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Quality and Safety, always a beginning! (1)

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ELECTRICAL SAFETY MANAGEMENT SYSTEM FOR DESIGN, DEVELOPMENT AND OPERATIONS OF SATELLITE SYSTEMS

Abstract

Electrical Safety is one of the most critical safety areas which get less consideration during design, development and operational phases of Satellite Systems as compared to other technical areas. The focus of space professionals during these phases is to achieve project timelines and to meet functional performance. The area which is often neglected is the safety of workers from potential Electric hazards; Shock, Arc Flash and Arc Blast. Any incident during any critical phase of Satellite System can lead to project failure, equipment damage, timeline lapses and most important human injury or fatality. The above stated problem statement demands that there must be a comprehensively planned Electrical Safety Management System in addition to normal safety procedures to deal with this major challenge with special consideration. The aim of our research is to propose a risk management approach based- "Electrical Safety Management System" which can help to mitigate or minimize risk of Shock and Arc Flash Hazard during design, development and operations phases of Satellite System. The key aspects of the system will be; establishing an Electrical Safety Program requirements, hazard identification and risk assessment, controls and measures to establish electrically safe work condition, qualification and criteria to work on energized equipment (if necessary), safety related maintenance requirements and special equipment consideration. The system will also focus on appropriate reduction of incident energy followed by PPEs selection for electrical jobs performing Shock and Arc flash analysis. The guideline standards of this research are National Fire Protection Association (NFPA) USA "Standard for electrical safety NFPA 70-E" and "IEEE-1584 Arc Flash Analysis". We will develop a guideline system (software and documents) based on these standards deploying which, satellite professionals involved in each stage can identify the potential electrical hazards involved in their work, apply the necessary controls and derive the critical conclusion through Analyses.