

Ed Morrison Joins Matrix Technologies As Colorado Regional Manager

Matrix Technologies Inc. has hired a new Regional Manager for the Colorado office. Ed Morrison joined Matrix Technologies, Inc. on May 24th in his new role.

“Ed Morrison brings a wealth of engineering and automation experience to our Colorado operation”, said David Bishop, president of Matrix Technologies, Inc. “We are excited to have him on board in our Denver office so that we can continue to build on our success in the region and expand our operations there.”

Mr. Morrison brings over 20 years experience in the process automation and system integration industry to the Colorado office. He worked for two premier national system integration

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Welcome to the first edition of our bi-monthly newsletter. We hope you enjoy reading this publication that covers a variety of topics. [Click here](#) to provide us with feedback.

Virtually Everyone Should Consider Virtualization

Whether you are a home hobbyist, small business person or a large corporation, there are many reasons to take advantage of the benefits of virtualization. Virtualization refers to a type of software application that allows users to run the operating system and software from one system on another physical system that functions as the “host” system. In a virtualized environment, a single system, given enough resources, can run one or more copies of another operating system and its applications from other physical systems simultaneously.

One of the most valuable applications of virtualization technology is when legacy applications still meet user needs, but an upgrade path to a newer operating system or hardware platform is required. Matrix has successfully migrated applications based on many legacy operating systems to a new hardware platform and modern operating system using this methodology. The applications run identically, but the underlying hardware is faster and more reliable.

Even if you are managing new systems, it is still advisable to review the many benefits of virtualization. Some of the benefits include: ease of system backup, replication, and migration to other computers and users. We would be glad to review your application to help identify whether or not it is a good candidate for virtualization.

Manufacturing Operations Management Systems: A vital link

Manufacturing is facing some challenging times. The current economic times combined with changing market dynamics and tighter margin is putting unprecedented pressure on the manufacturers.

In response, significant investments have been made in business systems (ERP systems) and Business IT infrastructure to get a better insight across the enterprise using business analysis tools and portals. Material consumption/production, energy costs, labor & asset utilization and equipment performance are some of the manufacturing information that are needed by the business systems to perform financial, labor and material planning. Manufacturers are looking at a high level of synchronization and collaboration between the business systems and the plant floor systems which has been lacking.

Unfortunately, the manufacturing systems at the plant level have not kept pace. They are still plagued by hardware and software obsolescence as well as older legacy and custom solutions. Many of these systems were originally designed as stand-alone systems. Many of these systems operate on hardware and operating systems that are no longer supported. A short gap solution has been to build custom interfaces and using virtualization to overcome the hardware obsolescence.

As businesses move towards a tightly integrated enterprise it is very important to implement a Manufacturing Operations Management system that is built upon current hardware platform and services-oriented architecture that meets the real-time and high availability needs of the plant floor. It should communicate with the existing plant floor control systems. This system will provide the necessary manufacturing intelligence/ analysis and publish key performance indicators via dashboard and web services to support plant operations while communicating all the information in real time with the business systems.

companies in the recent past, and operated as a branch manager for one of them, making him an optimal choice for the Regional Manager position. Mr. Morrison has a BSEE degree from the University of Wyoming, an MBA from the University of Phoenix and also carries a certification as a Six Sigma Black Belt. "His background in the Oil and Gas, Energy, Food and Beverage and Pharmaceutical industries as well as his system integration experience make him a perfect fit for the Matrix Technologies, Inc. organization," said Bishop.

Founded in 1980, Matrix Technologies, Inc. provides process design engineering and factory automation to the top manufacturers in the world. With over 135 employees, including LEED certified engineers, and more than \$20 million in sales, Matrix has a tremendous breadth of process and automation expertise focused in the food, pharmaceutical, biotech, glass, metals, and automotive industries – both nationally and internationally. Matrix has extensive international experience and has over 500 systems installed in 45 countries. Matrix Technologies has regional offices in Indianapolis, Indiana; and Denver/Boulder, Colorado.

LDM FOODS PROJECT

LDM Foods recently built a Canola Crushing and Oil Refining Plant in the heart of the Canola growing region in Yorkton, Saskatchewan, Canada. This plant is capable of processing 2,500 metric tons of canola seed per day, which is processed into food-grade oil along with producing pelletized meal for use as livestock feed.

As part of this green-field project, LDM Foods selected Matrix Technologies as their primary integrator and central authority for all networking, controls, and instrumentation within the new facility, continuing the strong relationship that was developed with Louis Dreyfus during the construction, start-up, and continuing support of their Soy Bean Processing and Biodiesel Plant in Claypool, Indiana, the world's largest such facility.

For the LDM Foods Canola Plant, Matrix Technologies helped LDM Foods select a Rockwell ControlLogix and Wonderware Intouch 10.1 control platform solution. This solution integrated the very latest in control technology incorporating 7 plant area ControlLogix 5000 controllers, ControlNet and Ethernet communications, 18 Allen Bradley IntelliCenter MCCs and 22 Wonderware Intouch 10.1 thin client HMIs with instant failover redundant I/O servers. The HMI dual-session and dual-monitor thin client platform utilized the latest in ACP thin client hardware and thin manager software.

Above and beyond the regular functions of a system integrator, as part of Matrix Technologies' scope of work for the Yorkton Canola Plant, LDM Foods' personnel specifically selected Matrix to function as the central authority for all networking, controls, instrumentation and integration within the new facility. With this, Matrix successfully performed the following services for LDM Foods:

Matrix developed a complete set of Design Standards/Specifications for the plant including PLC Programming standards and specifications, HMI Development standards and specifications, Network Hardware and Design specifications, Electrical Controls Hardware specifications,

and Electrical Drawing specifications.

Matrix worked closely with Louis Dreyfus corporate IT department to design and coordinate a full gigabit, fiber backbone network consisting of 5 separate VLANs and 13 interface switches providing IP phone services, plant data services, PLC communication, HMI communication, and commodity transfer accounting communication.

Matrix worked with over fifteen (15) different Original Equipment Manufacturers on a variety of different levels, ranging from hardware and software integration of OEM equipment to the Plant control system to working closely with the OEMs to ensure conformity to plant standards.

Matrix provided Detailed Functional and Design Specifications for all areas of the plant, which included detailed descriptions of the Automated Process Sequences that were built into each system.

Matrix developed all electrical drawings for the plant including detailed I/O lists, I/O schematics, panel layouts, and full construction packages.

Matrix managed the procurement of all control equipment, including the fabrication, assembly, wiring, and checking of over twenty-five (25) PLC control panels and network panels.

Matrix developed six (6) ControlLogix 5000 PLC programs and one (1) Wonderware Intouch 10.1 application for the plant. The application was deployed to twenty-two (22) HMIs residing on eleven (11) dual-monitor, dual-session thin clients to form the base plant control platform.

Matrix utilized ControlNet, DeviceNet, ASI bus, OPC, HART, and Ethernet/IP communications to integrate remote I/O, Intellicenter MCCs, HMIs, servers, and a breadth of third-party devices together.

Matrix designed the control system with instant failover redundant Thin Manager and I/O servers. The HMIs provided for Manual, Maintenance, and Automatic Process control along with monitoring

and analyses of all plant systems and processes. The control system also supported real-time and historical fault and alarm monitoring and analysis as well as real-time and historical trending/analysis, and recipe management and tracking.

Matrix also design a Wonderware Historian and Wonderware Information Server (Web Server) to accommodate Process Totalization and Inventory/Accounting reporting and analyses.

Matrix worked with the General Contractor and the Electrical Contractor to implement an effective and comprehensive system of issuing and distributing drawings, answering Request for Information from the field electricians, quickly and cost-effectively implementing client changes, and tracking and completing punch-list items during construction.

Matrix implemented a full set of configuration, checkout, and testing procedures used to check all field I/O. The checkout sheets included progress reporting capabilities that gave the client clear and concise reports on the percent complete of checkout and testing.

Matrix Technologies was truly a partner with LDM Foods in this endeavor. In this relationship, LDM Foods personnel could feel comfortable to focus on their most crucial tasks of constructing, training, and running their plant, knowing that they could count on Matrix to look out for their best interest and foresee the potential pitfalls. Matrix looks forward to continuing to work with Louis Dreyfus to help build, improve, and maintain the most efficient, productive, and profitable plants possible.



NFPA-70E: Convincing the Stakeholders

Vacations Boost Performance

Do you consider yourself too valuable to your firm to take a vacation this summer? Or if you do get away to the seashore or mountains for a few days, are you backpacking your cellular phone and laptop so that you don't miss a beat back at the office?

According to William Yeomans, author of *Seven Survival Skills for a Reengineered World*, you – and your company – would be better off if you just let the office hum along without you for a week or two. Yeomans asserts that “You will be more productive and of more value to your employer when you get back.”

A real vacation (not simply a 3-day weekend) is usually necessary for most people to unwind and reduce their stress level – which has a big impact on a person's overall health. After all, if you suffer a heart attack or a stroke because of your workaholic behavior, your co-workers will get along without you far longer than just during a vacation period.

In addition, vacations allow a person to gain some perspective about their life and job, which can result in a renewed sense of purpose.

By now, many or all of you have all heard of Arc Flash or NFPA-70E. So you may have heard the words, but the real question is “Have you completed an arc flash study?” In plants that have not completed an arc flash study, the person that tries to be the arc flash champion is always asked, “Is this mandatory?”

Your company probably does not ignore other OSHA rules and recommendations, so why would you when it comes to Arc Flash? Do you follow the National Electric Code (NEC or NFPA-70) which is another consensus standard? The following sections will help you tie the OSHA regulations to the need for compliance.



The original OSHA general duty clause is all encompassing and a catch all that can be used to cite employers in many situations.

General Duty Clause

Section 5(a)(1) states, “Each employer shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.”

Although, NFPA 70E is not Incorporated by "Reference" in OSHA 29 CFR 1910, there are several requirements that are enforced. The employer cannot just guess on how to meet these requirements. The best way to comply is to utilize a consensus standard. The following OSHA requirements apply directly to the NFPA 70E Standard:

- 29 CFR 1910.132 (d)(1):
Requires employers perform a personal protective equipment (PPE) hazard assessment to determine necessary PPE.
- 29 CFR 1910.269 (l)(6)(iii):
Requires employers ensure each employee working at electric power generation, transmission, and distribution facilities who is exposed to the hazards of flames or electric arcs does not wear clothing that could increase the extent of injury when exposed to such a hazard.
- 29 CFR 1910.335 (a)(1)(i):
Employees working in areas where there are potential electrical hazards shall use electrical protective equipment appropriate for the specific parts of the body for the work being performed.
- 29 CFR 1910.335 (a)(1)(iv):
Requires employees wear nonconductive head protection whenever exposed to electric shock or burns due to contact with exposed energized parts
- 29 CFR 1910.335 (a)(1)(v):
Employees shall wear protective equipment for the eyes or face wherever there is danger of injury to the eyes or face from electric arcs or flashes or from flying objects resulting from an electrical explosion.
- 29 CFR 1910.335 (a)(2):
Employees shall use insulated tools or handling equipment when working near exposed energized conductors or circuit parts.
- 29 CFR 1926.28 (a):
Employer shall require employees wear appropriate personal protective equipment (PPE) during construction work.
- 29 CFR 1910.2(g):
"National consensus standard" means any standard or modification thereof which (1) has been adopted and promulgated by a nationally recognized standards-producing organization under procedures ...

Other OSHA correspondence

The following link is from OSHA and lets the employer know of the standards that can be used to help them comply with OSHA 29 CFR 1910 Subpart S. [Click here.](#)

