

YEAR	INDUSTRY	REGION	PROJECT DESCRIPTION
2025	Mining: Mineral Processing	Canada	Mill remote I/O cabinet supply; including: 1. Specification and procurement of four ControlLogix remote I/O cabinets 2. Design and drafting of cabinet layouts, schematics and wiring diagrams for remote I/O panels 3. Design and drafting update to PLC network diagram 4. Remote installation and commissioning support: To be completed.
2024	Mining: Mineral Processing	Canada	Kepware supply and configuration; including: 1. Specification and procurement of Kepware OPC server 2. Configuration of Kepware OPC server to allow HMI and Historian to communicate with Eaton switchgear 3. HMI configuration 4. Installation and commissioning support 5. Historian configuration
2024/25	Mining: Mineral Processing	Canada	Pond remote I/O cabinet supply; including: 1. Specification and procurement of ControlLogix remote I/O cabinet 2. Design and drafting of cabinet layouts, schematics and wiring diagrams for remote I/O panel 3. Design and drafting of loopsheets for new instrumentation 4. Design and drafting of schematics and wiring diagrams for new motors 5. Design and drafting update to PLC network diagram 6. PLC programming 7. HMI configuration 8. Remote installation and commissioning support: To be completed. 9. Historian configuration: To be completed.
2024	Mining: Mineral Processing	Canada	Pressure filter controls optimization; including: 1. Specification and procurement of Rockwell Processor and I/O modules and PanelView touch panels 1.1. Processor upgrades: 1756-L82E, 1769-L33ER, 1769-L30ER(x3) 1.2. Touch panel upgrades: 2711-T7C21D8S (x3) 1.3. Siemens PLC replacement: 1769-L30ER, 1769 I/O, 2711-T7C21D8S 2. Design and drafting of cabinet layouts, schematics and wiring diagrams for panel upgrades 3. Design and drafting of loopsheets for new instrumentation 4. PLC programming 5. HMI configuration 6. Installation and commissioning support 7. Historian configuration
2024	Mining: Mineral Processing	Canada	PLC Distribution Ethernet Switch Replacement support; including: 1. Identify the node for each connected ethernet cable, and 2. Update ethernet switch (Stratix 1783-IMS28GNAC) configurations with node descriptions.
2024	Mining: Mineral Processing	Canada	Remote process control support: troubleshooting and optimization for ControlLogix/FactoryTalk system.

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2023/24	Mining: Mineral Processing	Canada	Alarm enhancement for critical mill equipment; included: 1. Specification assistance for multi-phase alarm horn, 2. Design and drafting of alarm horn loopsheet, 3. Programming of first-out alarming and horn control, 4. HMI configuration for first-out alarming and horn control, and 5. Remote installation and commissioning support.
2023	Mining: Mineral Processing	Canada	Specify and supply FactoryTalk View SE and Studio 5000 Logix Designer for crushing plant control system.
2023	Mining: Mineral Processing	Canada	Remote process control support: troubleshooting and optimization for ControlLogix/FactoryTalk system.
2023	Mining: Mineral Processing	Canada	PLC/HMI hardware and software specification, engineering, PLC programming, HMI and historian configuration, and commissioning support for new stench gas PLC/HMI interface. Micro820 PLC and FactoryTalk View SE HMI.
2023	Mining: Mineral Processing	Canada	Engineering review, PLC programming, HMI and historian configuration, and installation and commissioning support for new crushing plant ControlLogix control system.
2023	Mining: Mineral Processing	Canada	Specify and supply FactoryTalk View SE field operator station for mill control system.
2023	Mining: Mineral Processing	Canada	Specify and supply FactoryTalk View SE HMI and FactoryTalk View Historian software for mill control system.
2023	Mining: Mineral Processing	Canada	Specify, design, program and commissioning support of Schneider Smart Relay control system for water treatment plant; included: 1. Procurement of smart relay and I/O expansion module 2. Research functionality of Walchem controllers for pulse output applications 3. Design and drafting of control schematic and wiring diagram 4. PLC programming 5. Commissioning support
2023	Mining: Mineral Processing	Canada	Programming of Schneider Smart Relay for underground pumping station vendor skids; included: 1. Procurement of memory modules and programming cable 2. PLC programming 3. Commissioning support
2023	Mining: Mineral Processing	Canada	Mill controls upgrade to Rockwell ControlLogix/FactoryTalk View system; included: 1. Procurement of I/O modules 2. Drafting of site markups and new instrumentation to P&IDs 3. Design and drafting of loopsheets and marshalling cabinet for new instrumentation 4. Historian needs analysis 5. PLC programming 6. HMI configuration 7. Installation and commissioning support
2022-23	Mining: Mineral Processing	Canada	Process controls engineering support, including: 1. Smart Ear evaluation, 2. Strip Circuit evaluation, 3. Pebble Crusher logic review

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2021-22	Mining: Mineral Processing	Canada	Process controls engineering support, including: 1. 88 MOC controlled logic improvements, 2. Involvement in the following projects: Alarm Management System, Block Cave Pre-feasibility Study, Cleaner Circuit Expansion, DeltaV Cybersecurity, Camp Potable Water, Shallow Intake Pumping System, Smart Cyclones, StackCells, Concentrate Thickener Underflow Optimization, Tailings Thickener, Pebble Crusher Auto Calibration
2019-20	Mining: Mineral Processing	Canada	Process controls engineering support of Rockwell PlantPAX, including involvement in the following key projects: 1. Control loop tuning campaign to stabilize the mill, 2. PlantPAX version upgrade to software and controller firmware
2017	Mining: Mineral Processing	USA	Electrical, instrumentation and controls leadership for corporate engineering and construction group. Projects included an Electrical Study that looked into the following topics: 1. Switchgear comparison: IEC vs NEMA 2. Switchgear comparison: GIS vs AIS 3. Distribution switchgear redundancy configuration analysis 4. Substation location optimization
2016	Mining: Mineral Processing	Canada	Electrical, instrumentation and controls leadership for the detailed design of a precious metals refinery.
2015	Mining: Mineral Processing	South America	Commissioning oversight for a 240,000 tonne per day copper concentrator, as Lead Electrical and Instrumentation Engineer.
2014	Mining: Mineral Processing	Africa	Control system commissioning assistance for a gold concentration and treatment plant. Control system: Emersion DeltaV.
2011-12	Mining: Mineral Processing	USA	Electrical, instrumentation and controls for a High Pressure Grinding Roll Pilot Plant. Control system: Quantum, Unity Pro, Citect.
2008-14	Mining: Mineral Processing	USA & Australia	A program of projects to develop a common machine control and condition monitoring system for a manufacturer's line of mineral processing equipment. A hardened Windows machine provided web-based user interface, LabView-based condition monitoring, and various other apps. A hardened Linux machine provided PLC control via Rockwell Automation's ISaGRAF.
2007-08	Mining: Mineral Processing	USA	Electrical, instrumentation and control system upgrade for a uranium concentrator. Project value: \$3,500k USD. Control system: Rockwell Automation ControlLogix PLC and FactoryTalk HMI.
2006-07	Mining: Mineral Processing	Indonesia	Prepared the logic narrative and program design, then implemented the PLC-5 programming of new HPGR (high pressure grinding roll) circuit. Project value: \$120k USD.
2006	Mining: Mineral Processing	Indonesia	PLC programming of portsite ship loader. Control system: Allen-Bradley PLC-5.

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2005-06	Mining: Mineral Processing	Canada	Engineering and PLC programming of high tonnage aggregate plant. Control system: Rockwell Automation SLC-5 and RSView32.
2005-06	Mining: Mineral Processing	USA	Electrical engineering, instrumentation and control specifications, and programming for moly plant expansion. Project value: \$ 760k USD. Control system: Emerson DeltaV.
2005	Mining: Mineral Processing	USA	Designed and drafted electrical schematics, PLC cabinet layouts and wiring diagrams, and programmed the PLC and HMI for manufacturer's equipment test center. Plant consisted of 25 motor loads fed from MCCs controlled by a SLC-5/04 PLC and RSView32 HMI. Project value: \$ 50k USD.
2004	Mining: Mineral Processing	USA	Designed and drafted electrical schematics, PLC cabinet layouts and wiring diagrams, and programmed the PLC and HMI for the construction of an aggregate crushing plant. Plant consisted of 140 motor loads fed from DeviceNet MCCs controlled by SLC-5/04 PLCs and RSView32 HMIs. Project value: \$ 140k USD.
2003	Mining: Mineral Processing	Russia	Designed the Siemens Step 7 control logic and provided commissioning assistance for a diamond concentrator.
2003	Mining: Mineral Processing	Indonesia	Engineering review, Foxboro DCS Configuration and PLC-5 programming for Overburden Handling System 3. Project value: \$224k USD.
2002-03	Mining: Mineral Processing	Indonesia	DCS Configuration for Knelson Concentrator in Indonesia and Kelowna office. Completed DCS logic configuration in Kelowna office then travelled to site to supervise graphic development and assist with commissioning. Project value: \$50k USD. Control system: Foxboro I/A.
2001-02	Mining: Mineral Processing	Indonesia	Programming of a PLC-5/Foxboro I/A control system for a pressure filter at the portsite plant. Project value: \$135k USD.
2000-01	Mining: Mineral Processing	Indonesia	Controls upgrade to a concentrate drying, storage and shiploading system. Included retrofit of a PLC-5 system to a hardwired plant. Project value: \$530k USD.
2000	Mining: Mineral Processing	Canada	Revised Modicon Quantum PLC program and Wonderware HMI configuration, then commissioned the new program at the customer site, which included considerable loop tuning for the grinding circuit of a gold concentrator.
2000	Mining: Mineral Processing	Australia	Provided Foxboro I/A DCS configuration for startup support of a lead/zinc concentrator.
1999	Mining: Mineral Processing	Turkey	Audited the Yokogawa Centum DCS and made recommendation for the resolution of customer concerns.
1999	Mining: Mineral Processing	Indonesia	Collected data at site regarding the Oreflow control system upgrade. The following information was collected: PLC intercommunication network diagram, I/O audit, PLC and comms performance audit, process equipment audit, load control audit. Control system: Allen-Bradley PLC-5.
1999	Mining: Mineral Processing	Canada	Reviewed and documented existing LabView software application, then modified the application for a manufacturer's mill charge sensing system.
1999	Mining: Mineral Processing	Indonesia	Researched, specified and procured National Instruments sound card and programmed LabView software for SAG mill sound analysis.
1998	Mining: Mineral Processing	Indonesia	Onsite period of general electrical controls support. Activities included: logged forces and shorted branches in PLC-5 programs, evaluated PLC security options, upgraded firmware on PLC processors, evaluated PLCs for Y2K sensitivity, troubleshoot multilin comms problem, evaluated and re-wrote primary crusher PLC-5 program, commissioned a lime plant, and implemented a PLC-based Dahlin compensator.
1998	Mining: Mineral Processing	Indonesia	Proposal for crusher PLC-5 program re-write.

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1997-98	Mining: Mineral Processing	South America	Allen-Bradley PLC-5 programming and RSView32 HMI configuration and FAT for the 96k expansion of a copper concentrator. System included four PLC processors and three different control rooms.
1997	Mining: Mineral Processing	Indonesia	Drafted motor schematics and wiring diagrams, designed/drafted PLC cabinet layouts and wiring diagrams, completed DCS/PLC data mapping, prepared site work punchlist, provided installation supervision and commissioning assistance for North Concentrator PLC system.
1996	Mining: Mineral Processing	Canada	Drafted loop sheets, assigned I/O, configured Yokogawa DCS, assisted with installation of CPU cabinet and commissioning for instrument additions to a coal preparation and drying plant.
1996	Mining: Mineral Processing	Canada	Drafted motor schematics, assigned PLC-5 I/O, programmed Yokogawa DCS, assisted with control system changeover and plant startup for a coal preparation and drying plant.
1995-96	Forest Products	Canada	Developed electrical drawings, PLC I/O layouts, bill of materials, PLC programming of Allen-Bradley PLC-5 for a planer mill sorter line.
1995-96	Forest Products	USA	Prepared schedule and project binder. Developed electrical drawings, bill of materials, programmed motion controller in "C" and provided startup assistance for automated grading stations.
1995	Forest Products	Canada	Modified electrical drawings, PLC I/O layouts, bill of materials, PLC programming of Allen-Bradley PLC-5/40 for angled ending rolls addition.
1995	Forest Products	USA	Completed testing to resolve "bad sample" problem and assisted with shipping for x-ray lumber gauge.
1995	Forest Products	Canada	Developed electrical drawings, bill of materials, tested and assisted with shipping for x-ray lumber gauge.
1995	Forest Products	Canada	Developed electrical drawings, PLC I/O layouts, bill of materials, PLC programming of Allen-Bradley PLC-5/40 and provided startup assistance for an optimized trimmer, sorter and stacker line.