



## **Hospital High Voltage Electrical Distribution, Operational and Management Procedures.**

### ***An Overview (By Eugene Conroy, Eta Projects Ltd)***

Under NHS guidelines, all Electrical Distribution Systems should be operated and maintained under Health Technical Memorandums (HTM's.). These guidelines are not implemented in all hospitals. Therefore, should an incident occur, management could face prosecution under Health and Safety Regulations.

The Estates Management of the Hammersmith Hospital's NHS Trust operate and maintain their High Voltage Systems using HTM2021. In addition, they have implemented a long- term strategy to upgrade their electrical distribution systems including management and operating procedures. This article is intended to provide an overview of the trust Management Policy and their approach to the requirements of the Health Technical Memorandum Escode 2021.

### **HTM Escodes**

NHS Estates have compiled comprehensive guides on the management and implementation of mechanical and electrical services in the Health Sector.

Under NHS guidelines, Electrical Distribution Systems should be operated and maintained under the Health Technical Memorandums (HTM's). These memorandums are as follows: -

- \* HTM 2021 (High Voltage Systems)
- \* HTM 2020 (Low Voltage Systems)
- \* HTM2011 (Emergency Electrical Services)

This article refers specifically to HTM 2021(High Voltage).

### **HTM Escode 2021**

Health Technical Memorandum (HTM 2021) comprise a detailed set of documentation that define the procedures to be adopted when operating and managing the High Voltage Electrical Distribution System within NHS Hospitals. They include all the necessary permits and safety documentation to enable safe working. HTM2021 comprises several publications as follows: -

- Management Policy
- Operation Management
- Safety Programme
- HV. Safety Rule book
- Permit to Work
- Log Book
- Sanction to Test
- Limitation of Access

HTM 2021 also states that NHS Hospitals should formally appoint in writing a external person to provide the role as "Authorising Engineer".

## **Authorising Engineer**

It is a requirement under HTM 2021 that the hospital should formally appoint an external person remote from management to provide the role as “Authorising Engineer”

A chartered engineer from Eta Projects is appointed as the hospital external “Authorising Engineer”. The specific brief, to ensure the Hospital maintains full compliance with HTM2021 (Escode HV).

The Authorising Engineer carried out a detailed review of the High Voltage system. In addition, each of the individual Estates engineers were assessed as to their suitability to perform the role as “Authorised Persons”.

## **Authorised Persons**

No work should be carried out on a High Voltage System by any person unless they are suitably trained and Authorised to work on that system. Management are obliged to make the formal appointment.

In addition, one person should be appointed to take responsibility for the high voltage systems and this person is nominated “Designated Person”

HTM 2021, gives clear guidance as to the specific requirements to be formally appointed as an “Authorised Person”, and the procedures for each stage of the appointment process.

The general requirements are as follows: -

- Have undertaken a HV training course at a recognised body.
- Have undertaken a First Aid resuscitation course.
- Be familiar with the local HV network.

The estates engineers of the Hammersmith Hospital NHS Trust have all undertaken the primary HV training course on HV Switching and subsequent refresher courses every three years. These courses were generally at the WTI Training School in York. In addition, they underwent a Resuscitation Course organised by the Estates Department.

However, this Training is only considered as the basis for consideration for the role as an “Authorised Person”. Each engineer then undertook an individual assessment paper and interview by the Authorising Engineer. This assessment was prepared to cover each element of HTM 2021 and extended to the local network.

When the selection Criteria was achieved, each engineer was formally appointed in writing to act as an “Authorised Person”. This appointment is limited to perform HV switching only on behalf of and at one of the Trusts sites. These appointments were made, using the templates specified in HTM2021. Three-year certificates are issued to each engineer on successfully achieving the selection criteria.

The following hospitals have also utilised the services of Eta Projects to implement the formal procedures of HTM2021, Royal Free, Guy’s, Whittington, Broadmoor, The Royal National Orthopaedic Hospital, Guy’s and St Thomas Trust.

## Management of the HV System

To improve the Management tools for the HV System and to facilitate the role as “Authorisation Engineer” Eta Projects have developed an Access database as an auditing tool to inspect hospitals for compliance with HTM2021. This database has proved invaluable in monitoring the management procedures in NHS Hospitals.

The database also contains the details of each sub-station, its assets and records any HAZARD NOTICES that may be present on any individual item of equipment.

## Hazard Notices

Hazard Notices are safety notices issued by the central office of NHS Estates. They are also referred to in industry as: -

- Suspension of Operational Practice
- Operational Restriction

NHS Estates have recently issued clear Guidance on the procedures to be implemented following any incident that relates to High Voltage Equipment. It is a requirement for each NHS hospital to notify the NHS estates of any incident that occurs on their HV equipment. This enables them to issue a "Hazard notice to NHS Hospitals advising them of the potential risk.

The defects are notified using a Defects and Failure Report Form which can be obtained from NHS Estates, Leeds on 0113 254 7246.

The system of defect and incident reporting is generally managed countrywide by Energy Networks (ENA) and is known as the National Equipment Defect Report Scheme (NEDERS). The ENA has developed a WEB Based database of equipment, which records and notifies users of plant failures via email. This is a user group and annual membership is required to gain access to the database. The system contains photographs, diagrams, associated documentation and contact numbers for the majority of plant items registered in the application.

The details are as follows: -

DIN Dangerous Incident. A dangerous incident is one where the incident resulted or could have resulted in a fatality or serious injury with an item of plant.

SOP Suspension of Operational Practice. A notification of a suspension /change in some operational practice or procedure with an item of plant.

NEDER National Equipment Defect Report. A notification of a design defect with an item of plant.

Further details of the ENA system of monitoring Defects on High Voltage Systems can be found by contacting: -

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## **Summary & Recommendations**

All NHS Hospitals should operate and maintain their High Voltage Systems in accordance with HTM2021. The writer also recommends that in addition, the writer is of the opinion that all owners of High Voltage Systems should adopt the HTM guidelines as they cover all aspects of both management and implementation. This ensures everyone involved with High Voltage systems understands the responsibility and roles of both employer and users of the HV Systems.

As a minimum, the following should be implemented on High Voltage Systems, if there are not in place already.

- Implement HTM2021
- Appoint Authorising Engineer
- Review HV Distribution System
- Appoint “Authorised Persons”
- Appoint “Designated Person”
- Register with ENA for access to their database.