



2KG TRAINING

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PUMPING SYSTEM ASSESSMENT WORKSHOP

Improving Pump Efficiency and Reliability

ABOUT THE PRESENTER: HARRY ROSEN



Harry Rosen has over 30 years of experience in the pumping industry, and his company TAS Online is an international market leader in engineering software and consulting services for both users and manufacturers of pumps

Harry is one of only two International Pump Experts contracted by the United Nations Industrial Development Organisation (UNIDO) to deliver expert pump training programs in South Africa, Malaysia, Indonesia, Thailand, Philippines, Russia and Colombia. He is also the lead facilitator in the 'Train the Trainer' program, whereby groups of pump experts are selected and developed as pump trainers themselves.

Harry recently presented a pumping systems course on behalf of the Massachusetts Energy Efficiency Partnership in Boston and is internationally recognised as one of the leading experts in promoting the system approach to pumping system optimisation.

Harry presents both a 3 day workshop on improving the efficiency and reliability of pumping systems, and a 4 day course on pump operation and maintenance. Drawing on his wealth of experience, both courses address both the theoretical and practical aspects of pumping systems. The courses have been supported by UNIDO, NCPC, Eskom (local power utility) and the National Energy Efficiency Agency as a valuable tool to help industry achieve their targeted 15% savings in electricity.

Harry has presented training courses to groups of delegates in the following industries :

- Water boards
- Petrochemical facilities
- Eskom (power utility) energy advisers
- Agriculture
- Mining process plants
- Process and steel industries

Harry has carried out more than 30 pumping system assessments and scoping studies, both in SA and around the world at industries such as :

- Bulk and municipal water supply
- Iron and steel manufacturing
- Petrochemical and process plants
- Mining (underground, open cast, dune mining) and mineral process plants
- Power stations
- Pulp and sugar

Harry has acted as an expert witness in a number of arbitration cases involving clients in the water industry. He has also performed third party independent design reviews of new pumping systems for pump companies as well as engineering consulting firms.

Background

Harry studied at Wits University and qualified with a Bsc Mech Eng in 1987, receiving his Pr Eng in 1992. He is past chairman of the SA Institution of Mechanical Engineering, Central Branch and was instrumental in setting up the International Pump User Conference (IPUC) which was held in Johannesburg, bringing together the world's experts in energy efficient pumping systems, regularly attracting over 180 delegates and 20 world class speakers.

Pump manufacturers and suppliers in South Africa and in many countries around the world are using pump selection and graphing software, as well as Testbed automation systems designed by TAS Online.

Through the development and roll out of its TAS PumpMonitor software, his company's products and expertise are well known and accepted by major pump users such as Anglo American, Gold Fields and Harmony Gold.

Current Position : Managing Director TAS Online

Nature of duties:

- Mechanical engineering software development for the international pump industry
 - Aquatec pump selection software
 - Graftec pump curve graphing software
 - Life cycle costing analysis of pumping systems
- Design and integration of fully automated pump test facilities
- TAS PumpMonitor – real time remote pump performance monitoring system
- Engineering consultancy services to the pump industry, including
 - Witness pump tests
 - Scoping studies and full pump system assessments
 - Implementation of energy savings projects
 - Third party design reviews of new pump station design
 - Life cycle cost analyses of new and existing pumping systems
- Expert witness for projects in the water industry
- Third party design reviews

List of relevant experience

- **Sibanye Gold / Gold Fields/ Harmony Gold** – Pump systems monitoring and consultancy services to three major gold mining groups. This includes analysis of pump and system efficiencies, system optimization and refurbishment.
- **Lepelle Northern Water** – Assessments at various pump stations with the view to optimize the energy and maintenance costs. Currently involved on a group wide optimization and consultation.
- **Eskom / Johannesburg Water** - Conducted a pilot project at the Johannesburg Water pump station which was audited by Eskom in order to demonstrate the accuracy of TAS PumpMonitor software and savings potential at a typical municipal pumping system.
- Assessments of pumping systems at two **Johannesburg Water** pump stations.
- Midvaal Water – Conducted assessments on two pumping facilities and subsequently assisted in reviewing tender submissions on the company's behalf.
- Exxaro – Conducted a pump systems audit and a number of assessments on water delivery systems at Grootegeluk Coal Mine.
- Anglo Coal – a pumping system improvement project at New Vaal Colliery is in the execution phase following a successful assessment of savings opportunities and subsequent monitoring of pump efficiency. Assessments have also been completed at Goodehoop, Kleinkopje and Greenside.
- Ongoing assessments and project implementation at Arcelor Mittal South Africa steel mills in Vanderbijlpark and Saldanha
- Energy audit of process pumps (Phenosolvan plant) at Sasol refinery in Secunda

Number of days: 3

CPD Points: 3

Live Virtual Classroom

2KG Training Live Virtual Courses offer participants the same instructors, training systems, course materials, personal support, and face-to-face engagement with instructors and other participants that they would expect to find in a conventional classroom.

The Pump Efficiency and Reliability Live Virtual Course brings participants together in a virtual classroom, where they receive training from an expert via a live video link. Participants are interconnected via audio and video, enabling them to interact both with the instructor and with their classmates. Learners can speak to their instructor at any time to ask questions, request assistance, and instructors can provide hands-on support.

Who Can Benefit From This Course

Engineering consultants, engineering procurement construction engineers, pump system designers, pump system specialist, assessment engineers, process engineers, system engineers, reliability engineers, maintenance managers, and energy efficiency engineers.

Delegates Will Learn The Following:

- Benefits of assessing pumping systems
- Pump system power consumption and energy efficiency
- Interaction between pump behavior and system behavior
- Understand how the system is controlled and how to vary the operating point
- Understand the process for pump selection, specification, and acceptance
- Explain the function of different pump system components, such as drivers, bearings, seals, piping, valves, and instrumentation
- Identify common operating issues in pump systems and how to resolve them
- Describe the different preventive and predictive maintenance practices
- Understand piping and instrumentation diagrams, isometrics, process flow diagrams, and engineering drawings
- Identify optimization opportunities in existing systems and new designs
- Describe the steps in creation of an action plan for a pump system optimization program
- Importance of preparing a financial proposal using LCC analysis, NPV and ROI
- Implement optimization solutions

TOPICS	
Basic Principles	<ul style="list-style-type: none"> - Hydraulic principles - Flow, Head and pressure - Power consumption and pump efficiency - Pump types and applications - Pump performance characteristics
Pumping Systems and Pump Control	<ul style="list-style-type: none"> - Static and friction head, System Curves - Systems with variable demand - Control valve throttling and bypass flow - Trimming impellers - Variable speed drives - Pumps in parallel - Pumps in series and multistage pumps - Pump selection considerations
Mechanical Components and Driver	<ul style="list-style-type: none"> - Bearings - Pump Packing - Mechanical Seals - Pump- Motor Alignment - Electric motors

Life Cycle Costing and Pump Reliability

- Overview of LCC
- Pump efficiency and reliability
- Bearings and seal life
- Cost of operating off BEP
- Why pump duties change

Pumping System Assessments

- Guide to performing a pump system assessment
- Optimization opportunities in existing systems and new designs
- Importance of understanding piping and instrumentation diagrams, isometrics, process flow diagrams, and engineering drawings
- Field data collection / Instrumentation
- On site testing to find actual pump duty point
- Highlight problem areas and make improvements
- Failure analysis - interpreting the evidence
- Develop financial proposal using LCC analysis, NPV and ROI
- How to implement optimization recommendations

Maintaining Pumping Systems

- Condition monitoring
- Preventive and predictive maintenance practices
- Start-up and stop procedures
- Pump Performance Monitoring
- Measurement and verification (M&V)
- Case Studies

In House Course Option - Extra day

- If the course is done in house at a customer's premises, an extra day can be arranged to conduct a plant walk through
- The trainer together with the delegates will go into the plant and look at their existing pumping systems, to show how to put the above theory into practice
- Equivalent to performing a level one assessment of a pumping system in the plant

Registration Form

Number of days: 3

CPD Points: 3

How to register for the course:

1. Complete this registration form and fax it to Phindi Chauke: Tel: 011 325 0686 Fax: 011 325 0488 Email: phindi@2kg.co.za
2. Acknowledgement will be emailed to you.
3. Final confirmation and details will be faxed or emailed to you approximately 7 days before the commencement of the seminar.

Cancellation Policy:

By signing and returning the registration form, the authorizing signatory on behalf of the stated company is subject to the following terms and conditions.

- All cancellations must be received in writing
- Any cancellations received less than 3 working days before the date of the event, the full fee will be payable and no refunds or credit notes will be given.
- If a registered delegate does not cancel and fails to attend the Workshop, this will be treated as a cancellation and no refund or credit note will be issued.

Delegate information:

Title: _____ Surname: _____ Name: _____
 Full Company name: _____ Job Title: _____
 Postal Address (to which invoice must be sent): _____

Code: _____ VAT number: _____
 Tel: () _____ fax: () _____
 Cell: _____ Email: _____

Contact/ Accounts information:

Title: _____ Surname: _____ Name: _____
 Tel: () _____ fax: () _____
 Cell: _____ Email: _____

Please tick the course that you would like to attend:

Live Virtual Classroom

- 18-20 August 2025 (3 Days)
Live Virtual classroom
R12 500.00 (excl VAT)

Conventional Classroom

- Currently unavailable, a date to be advised (3 Days)
R13 500.00 (excl VAT)

I have read and agreed to all the conditions of registration as stipulated in this brochure.

Signature

Date

For more info and to register contact Phindi Chauke on tel: 011 325 0686 or cell: 071 125 6188 and email: or visit www.2kg.co.za