



# ORGANIZATION TO FIGHT AGAINST WORKERS INTERNAL ALPHA CONTAMINATION IN DECOMMISSIONING WORKS AT SAINT LAURENT A

J. LAURENT, G. RANCHOUX (DP2D)  
B. BOUSSETTA (DIPDE)

2018/06/27

Ce document est la propriété d'EDF. Toute diffusion externe du présent document ou des informations qu'il contient est interdite.



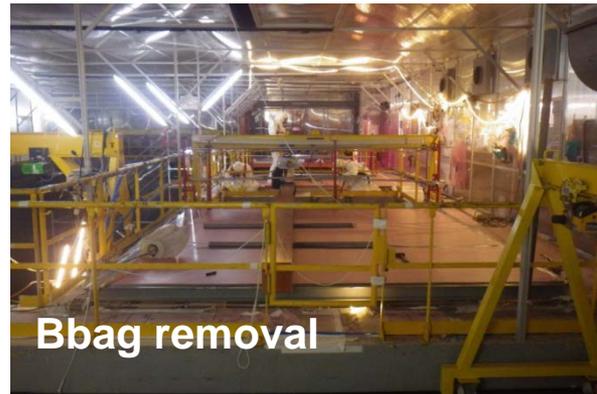
# HISTORY AND ORIGIN OF ALPHA CONTAMINATION IN SAINT-LAURENT UNGG POWER PLANT

- **UNGG power plant on duty from 1969 to 1990 (A1) and from 1971 to 1992 (A2)**
  - Decommissioning led by EDF/DP2D
- **Low collective dose (2016: 14,3 M.mSv ;2017: 4,3 M.mSv; 2018 : 4,3 M.mSv)**
- **Alpha particles naturally present in:**
  - Fuel components
  - Deposits inside pipes
  - Pond water
- **Two main events (INES 4)**
  - Core fusion in both reactor in 1969 (A1) and 1980 (A2)



# CONTAMINATION ORIGIN

- **2016/02/25: 25 workers** with alpha traces in faeces (between 2015 and 2016)
- Significant event declared to ASN (French authority in nuclear safety)



# MAIN CAUSES OF INTERNAL CONTAMINATIONS

- **Alpha contamination risk considered to be low (weak vigilance)**
- **Unexperimented workers exposed to alpha contamination risk**
- **Unsuitable respiratory PPE**
- **Inadequate undressing procedures**

# ORGANIZATION SETTING-UP

- **Specific protocol followed by workers in alpha environment**
  - Suit use training
  - Mock-up training area and evaluation by EDF before the beginning of the work
  - Medical ability certificate and supervision (faeces and mucus analysis)
  - Undressing assistants
  - License issue
- **Definition of criteria for the use of each respiratory protection device**
- **Specific suit utilization : currently used on alpha contaminated facilities**
- **Daily log-book more detailed**



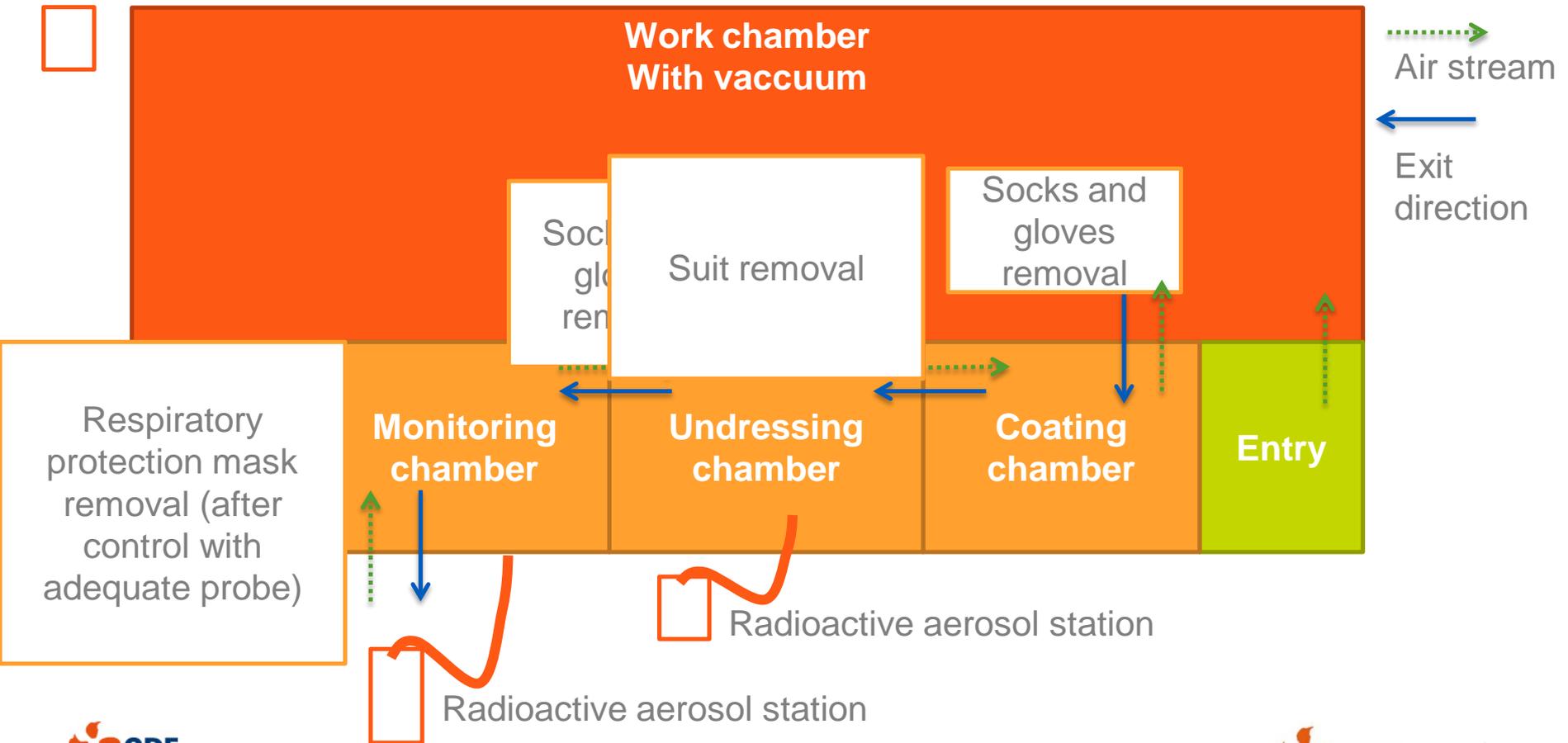
# « ALPHA » LICENSE

<b>E.D.F</b> <b>CNPE DE ST LAURENT</b> <b>STRUCTURE DECONSTRUCTION</b> <b>SLA</b>	<b>Chantier : XXX</b> <b>EPI : XXX</b> <b>Carte n°: X</b>	
<b>AUTORISATION D'ACCES EN SAS ALPHA SUR SLA</b>		
<b>Délivré à :</b>	.....XXXXXXXX	
<b>Employeur :</b>	.....XXX	
<b>Valable Jusqu'au :</b> XXX		
<b>VALIDATION</b>		
<b>INTERVENANT</b> Nom, date, visa	<b>HIERARCHIE</b> Nom, date, visa	<b>PCR EDF</b> Nom, date, visa

FACTICE

# TYPICAL WORK AREA

Radioactive aerosol station



# MOCK-UP TRAINING AREA



# FEEDBACK AND CONCLUSION

- **Significant effectiveness of organization (decreasing internal contamination)**

	2016	2017	2018
Cont. Mucus/Nb	3/718	1/488	0/691
Cont. faeces/ Nb	11/117	0/27	0/38

- **Difficult but essential mock-up training (at least two trials in mock-up training area before being certificated)**
- **Sharing with teams from other EDF/DP2D sites and from other operators in France and worldwide**
- **Organization rewarded by a Technology Transfer Award delivered**

**ANY QUESTIONS ?**