TECHNICAL REPORT

ISO/TR 15155-2

Agricultural irrigation equipment — Test facilities for agricultural irrigation equipment —

Part 2:
Test facility operating manual

Matériel agricole d'irrigation — Installations d'essais pour le matériel agricole d'irrigation —

Partie 2: Mode d'emploi des installations d'essais

iTeh STANDARD PREVIEW
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Contents

Page

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In exceptional circumstances, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide by a simple majority vote of its participating members to publish a Technical Report. A Technical Report is entirely informative in nature and does not have to be reviewed until the data it provides are considered to be no longer valid or useful.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/TR 15155-2 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 18, *Irrigation and drainage equipment and systems*.

ISO/TR 15155 consists of the following parts, under the general title *Agricultural irrigation equipment — Test facilities for agricultural irrigation equipment*:

— *Part 1: Test facilities for agricultural irrigation equipment*

— *Part 2: Test facility operating manual*

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Agricultural irrigation equipment — Test facilities for agricultural irrigation equipment —

Part 2:
Test facility operating manual

1 Scope

This Technical Report is intended to provide guidance on the operation of basic test facilities for irrigation equipment evaluation. Its purpose is to provide information sufficient to implement the detailed procedures included in ISO 7714, ISO 8026, ISO 9261, ISO 9635-1 to 5, ISO 9644, ISO 9911, ISO 10522 and ISO 15886-3, for the testing of agricultural irrigation system components, specifically emitters, sprinklers and valves. The intent is that the structure of this Technical Report can be modified to be used as the operating manual of a test facility established to test the components referred to in these International Standards.

2 Amendment record

TEST FACILITY OPERATION MANUAL				SECTION: 3 SHEET Number: 1			
TITLE OF SECTION: _____				ISSUE DATE: _____ Authorized by: _____			
AMENDMENT RECORD							
AMENDMENT		DISCARD			INSERT		
No.	Date	Section	Sheet	Issue No.	Section	Sheet	Issue No.

3 Facility description and functions

3.1 General

The facility is intended to be capable of performing the test procedures included in ISO 7714, ISO 8026, ISO 9261, ISO 9635-1 to 5, ISO 9644, ISO 9911, ISO 10522 and ISO 15886-3. (The titles of these International Standards are given in the Bibliography.)

The test bench descriptions needed to complete the test procedures for these International Standards are specified in Annexes F, G, H and I or in the International Standard concerned.

3.2 Test facility name

Along with the test facility name, include the address and contact information.

3.3   Range of testing

The range of testing includes the following:

— measurement of water flow rate through devices;

— measurement of water pressure during testing of devices;

— measurement of differential water pressure during testing of devices;

— determination of water mass;

— measurement of vacuum pressure during testing of devices.

3.4   Organizational structure

The organizational structure should include:

— a Test Facility Manager responsible for the operations of the test facility;

— a Test Facility Engineer and a Technical Assistant to carry out the technical operations.

3.5   Organization structure chart

There should be a chart of job functions and reporting lines.

3.6   Staff

It is suggested that the staff include:

— a Test Facility Manager;

— a Senior Engineer;

— a Test Facility Engineer;

— a Technical Assistant.

4   Test facility operating manual (TFOM)

4.1   Introduction

This manual is produced to provide a central reference for the *(test facility name)* staff on the functions of the test facility.

This manual contains current recommendations for

a)   testing,

b)   staff,

c)   equipment,

d)   day-to-day operations,

e)   safety.

Detailed test procedures can be found in the International Standards identified in Clause 1 of this Technical Report.

The procedures and requirements set out in this manual are suggestions for all staff members.

4.2 Quality policy

The quality policy for the test facility is a high level of adherence to procedures and methods. This in turn will lead to continued and repeatable standards of test facility practices.

The prime objective of all testing carried out is to produce data based either on a performance or on type or assessment tests which enable the supplier of the test samples to be assured with a high level of confidence that the data reflect how the sample actually performed.

To this end, the staff of the test facility is expected to maintain a high level of competence to achieve this quality.

The Test Facility Manager should provide support and backing for projects; this should actively improve the quality of testing procedures and output.

5 Test facility staff

5.1 Staff responsibilities

5.1.1 General

The areas of responsibility are defined as

a) testing,

b) engineering/design, and

c) administration

5.1.2 Testing

Staff involved with testing should be fully conversant with the requirements of the test procedures before commencing testing.

Any enquiries should be directed to the appropriate technical staff before commencing testing.

Checks of validity of test equipment and data acquisition equipment should be carried out before commencing testing. This may require inspection of equipment and test certification, if applicable, and/or calibrating and setting a baseline on data acquisition equipment.

All sampling operations should be carried out in accordance with the appropriate standard (see Annex B), or as required by the client.

5.1.3 Engineering/design

Staff involved in engineering/design activities should ensure that each activity is authorized before commencing the work.

5.1.4 Administration

Staff involved with test facility administration which does not include testing and engineering/design documentation should be directed by the Test Facility Manager's directives.

5.2 Training and development

Introduction training should include the following:

— safety in the workplace;

— fire prevention;

— evacuation procedures.

Staff should be expected to attend and support:

— field days;

— seminars;

— in-house meetings.

5.3 Job descriptions

5.3.1 General

The suggested job descriptions for the positions within the operating unit are as follows.

5.3.2 Test Facility Manager

5.3.2.1 Duties

The Test Facility Manager's duties include the following:

a) provide general management of the commercial operations of the test facility;

b) make and maintain contact with the client base;

c) develop the business of the test facility;

d) plan and coordinate all business activities of the test facility[1];

e) maintain a quality control program for the test facility.

5.3.2.2 Responsibilities

The Test Facility Manager is responsible for the following:

a) operation of facility to meet budgets;

b) overall development of facility;

c) operation of the facility;

d) quality control.

5.3.2.3 Preferred qualifications

The preferred qualifications of a Test Facility Manager are the following:

a) professional engineer or applied science graduate with marketing and management experience, at least 15 years experience, 5 years at senior level;

b) alternatively, the preferred qualifications (for example, university degree, years of experience) specified by the test facility.

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[1] Responsibilities involve developing and executing a business programme which consists of establishing financial and marketing programs.

5.3.3 Test Facility Engineer

5.3.3.1 Duties

The test facilityengineer's duties include the following:

a) carry out standard test procedures;

b) develop new test procedures as required;

c) maintain test facility calibration standards to test facility requirements;

d) develop and maintain test facility quality manuals;

e) develop and maintain test facility reporting documentation;

f) provide technical support for the Test Facility Manager in marketing effort;

g) conduct field trials as needed;

h) develop appropriate software for efficient use of facilities;

5.3.3.2 Responsibilities

The Test Facility Engineer is responsible for the following:

a) technical standards of test facility;

b) efficient organization and conduct of testing work;

c) development of test facility capabilities.

5.3.3.3 Preferred qualifications

The preferred qualifications of a Test Facility Engineer are the following:

a) professional engineer, with good computer literacy, with at least 5 years professional experience, preferably in test/design environment;

b) alternatively, the preferred qualifications (for example, university degree, years of experience) specified by the test facility.

5.3.4 Technical Assistant

5.3.4.1 Duties

The Technical Assistant's duties include the following:

a) carry out standard test procedures;

b) carry out non-standard testing as directed by the test facility engineer.

5.3.4.2 Responsibilities

The Technical Assistant is responsible for maintaining the standard of personal work procedures to meet the test facility requirements.

6 Test facility review and audits

6.1 Test facility audits

The aim of the test facility is to provide accurate and understandable data in the form of test reports.

The test facility audit is a formal examination and verification that the detailed tests procedures as specified are followed. The audit should be carried out by an auditor independent of the test facility activities being audited.

Audits should be carried out routinely on an annual basis prior to the annual test facility reassessment and in addition when organizational changes or reported deficiencies arise.

The audit should include the points stated in the Test Facility Audit Checklist (see Annex E). Generally, audits should be made on representative samples of procedures or methods.

The purpose of auditing is to determine the effectiveness of the overall system of operations during all testing stages. Audit findings (including specific examples of non-compliance or deficiencies), conclusions and recommendations should be documented and submitted for consideration by the Test Facility Manager, Test Facility Engineer and Technical Assistant.

Audit reports should be analysed to identify specific areas which call for further investigation and any amendment or improvement to procedures or operations should be made after notifying the Test Facility Manager. Any clients whose work may have been affected by nonconformities should be notified.

The review and amendment procedures for ISO International Standards are established by the international representative of the ISO committee and should be adhered to.

A report should be made on the results of the annual audit.

6.2 Reviewing the quality system

Reviews should be carried out by competent independent personnel as decided by the Test Facility Manager in consultation with the engineering staff once every 12 months. Reviews should consist of evaluations which include:

— findings of test facility audits;

— effectiveness of the quality management system in achieving stated quality objectives;

— considerations for updating the quality management system in relation to changes brought about by new technologies, market strategies and social or environmental conditions.

6.3 Upgrading the test facility operating manual (TFOM)

Staff who see a need for amendments to the TFOM should advise the Test Facility Engineer. Amendments to the TFOM should be authorized only after consultation with the Test Facility Manager. When new or revised entries are issued:

— insert each new/revised entry in its proper section in the TFOM;

— remove any superseded entries;

— annotate the Amendment Record to indicate completion of the amendment (Annex A);

— retain the superseded entries on file. (Superseded entries are retained for 2 years and then destroyed.)

6.4 Updating documents

All standards and test procedures should be checked at least once every 12 months, and updated as appropriate. If updating is necessary, the TFOM should be amended accordingly.

Each new or revised standard or amendment should be retained on file. Superseded entries should be retained for at least 2 years.

6.5   Standards and procedures

All standards and procedures, including international and research documents should be held in the technical area. They should not be loaned out at any time. The test facility should develop a policy about providing copies. If copies are permitted, they should be marked "unofficial".

7   Equipment

Each piece of equipment should be identified with an inventory code. An equipment inventory should be maintained with all the information about each item (see 6.1). When appropriate, equipment should be labelled with relevant information including inventory code, next calibration and serviceable status.

The equipment inventory should be updated by the technical staff person assigned the responsibility of inventory control whenever test facility equipment is commissioned or decommissioned.

Technical staff should check that calibrations done by an external agency have been well done – if the test facility has the capability to verify the calibration.

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