ROOT CAUSE ANALYSIS
FOR THE ENERGY INDUSTRY

Break the reactive maintenance cycle, Improve plant safety, integrity and reliability and optimize your asset life cycle to achieve significant performance improvement.

18 – 20 AUGUST 2014, KUALA LUMPUR, MALAYSIA

TOPICS COVERED

Introduction to RCA

Overview RCA methodologies

Cause and effect Principles

Triggering The RCA & communicating the problem

Cause and Effect Analysis Charting

Solution Development

RCA Facilitation and working as a Team

Insights into Human Reliability

Implementing & Institutionalizing RCA

Consolidation Exercise "Major RCA"

Expert Course Faculty Leader
Dr. David Challis

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About This Training Course

To ensure targets are met and continuous improvements made, many organizations have institutionalized the proactive Asset Management process but are still to address the reactive/ breakdown process. This course focuses on this aspect. The RCA process is problem solving methodology aimed at identifying the root causes of problems or events and eliminating reoccurrence. The practice of RCA is predicated on the belief that problems are best solved by attempting to address, correct or eliminate root causes, as opposed to merely addressing the immediately obvious symptoms. By directing corrective measures at root causes, it is more probable that problem recurrence will be prevented. This saves your organization time, money, and resources and will break the fire fighting nexus and free up more time for proactive maintenance. No other process can deliver such a high return for such a small investment.

Learning Outcomes

- Understand the business case for RCA implementation.
- Learn how to solve problems systematically by using a proven structured approach.
- Understand the various RCA tools and techniques and their respective benefits.
- Learn how to establish, and the benefits of an effective team environment and the required skills to facilitate the RCA process.
- Learn how to Clarify what the Problem is and what it isn't.
- How to Map an auditable trail from the problem system to the Root causes.
- The ability to identify critical-based solutions for any charted event.
- How to monitor and control the RCA process and ensure actions are delivered.
- Recognize common barriers to RCA and apply techniques to overcome those barriers.
- Understand Human Reliability and various techniques to improve/ manage.
- How to Implement measures to ensure gains are implemented and held (continuous improvement).
- Manage Change and how to implement

Competencies Developed

To carry out successful RCA's and introduce the RCA process into their own and their company's daily activities.

Be aware of our changing business environment and the need for how to apply RCA to drive continuous improvement, in safety, cost reduction, and minimize their environmental footprint

Understand the impact of human reliability and the various methods used to improve this important area.

Understand the basics of Change Management and the methods used to securely anchor this process and make it routine.

Have appreciation for an holistic "Asset Management" program, and know where the RCA process fits in, and of course the benefits it will deliver.

Who Should Attend

This course is aimed at Managers, Engineers, Technicians and Operators (at all levels) who are responsible for the operation and maintenance of power generation equipment who will benefit from, the elimination of bad actors (recurring equipment failure) and continuous improvement in the areas of safety, environmental impact, reliability, and integrity.
RCA is primarily a team activity and as such benefits from a cross functional team participation

Training Methodology

The design of this course is such, that all learning styles are catered for in a participative, friendly environment. Theory, techniques and principles are presented via lecture, video, and practical case studies, then reinforced with individual and syndicate exercises. It our goal to ensure the subject matter is relevant to all, delegates will have the opportunity to share experiences and give their own personal insight into the subject matter.
Questions are encouraged throughout, particularly at the daily wrap up sessions. This provides opportunities for participants to discuss specific issues and if possible find appropriate solutions. Our goal is to maximize the benefit of this training for every delegate. This is not just a technical process training course the material also touches on the critical softer skills of teams, facilitation, human reliability, and change management that are required to implement a successful RCA program.

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3 Day Course Outline

DAY 1
1.Preliminaries
Outcomes:

- Understanding of course outcomes and key topics discussed
- Understanding of course agenda and structure .
- Understand participant course expectations and modify/supplement course materials as necessary
- Agree ground rules - how we will work together for these three days
- Introduce personal Action Plan templates
- Establish course syndicates – how participants work together.

2.Introduction to RCA
Outcomes:

- Understand what RCA is- (Video and discussion).
- Where did RCA come from and its place in our AM Process.
- Understand the terminology of the words and acronyms used.
- Understand the capabilities of the RCA process (what it will deliver and what it will not).
- Have an appreciation of the RCA process flow
- Understand the business case and the need to learn from incidents

3. Overview RCA methodologies:
Outcomes:

- Understand the many RCA tools available and how to apply. e.g. *5 Whys, fish bone, Pareto, Brain storming, Six Sigma, flow charts, histograms, Kepner –Tregoe, Story Telling, Failure Mode & Effects Analysis, and Reality Charting.*
- Understand the key deliverables (criteria)of RCA.
- Understand and appreciate that not all tools can deliver against the identified 6 key criteria.
- Understand and appreciate the methodology that is going to be used in this training and why.
- Understanding of the types of problems.
- Give knowledge of the 4 steps to effective problem solving.

4.Cause and effect Principles:
Outcomes:

- Understand the 4 Cause and effect principles.
- Understand Actions and conditions.
- Understand Causal Language.
- Understand Causal Connections.
- Understand what evidence is and when it is required.

DAY 2
5.Problem Definition:
Outcomes:

- Understand the importance of accurately determining the problem.
- Understanding the 4 elements of problem definition.
- Understand the WHAT.
- Understanding the WHEN.
- Understanding the WHERE.
- Understanding the significance.
- Be able to clearly define a problem.

6. Triggering The RCA & communicating the problem:
Outcomes:

- Understand what the visual definition of the problem is.
- Understanding where do problems arise from?
- Understand the need for objective evidence.
- Knowledge of how to determine problem/incident impact by use of a Risk Assessment Matrix.
- Understand the need for a formal process to manage and monitor the RCA process.

7. Gathering Data:
Outcomes:

- Understand the sources of Cause.
- Know where to look for causes.
- Understand cause triangulation.
- Understand the elements of and effective interview.

8. Cause and Effect Analysis Charting:
Outcomes:

- Understand what Reality Cause and effect charting will deliver.
- Understand the five elements of a cause and effect chart.
- Understand the importance of Language (descriptive)
- Be able to create a Reality Cause and Effect Chart.

9. Solution Development:
Outcomes:

- Understand the Criteria for effective solutions.
- Understand what is detrimental to creative solutions.
- Be able to apply a creative solution process.

10. Reporting, communicating outcomes:
Outcomes:

- Reinforce the need for an accurate accessible repository for plant data.
- Understand the need for a robust audit trail.
- Understand how this process can drive continuous improvement, by sharing the learning.
- Appreciate the various options for documentation and data management, and the need to use or adapt what best fits your individual needs.

DAY 3

11. RCA Facilitation and working as a Team:
Outcomes:
- Understanding of the Companies responsibility.
- Understand the importance of the right team composition
- Understanding the need to overcome the limitations of the group.
- Understanding the need for shared ownership and the need for group diversity.
- Understand the need to challenge and be creative think outside the square.
- Manage the group theme is prevention not Blame.
- Understand the non tangible effects of the group participation.

12. Insights into Human Reliability:
Outcomes:
- Understand that the principle finding of many RCA's points to human error, and that error is predominately cased by latent organisational failures. This understanding is key to effectively addressing the root causes & initiating continuous improvement.
- Gain further insight into the world of Human Reliability (behaviours, attitudes and beliefs)
- Have an understanding of some of the tools and techniques used to help manage Human Reliability.

13. Implementing & Institutionalizing RCA :
Outcomes:
- Understand that most new initiatives need to be managed as a project.
- Understand what constitutes a Change Management Plan and when it is required.
- Understand that RCA must have a process champion at senior level.
- Understand the need for continuous improvement of the process Quality control, Reporting, corrective action tracking and close out to anchor the process.

14. Consolidation Exercise "Major RCA":
Outcomes:
- Synthesize and apply knowledge gained to date (thereby reinforcing the process and key concepts).
- Share learning's ideas and insights.
- Be able to confidently and capably carry out an RCA
- Develop actions to take back to the work place to integrate this new knowledge into your daily activities.

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15. Un Assigned:
Outcomes:
- Close out any outstanding Parking Lot issues.
- Close out previously identified concerns & issues.
- Address the need to catch up on any module overrun and any outstanding actions, if required.

16. Recap Tools & Techniques & Close out:
Outcomes:
- Reinforcing the process and key concepts.
- Ensure course Objectives have been achieved.
- Ensure all pre identified expectations and concerns have been met or mitigated.
- Receive feedback on the course.
- Present participants with course certificate of completion

The trainer will draw off many years of practical experience from his own work and of his team in preparation of the materials for this course.

The practical experience derived involves all AM process but will focus on the development, implementation and operation of the RCA process in an Asset Management environment.

Course content - making it relevant!

All delegates will complete detailed pre-course questionnaires before the event enabling trainers to tailor course content in order to meet specific delegate needs. Delegate objectives are re-visited before, during and after the event allowing us to focus on outcomes and address any delegate concerns and specific issues during the program.

Your Expert Trainer

Dr. David Challis

David Challis has worked at Shell for 15 years in a variety of leadership and technical roles including Engineering Manager, Maintenance Manager and Electrical Engineering Manager. He holds Bachelors and Masters Degrees in Engineering (UNSW) and a PhD in Engineering Management (University of Melbourne - 1996).

Since leaving Shell, David has worked for 15 years in a broad range of Safety Management, Asset Management and Change Agent assignments. He has conducted numerous assignments, in the USA, Asia and Europe in the development and implementation of Best Practice Asset Management,
Performance Management and Project Management Strategies. He regularly presents at Conferences and Forums (eg Maintenance Engineering Association of Australia – MESA on Asset Management and Organisational Best Practices and has delivered over 15 programs to global majors.

David is an experienced manager, facilitator and innovator with the ability to make things happen. Clients include Alcoa, Amcor, BHP, Caltex, Chevron, Conoco Philips, Electrical Operating Authority Of Australia, ERM, Huntsman hemicals, Hyundai, Mobil, Pertamina, Petronas, Qatar Gas, Rio Tinto, Shell, Thai Oil and Woodside Energy.

Major capabilities are:
•   Asset Reliability and Sustainable Asset Management Best Practices
•   Development of cultures that support and embed Asset Management principles
•   Diagnosing organisational performance
•   Work effectively at all levels : front line managers, departmental managers, senior executives and boards.
•   Strategic Planning and Thinking Processes
•   Organisational work redesign

Education:
Bachelor Electrical Engineering (Hons Electrical), Master of Engineering Science, PhD – Engineering Management

Consulting Experience:
5 Years with McKinsey Consulting Group

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REGISTRATION FORM

	NORMAL PRICE	Early Bird SAVE SGD 200 Ends 30 June 2014	GROUP OF 3 or More
3 Day Programme	SGD 4,100 Per Participant	SGD 3,900 Per Participant	SGD 3,510 Per Participant

ATTENDEE DETAILS

Name .... Job title ....

Tel .... Department .... Email ....

Name .... Job title ....

Tel .... Department .... Email ....

Name .... Job title ....

Tel .... Department .... Email ....

Name .... Job title ....

Tel .... Department .... Email ....

Name .... Job title ....

Tel .... Department .... Email ....

COMPANY DETAILS

Organisation name ....Industry..

Address ....

Postcode.. Country..

Tel ....Fax...

PAYMENT METHODS
By Cheque/ Bank Draft: Make Payable to PowerEdge Pte Ltd.
By Telegraphic Transfer: Please quote AE1 with the remittance advise
Account Name: PowerEdge Pte. Ltd.
ank Code: 7339 Branch code: 686 Account Number: 686-253386-001 Swift Code: OCBCSGSG
Bank Address: 65 Chulia Street OCBC Centre, Singapore 049513
All bank charges and payment in Singapore dollars (SGD) to be borne by payer. Please ensure that PowerEdge Pte Ltd receive the full invoiced amount.

PAYMENT POLICY
Payment is due in full at the time of registration. Full payment is mandatory for event attendance. I agree to PowerEdge Pte Ltd. payment terms

CANCELLATIONS & SUBSTITUTIONS
You may substitute delegates at any time. POWEREDGE PTE LTD does not provide refunds for cancellations. For cancellations received in writing more than seven (7) days prior to the training course you will receive a 100% credit to be used at another POWEREDGE PTE LTD training course for up to one year from the date of issuance. For cancellations received seven (7) days or less prior to an event (including day 7), no credits will be issued. In the event that POWEREDGE PTE LTD cancels an event, delegate payments at the date of cancellation will be credited to a future POWEREDGE PTE LTD event. This credit will be available for up to one year from the date of issuance. In the event that POWEREDGE PTE LTD postpones an event, delegate payments at the postponement date will be credited towards the rescheduled date. If the delegate is unable to attend the rescheduled event, the delegate will receive a 100% credit