

A High Performance HMI – Better Graphics for Operations Effectiveness

Bill Hollifield^{1*}

¹PAS, 16055 Space Center Blvd., Suite 600, Houston, Texas, USA, 77062
(*correspondence: bhollifield@pas.com)

Almost all industrial processes are controlled by operators using dozens of graphic screens. The graphic designs are typically little more than P&IDs covered in hundreds of numbers. This traditional, “low performance” Human Machine Interface (HMI) paradigm is typical in all processes controlled by DCS and SCADA systems, including the water and wastewater sector. It has been shown to be lacking in both providing operator situation awareness and in facilitating proper response to upsets. In many industries, poor HMIs have contributed to major accidents, including fatalities.

HMI improvement has become a hot topic. The knowledge and control capabilities now exist for creating High Performance HMIs. These provide for much improved situation awareness, improved surveillance and control, easier training, and verifiable cost savings.

This talk will cover:

- HMI Past and Present
- Common but Poor HMI Practices
- Justification for HMI Improvement – What Can You Gain?
- High Performance HMI Principles and Examples
- Depicting Information Rather Than Raw Data
- The Power of Analog
- Proper and Improper Use of Color
- Depicting Alarm Conditions
- Trend Deficiencies and Improvements
- Display Hierarchy and the Big Picture
- The High Performance HMI Development Work Process
- Obstacles and Resistance to Improvement
- Cost-effective Ways to Make a Major Difference

Implementation of proper graphic principles can greatly enhance operator effectiveness. A High Performance HMI is both practical and achievable.

About the Speaker:



Bill Hollifield is the Principal Consultant at PAS who responsible is for all the company’s involvement Alarm Management and High Performance HMIs, which includes consulting, work processes, products, system design, human factors research, and software development. He is a member of the ISA-18 Alarm Management committee, the ISA-101 HMI committee, the API-1167 Alarm Management committee, and is a co-author of the Electric Power Research Institute’s (EPRI) Alarm Management Guidelines. Bill is also co-author of The High Performance HMI Handbook and the Alarm Management Handbook. Bill has international, multi-company experience in all aspects of Alarm Management and effective HMI design. He also has over 25 years of chemical industry experience with focus in project management, chemical production, and control systems. Bill holds a Bachelor’s Degree in Mechanical Engineering from Louisiana Tech University and an MBA from the University of Houston. He’s a pilot, and builds furniture (and the occasional log home in the Ozarks) as a hobby.