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National Grid
Commissioning
Handbook
Procedure

Substation Control Systems – Stages in
Transfer of Control and Testing
Requirements

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2	P.D.Clarke	K Harker	Changes to Presentation	1 May 1998
3	B. P. Clayton	K Harker	Changes to structure and content	November 1998

1. Introduction

This document details the generic commissioning tests required to bring a new, changed or extended SCS into service.

The document specifies the generic staging and transfer arrangements when establishing control of a substation through an SCS to the NGCC.

It is important to consider each element of the commissioning process as part of a total strategy. It is not desirable to repeat large elements of testing which may have been carried out previously. The integrated test sequence should be detailed in an agreed validation plan. It is the responsibility of the Commissioning Panel to analyse the content of this handbook to assess if it is required to deviate in any part. **Where variation from this document is required, notification must be made to the Substation Manager to allow the process to be continually reviewed.**

2. Scope

2.1 The following generic commissioning on a new, changed or extended SCS is considered.

- a) SCS Factory Acceptance Tests
- b) SCS Site Acceptance Tests
- c) Circuit commissioning Tests

2.2 The following staging and transfer arrangements are considered for a new SCS:

- a) Replacement of a manned (direct wire control board) site with an SCS controlled from the NGCC.
 - (i) Phased over a period greater than an outage season.
 - (ii) Phased over a period less than an outage season.
- b) Transfer control of a METRO telecommand site from ROP to NGCC.
 - (i) Phased over a period greater than an outage season.
 - (ii) Phased over a period less than an outage season.
- c) Transfer from a telecommand METRO at NGCC to an SCS.
 - (i) Phased over a period greater than an outage season.
 - (ii) Phased over a period less than an outage season.

3. Procedure

The procedure for each category of activity described in the scope, is specified in each section respectively.

Remote Operation Project: Overall testing Philosophy, Issue 1 7 August 1997.
TP106 Commissioning and Decommissioning.

5.1 Factory Acceptance Test (FAT)

Specific consideration should be given to the level of NGC attendance at the FAT. The Commissioning Panel should consider the level of experience and success with the supplier when deciding a level of attendance.

Where NGC only attend a limited amount of the FAT, specific note is to be made of:-

- a) GI74 interface and its integrity using a Microvax and must include:-
 - i) Use of the counters on the Dynamic Data Display.
 - ii) GI74 routing (Type 1 or Type 2) as appropriate to all ports. Where the SCS is Type 2, testing to ensure all blocks of the paired station can be scanned. (NB only Type 1 specified in NGTS 2.7 Iss3).
- b) A note of the revision of the database, appropriate issue numbers of source data and any appropriate test documents must be recorded. This will usually be detailed on a FAT Certificate.

Where the FAT is to prove changes or extensions, consideration must be made to the impact on the original part of the site database, specifically to identify all likely areas on the system where changes may impact. A strategy to test not only the new or changed part of the SCS, but the remaining SCS must be assessed. Care should be taken to ensure any hardware used to test the changes accurately reflect the operational system.

On completion of the FAT the supplier will present NGC with a complete record of results. These must be accepted prior to release of the database/system from the factory.