Al Havens

Al Havens brings more than 40 years of electrical safety experience to the classroom, 26 as Senior Electrical Engineer for U.S. Gypsum. He has extensive experience in industrial plant and underground mine power distribution upgrades and is expert in the design and commission of high resistance ground, switchgear battery and automatic power factor systems.

Al served as head of the USG Energy Monitoring Task Force and established their NFPA 70E compliance and training programs. He has presented eight papers at the IEEE Electrical Safety Conference and the InterNational Electrical Testing Association (NETA) Conferences on electrical equipment and high resistance grounding, and worked extensively on compliance issues with the Mine Safety and Health Administration (MSHA).

Accomplishments

- Prepared course materials and taught Electrical Safety workshops, focusing on NFPA 70E compliance, training over 600 company employees
- Taught Electrical Grounding workshops, training over 100 company employees
- Directed USG's activities in adopting compliance to National Fire Protection Association's (NFPA) 70E® standards
- Supervised the preparation of more than 50 short circuit and coordination studies.
- Supervised the preparation of five arc flash studies
- Functioned as USG's chief electrical engineer for 12 years
- Developed, designed, and commissioned USG's standard for high resistance ground systems
- Developed, designed, and commissioned USG's standard for switchgear battery systems including a battery voltage monitor
- Supervised the designing and commissioning over five automatic power factor systems, varying in size from 1000 kVAR to 7500 kVAR
- Wrote and revised over 1000 general and specific electrical equipment and construction specifications
- More than 1000 estimates for electrical design work
- More than 100 electrical equipment, materials, and labor estimates for capital projects
- Prepared over 1000 scopes of work and estimates for electrical capital projects
- Initiated and chaired the USG Energy Monitoring Task Force Supervised the design and commissioning of five underground mine electrical power distribution system upgrades at USG's Oakfield, Sperry, Plasterco, Shoals, and Hagersville mines
- Presented a paper on electrical equipment grounding at the IEEE Electrical Safety Conference in Houston, 2004
- Presented a paper on high resistance grounding at the InterNational Electrical Testing Association's (NETA) Electrical Testing Conference in New Orleans, 2005
- Prepared and participated in electrical audits for compliance with Mine Safety and Health Agency (MSHA) Regulations in USG's 15 mines and quarries
- Prepared and participated in electrical audits for compliance with the NFPA National Electrical Code
- Prepared and participated in electrical grounding system audits for USG's industrial plants, mines, and quarries
- Prepared and participated in electrical safety audits for USG's industrial plants

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- Supervised five degreed engineers, three of them registered professional engineers, at the time of my retirement
- Designed and commissioned
    - A 161 kV, 10 mVA substation, including circuit switcher, transformer, and switchgear
    - Three 69 kV, two 6 mVA and a 10 mVA substations, including transformers and switchgear.
    - One 34.5 kV distribution system
    - Three 13, kV distribution systems
    - Two 5 kV distribution systems.
    - Over 100 480 vac unit substations, varying in size from 500 kVA to 2500 kVA
    - Over 10 medium voltage industrial distribution systems
    - A 6000 kVA electrical arc furnace power distribution system
- Developed and built an impedance meter
- Implemented USG's plant energy monitoring system standard, commissioning the first standard system in USG's Galena Park, TX, plant, January, 2005
- Designed and commissioned eight prototype electrical energy monitoring systems.
- Developed, designed, and commissioned nine paper mill and production line drive motor and control systems
- Upgraded over 15 industrial plant power distribution systems
- Specified and commissioned over 100 medium voltage starters and motors, the largest motor being a 1500 Hp.
- Implemented using Schweitzer's 701 motor control relay as USG's standard for critical motors
- Supported plant personnel during electrical emergencies
    - Norfolk, VA, plant replacing failed and destroyed 3000 amp, 480 vac switchgear
    - Baltimore, MD, plant replacing failed and destroyed 6000 kVA transformer
    - Rainer, OR, plant replacing failed and destroyed 1500 Hp medium voltage starter
    - Aubange, Belgium, plant replacing failing drive system.
    - Mansville, TX, plant resolving production line control systems
- Supervised the design and commissioning of a co-generation project for the USG Oakfield plant
- Commissioned line drives for a wallboard plant in Thailand

Awards/Recognition/Memberships

- Over 10 letters of recognition from various USG plant managers and engineering personnel
- IEEE Member
- US Navy Submarine veteran March, 1963 to January, 1969; Electronic Technician Rating
- Training received while in the Navy:
    - Military boot camp, March 1963 – August, 1963
    - Basic electrical, September, 1963 – April, 1964
    - Submarine training, May, 1964 to August, 1964
    - Inertial platform equipment training, September, 1964 – April, 1965
    - Electrical countermeasures training, January, 1967 – March, 1967
    - Various other trainings for military service lasting five days or less.

Related Experience

- Prepared USG's electrical safety program compliant with NFPA's 70E Standard
- 26 years in USG's Capital Development Department
- IEEE paper reviewer

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Education

Electrical training, US Navy

Completed six years of undergraduate work:

September, 1961 -January, 1963, Moody Bible Institute, Technology

January, 1969 – June 1971, Fort Wayne Bible College, Christian Education and Missions

July 1971 – June, 1972, Moody Bible Institute, Technology

September, 1972 – April, 1973, University of Illinois, Chicago Campus, Communications

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