list items. Reviewed and integrated USCG CFR, IEEE and ABS regulatory requirements into designs. Assisted with Failure Mode and Effect Analyses, Design Verification Test Procedures, and load and voltage drop calculations. Successfully submitted all required documents to USCG for approval for the M/V Spokane. Received GE DC2000 and Control System Toolbox schooling.

Fairbanks Gold Mining, Inc. (Fort Knox Mine); Plant I & E Tech (1997 –1999)
Worked on both medium and low voltage systems. Gained extensive experience troubleshooting medium and low voltage equipment including all types and sizes of feed breakers, motors, motor starters, ground fault detectors, etc. Regularly calibrated and troubleshot a wide variety of temperature, level, pressure, flow, and other instrumentation. Relied upon to identify, plan, and complete numerous changes to the Foxboro DCS/HMI and Allen-Bradley PLC system including a $4 million crusher expansion, connecting Multilin power monitoring information to the DCS, assisting in a Y2K software upgrade, and suggesting, planning, and performing the bulk of work in installing and configuring a sixth PLC-5. Received GE LCI and AB PLC-5 schooling.

Morrison Knudsen (through Manpower Temp. Svcs.); Electrical Field Tech. (1996 –1997)
During construction/start-up at Fort Knox, obtained replacement part information, supplied subcontractors with needed information, schematics, or material, wrote field orders and purchase orders, and confirmed subcontractor change orders. Fully involved in obtaining UL field certification for equipment.

Osborne/TIC Alaska Joint Venture; Apprentice Electrician (1996)
Assisted a journeyman level electrician in the installation of electrical systems at the Fort Knox mine.

Education

University of Washington
Bachelor of Science in Electrical Engineering, 1995 (GPA: 3.34/4.00)

Special Skills

Licensed Professional Engineer (Electrical) in Washington State, License No. 40918.
Well versed in SKM Power Tools for Windows, UNIX, HTML, and Microsoft Suites. Proficient in AutoCAD 2010 and earlier.
Speak Spanish. Studied for over four years in school followed by 7 months of practice in Latin America.
Conversant in Japanese. Completed first and second year college coursework. JLPT N5 certified.