

Applying Project Mgmt Methods to Plant Management

Ronald Gavrin, Ontario Power Generation

P Eng, MBA, PMP, CMRP, CCE

Ron Gavrin is a Canadian professional engineer with over 25 years experience working in Ontario Hydro/Ontario Power Generation, the largest Ontario electrical utility company. The major part of this time has been spent in the Nuclear Division, largely in implementing and maintaining major business processes in an organization of up to 22 nuclear units, \$1Billion annual operating costs and about 10,000 staff. He has most recently been the project controls manager for the start up of the nuclear development program; refurbishing and building new nuclear plants.

Ron holds qualifications with Project Mgmt Institute (PMI), Assn for Advancement of Cost Engineering International (AACEI), Society for Maintenance and Reliability Professionals (SMRP), and the Royal Society of Chartered Surveyors (RICS).

He is also attached to the faculty of the University of Waterloo, Engineering.

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Abstract

Applying Project Management Methodology to (Nuclear) Plant Management

Large manufacturing facilities generally use traditional management processes (e.g. business plans, budgets, etc.) for high level management of their business. However, it is often found that there are several problems with these processes:

- They may not present an integrated approach that is equally useful at a corporate, plant and department level.
- Reports focus on cost trends rather than on work accomplishments.

In the mid 1990's, with the start up of one of the world's largest nuclear sites (in Canada), the plant management requested that a process be established to overcome these issues and that would be capable of relating work and results to resources and that could be tracked rigorously. As well, the focus of reporting would be on the results, work and costs, rather than simply dealing with costs.

This paper describes the process that was implemented to satisfy these needs. It was based on applying project management methodology to general business processes and implemented what can be described as a true, comprehensive Enterprise Project Management framework in a largely operations environment. The process successes and failure will be reviewed.

Much of the follow-up discussion will be an exchange of experiences that will lead to “best practices”/benchmarking among industries and possibly future papers on extending the use of project management tools in management of ongoing operations.

OEE

Hemendra Ghildyal & Mike Mike Lawley, U. S. Pipe, Bessemer Alabama

During the last 18 years, Hemendra Ghildyal worked in various areas of manufacturing. Included are areas such as maintenance and reliability, ERP implementation and inventory Control and in different roles from Management trainee-technical, engineer, manager, consultant and reliability expert to leadership role in reliability and maintenance area. Currently, he is working as Director, reliability and maintenance for a multi-location manufacturing company. His educational background is degree in mechanical engineering from JMI, New Delhi and Master in Reliability and Maintenance (QUT, Australia). hghildyal@uspipe.com

Mike has worked for more than 20 years in different facets of the plant maintenance and manufacturing. Currently, he is working as head of Maintenance in one of our biggest pipe manufacturing facility. His expertise includes setting preventive and predictive maintenance program, RCA, planned maintenance and contract maintenance. His pastime includes coaching baseball to kids and taking care of his four horses. mllawley@uspipe.com

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Abstract

Can you use OEE as a powerful total productive maintenance tool? How can we align operation and maintenance groups to focus on most important productivity losses in very short time? We use it as an analysis and benchmarking tool. Is it possible to integrate OEE and SAP Plant maintenance system easily?

Is it possible to get a visual number (like a speedometer on a car) which can be used as motivation tool and can be drilled down to identify productivity losses.

This paper will attempt to answer some of the above questions from practitioner point of view and would details the following:

- The use of the OEE to identify opportunities/ greatest areas of improvement so you start with the area that will provide the greatest return on asset.
- Improve the production throughput quickly
- Calculation of OEE and World-class OEE
- How OEE helped to reduce maintenance and operational delays which led to dramatic improvement in asset availability which transformed the manufacturing team into one group instead of operation and maintenance silos
- Integration of OEE with SAP plant maintenance system and SAP based root cause analysis from plant OEE data.

BP Chemical and ABB turn Reliability Initiative into Operational Excellence

Dan Glossner, BP & Glyn Thorman, ABB Reliability Consulting NA

Dan Glossner is the Maintenance Manager at the BP Chemical Plant in Decatur, Alabama. He has worked at BP for 29 years in various Engineering, Quality Assurance, Maintenance, Reliability and Management roles. Dan holds a BS in Electrical Engineering from the University of Alabama and is a member of the Society of Maintenance and Reliability Professionals. Most recently Dan was the Reliability Manager for BP's Global Paraxylene assets.

Glyn Thorman is an Operations Manager with ABB Reliability Consulting NA. and has been in maintenance and reliability consulting for 18 years. Specialized skills include computerized maintenance management systems, performance indicator development, rotating equipment reliability, and maintenance and reliability organizational structures. Glyn holds a BS from the University of Wisconsin and an MS from the University of Illinois.

Abstract

Faced with escalating global competition, rising costs, and shrinking skilled workforce, process industry and manufacturing companies must focus on improving processes to be successful. Through ABB's Reliability Consulting, BP's Decatur, AL site has improved work management efficiencies, contractor management controls, and equipment reliability. This presentation explores how BP is currently implementing change to achieve and sustain these results while examining lessons learned.

Developing Robust System Requirements for Improved Reliability

Christopher Graham & Angelo Chinni, Eli Lilly and Company

Chris Graham has over 20 years of engineering and maintenance in the petrochemical and pharmaceutical industries, developing and implementing asset care strategies for rotating equipment, fixed equipment including heat exchangers, piping and pressure vessels. Chris Graham has BE and MS in Mechanical Engineering from Columbia University in NY.

Angelo Chinni, CIH, CSP, is an industrial hygienist with Eli Lilly and Co. He has more than 12 years combined experience in industrial hygiene and safety at plant and corporate management positions within the primary metals, chemical, nuclear power and pharmaceutical industries. Angelo holds a Master of Science in Industrial Hygiene from the University Of Michigan School Of Public Health.

Abstract

Over the years, designers, maintenance and operating engineers have tried to improve process reliability by applying various tools and techniques. While there have been tremendous successes with the preventive and new predictive techniques, there remains tremendous opportunity to be gained by understanding the requirements of systems, and their intended functions. This paper will briefly highlight the areas (People, Design and Operational, Maintenance, Safety and Quality Requirements) for consideration during Reliability Program Development, and provide a framework for system design or system evaluation. Knowledge of these basic areas will help to design new systems or improve existing systems in order to mitigate process down time, reduce errors and decrease risk for injuries or catastrophic events.

Attendees will:

- Be able to evaluate and improve maintenance reliability program and identify potential areas for human error reduction.
- Develop a means to measure and trend data that focuses improvement activities on deficient areas.
- Review example metrics and case studies that highlight safety and reliability system improvements.

Designing for Reliability and Maintenance

Ramesh Gulati, AEDC/ATA

Ramesh Gulati is “Asset Management and Reliability Planning “Manager with Aerospace Testing Alliance (ATA) at Arnold Engineering Development Center, Arnold AFB, TN. He provides cost effective maintenance/reliability strategies and supports implementation of long term reliability improvement initiatives for DoD’s \$ 8+ B Aerospace Test facility. In his new position, he is responsible in creating reliability culture across AEDC and building/designing reliability in new systems. Previously he held the position of Manager, Reliability Engineering and other management positions. Currently he is also director of “Body of Knowledge” – best practices/benchmarking Certification and Standards with the Society for Maintenance & Reliability Professionals (SMRP).

Ramesh is a Certified Maintenance & Reliability Professional (CMRP) and Certified Reliability Engineer (CRE). He holds BSME, MSIE and a MBA. He is very active in professional societies and has authored many papers in maintenance, productivity and reliability area.

Abstract

One of the key factor in asset/system performance is its reliability- inherent reliability or designed in reliability? Are we designing the system with reliability and maintainability in mind? The O&M cost, which is about 80% plus of the total life cycle cost of the system, get fixed during early design phase. Are we specifying the reliability and maintenance needs in our requirement documents? Do designers understand how to build for reliability & maintainability? All of these and many more thought provoking questions will be discussed in this presentation.

Measuring Plant Performance - The Need for Metrics Standardization

Walter Nijsen, Cargill

Walter Nijsen CMRP, holds the position of Ass. M&R Leader for Cargill grain and oilseeds in Europe. He is responsible for developing and implementing the maintenance and reliability strategy for about 40 locations across West and East Europe. During the last 5 years he is been traveling and visiting the locations to actively support and implement maintenance best practices. Walter has been instrumental in building the overall reliability culture and vision for Cargill worldwide by actively participating in maintenance steering committees, conferences, facilitating trainings, developing systems and procedures.

Walter holds a degree in Chemical Engineering and joined Cargill in 1995 where he has held several positions in Engineering and Maintenance. He is certified in several predictive technologies like, vibration monitoring, oil analysis, infrared, ultra sound, non-destructive testing and a certified maintenance and reliability professional since 2003. He is an active member of the SMRP Best Practice Committee.

Walter is a professional speaker; the audience always experiences his presentations as energized and convincing.

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Abstract

Measuring plant performance - The need for metrics standardization

Understanding how our plants perform and how well we perform in relation to others often reveals opportunities for improvement, That is to say: In principle.

The key question first raised is often are comparing apples with apples?

If not (as in many cases), the whole exercise of comparison and to some extent measurement becomes somewhat (or completely!) meaningless.

On top of that a first question that really should be answered first is WHY should we measure? Secondly WHAT should be measured and HOW?

The ones we believe are truly important are often referred to as Key Performance Indicators (KPI'), as – apparently – those contain key information on performance as the wording implies. But does it and if so, what precisely is it indicating?

When measuring true performance a number of questions and preliminary steps need to be taken first:

- Which KPI's are useful at what stage?
- Is this a leading or a lagging indicator?
- What is the correct definition?
- How will we interpret the results?
- How will you benchmark KPI's. How can you?

Cargill is a leading company in the food industry with over 1500 location is more than 80 countries, comparing and benchmarking within the company but also with other industries is a challenge. During the last 10 years a major change is made within the company, from a focus on traditional lagging indicators to more leading indicators.

Cargill has learned a lot the last years, many others can learn and benefit from these results and mistakes Cargill made.

These lessons learned drive the process of standardization of key performance indicators The Society for Maintenance and Reliability Professionals (www.smrp.org) is a group by practitioners for practitioners who has been developing the last year standardized Maintenance and Reliability Key performance indicators. These indicators have a clear objective, definition and formula, developed by experts from several industries world wide, validated and evaluate by practitioners and ready for use.

Worldwide adoption of these metrics will benefit Cargill but also all of the other industries.

A Vulnerability Process For Plant Reliability Improvement

Rob Riley, Air Liquide America

Air Liquide America Large Industries US L.P. Vulnerability Study Senior Technical Specialist –Senior Reliability Engineer. CMRP with 11 years in maintenance engineering, 23 years in reliability. Previously a Category III vibration specialist. Rob has authored several published articles and papers including “48 Month MTBR ANSI Pump” for the 2008 Houston SMRP Chapter conference, “Canned Pump Vibration Analysis” in a Vibration Institute conference, a Hermetic canned motor pump RCA in a Texas A&M Pump Symposium and served as a contributing editor for the seal-less pump vibration analysis section for John S. Mitchell’s “Introduction to Machinery Analysis and Monitoring” 2nd edition. Co-created, developed and institutionalized a successful vibration and oil analysis condition based monitoring program at BASF. Rob recently initiated the formation of the South Louisiana Chapter SMRP. BSME, University of Missouri-Columbia, 1970.

Abstract

The use of a high level FMEA process review to identify the potential vulnerable process components which could affect the delivery of product to your customer per contract requirements. High critical equipment is identified, recommendations developed, an action plan is approved to be included in the plant reliability and maintenance planning.

Best Practices Implementing and Sustaining Operator Driven Reliability

Mary Simpler, XCEL Energy Inc & Jim Turnbull, SKF USA Inc.

Abstract

The catastrophic failure of Sherco's 4B conveyor motor brought attention for the need to improve our equipment vibration monitoring/analysis and to further define our Operation's department equipment rounds. A pilot program, utilizing the SKF Marlin Operator Driven Rounds technology was initiated to mitigate these problems. The traditional approach in many industrial facilities has been to keep machines running to increase production revenues, often with severe consequences to assets - consequences that result in higher maintenance costs. An Operator Driven Reliability (ODR) process is a plant-wide reliability initiative that provides a win-win alternative to this real-life dilemma.

We all know the equation: increased shareholder value generally results from a combination of increased production revenue combined with lower operating costs. An ODR process provides a proven solution to the equation by combining people, processes, and technology in a manner that contributes directly to both increased production output and decreased maintenance costs. Plus, it fosters an environment of cross-functional teamwork, communication and cooperation that brings positive change to your organization's culture.

ODR process empowers operators to become an integral part of your overall asset management strategy, resulting in reduced unplanned downtime. In addition, your ODR program promotes an environment allowing Operations, Maintenance and Reliability to communicate effectively, share mutual reliability goals and work together to meet your business objectives.

Six Sigma for Reliability: Demonstrating Improved Performance with Sparse Data

Clark Sterner, The Dow Chemical Company & Jeff Apel, Meridium, Inc.

Clark Sterner is currently a Reliability Engineer, and has worked for The Dow Chemical Company for the past 19 years. Having experiences in Site Logistics, Human Resources, Analytical Services, and Maintenance, he is now actively involved in data preparation and work process improvement efforts with Dow's project team to implement Meridium's Asset Performance Management application. A graduate from the University of Pittsburgh with a BS in Chemical Engineering, and a certified Six Sigma Black Belt, Clark currently resides and enjoys urban living in Houston, Texas.

Jeff Apel is a Project Director in Meridium's Houston office. A Certified Maintenance and Reliability Professional (CMRP), he has been involved in APM initiatives for several Fortune 500 corporations in North and South America, Asia, and the Middle East; consulting and deploying reliability analytics, metrics and KPI's, calibration management, mechanical integrity, RBI, RCM, FMEA, and critical process variable monitoring. He is a Mechanical Engineering graduate from the University of Houston with 25 years of managerial and technical experience in front-end engineering design, design automation, and reliability. His roles have included consultant, project manager, design engineer, CAE systems analyst/developer, and systems engineer. Jeff's previous system implementation experience includes manufacturing execution (MES) systems, ERP systems, process historian / SCADA systems, laboratory information systems, maintenance management, and reliability systems.

Abstract

One common challenge when applying Six Sigma to reliability improvement is a severe shortage of meaningful data. The mainstream Six Sigma training programs are better geared to manufacturing, operations, and run charts. The classic rules of capturing a change on a run chart include "seven points in a row above the mean" and so on. This approach can have reliability engineers scratching their heads when failure rates only provide a defect every 10 months. Fortunately, some analytical techniques can provide statistically significant evidence of improved performance over a much shorter time period. This presentation will walk you through some example calculations and show how it can be done to the satisfaction of your Master Black Belt.