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The role of an Authorising Engineer (Low Voltage): An Overview

1. Introduction

This paper provides background to the role of the Authorising Engineer (Low Voltage), and a summary of how NHS Wales Shared Services Partnership – Specialist Estate Services (NWSSP-SES) would implement the role in practice.

Due to the complex nature and size of the low voltage electrical infrastructure in the NHS Estate in Wales, NWSSP-SES would not be able to provide the full duties of the AE (LV) role as defined in WHTM 06-02 and propose to limit our service to the main hospital sites and associated electrical infrastructure and as detailed below.

2. Background

WHTM 00 introduced the role and scope of Authorising Engineer (AE), as an independent professional to cover engineering governance (compliance with statutory and legislative requirements, safe working practices, monitoring of engineering activities etc).

Currently the following AE roles are undertaken by NWSSP-SES, AE High Voltage, AE Medical Gases, AE Water, AE Decontamination and AE Ventilation.

Low voltage Systems is a specialist AE Role not currently undertaken by NWSSP-SES, with the exception of Powys where we provide the role due to its limited resource base and number of sites. WHTM 06-02 provides electrical safety guidance for low voltage systems and details the role and duties of the Authorising Engineer whom will be responsible for implementing, administrating and monitoring the application of this guidance.

In addition electrical services are becoming more complex with the requirements of BS7671 Requirements for Electrical Installations (Section 710 Medical Locations) in all clinical areas and MEIGaN in diagnostic imaging and radiotherapy suites.

NWSSP-SES currently provides adhoc guidance and advice to the Health Boards on low voltage systems. This has included in the past, advice and reporting on electrical outages and incidents, interpretation of electrical periodic testing requirements and the practical application of WHTMs through general design guidance to the project teams.

Recent contact with Health Board and Trust estate management has also highlighted concerns and a lack of specialist knowledge with regard to low voltage services and its associated statutory compliance.

3. Core Authorising Engineering Duties

Specific AE duties applicable to the low voltage role are defined in WHTM 06-02; however there are common overarching duties that are applicable to all AE roles as outlined in WHTM 00 which are listed below:-

- The AE will act as an independent professional advisor to a healthcare organisation.
- The AE will provide to the Designated Person of a healthcare organisation an annual audit of systems and installations, and monitor the performance of the service.

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- The AE will be required to sanction any deviation or amendments to issued WHTM guidance.
- The AE will assess the suitability and recommend the appointment of authorised persons and review these appointments and suitability of the appointed authorised persons, to the requirements and timescales indicated by the relevant WHTM.

4. Specific Authorising Engineering Low Voltage Duties

Due to the complex nature and size of the low voltage electrical infrastructure in the NHS estate in Wales, NWSSP-SES would not be able to fully comply with all duties of the AE (LV) role as defined in WHTM 06-02.

It is therefore proposed that AE (LV) will undertake the core duties listed in section 3 above and specific duties listed in WHTM 06-02 section 4.7-4.13 (see appendix A) with the following caveats:

- The AE would carry out incident investigations of reported injuries and dangerous occurrences for **main** LV 400V distribution systems only **excluding** 230V and extra low voltage final circuit and associated equipment failures which would be the duties of the AP.
- The AE would not be able to provide written authority to the AP before every live working event taking place.
- The AE would undertake separate audits for the main hospital sites only and **exclude** separate audits for the smaller community and primary care sites.
- We do not see the AE role getting involved with the day to day training and direct auditing of the Competent Persons (CPs) which we would envisage to be carried out by the APs. The AE would support the AP in his auditing role.

5. Authorising Engineer (LV): Delivery in Practice

NWSSP-SES would initially assess what current procedures are in place for the safe management of the LV systems, from which an action plan could be formulated prioritising the key points to be actioned. This would typically cover the following:

- Operational and management policies – are these in place, if not, provide draft policies which the Health Board can adjust to suit their needs.
- Determine current provision of APs (if any) and provide recommendations on suitable provision.
- Assess existing and proposed APs for their competency, including training, experience and site knowledge. This will be a gradual process working with the APs and management team providing individual development plans.
- Authorise APs, and provide ongoing mentoring support once appointed. Due to the nature of this role in NWSSP-SES, there would be frequent contact with the APs over the course of the year.
- Ensure safe systems of work are implemented in accordance with WHTM 06-02 (permits, limitations of access etc), and provide support in this process if not already implemented. We would envisage a phased introduction of these across the individual sites ensuring the local estates team buy into the process.
- Carry out audits to see how the safe systems of work are working in practice and provide advice on how they can be improved. A written annual report will be issued to the Designated Person summarising the findings for the year. In addition every three years a detailed site audit will be carried out.

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- Provide support and scrutiny of any major LV infrastructure proposals being undertaken either via the discretionary capital route or via the Design for Life frameworks.
- Finally the AE would carry out any major incident investigations on the LV infrastructure that may occur and produce associated reports highlighting their findings and recommendations.

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Appendix A: Extract from WHTM 06-02 Electrical safety guidance for low voltage systems

“Role and duties of the Authorising Engineer (LV)

4.7 The Authorising Engineer (LV) will be responsible for implementing, administering and monitoring the application of this guidance. The Authorising Engineer (LV)'s roles include the following:

- a. assess and recommend in writing sufficient Authorised Persons (LV) to provide the necessary cover for all systems and installations for which management has responsibility;
- b. define the exact extent of the systems and installations for which each Authorised Person (LV) is responsible and, where appropriate, any part of the system which is excluded from the Authorised Person (LV)'s responsibilities;
- c. if necessary, recommend the suspension or cancellation of the appointment of an Authorised Person (LV) and withdraw the certificate;
- d. maintain a register of all Authorised Persons (LV);
- e. ensure that candidates for appointment as Authorised Persons (LV):
 - (i) satisfy the qualification requirements;
 - (ii) satisfy the training and familiarisation requirements;
 - (iii) can demonstrate adequate knowledge of each system, installation and type of equipment for which authorisation is sought;
 - (iv) have satisfied the Authorising Engineer (LV) as to their competence and ability.

4.8 The Authorising Engineer (LV) also:

- issues to each Authorised Person (LV), on appointment, a certificate valid for a period not exceeding three years;
- reports to the management any deficiency in the number of suitably trained and experienced Authorised Persons (LV) where this significantly impairs management's ability to provide a safe and efficient service;
- reviews each Authorised Person (LV)'s operational experience at intervals of not more than three years by examining the relevant operating records of the system(s), and recommends refresher training as necessary;
- on receipt of an “operational restriction” related to low voltage systems and/or equipment, ensures that all Authorised Persons (LV) are made aware of it and receive copies;
- notifies the Department of Health of any known operational restriction issued by a distribution network operator or equipment manufacturer etc, or one which arises locally;
- initiates and coordinates the investigations of reported injuries and dangerous occurrences involving electrical systems and installations within the Authorising Engineer (LV)'s sphere of responsibility.

4.9 They should:

- sanction any interpretation of this guidance, any local house rules and any deviation that may be necessary for their application;
- ensure that any amendments to this guidance are brought formally to the attention of, and are understood by, all appropriate personnel;
- notify the management of any known defect reports or operational restrictions issued by a distribution network operator, manufacturer or supplier of electrical equipment which is

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applicable to equipment within the areas for which the Authorising Engineer (LV) is responsible;

- *ensure that a system is in place to circulate relevant information on operating restrictions and dangerous occurrences to all Authorised Persons (LV);*
- *investigate all dangerous occurrences involving electrical equipment, systems and installations for which the Authorising Engineer (LV) is responsible;*
- *where live working is considered appropriate, and a certificate of authorisation for live working is being considered, give written authority to an Authorised Person (LV) before the live working takes place;*
- *agree in writing any local deviation from this guidance that may be necessary for their application to a particular item of equipment or location;*
- *ensure that any amendments to this guidance are brought to the attention of, and understood by, all Authorised Persons (LV).*

4.10 *At random intervals not exceeding 12 months, the Authorising Engineer (LV) is to review the operational experience of all Authorised Persons (LV). These reviews should pay particular attention to operating records and the issue and cancellation of permits. He/she should formally advise on any training or retraining considered necessary, including when it should be received. These reviews should include a meeting with the Authorised Person (LV) and a brief review of the systems or installations to which their appointment refers.*

4.11 *At intervals not exceeding three years, the Authorising Engineer (LV) is to undertake comprehensive audits of the safe systems of work and safety procedures required by this guidance. Separate audits are to be carried out for each site or geographical area to which the Authorising Engineer (LV) has been appointed.*

4.12 *A written report of the audit is to be compiled, listing satisfactory items seen and any deficiencies found, and recommendations made. This is to be issued to an Authorised Person (LV) for action as necessary. A copy of the report with a summary of the findings is to be issued to the Designated Person.*

4.13 *The Designated Person is to acknowledge receipt of the audit report, make any comments considered necessary and compile an action plan in consultation with the Authorising Engineer (LV). The Authorising Engineer (LV) should review the progress on the action plan at the next audit.”*