QUALITY MANUAL

IAEA Testing Laboratory

for

Radiation Measurement, Monitoring and Protection

in the

Radiation Safety and Monitoring Section (RSM)

Division of Radiation, Transport and Waste Safety
Department of Nuclear Safety and Security

International Atomic Energy Agency
Vienna – Austria

	Function	Name	Signature and Date
Authorized	DIR-NSRW	P.-S. Hahn	2013.03.06
Authorized	DIR-SGTS	S. Zykov	2013.02.20
Approved	Technical Manager	M. Pinak	06 March 2013
Registered	Quality Manager	T. Benesch	2013-03-14

CONTENT

	Function	Name	Signature and Date
Checked	Deputy Technical Manager (acting)	J. Ma	2013-02-20
Checked	Individual Monitoring Service Group Leader	R. Cruz-Suarez	2013.03.14
Checked	Operational Radiation Monitoring Service Group Leader	L. Sagi	2013.02.20
Checked	Quality Manager of SGTS	K. Baird	2013-02-20

1 BASIC FUNDAMENTALS

The International Atomic Energy Agency (the IAEA) is authorized by its Statute, mainly under Article III.A.6

(a) to establish or adopt standards of safety for protection of health and minimization of danger to life and property; and

(b) to provide for the application of these standards to its own operations and to operations involving its support, supervision or control.

Regarding the implementation of (integrated) Management Systems the IAEA has issued its own requirements document GS-R-3 “The Management System for Facilities and Activities” and supporting generic guidance in GS-G-3.1 “Application of the Management System for Facilities and Activities”. Both documents, as well as the more specific guidance document GS-G-3.2 “The Management System for Technical Services in Radiation Safety”, are also forming a part of the basis for the Management System described in this Quality Manual as well as the international standard ISO/IEC17025 “General requirements for the competence of testing and calibration laboratories”.

2 LEADERSHIP AND LOCATION OF THE TESTING LABORATORY

To fulfil these requirements, the IAEA is operating a “Radiation Measurement, Monitoring and Protection Testing Laboratory” within the Radiation Safety and Monitoring Section (RSM) of the Division of Radiation, Transport and Waste Safety (NSRW), which has been accredited to the international standard ISO/IEC17025 by the Austrian accreditation authority under the Id. No. 251.

The **RSM Section Head acts as Technical Manager of the Testing Laboratory**. The individual laboratories and offices are partly located at the IAEA’s headquarters at the Vienna International Centre (VIC) and partly at the IAEA Seibersdorf Laboratories on the site of the Austrian Institute of Technology.

The office of the Technical Manager of the testing laboratory is located at the IAEA headquarters. The postal address is:

International Atomic Energy Agency
Radiation Safety Section
Vienna International Centre
P.O.Box 100
1400 Vienna
Austria

Tel.: **(+43 1) 2600 22721(Technical Manager)**
(+43 1) 2600 22720(Secretary)
Fax: **(+43 1) 26007 22721**
E-mail: Official.Mail@iaea.org
Internet: http://www.iaea.org
http://www-ns.iaea.org/

The duty station for workplace monitoring is located at International Atomic Energy Agency, Seibersdorf Laboratories, A-2444 Seibersdorf, Austria.

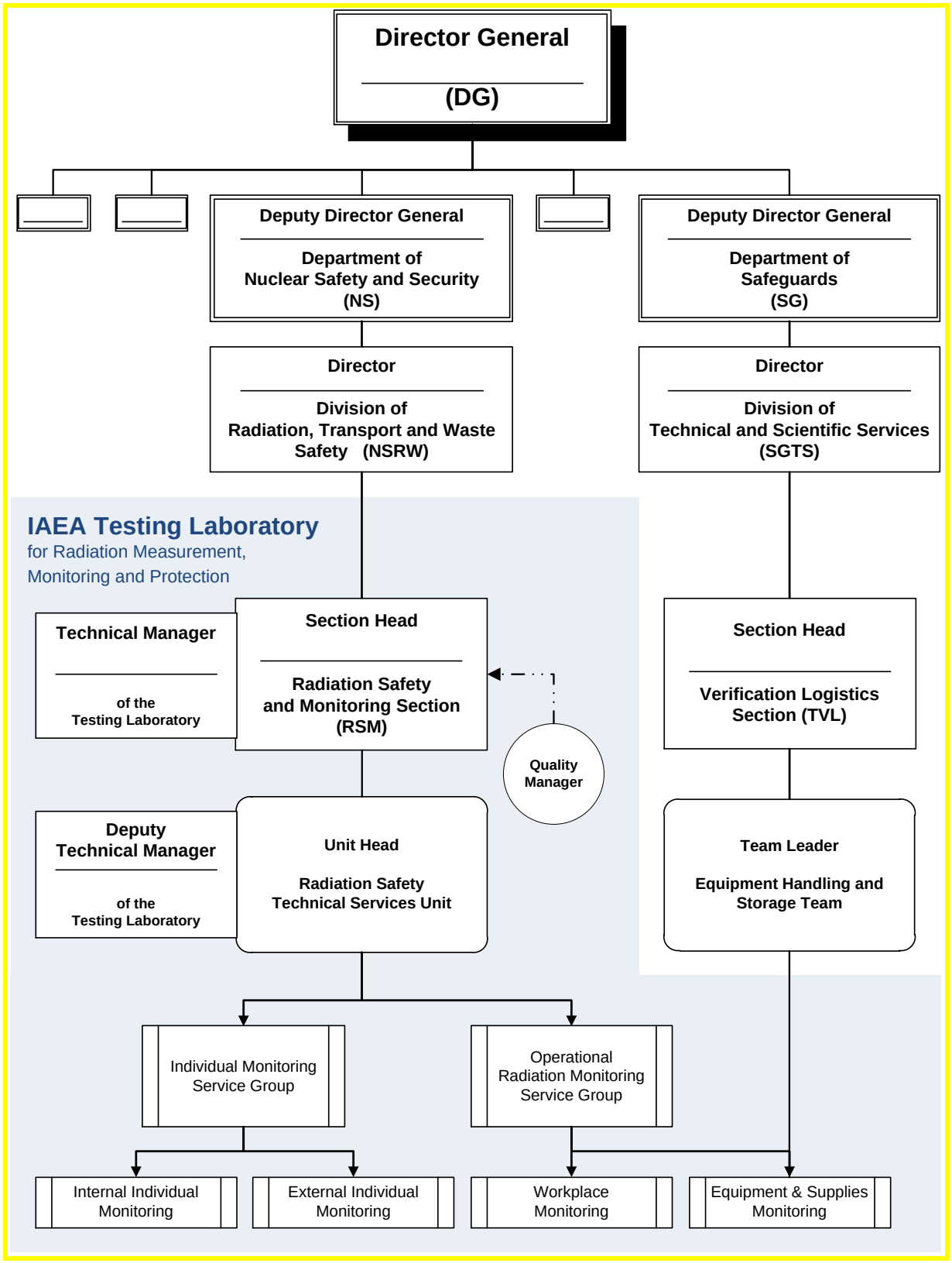
3 ORGANIZATIONAL STRUCTURE

The testing laboratory is embedded into the hierarchical structure of the IAEA. It spans over two Departments – the Department of Nuclear Safety and Security (NS) and the Department of Safeguards (SG).

The testing laboratory is supported by staff and resources of the Division for Radiation, Transport and Waste Safety (NSRW) and the Division of Technical and Scientific Services (SGTS). Both Directors of the Divisions authorize the Quality Manual to demonstrate commitment and support to the testing laboratory.

The **Unit Head of the Radiation Safety Technical Services Unit** acts as **Deputy Technical Manager** and is responsible for the day to day operation of the testing laboratory, which is organized into two Service Groups.

Each Service Group is headed by a Service Group Leader, who, for the activities in the testing laboratory, is under the supervision of the (Deputy) Technical Manager. In case of absence of anyone of the Service Group Leaders, the Deputy Technical Manager shall take over the responsibility for the Service Group, if there has not been any other delegation of authority established and authorized by either the Technical Manager or the Deputy Technical Manager.


Director General
(DG)
Deputy Director General
Department of Nuclear Safety and Security (NS)
Deputy Director General
Department of Safeguards (SG)
Director
Division of Radiation, Transport and Waste Safety (NSRW)
Director
Division of Technical and Scientific Services (SGTS)
IAEA Testing Laboratory
for Radiation Measurement, Monitoring and Protection
Technical Manager
of the Testing Laboratory
Section Head
Radiation Safety and Monitoring Section (RSM)
Quality Manager
Section Head
Verification Logistics Section (TVL)
Deputy Technical Manager
of the Testing Laboratory
Unit Head
Radiation Safety Technical Services Unit
Team Leader
Equipment Handling and Storage Team
Individual Monitoring Service Group
Operational Radiation Monitoring Service Group
Internal Individual Monitoring
External Individual Monitoring
Workplace Monitoring
Equipment & Supplies Monitoring

The Quality Manager of the testing laboratory has direct access to the Technical Manager of the testing laboratory at all times, and has, besides other duties, the responsibility of recommending that a task be stopped or that results not be forwarded to the customer if non-compliance with the quality management rules established in this manual is noticed.

Records of testing laboratory staff are kept up to date by the Division of Personnel, Department of Management, and a listing of corresponding posts is issued on vacancy. The assignments, authorizations and necessary knowledge for individual staff working in the testing laboratory are described for each function within the testing laboratory in the procedure numbered PR-24.

All staff members of the testing laboratory are not only free of undue influence in connection with their work (e.g.: financial or personal pressure), but have the obligation to report any attempt of such occurrence to their supervisors or to the Quality Manager.

4 SCOPE

This quality manual and the additional quality documentation, as described in chapter 7, establish processes for the operation of the testing laboratory. These processes have been developed to fulfil the requirements for protection and safety as laid down in the IAEA's Administrative Manual, Part X, "Radiation Safety Regulations (RSR)".

These procedures are to be applied to assess the occupational exposure of staff members, individuals under contract, experts, trainees, visitors and any other persons who may be exposed to radioactive materials, other sources of ionizing radiation or to the danger of intake of radioactive materials due to activities conducted by the IAEA or under its supervision or control.

The testing laboratory acts as a service provider only for the Directors of Divisions within the IAEA, who have the responsibility to establish radiation protection for their staff irrespective of the source of a possible exposure and have to monitor the efficiency of this protection. The testing laboratory is not operating for any customers, who are not part of or supported through the IAEA.

External, internal, workplace and equipment monitoring services currently offered by the testing laboratory include:

- Assessment of occupational exposure from external radiation sources using Thermo-Luminescent Dosimeters (TLD) consisting of two or four crystal chips to measure β, γ and neutron radiation to the body,
- External Dosimetry for extremities using single chip TLD dosimeters (finger rings) to measure β and γ radiation.
- Direct method for measuring photon emitting radionuclides in the human body by Whole Body Counting (WBC) with semiconductor detectors for activity measurement and intake estimation of radioactive isotopes in the whole body and lungs.
- Indirect method for assessing intakes of alpha, beta or gamma emitting radionuclides through urine analysis (UAL) by α and γ spectrometry and liquid scintillation counting (LSC) for β emitting isotopes.
- Indirect method for assessing intakes of alpha emitting radionuclides in faecal samples by alpha spectrometry.
- Assessment of occupational exposure due to intakes of radionuclides and committed effective dose. Based on measurements of external irradiation and intake, the results of which are combined into an effective dose E and reported to the customer. Where appropriate, only $H_p(10)$ is reported to the customers.
- Assessment of occupational exposure from external radiation sources by Active (Electronic) Personal Dosimeters.
- Workplace monitoring by dose rate measurements for photon emitters with portable detection equipment.
- Workplace monitoring with portable detection instruments for the measurement of surface contamination.
- Workplace monitoring with installed detection instruments for the measurement of air contamination.
- Monitoring of Plutonium content in waste drums with semiconductor detectors in a drum scanner.
- Equipment and supplies monitoring with portable and installed detection instruments for the measurement of surface contamination.

These services are rendered in close cooperation with either the responsible Division Directors or their nominated persons in charge; the Radiation Protection Officers (RPO).

External (TLD and EPD) and internal (UAL, FAL and WBC) individual monitoring methods are performed in a dedicated laboratory in the headquarters building of the IAEA in Vienna.

Workplace monitoring services are delivered to various Divisions at the IAEA Seibersdorf Laboratories, including the Nuclear Materials Laboratory (NML) of the Safeguards Office of Analytical Services (SGAS), all located on the site of the Austrian Institute of Technology, where the NSRW/RSM Operational Radiation Monitoring Service Group maintains a Health Physics Office (at the General Laboratory building) and a Health Physics Control Room (within the NML).

Equipment monitoring services are provided for the Division of Technical and Scientific Services (SGTS) in the Department of Safeguards and are operated in a dedicated measurement laboratory in the headquarters building of the IAEA in Vienna.

5 QUALITY POLICY

The management and the staff of the “Radiation Measurement, Monitoring and Protection Testing Laboratory”, within the Radiation Safety and Monitoring Section (RSM), are fully committed to meeting and exceeding customers' expectations. The testing laboratory also seeks recognition as being efficiently managed within the IAEA. The quality management system has been developed so that it may also serve as a “model” for Member States.

The staff of the testing laboratory believes that quality consists of services provided on time, using good professional practice and in conformance with customer requirements. The service definition shall be done in close cooperation with our customers enabling the testing laboratory to efficiently serve their needs.

The quality management system (QMS) is based on ISO/IEC17025, the internationally recognized standard defining requirements for the competence of testing and calibration laboratories. Its requirements are applied to all monitoring services rendered by the testing laboratory. All staff members of the testing laboratory shall be familiar with the QMS documentation, and their professional actions are expected to be in full compliance with this system. Correspondingly to the

staff, the management is committed to comply with the requirements set out in ISO/IEC17025 and to continually improve the installed QMS.

The management is committed to identify training needs of the testing laboratory staff and to meet these needs within and outside the IAEA, to the extent possible.

Furthermore, the management will ensure the efficient utilization of technological, human and financial resources in order to continuously enhance and optimize the services rendered by the testing laboratory.

6 QUALITY OBJECTIVES

Quality objectives are used by the management and staff of the testing laboratory to guide the continuous improvement of the quality management system. This document only states the generic quality objectives of the testing laboratory:

- to satisfy and if possible exceed our customers' expectations;
- to maintain the services at the latest technical level;
- to improve the installed management system continuously, and
- to apply the principles of quality management to effectively use our resources.

Measurable quality objectives for any given year shall be issued as a separate statement by the technical manager of the testing laboratory and will be distributed to all staff members, who shall be accountable for fulfilling them.

7 QUALITY DOCUMENTATION

The complete quality documentation of the testing laboratory is organized into a multi-stage hierarchical structure with this ***Quality Manual*** representing the topmost stage.

The responsibility for creating the quality documentation, its approval and authorization rests with the Technical Manager of the testing laboratory. Parts of the activities are delegated to different members of staff.

All staff members of the testing laboratory are requested to look for improvement possibilities in their area of responsibility and to propose them in newly created or improved quality documents. The Deputy Technical Manager and the Service Group Leaders shall also create quality documents; especially if asked for by staff members they are supervising and, additionally, have the task of approving all quality documents and partly authorizing documents within their area of responsibility.

It is the responsibility of the Quality Manager of the testing laboratory to check all quality documentation for consistency with the international quality standard (ISO/IEC17025) selected as the basis for this quality management system. The quality manager also has to create the quality documents called ***Procedures (PR),*** for the general organizational and technical regulations which apply to all staff members of the testing laboratory

Descriptions of each test method, which will generally apply to only one of the Service Groups, shall be created within the respective Service Group and be documented in ***Working Instructions (WI)***.

The documentation will be supplemented, where necessary, by documents not originating in the testing laboratory, which are, inter alia, the Administrative Manual of the IAEA, documents of the accreditation authority, applicable standards, relevant publications of international organizations and instrument manuals.

Finally, data that may change more often and should easily be kept up to date is contained in tables, forms, templates and lists (list of all documents in force within the testing laboratory, staffing lists, personal signatures and initials, list of equipment, etc.).

Detailed description about creating, approving, authorizing, indexing and distributing quality documents is given in ***PR-18***.

Revision History

Rev. No	Issue Date	Changes	Authorized
0	2001-08-03	First Issue	Mr Gonzales DIR NSRW
1	2005-05-19	Inserted list of services offered by testing laboratory. Reflected new structure of the Section operating the testing laboratory. Introduced Service Group organizational concept within the testing laboratory.	Mr Lederman acting DIR NSRW
2	2006-07-05	Introduced references to GS-R-3 and GS-G-3.1 Removed to PR-01 detailed description of the total QM documentation.	Ms Amaral DIR NSRW
3	2006-12-14	Reflected findings of the accreditation audit. New organization of the Section. Re-introduced more detailed description of the total QM-documentation.	Mr Mrabit acting for Ms Amaral DIR NSRW
4	2007-11-07	New organization of the Division NSRW. New Technical Manager of the testing laboratory.	Ms Amaral DIR NSRW
5	2009-06-01	Included Safeguards Equipment Receiving Area into the testing laboratory.	Ms Amaral DIR NSRW Mr Khlebnikov DIR SGTS

6	2011-12-01	Included faecal analysis into the list of methods. Reflected organizatorial and personnel changes	Mr Hahn DIR NSRW Mr Zykov DIR SGTS
7	2013-02-01	Reflects organizational and personnel changes	Mr Hahn DIR-NSRW Mr Zykov DIR-SGTS

Note: Text marked in yellow indicates significant changes compared to the previous revision.