MARKO SEPPANEN, P. ENG

PRINCIPAL, SENIOR E&C ENGINEER

EXPERIENCE

Mr. Seppanen Manager of Engineering Services and a Senior Electrical and Control Engineer. He has a broad range of experience in detailed engineering, purchasing, construction supervision and commissioning of electrical and control systems for industry. He has specialized expertise in control systems including PLC's, HMI's and DCS systems.

Core competencies include:

- Project Engineering and Management.
- PLC based control design, installation and commissioning and start-up coordination.
- HMI interface design, configuration and installation.
- Detailed electrical and control system design.
- CSA compliant hydrocarbon fuel trains and burner management systems.
- Paper machine controls.

The following is representative of Mr. Seppanen's experience:

- Project manager for the detailed design and supply of multiple CSA B149.3 compliant BMS'. Typical scope requires the completion of a compliance audit / feasibility study of the fuel train(s), field instrumentation and the existing BMS. The study details the deficiencies, the required upgrades and establishes a budget for the project. Thereafter the mechanical and electrical desing is completed and as required KMH supplies a compliant AB ControlLogix PLC based BMS and new field valves and instrumentation. Systems completed to date include, Line Kiln's, Package Boilers, Power Boilers, Recovery Boilers, Smelter Complex MPV's and Flash Furnaces, Sheet Steel Cutting Torches and Reheat Furnaces.
- Project manager for the installation of a new 48 MW dual inlet, extraction-condensing turbine within a new turbine building, the installation of a new Detorit Stoker vibrating grate and ash handling system on a biomass Power Boiler, the installation of CNCG buring on a Recovery Boiler and Kiln, multiple steam conservation projects throughout Recovery, Digesting and Bleaching areas, the automation of a pump house and the upgrade of a 13.8 kV bus as part of a Green Energy Project at a Pulp Mill facility.
- Project manager / lead engineer for the upgrade of a TDC 2000 DCS regulatory control system to a PLC based system on a Rotary Hearth Furnace.
- Project manager / lead engineer for the installation of a new dilute non-

condensable gas collection and incineration system for a large integrated pulp and paper mill. Scope included the installation of a new Kavener chip bin and chip bin gas collection system, a primary gas collection and conditioning system as well as extensive air and burner management system control upgrades to two recovery boilers for incineration of gases.

- Project manager / lead engineer for the design, construction supervision and commissioning for a black liquor recovery boiler lower furnace replacement.
- Project manager / lead engineer for the design, construction supervision and commissioning of a new power boiler scrubber.
- Project manager / lead engineer for the design, construction supervision and commissioning for a control system upgrade on a recovery boiler electro-static precipitator. Included both transformer/rectifier and rapper control system upgrades.
- Project manager / lead engineer for the design, construction supervision and commissioning for the replacement of an obsolete PLC / control panel on 2 coal fired power boilers with a new PLC/MMI.
- Project manager / lead engineer for the design, commissioning and start-up of a roll line PLC conversion. Three existing GE Series 6+ PLC were integrated into one new 90-70 eliminating complex existing global data transfer for roll processing.
- Project manager / lead designer of a new PLC/MMI control system for a pulp and paper mill demineralized water plant.
- Lead engineer responsible for resolving operating deficiencies for a new $20 million hardwood and softwood chip handling system.
- Project manager / lead engineer for the design, commissioning and start-up of a Siemens S5 to S7 PLC conversion on the former, press and dryers of a fine paper machine.
- Maintenance & project engineer responsible for the safe and reliable operation of a newsprint paper mill including three paper machines, three winders, a roll finishing area, a rewinder, as well as cull roll, broke and kraft repulpers. Included commissioning and then optimizing all aspects of control systems for a new 700 T/d newsprint machine and winder.
- Electrical and control systems troubleshooting specialist responsible for on-the-spot failure diagnosis and/or system optimization. Including diagnosis/optimization of electrical and instrumentation equipment as well as PLC and DCS hardware and software.

PROFESSIONAL AFFILIATIONS

- Association of Professional Engineers of Ontario, Canada (1995)
- Association of Professional Engineers and Geoscientists of British Columbia, Canada (2003)
- Association of Professional Engineers, Geologists and Geoscientists of Alberta, Canada (2005)
- Association of Professional Engineers and Geoscientists of Manitoba, Canada (2009)
- Association of Professional Engineers and Geoscientists of Saskatchewan,

Canada (2009)

EDUCATION

1989 Lakehead University Thunder Bay, ON

- Bachelor of Engineering (Electrical)

First Class Standing

EMPLOYMENT HISTORY

1999-Present KMH Engineering Inc Thunder Bay, ON

- Principal, Senior E&C Engineer

1995-1999 MVS Engineering Inc Thunder Bay, ON

- President, Senior E&C Engineer

1993-1995

- Sabbatical, Represented Canada & Competed Internationally as a Member of the National Cross Country Ski Team

1990-1993 Canadian Pacific Forest Products (Bowater) Thunder Bay, ON

- E&C Maintenance & Project Engineer

1989-1990 TransCanada Pipelines Thunder Bay, ON

- Regional E&C Engineer