

Case study 1 – Ukraine – Salt OSL dosimetry

NRCRM+LU with South-Ukrainian NPP

RRADEW Consortium Workshop

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Case study 1 – Salt OSL dosimetry

The context:

Professional dosimetry teams come late, mass individual dosimetric monitoring of the public is not envisaged by emergency response plans, in case of nuclear strike electronics might be damaged by electro-magnetic pulse

People are concerned with the doses received by them and their families, same for authorities and decision makers

Possible solution:

Use improvised self-made dosemeters (table salt is available everywhere), assign them to all members of affected population, wear as usual dosemeter badges, collect and send to OSL lab for analysis and dose reconstruction



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The problem: to develop and test the organisational and logistical aspects of using table salt as an alternative OSL dosimeter for assessing the individual doses received by population living in wartime conditions when existing monitoring facilities are out of use.

Tasks:

Main task:

- define the capacities to inform population groups, their response to alert and engagement into mass dosimetric monitoring with improvised doseimeters

Auxiliary tasks:

- test preparation, distribution, collection, labelling, registering, packing and transfer of salt samples
- check the ability of remote OSL laboratories to measure samples

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Experimental approach: sociological study by focus group method + follow-up discussion with radiation protection professionals on the spot + testing dosimeter preparation procedures

Targeted population:

1. NPP employees (TP1).
2. Family members of the NPP employees (TP2).
3. Residents of NPP town, who are not related to NPP domain (TP3).
4. Residents of rural settlements around the NPP (optional) (TP4).
5. First respondents and radiation protection professionals in charge with dosimetry and radiation protection in case of an emergency (TP5).

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Focus group design (TP1-4):

- Focus group (FG) following pre-established scenario:
- Three blocks of FG: general radiation awareness - emergency dosimetry with salt dosemeters – general discussion
- Enlistment with assistance from local authorities
- Bioethics: informed consent and compensation (ca.25 euro) for participation
- Entry survey to sort out non-eligible subjects
- Questionnaire survey of rejected subjects
- Decoding the FG script and summarizing results



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General discussion with RP professionals (TP5):

- Summation of the findings of FG in TP1-4 and approval of the communication and deployment protocols
- Special focus on the aspects of wartime situation
- Consensus on recommendations for application of mass individual dosimetric monitoring with improvised doseimeters



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Important aspects to be studied:

- define the capacities to inform population groups under conditions of war and radiological emergency
- convey instructions regarding preparation of improvised dosimeters
- consider interactions with authorities
- propose interface with measuring laboratory and communication of the results of dose estimation to exposed persons and authorities/decision makers



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Study location: South-Ukrainian NPP and Pivdennoukrainsk (Південноукраїнськ) town (ca.400 km south from Kyiv)



Fieldwork plan:

Site visit to establish contact with a local partner

- accomplished

Grant approval from local authorities

- accomplished

Develop scenarios of the focus groups

- accomplished

Site visit to make arrangements for FG

- February 2025

FG in TP1-4

- March 2025

Discussion with RP professionals (TP5)

- April 2025

Testing sample handling procedures

- May-June 2025

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Where we are now:

~~FG scenarios to be discussed and approved by
WP3 partners~~

~~Arranging logistics~~

~~Setting up formalities (IRB approval of Informed
consent forms, arranging compensations etc.)~~

**Awaiting for resolution of the issues with the
financial scheme of NRCRM participation**



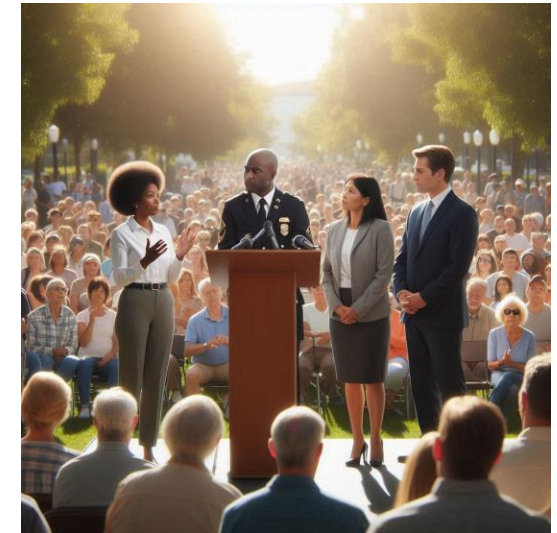
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Just one more AI generated image of radiological emergency under war conditions – a negative view



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Our task is positive – to propose and test operational mechanism for mass dosimetry of population under radiological emergency



Слава Україні – Glory to Ukraine

