

# Curriculum Vitae

## Eng. Fanuel Kiwinga Mwashigadi

### Master Specialist/Electrical and Instrumentation Manager

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#### PERSONAL INFORMATION

- Date of Birth : December 31, 1972
- Marital Status : Married
- Nationality : Kenyan
- Gender : Male

#### CAREER OBJECTIVE

***To be the best manager of man and machine, striving to get the best out of each other.***

#### EXPERIENCE SUMMARY

- 20 years industrial experience gained in refinery plant instrument and electrical design and construction, and in particular maintenance and troubleshooting using Root Cause Analysis methodology and ensuring that recommendations are implemented effectively.
- Implementation of best industry practices regarding maintenance work processes including making technical input on modification documents
- Execution of pre-commissioning activities for major projects and plant revamps.
- Engineering overseeing of project execution including 18 MW diesel power generation project, construction and installation techniques for high tension electrical systems.
- Engineering overseeing of project execution of 15-ton Biomass Boiler, specification, procurement and installation of electrical and instrumentation cables and commissioning of the boiler.
- Hands-on repair and supervision of instrumentation and controls systems as well as electrical systems
- Improvement and monitoring of integrity and reliability of instrumentation equipment, identifying bad actors and coming up with plans of repair/replacement.
- System Administrator and Manager of MAXIMO Asset Management Systems and co member of ORBIT RBI Software for Inspection Management.
- Experience with configuration and maintenance of distributed control systems (Yokogawa DCS systems), SCADA and working with variety of PLC's.
- Provide technical support to Maintenance and Operations Departments on daily plant issues.
- Key member of plant reliability committee and company focal point for integrity of safe-guarding systems
- Factory Energy Officer and focal point for all energy efficiency activities.
- Implementation of Quality management systems ISO & HACCP.

PROFESSIONAL EXPERIENCE
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Kapa Oil Refineries Ltd. (Nairobi)

April 2015 – to date

**Master Specialist/Electrical, Instrumentation and Automation Manager**

- Lead / Manage the Electrical, Instrument and Automation (EIA) area for the site. This includes identifying best practices and opportunities where they can be applied.
- Manage and coordinate all energy efficient activities (Factory Energy Officer)
- Maintenance, troubleshooting and problem solving for all EIA equipment's on site including 66KV intake substation and other substations.
- Develop and manage the design and operational requirements for the functional area against corporate standards and new processes/tools
- Assist functional leader in long-term planning and team organization
- Assist operators or other team members in production management activities. Responsible for business and maintenance metrics for EIA systems
- Manage EIA systems to statutory and regulatory requirements (e.g. electrical code, process and safety)
- Manage and review specifications for new projects and contractor selection for work to be completed
- Capital project management
- Control of approved routine and capital budget for EIA
- Responsible for HSE activities in EIA area
- Servicing and commissioning of electric motor, AC & DC drives control circuits, UPS, PLC's, and Encoders for all Control System.
- Erection, Commissioning and Servicing of control Electronic Instruments Electronic cards etc.
- To understand and implement the quality management system as per the ISO & HACCP international standard in the department.

Kenya Petroleum Refineries Ltd. (Mombasa)

April 2009 – April 2015

**Assistant Manager Instrument and Electrical Engineering/Senior Instrument Engineer**

- Troubleshoot, analyze & evaluate equipment performance identifying bad actors and coming up with repair/replacement plans.
- Perform root cause failure analyses and ensuring that recommendations are implemented effectively.
- Develop and optimize preventive maintenance to ensure best industry practices are met including making technical input on modification documents
- Execution of pre-commissioning activities for major projects and plant revamps.
- Hands-on repair and supervision of instrumentation and controls systems as well as electrical systems
- Improvement and monitoring of integrity and reliability of instrumentation equipment,
- System Administrator and Manager of MAXIMO Asset Management Systems and co member of ORBIT RBI Software for Inspection Management.
- Configuration and maintenance of distributed control systems (Yokogawa DCS systems) to ensure optimal performance and availability.
- Key member of plant reliability committee and company focal point for integrity of safe-guarding systems
- Participate on plant and enterprise teams that develop and implement strategic plans for reliability performance improvement

- Support turnaround capital project team and provide electrical & instrument technical design and implementation support for plant projects
- Provide day-to-day maintenance support by assisting E&I Supervisors, Specialists, Technicians Planners and Engineers
- Provide technical support to Maintenance and Operations Departments on daily plant issues.
- Overall workshop engineer for electrical and instrumentation shops

Kenya Petroleum Refineries Ltd. (Mombasa)

January 2006 – March 2009

### **Instrument Engineer**

- Provided day to day operational support & Instrument engineering expertise.
- Set the standards for project specifications and contractors' activities on instrument engineering.
- Provided technical authority input to design, construction, commissioning and maintenance activities.
- Verified the design work carried out by engineering contractors to ensure that the proposed solutions are technically sound and meet operability and maintainability requirements.
- Participated in the development of commissioning and start-up plans;
- Supported maintenance and operations staff, and participated in teams to troubleshoot customer issues.
- Manage and promote SH&E within the plant to ensure "No Injuries to Anyone, Ever".
- Formulate and implement strategies to maintain plant performance
- Oversee plant shutdowns
- Developed, controlled and managed Instrument maintenance, capital and upgrade budgets
- Provided best practice solutions and carried out control system investigations when required ( DCS/SCADA/PLC/F&G/ESD etc )
- Manage obsolescence issues with facilities and vendors in a timely and cost effective manor
- Reviewed planned maintenance activities and procedures and closely monitor instrument maintenance backlog
- Interfaced with certifying authorities on Assurance maintenance matters
- Interfaced with suppliers, vendors and subcontractors where required

Kenya Petroleum Refineries Ltd. (Mombasa)

April 2001 – December 2005

### **Electrical Engineer**

- Maintained and improved plant reliability through identifying/correcting bad actors, conducting root cause failure analyses, and implementing preventive/predictive maintenance programs.
- Worked with other discipline engineers, technicians, and the contractor team members to perform routine, extraordinary, and turnaround maintenance activities.
- Collaborated with operations personnel in troubleshooting electrical problems and implementing technology improvements, provided guidance and training as appropriate to promote proper operation and maintenance of electrical hardware and software.
- Provided input to preparing the maintenance budget, and controls spending through appropriate tracking, forecasting, and adjustments.
- Monitored key performance indicators, and supported and implemented continuous improvements to the maintenance work processes in order to enhance plant availability and reduced the plant repair factor.
- Ensured proper documentation of files, records, databases, and drawings to meet regulatory and legal requirements, and maintained current requirements as to equipment/materials specifications and vendor preferences.

- Sought after compliance with all environmental, safety, and health requirements, and promoted a safe working environment.
- Performed as Electrical discipline engineer for projects and managed small projects as assigned and responsible for seeking additional expertise as situations warranted.
- Prepared working procedures for key electrical tasks.
- Maintained cathodic protection system for buried pipelines by monthly undertaking pipe – soil potential of the company’s impressed current system.
- Updated working instructions for key electrical tasks among them isolation/energizing of both high tension and low tension switch and control gears.
- Inspected, supervised and commissioned projects as required.

Kenya Petroleum Refineries Ltd. (Mombasa)

October 1997 – March 2001

### **Graduate Trainee Engineer (Electrical)**

- Underwent 2 year graduate trainee program which introduced me to all aspect/department of refinery.
- Undertook day-to-day maintenance activities i.e. preventive and breakdown of all electrical equipment and machines.
- Inspected portable tools and equipment and updated of KPRL/Contractors’ Register.
- Maintained cathodic protection system for buried pipelines by monthly undertaking pipe – soil potential of the company’s impressed current system.
- Updated working instructions for key electrical tasks among them isolation/energizing of both high tension and low tension switch and control gears.
- Established reliability indicators for protection relays and also bad actors for electrical equipment and machines.
- Introduced quality control procedures.
- Maintained and serviced of UPS system.

<h3>MAIN ACHIEVEMENTS/MAJOR PROJECTS UNDERTAKEN</h3>
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➤ **Upgrade of Main Intake Substation (2001): - Project Engineer**

- The project involved supplying and connecting 33 kV overhead lines from the main grid of Kenya Power & Lighting Company Ltd to the high-voltage side of the substation transformer;
- Supply and installation of overhead busbar lines support; supply and laying of 6.6 kV low-voltage side feeder cables to the incomer panels in the new substation; and
- Installation of two (2) 15 MVA transformers, connecting, testing, commission and monitor the system.

Our team involvement included generation of scope, evaluation of the tenders, and up to execution of the scope on a turnkey manner.

***Project Cost: USD 1.9 M***

➤ **Power Factor correction (2005): - Project Engineer**

- The project involved supplying and connecting of 415V panel to the existing system to supply the capacitor bank; and
- Purchase and installation of capacitor banks.

Our team involvement included generation of scope, purchase of the equipment, installation, test and commissioning.

***Project Cost: USD 130 K***

➤ **DCS Migration (2006 – 2010): - Project Engineer**

- The project involved replacement of lifetime components; and
- Migration from Yokogawa Centum XL to Yokogawa CS3000 in 3 phases ranging from 2006 to 2010.

***Project Cost Phase 1: USD 540 K***

***Project Cost Phase 2: USD 1.5 M***

➤ **Waste Water Recovery & Treatment Plant and Upgrade of Demineralization Plant (2008 – 2009): - Project Coordinator**

- The project involved recovery of waste water from the interceptors, treating and supplying the treated water to make up at the cooling tower; and
- Upgrading the demin plant by changing the cations and anions together with the associated controls.

This project was done on a 5 Year Build, Own, Operate and Transfer (BOOT). As this was a multidiscipline project I was the project coordinator to facilitate the works and also coordinate with all other disciplines at KPRL.

***Project Cost: USD 4.1 M***

➤ **Custody transfer metering system (2010 – 2011): - Project Engineer**

- The project involved all the engineering design, sourcing and purchasing of a suitable system for custody transfer metering of multi-products which were leaving Refinery to the marketers.
- It also involved preparing and tendering for the instrument/electrical scope for installation, testing and commissioning.

***Project Cost: USD 600 K***

➤ **Maximo Enterprise Asset Management System (2010 – 2011):- Project Manager**

- An IT based project for the support of the asset and maintenance processes to ensure planned maintenance execution according to the maintenance strategy.
- The system will support breakdown maintenance, planned maintenance, preventive maintenance, failure reporting, incident management, procurement, inventory management, among other features.

The system is proprietor owned thus the project involved an internal team nominated to work with the vendor/OEM to facilitate implementation of the application in KPRL. The Key challenge is to ensure that all persons are brought on board as soon as possible, and that the new proposed business processes are inculcated in the KPRL business culture.

***Project Cost: USD 900 K***

➤ **Captive Power Plant (2011 – 2012): - Project Engineer**

- Supervision, installation, testing and commissioning of Wartsila 20V32 HFO Engine oil cube.
- The project also involved all the engineering design, sourcing and purchasing of a suitable system for interfacing with the Wartsila 20V32 HFO Engine.
- Preparing and tendering for the instrument scope for installation, testing and commissioning.

***Project Cost: USD 16 M***

➤ **IP Based CCTV Surveillance System (2011– 2012): - Project Engineer**

- The project involved design, supply, installation and commissioning of all equipment for the IP Surveillance system. The System matched the International standard and the entire installation functioned as a single integrated IP Surveillance system.
- It also involved preparing the scope, tendering, analyzing the bids both technically and financially and finally awarding to the successful bidder.

***Project Cost: USD 600 K***

➤ **Erection of 15-ton Biomass Boiler (2016 – 2017): - Master Specialist (EIA)**

- Supervision, installation, testing and commissioning of 15-ton Biomass Boiler.
- The project also involved all the identification, sizing, sourcing and purchasing of all cables and cable management materials.
- Installation of electrical and instrumentation panels, cabinets, instruments, cables; testing and commissioning.

***Project Cost: USD 39.4 M***

VOCATIONAL TRAINING AND ACADEMIC QUALIFICATIONS
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- Project Management for Engineers – Marcus Evans (SA)
  - Basic Process Control and Instrumentation - Shell Open University, The Netherlands.
  - Electrical Engineering II – Shell Open University, The Netherlands.
  - Introduction to Process Control and Instrumentation – Shell Open University, The Netherlands.
  - Safety in Process Design – Shell Open University (Import Course)
  - Application of Electrical & Instrumental Apparatus in Potential Hazardous Area - Shell Open University (Import Course)
  - Defect Elimination and Root Cause Analysis - Shell Open University (Import Course)
  - Shell Reliability Cented Maintenance - Shell Open University (Import Course)
  - Successful Supervisory Management Skills
  - Financial Engineering – GEF-KAM
  - Energy Efficiency in Projects – GEF-KAM
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- Jomo Kenyatta University of Agriculture and Technology - 1996  
**BSc. (Hons) Electrical and Electronics Engineering – 2<sup>nd</sup> Class Upper Division**
  - Kenya Certificate of Secondary Education - 1990  
**Grade B- (minus)**

REFEREES
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