MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION
DEPARTMENT OF ATOMIC ENERGY

NUKLEAR MALAYSIA

Status of National Arrangements on Dose Registry "Regulatory provisions on NDR & its' implementation"

MALAYSIA

REGIONAL WORKSHOP ON ON THE MANAGEMENT OF NATIONAL DOSE REGISTRIES

20 – 24 March 2023, Bangkok / Thailand

Legal Basis- Regulatory provisions

- Requirements and provisions for the NDR:

24. (1) The employer shall immediately transfer the exposure records of his workers to the appropriate authority—

(a) after the termination or the retirement of the worker; or

(b) when the employer ceases operation.

24. (8) The procedures for keeping the records of exposure of workers who work in controlled areas under different licensees shall be as specified by the appropriate authority.

ATOMIC ENERGY LICENSING (BASIC SAFETY RADIATION PROTECTION) REGULATIONS 2010

Legal Basis- Regulatory provisions

Under notification No. 04/2020

LEMBAGA PERLESENAN TENAGA ATOM
(ATOMIC ENERGY LICENSING BOARD)
Kementerian Sains, Teknologi dan Inovasi
(Ministry of Science, Technology and Innovation)
Batu 24, Jalan Dengkil,
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30 September 2020
Notis Pemberitahuan AELB
Bil. 04/2020

PEMBANGUNAN PANGKALAN DATA DOS PEKERJA SINARAN DI MALAYSIA

MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION
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LIST OF TSP RECOGNIZED BY REGULATORY FOR CALIBRATION AND DOSIMETRY SERVICE IN MALAYSIA

NUKLEAR MALAYSIA

No.	Technical Service Provider	Scope of Services	Number of Staff	QMS	Status of TSP
1	Malaysian Nuclear Agency*	- Calibration (Radiation Protection, Therapy and Diagnostic Radiology) - Supply and Analysis of personal dosimeter (OSL and TLD) – Hp(10), Hp(0.07)-skin and Hp(0.07)-extremity	12 12	ISO/IEC 17025:2017 (note: Analysis of personal dosimeter expected to be accredited in Q3/2023)	Government
2	APM Nuclear Technology Sdn. Bhd.*	- Calibration (Radiation Protection) - Supply and Analysis of personal dosimeter (RPLGD) – Hp(10) and Hp(0.07)-skin	3 3	ISO/IEC 17025:2017	Private Company
3	Alypz Sdn. Bhd.*	- Supply and Analysis of personal dosimeter (OSL) – Hp(10) and Hp(0.07)-skin	8	ISO/IEC 17025:2017 MS ISO/IEC 17025:2017	
4	Reltech Ventures Sdn. Bhd.	- Calibration (Radiation Protection)	6	ISO/IEC 17025:2017	
5	Tracerco Asia Sdn. Bhd.	- Calibration (Radiation Protection)	2	ISO/IEC 17025:2017	

** Providing data for the NDR*
OSL: Optically Stimulated Luminescence Dosimeter
TLD: Thermoluminescence Dosimeter
RPLGD: Radiophoto Luminescence Glass Dosimeter

Dosimetry service characteristics

- Monitoring periods used for external dosimetry:
  - Monthly basics, can extend to 2/3 months upon special request
- Calibration procedures for external dosimetry:
  - For OSLD and RPLGD, the calibration is performed using calibration dosimeters obtained from the dosimetry system manufacturer.
  - For TLD, the calibration is performed using dosimeters irradiated with a Cs-137 source at SSDL.
- Extremity dosimetry:
  - Using TLD Chip
- Internal dosimetry:
  - Not yet implemented
- Software for internal dosimetry analysis:
  - Not yet implemented

Dosimetry service characteristics

- Dose assessment methodologies for internal dosimetry:
  - Not yet implemented
- Calibration procedures for internal dosimetry:
  - Not yet implemented
- Dose estimation of internal dose using the results of workplace monitoring:
  - Not yet implemented
- Monitoring requirements for emergency exposure situations and recording arrangements:
  - **Regulation 23 (Personnel monitoring results):**

    (6) Whenever an accident or emergency occurs, the licensee, in co-operation with the employer, shall ensure that the results of personnel monitoring are submitted to the approved registered medical practitioner immediately.
  - **Regulation 24 (Exposure records):**

    (6) The doses received by a worker during normal operation, accidental exposure and emergency exposure shall be recorded.

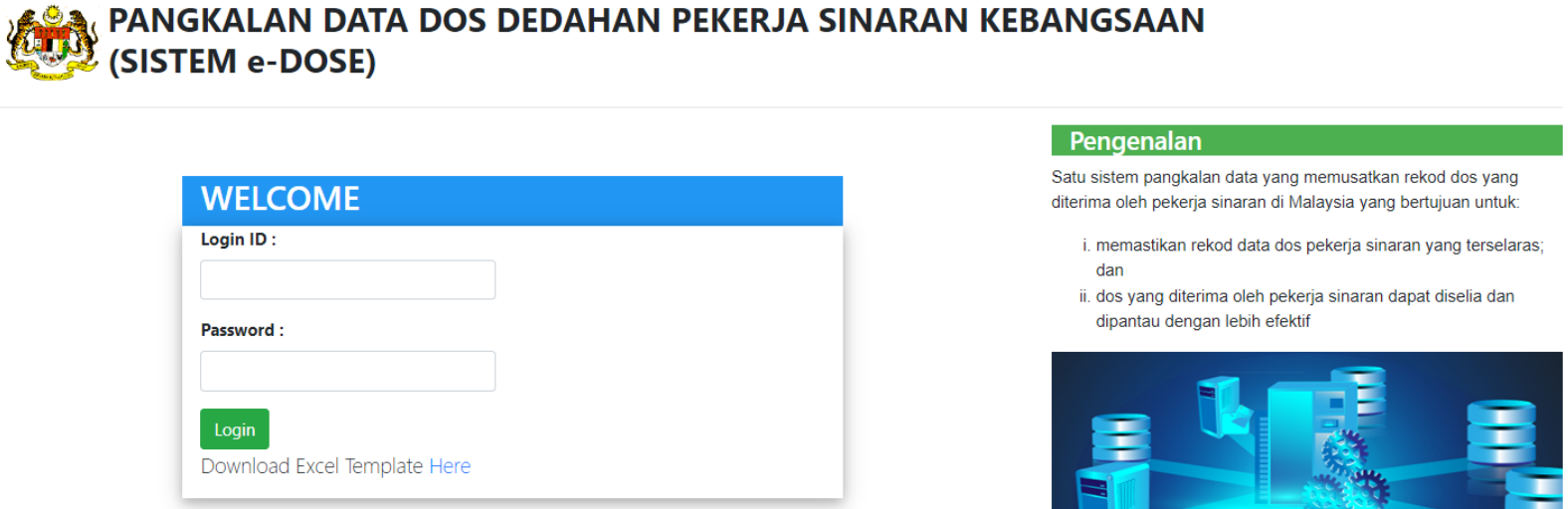
    (7) The doses received by a worker during accidental exposure and emergency exposure may be recorded together, but shall be made distinguishable.

Quality Management System for TSPs

- Provide info on
  - What system? Refer to slide 3 (List of TSP)
  - Certification: Not Applicable
  - Accreditation and scope: Refer to slide 3 (List of TSP)
  - Qualified staff: Refer to slide 3 (List of TSP)

  - Training requirements:
    - Training requirement refer to Training Needs Analysis attached for RDSL (Radiation Dosimetry Services Laboratory)
    - Cover POLICY, HEALTH, SAFETY, SECURITY & ENVIRONMENT (HSSE), QUALITY & PRODUCTIVITY (Q&P), OPERATION (OP), MANAGEMENT & SOFTSKILL (M&S)

National Dose Registry [1]



Establishment on year 2020

Responsible by ATOM MALAYSIA

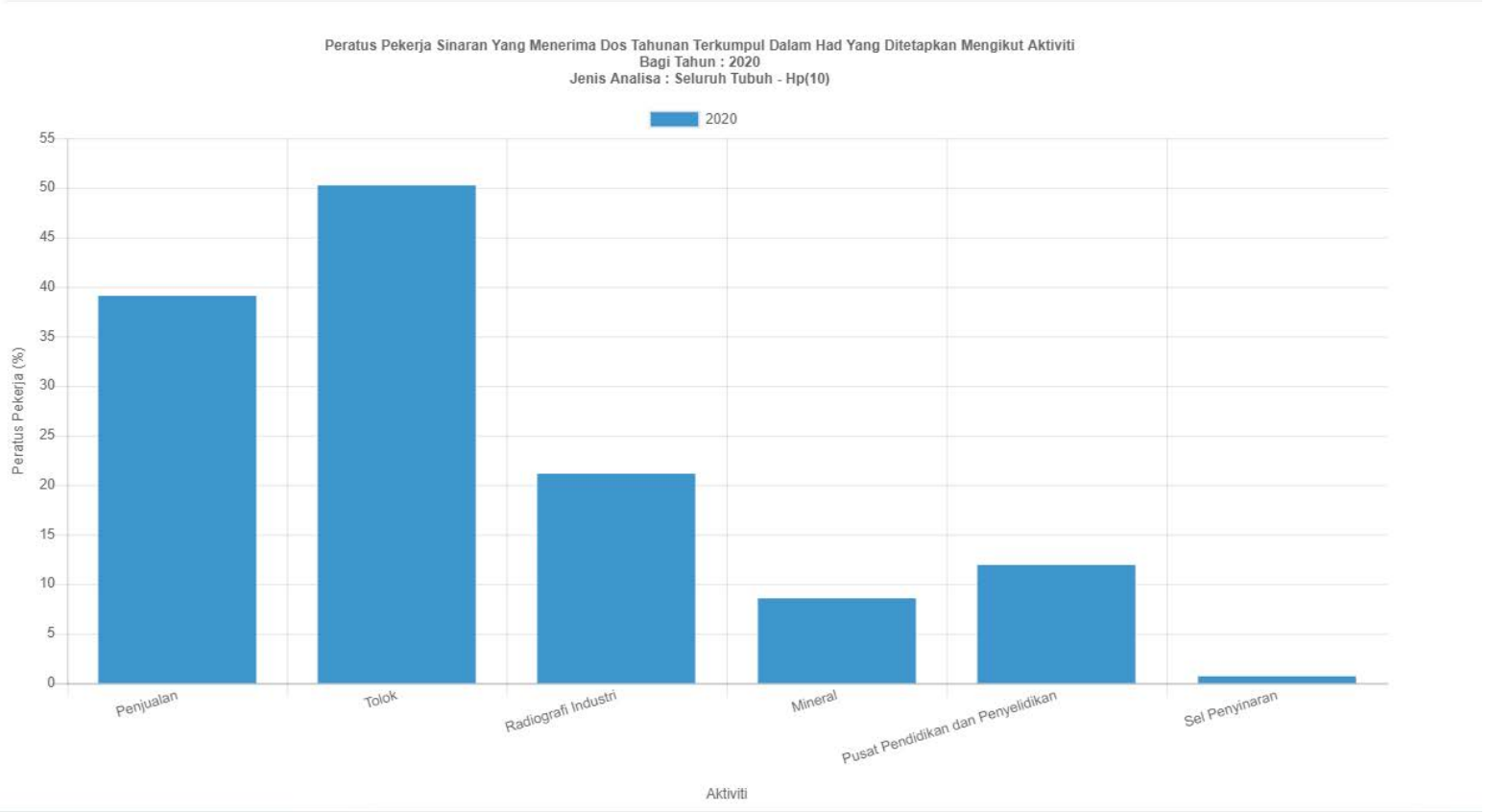
Role :

-As a National Dose Registries that contain the dose records of individuals

-Enable the optimization of protection and help ensure compliance with the dose limits at the national level

To assist in controlling and safekeeping occupational dose records

National Dose Registry [2]



- Occupational categories:

Medical & Industry

-Sales

-Gauges

-Industrial radiography

- NORM
- R&D
- Gamma Irradiator

- Responsible organisation for submitting the required information to the NDR:

Dose analysis services provider

National Dose Registry [3]

Dose analysis services provider will complete information in excel and submit in the NDR system monthly

A	B	C	D	E	F	G	H	I	J	K	L
CID	CIDS	Customer Name	CIDP	Employee Name	NRIC	Activity	Hp(10)(mSv)	Hp(007)(mSv)_Skin	Hp(007)(mSv)_F(L)	Hp(007)(mSv)_F(R)	Hp(3)(mSv)

Types of doses are recorded in the NDR:
Hp(10); Hp (0.07); Hp(3) if available

Procedure applicable for overexposure and/or in an emergency situation:

Overexposure: notify manual to regulatory within twenty-four hours after the occurrence of such accidental exposure or emergency exposure

National Dose Registry [4]

Challenges:

1. System using by TSP do not synchronise with NDR system
2. Lack of funding in develops and improve NDR system

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Example in annual report 2020

RAJAH 21 : DOS TAHUNAN PEKERJA SINARAN
FIGURE 21 : ANNUAL DOSE OF RADIATION WORKERS

Dedahan Dos Tahunan (mSv) *Annual Dose Exposure (mSv)*		**Radiografi Industri** *Industrial Radiography*	**Aktiviti Lain** *Other Activities*	**Jumlah Pekerja Sinaran (PS)** *Total of Radiation Workers (RW)*
MDL - 20.0		1,128	5,975	7,103
20.0 - 50.0		6	4	10
50.0 - 100.00		2	0	2
> 100		0	0	0
Jumlah PS / *Total of RW*		**1,136**	**5,979**	**7,115**
Jumlah Dos / *Total Dose*		**1,497.25 mSv**	**2,272.02 mSv**	**6,047.75 mSv**
Purata Dedahan Dos (mSv / orang) *Average Dose Exposure (mSv / person)*	**Tahun** / *Year*			**Purata** / *Average*
	2011	2.98 mSv	0.06 mSv	0.53 mSv
	2012	4.02 mSv	0.07 mSv	0.61 mSv
	2013	3.00 mSv	0.12 mSv	0.60 mSv
	2014	2.31 mSv	0.02 mSv	0.30 mSv
	2015	4.43 mSv	0.48 mSv	0.70 mSv
	2016	3.00 mSv	0.96 mSv	1.41mSv
	2017	3.04 mSv	0.69 mSv	0.90 mSv
	2018	2.61 mSv	1.05 mSv	1.65 mSv
	2019	2.67 mSv	0.87 mSv	1.77 mSv
	2020	1.32 mSv	0.38 mSv	0.85 mSv

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Thank you