

IRSN

INSTITUT
DE RADIOPROTECTION
ET DE SÛRETÉ NUCLÉAIRE

Faire avancer la sûreté nucléaire

The national occupational doses registry in France : SISERI

ORPNET webinar
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MEMBRE DE

ETSON

EUROPEAN
TECHNICAL SAFETY
ORGANISATIONS
NETWORK

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- I. Objectives of the national occupational doses registry SISERI
- II. Which workers ?
- III. Which type of data ?
- IV. Which actors ?
- V. Which use of the registered data ?

I. Objectives of national dose registry in France

- They are set in the French regulation
- To centralize, to consolidate and to store all dosimetric results of the individual monitoring of each worker exposed to ionising radiation in order to constitute the national register of individual occupational doses with 3 major purposes :
 - To control individual occupational exposures and to check the respect of dose limits
 - To optimize radiation protection of workers
 - To produce statistics of occupational exposure and data for epidemiological studies
- Give access to the data to control agents, occupational physicians, radiation protection experts and officers and workers, according to the rules defined by the legislation
- Implemented in 2005, the information system for occupational dosimetry registration (SISERI) was developed at the request of the Ministry of Labour (authority) and its management was entrusted to IRSN (TSO)

II. Which workers ?

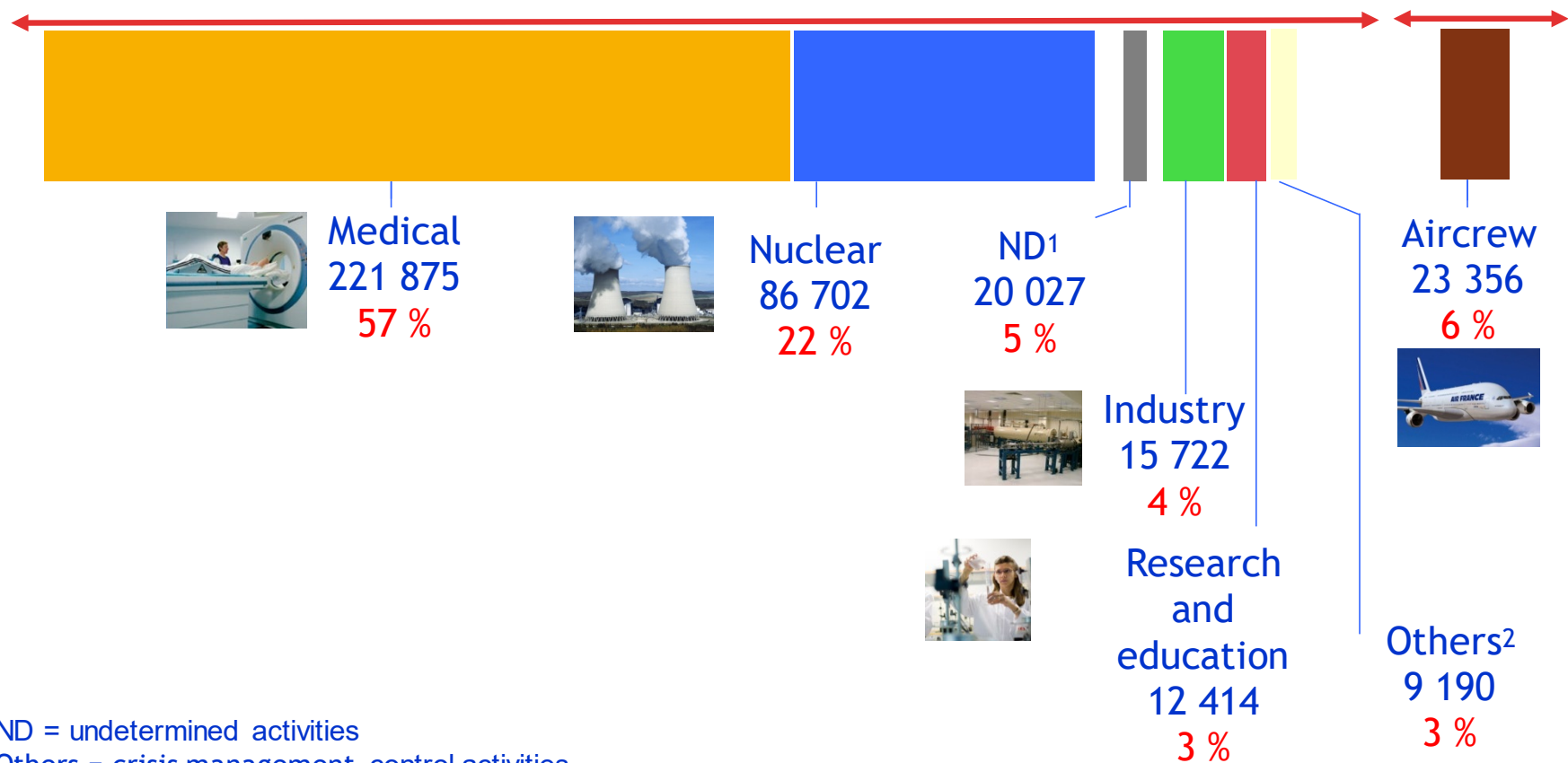
- Categories A and B workers (and non classified workers being monitored)
- Employees and others whatever their employment status
 - Permanent workers
 - Outside workers
 - Temporary workers
 - Trainers,...
- Some crossborder workers
- Activity fields: medical and veterinary activities, nuclear field, industrial field, research and education, aircrew, NORM activities, workers exposed to radon.

Number of monitored workers in 2018 (external dosimetry)

390 363 workers

Civilian and military activities using artificial sources of ionising radiation (365 980)

Natural radioactivity



¹ ND = undetermined activities

² Others = crisis management, control activities, ...

III. Which data?

- III.1 Administrativ data
- III.2 Dosimetric data
- III.3 Status of data

III.1 Administrativ data

- Worker's identification
- Employer's identification
- Context of exposure:
 - Activity field and activity sector, according to the national classification
 - Occupation
 - Status of employment
 - Work duration

III.2 Dosimetric data (1/2)

EXTERNAL DOSIMETRY

External passive dosimetry results

- Whole body (Hp 10, X+g, neutrons) + corresponding Hp 0.07 (mSv)
- Extremities (Hp 0.07, X+g, neutrons, wrist or finger) (mSv)
- Eye lens (Hp 3)
- Period (quarterly or monthly)

For each operation in a controlled area: external operational dosimetry results

- Whole body (Hp 10, X+g, neutrons) + corresponding Hp 0.07 (mSv)
- Transmission to SISERI is mandatory only for activities in nuclear facilities

III.2 Dosimetric data (2/2)

INTERNAL EXPOSURE SURVEILLANCE

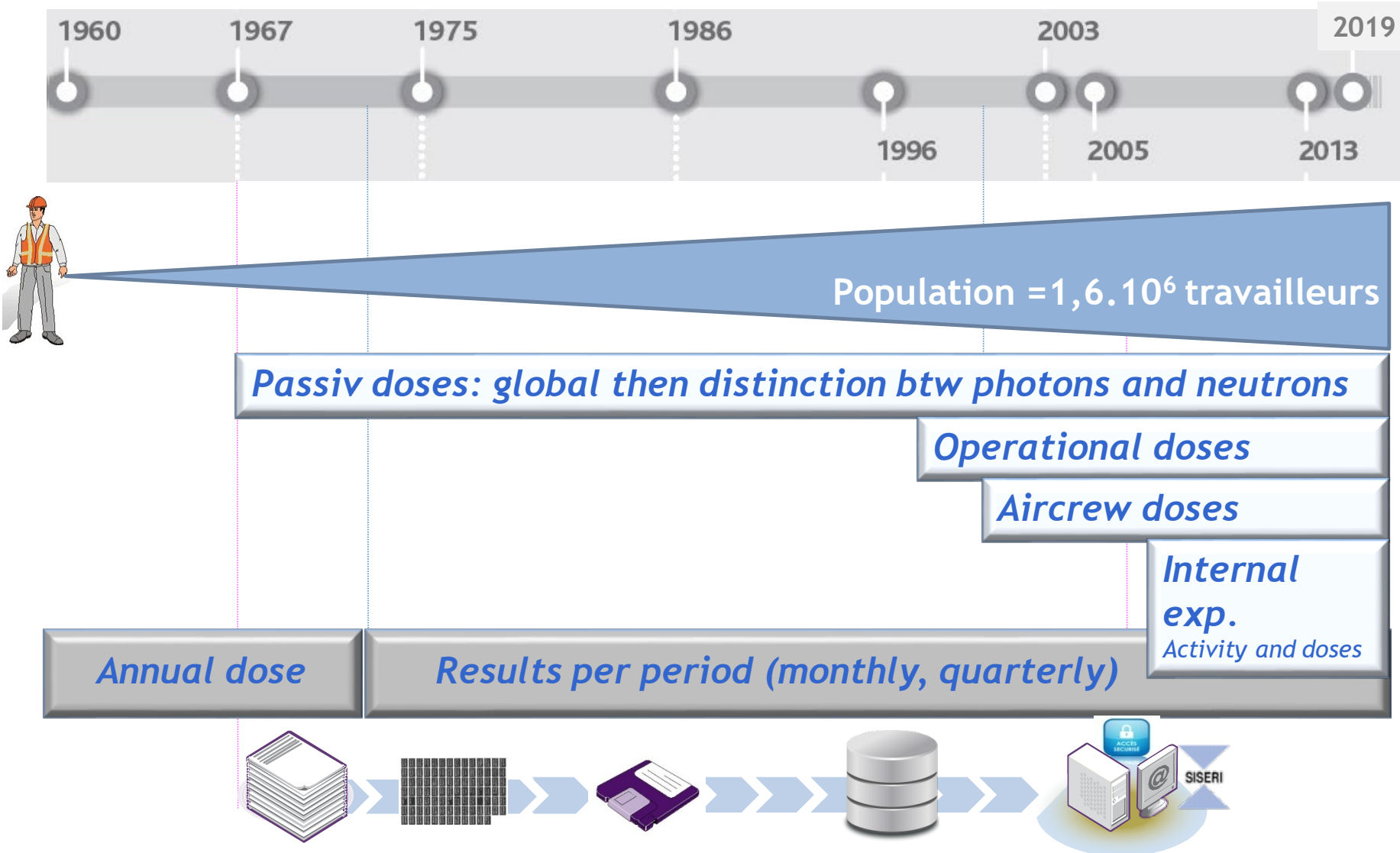
- Results of radioactivity measurement of each radionuclide targeted in vivo or in vitro in biological samples (Bq)
- Results of committed effective dose assessment performed by the occupational physician when a contamination has been found (mSv)

AIRCREW DOSES

- Calculated from each flight dose value (SIEVERT-PN system) (mSv)

DOSES RESULTING FROM INDIVIDUAL MONITORING OF OCCUPATIONAL EXPOSURE TO RADON (mSv)

Registered data: evolution over the time



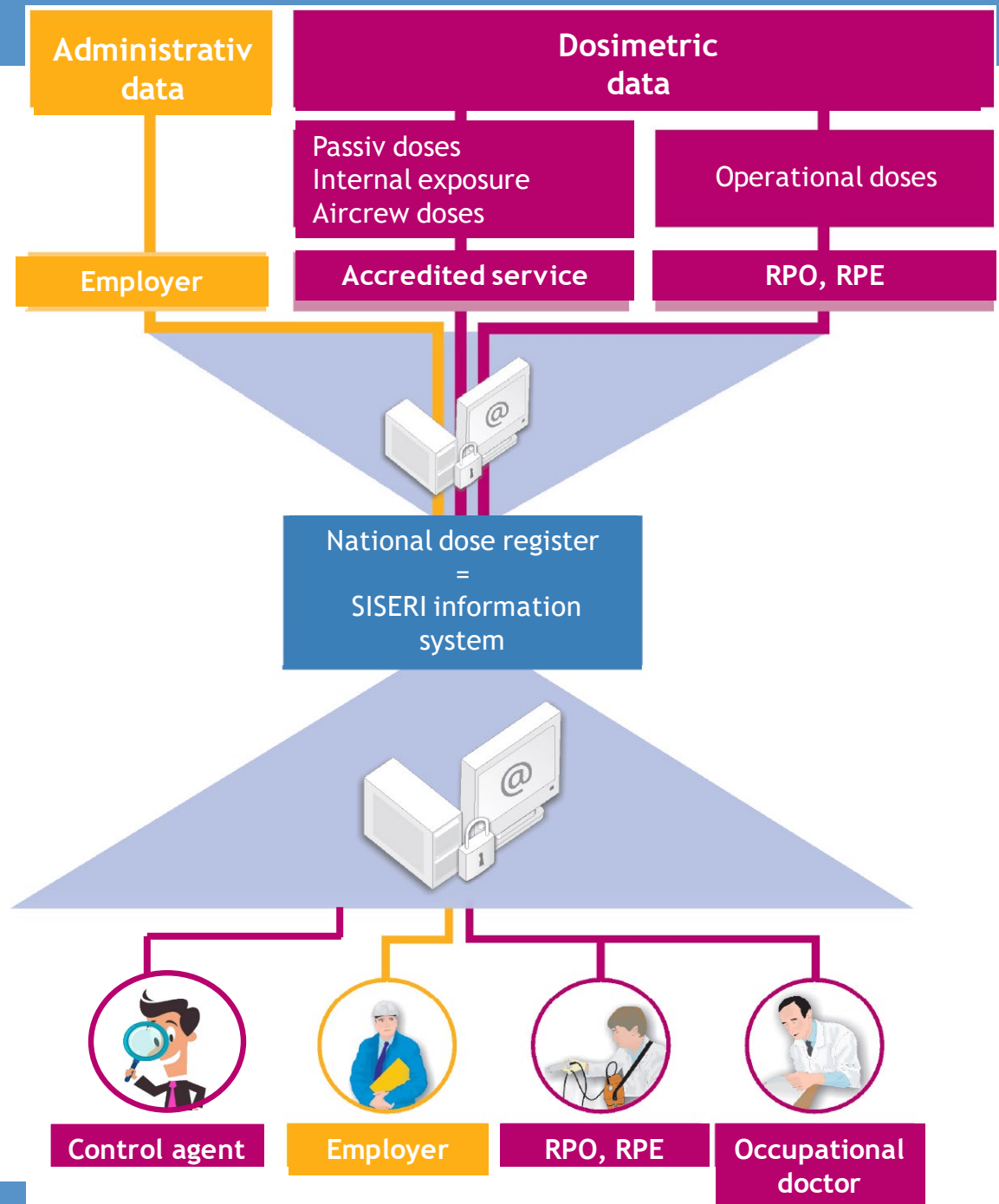
III.3 Status of personal data

- External dosimetry results and administrative data: **sensitiv data**
- Internal exposure surveillance data: **medical data**
- **Specific procedure of securisation consisting in:**
 - Declaration of employers in the system (numerically signed protocol)
 - Declaration by the employer of persons having an access for its monitored workers (occupational physician, RPO and RPE)
 - High authentication level (personal numerical certificat instead of login/password)

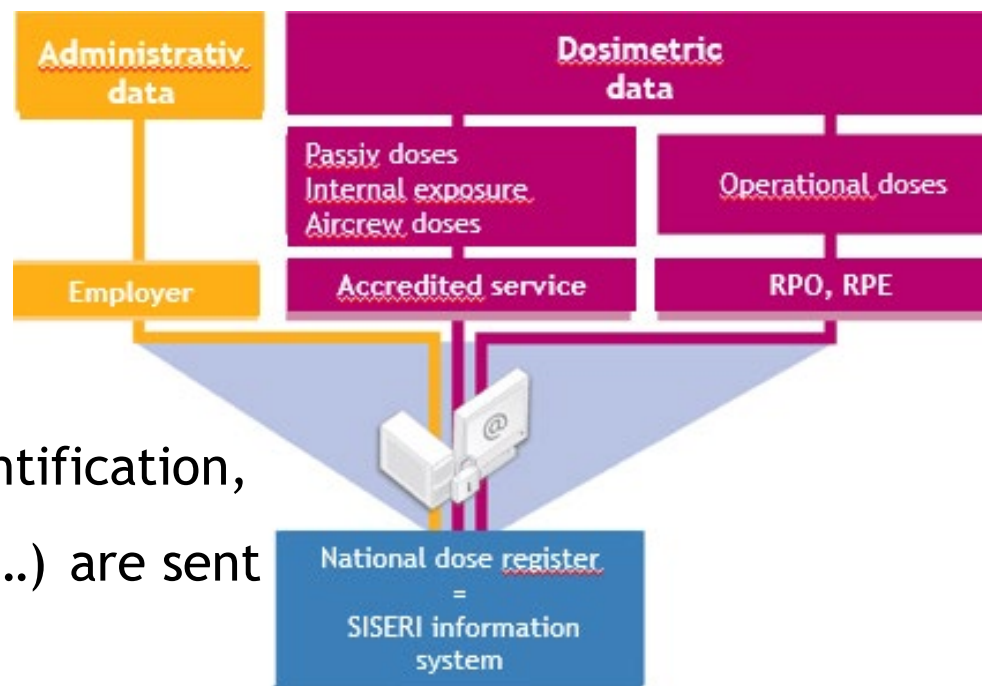
IV. Which actors ?

Transmission

Restitution - Consultation



IV.1 Data transmission

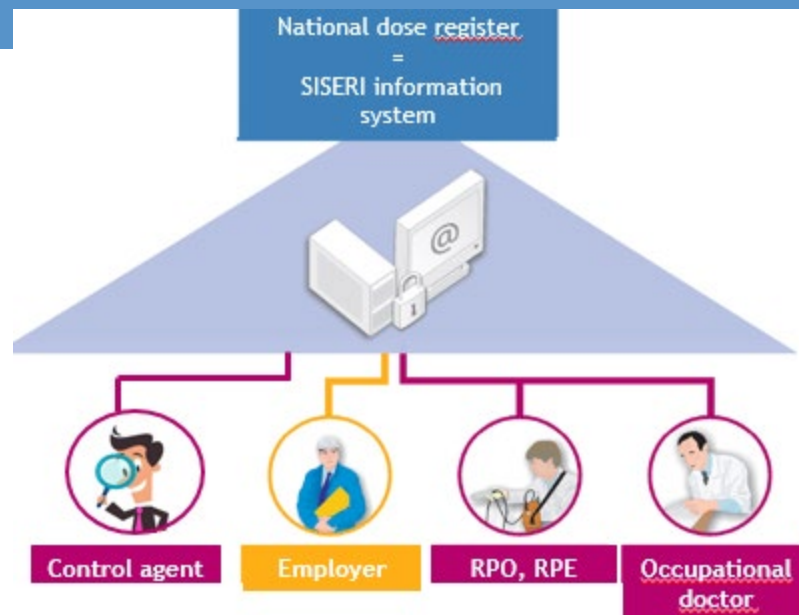


Administrativ data (worker's identification, context of exposure: occupation,...) are sent by the employer

Dosimetric data (excepted operational doses) are sent by:

- 7 passiv dosimetry services
- 15 medical laboratories or occupational health services accredited for in vitro or in vivo assessment of internal exposure
- SIEVERT-PN (aircrew doses)

IV.2 Data consultation



	External dosimetry	Internal dosimetry
Worker	Dosimetry results over professional life on (e-)mail demand (no web access)	
Occupational doctor	Web access over the last 48 months (including global life occupational dose), detailed results over professional life on (e-)mail demand	
RPO, RPE	Web access over the last 24 months	
Control agent	Web access over the last 24 months	
Research institut	Only aggregated data	

V. Which use of the registered data?

- V.1 Management of overexposure
- V.2 Production of statistics
- V.3 Epidemiological studies
- V.4 Other use

V.1 Management of overexposure

The dosimetry service sends an alert to the occupational doctor, the employer and IRSN

The occupational doctor investigates to determine if the dose was or not received by the worker

The occupational doctor only has the possibility to modify the dose

The conclusion of investigation has to be sent to IRSN so that the national registry is kept up to date, by the way of a paper questionnaire:

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SISRI

IRSN
PSE-SANTE/SER/BASEP
A l'attention du chef du BASEP
BP 17
92 262 Fontenay aux Roses Cedex

A REMPLIR
ET
A RETOURNER A
l'adresse ci-contre

CONCLUSIONS D'ENQUETE SUITE A UN SIGNALLEMENT DE DEPASSEMENT DE LIMITE REGLEMENTAIRE DE DOSE

Vous êtes médecin du travail et vous venez de recevoir le signalement d'un dépassement de dose. Il vous appartient en conséquence, conformément aux dispositions de l'article 19 de l'arrêté du 17 juillet 2012 relatif à la carte de suivi médical et au suivi dosimétrique des travailleurs exposés aux rayonnements ionisants.

- de diligenter une enquête sur les circonstances ayant conduit à cette exposition, avec le concours, le cas échéant, de la personne compétente en radioprotection;
- d'informer l'IRSN du déclenchement et des conclusions de l'enquête et de faire connaître explicitement votre décision quant au maintien ou l'annulation de la dose dans un délai le plus court possible.

TRAVAILLEUR CONCERNE
Nom établissement :
Adresse :
Nom : Prénom :
Numéro SNEP (équité sociale) :
Poste occupé (métier et secteur d'activité) :
DOSIMETRIE
Numéro de dosimétrie :
Equivalent de dose déterminé par le laboratoire : mSv
Pour la période du : au :
Equivalent de dose cumulé sur 12 mois, le cas échéant : mSv
Type de port : <input type="checkbox"/> poitrine <input type="checkbox"/> poignet <input type="checkbox"/> doigt <input type="checkbox"/> autres
CONCLUSIONS
Les conclusions de l'enquête m'amènent à vous demander : <input type="checkbox"/> de maintenir l'équivalent de dose déterminé par le laboratoire <input type="checkbox"/> de modifier la dose comme suit : Equivalent de dose devant être retenu : mSv
COMMENTAIRES (bref résumé de l'enquête et de ses conclusions)
.....
SIGNATURE MEDICIN DU TRAVAIL
MDT, Prénom : Date : Signature :
N° tel :
E-mail :
Pour tout renseignement complémentaire, veuillez contacter PSE-SANTE/SER/BASEP au 01 58 35 34 04

V.2 Production of statistics

IRSN is in charge of the annual report on occupational exposure in France

The data for external exposure is directly extracted from the national register

This report is sent to national authorities and also published on the web (in French)

This report's data are also registered on ESOREX-platform and used to answer UNSCEAR's collection for global survey

<https://esorex-platform.org/>



ESOREX Platform European Platform for Occupational Radiation Exposure

Home Charts Query database

Data on individual exposure of workers concerning

- external exposure (measured at whole body, extremities, ...)
- internal exposure (committed doses calculated from the results of in vitro and/or in vivo measurements)

Participating countries

Useful links

COUNCIL DIRECTIVE 2013/59/EURATOM of 5 December 2013:

<https://eur-lex.europa.eu/eli/dir/2013/59/oj>

UNSCEAR website:

<https://www.unscear.org/>

ESOREX news

“ The European Commission initiated in 1997 the European Study on Occupational Radiation Exposure (ESOREX) which objectives were:

- to provide the European Commission and the national competent radiation protection authorities with reliable information on how personal radiation monitoring, reporting and recording of dosimetric results is structured in European countries;

V.3 Epidemiological studies

- Access to aggregated data extracted from the national dose register
- Access to IRSN's epidemiologist or to researchers from other instituts
- Different populations of workers have been or are focused on:
 - Nuclear workers (permanent, contractors)
 - Medical staff
 - Aircrew
 - ...

V.4 Other use

Data extraction and analyse for/by IRSN RP experts

- Authorization's instruction for one specific facility
- Specific studies on relevant RP topics
 - ✓ Extremity dosimetry in interventional radiology
 - ✓ Occupational exposure in gammagraphy
 - ✓ ...

Data extraction and analyse for French authorities