ROLL-OUT OF THE NDR

It was agreed by the Steering Committee that the Production-NDR should be launched in April 2016. Regulatory directives had been transmitted to require authorisation holders to submit the five-year block of occupational exposure records for the period 2011-2015, monthly or quarterly records in accordance with authorisation conditions, and historical records. All data providers have to practice the upload of records on the Test-NDR prior to being provided access to the Production-NDR.

FUTURE ACTIVITIES

Future activities related to the NDR include more training and awareness sessions, involving more authorisation holders, verification of uploaded records and an effectiveness review of access and upload mechanisms.

PROCESS TO SUBMIT **OCCUPATIONAL EXPOSURE RECORDS** TO THE NATIONAL DOSE REGISTER

REGULATORY DIRECTIVES

Regulatory directives require from authorisation holders the submission of the five-year block of occupational exposure records for the period 2011-2015, monthly or quarterly records in accordance with authorisation conditions, and historical records to the NDR. The first records are required to be uploaded by the end of April 2016.

TEST-NDR

All authorisation holders have been invited to participate in Pilot Studies to upload records to a Test-NDR. All holders are required to successfully demonstrate the upload and processing of files on the Test-NDR prior to being provided access to the Production-NDR. Authorisation holders that have not participated in Pilot Studies, are required to first upload occupational exposure records onto the Test-NDR. The NNR must be provided with a public IP address or public IP range, which is being used to communicate to the internet. This address will be registered on the NNR firewalls in order to access the NDR. The NNR must also be provided with the name and contact details of the person responsible for uploading records to the NDR.

Following this, an email will be received from "ZA National Dose Register Test", which will contain a username and a URL to create a password for logging onto the Test-NDR Portal. The NDR upload template and User Manual can be downloaded from the Portal.

PRODUCTION-NDR

Once authorisation holders had successfully uploaded files on the Test-NDR, access will be provided to the Production-NDR. An email will be received from the Production-NDR containing a URL, logon credentials and related information to upload occupational exposure records.

ESTABLISHMENT OF A **NATIONAL DOSE REGISTER** IN SOUTH AFRICA

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INTRODUCTION

According to the International Atomic Energy Agency's (IAEA) Safety Standards, the regulatory body must make provision for establishing and maintaining records of occupational radiation doses. The regulatory body may or may not be the sole entity responsible for the maintenance of these registers and inventories, and it may be involved in the proper retention and use of such records.

International best practice for record keeping of internal and external national occupational radiation doses requires the utilisation of a central dose registry. To this end, the Joint Coordination Committee, formed by the regulatory bodies in South Africa, mandated a working group to establish a National Dose Register (NDR). The NDR is a centralised system for recording occupational radiation exposures in the country. The NDR data can be used for tracking a registered worker's cumulative dose based on data provided by the authorisation holder or dosimetry service provider.

The Joint Coordination Committee approved a proposal to use the IAEA Regulatory Authority Information System (RAIS) software application as a basis for the development of the NDR. The proposal, which was included in an IAEA technical cooperation national project, referred to international practice, available software and databases, a proposed location and the eventual establishment of a National Dose Register.

PURPOSE OF THE NDR

The NDR will assist in minimising the possibility of a worker receiving a dose greater than the dose limit while moving from one employer to another or from one site to another. Furthermore, it will ensure that dose records are maintained and remain retrievable in the long term regardless of whether a worker changes employment.

All workers with the potential of receiving an effective dose of more than 1 mSv per annum are monitored by a recognised dosimetry service provider for radiation exposure. The records of occupational exposure may also be used to analyse dose distributions and exposure trends in order to develop effective monitoring programmes and to demonstrate the effectiveness of implementing the as low as reasonably achievable (ALARA) principle.

ROLE OF THE AUTHORISATION HOLDER

Authorisation holders and prospective authorisation holders are required to establish and maintain an organisational dose register of every occupationally exposed worker in compliance with regulatory standards. These records should be uploaded to the NDR in accordance with authorisation conditions.

ESTABLISHMENT OF THE NDR

Feasibility Study

The first step in the establishment of an NDR for South Africa was a feasibility study conducted by the IAEA in 2012. The IAEA team found that there was no explicit legislative requirement for an NDR, no central registry for occupational radiation doses and no real harmonisation of records and reporting systems. The IAEA also noted that there were requirements in place for authorisation holders in the nuclear industry to keep records of occupational exposures. Draft regulations for the nuclear industry, which aimed to include requirements for authorisation holders to report to a central registry, were also in development at the time.

Project Management

A National Steering Committee was formed to oversee the establishment of the NDR. The Steering Committee comprises representatives of the regulatory bodies, dosimetry service providers and some of the main authorisation holders from naturally occurring radioactive material(NORM), power plant and research reactor industries. An annual project plan is approved by the Committee and meetings are conducted during IAEA expert missions or training and awareness sessions. Minutes of meetings are provided to authorisation holders who agreed to take part in the project.

Design

RAIS is a comprehensive software application developed by the IAEA to assist its Member States in managing their regulatory activities in accordance with IAEA Safety Standards.The current web-based version of RAIS (RAIS 3.3 Web) is used as the NDR. The NDR Portal (a web application) interacts with the RAIS database, which is installed on an SQL Server. The interface includes functions related to submission and analyses and provides assistance in the form of a user manual.

Data Upload Template

An Excel template was developed for the upload of records to the NDR. The template was tested, reviewed and updated in line with improvements identified during the pilot studies.

The template includes the following fields:

- Regulatory authority number;
- Company identification details;
- Worker identification particulars ;
- Worker status and activities;
- Effective doses and time periods;
- Additional dose information; and
- Reference list (country name, practice code).

Data Upload Mechanism

During the testing phase all data providers were assigned a master account responsible for the creation of subaccounts and uploading records. Nuclear authorisation holders were granted access to upload all their records while dosimetry service providers could upload all records from medical, industrial and scientific authorisation holders.

The upload frequency of records is performed in line with authorisation conditions and data providers are responsible for the confidentiality and accuracy of records. Worker consent is captured in the NDR and controlled through the data providers' internal policies. Auditable access trails are also built into the system.

Testing

Pilot studies

Dosimetry service providers and nuclear authorisation holders were invited to participate in three NDR pilot studies. This ensured ongoing testing of the mechanisms designed to upload records on the Test-NDR and for stakeholders to become familiar with the NDR and its processes. About 40 organisations agreed to participate in the pilot studies over a period of two years.

Training

Three training and awareness sessions were conducted for dosimetry service providers and nuclear authorisation holders. During the training sessions, the background and status of the project were presented with a demonstration of the upload template, the NDR Portal and the submission process. Some sessions included practical exercises for attendees to upload records to the NDR. It is envisaged that further training sessions will be necessary as progressively larger numbers of authorisation holders participate and upload records to the NDR.

Legal and Regulatory Basis

During the design period of the NDR, the National Nuclear Regulator Act (NNRA) was being amended. This presented the opportunity to include the various roles and access provisions of the NDR in the revised draft of the NNRA. The draft regulations therefore contains specifications on the collection, analysis and access to data,the frequency and nature of reports to be uploaded as well as worker consent.

A Regulatory Guide was developed to specify the responsibility of authorisation holders, communication and information arrangements, types of data to be submitted to the NDR, mechanisms for data upload, access to the NDR, worker consent and quality assurance aspects.