SA Water

SOUTH AUSTRALIAN WATER CORPORATION

TS 76

TECHNICAL STANDARD

TRANSFORMERS FOR CATHODIC PROTECTION RECTIFIERS

Issued by: Manager Engineering

Issue Date: 10 January 2007

Government of South Australia

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APPROVAL TO DEVIATE FROM THIS STANDARD

Approval may be granted by the Asset Owner to deviate from the requirements as stipulated in this Standard if the functional requirements (e.g. Asset Life) for the asset differs from those stated in the Standard, but is assessed as still being acceptable by the Asset Owner's nominated representative.

Any approval to deviate from the stated requirements of this Standard will not be seen as creating a precedent for future like project. Any request to deviate from this Standard must be carried out on a project by project basis where each alternate proposal will be individually assessed on its own merit.

NO CHANGES REQUIRED IN THE JANUARY 2007 EDITION

The following lists the major changes to the February 2004 edition and published in the January 2005 edition of TS 76:

1. Reformatted from DS to TS (Departmental Standard to Technical Standard), and updated referenced Australian Standards.
2. Conversion to a technical standard by removal of contractual conditions (to be included in the contract that references this specification).

CONTENTS

REFERENCED DOCUMENTS

AS/NZS 3108: Approval and test specification - Particular requirements for isolating transformers and safety isolating transformers

Drawing 81 658: SA Water Drawing – Mounting Bracket Standard Drawing

SECTION 1: SCOPE

This Technical Standard is for the supply and delivery of a set of Transformers for cathodic protection rectifiers. The Transformers shall be in accordance with this Technical Standard, Drawing 81 658 shown in Appendix A -Mounting Bracket Standard Drawing, and any documents attached to and intended to form part of the Specification.

SECTION 2: SA WATER'S REPRESENTATIVE

SA Water's Representative in this Technical Standard shall be the Officer delegated below to supervise the Contract and all work shall be to his approval.

Cathodic Protection Engineer
United Water International
180 Greenhill Road
Parkside SA 5063
Telephone: 8301 2743
Facsimile: 8357 9728

SECTION 3: INSPECTION OFFICER

SA Water's Representative may at any time delegate an Officer(s) to inspect work to be done, or materials to be supplied, to ensure that they are in accordance with this Technical Standard.

SECTION 4: GENERAL DESCRIPTION OF TRANSFORMERS

The Transformer System shall consist of two separate items:

Item 'A' shall be a 240 volt single phase tapped auto-transformer.
Item 'B' shall be a double wound transformer.

The Transformer System shall be suitable for use with a full wave silicon rectifier for cathodic protection. Smoothing will be provided after rectification.

The Transformers shall be in accordance with AS/NZS 3108. The Transformer System shall be designed for a 230 volt a.c. 50 Hz supply and shall be in accordance with The Service & Installation Rules of ETSA Utilities.

SECTION 5: DETAILS OF TRANSFORMERS

5.1 PROVISION OF TAPS

Twelve taps shall be provided on Item 'A'. The taps shall be such that with the primary of Item 'B' connected to Item 'A', the r.m.s. voltage at the secondary of Item 'B' when supplying full load current (56A r.m.s) shall be as follows:

4.6, 6.8, 9.1, 12.4, 18.0, 23.6, 29.1, 34.7, 40.2, 45.8, 51.3 & 56.9 volts r.m.s.

These values correspond to the twelve tap positions (including the full input voltage position). The Transformer System shall be suitable for providing the full load continuous output current of 50 amps d.c. at the output of the rectifier for each of the tap positions and the full input voltage position.

The Transformer System shall be suitable for cyclic switching on at full load for 11 seconds and off for 5 seconds for a duration of one hour and shall also be suitable for on-load tap changing.

5.2 REGULATION

The regulation of the transformer system shall not exceed 5 per cent.

5.3 TEMPERATURE

The Transformer System shall be suitable for continuous operation in a temperature range of 0° to 65°C.

5.4 DIMENSIONS AND NAMEPLATE

The maximum dimensions of the Transformers (including terminal blocks) shall not exceed the following:

Item 'A' - 160 mm high, 165 mm wide, 145 mm deep.
Item 'B' - 250 mm high, 235 mm wide, 195 mm deep.

The base plate of each Transformer shall have four 8 mm diameter mounting holes spaced to suit the mounting holes marked 'A' and 'B' respectively on Drawing No. 81 658 for the transformer mounting bracket. The terminal blocks shall be at the top of the Transformers.

A nameplate shall be provided containing the manufacturer's name, the Transformer serial number and the type number (if any). All tappings shall be clearly designated.

SECTION 6: INFORMATION TO BE SUPPLIED TO SA WATER'S REPRESENTATIVE

The following information shall be submitted SA Water's Representative upon request:

(a) Auto-transformer rated voltage and current.

(b) Auto-transformer tap voltage at rated input.

(c) Double-wound Transformer rated primary and secondary voltages and currents.

(d) R.M.S. output voltage of the Double-wound Transformer at full current for each of the tap positions and the full voltage position.

(e) Double-wound Transformer turns ratio.

(f) Regulation of Transformer System.

(g) Temperature range for continuous operation.

(h) Recommended input fuse type and size.

(i) Maximum dimensions (including terminal blocks) for the Auto-transformer and the Double-wound Transformer.

SECTION 7: INSPECTION

The Transformers shall be inspected and if complying passed by SA Water's Representative after delivery.

SECTION 8: DELIVERY

The Transformers shall be delivered to:

CATHODIC PROTECTION GROUP
UNITED WATER INTERNATIONAL P/L
1100 Grand Junction Road
Hope Valley 5090

or any other address as advised.

Containers shall be clearly marked Technical Standard, TS 76.

The Supplier shall be responsible for any damage to the Transformers up to and including the delivery point.

SECTION 9: GUARANTEE

The Supplier shall submit a written guarantee, including the guarantee period, to SA Water's Representative. This period shall start from the date of purchase of the Transformers.

SECTION 10: ACCEPTANCE

The Transformers will be accepted when SA Water's Representative has certified that the Transformers have been delivered and are satisfactory.

APPENDIX A: MOUNTING BRACKET STANDARD DRAWING