



EC- Ukraine International Nuclear Safety Cooperation
(INSC) Program



Support to radioactive waste management in Ukraine
Project U4.01/10 D

**Project D:
Investigation of radioactive waste burial and temporary
storage sites in the Chernobyl Exclusion Zone**

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Overview of clean-up waste burial sites (RWTSP)

RWTSP - Radioactive Waste Temporary Storage Places

9 RWTSP Sites:

- Neftebaza
- Peschanoe Plato
- Old/Staraya Stroybaza
- New/Novaya Stroybaza
- Chistogalovka
- Kopachi
- Pripyat
- Red Forest
- Yanov Station

In total (currently characterized)

470 trenches and clamps

884,000 m³ radwaste

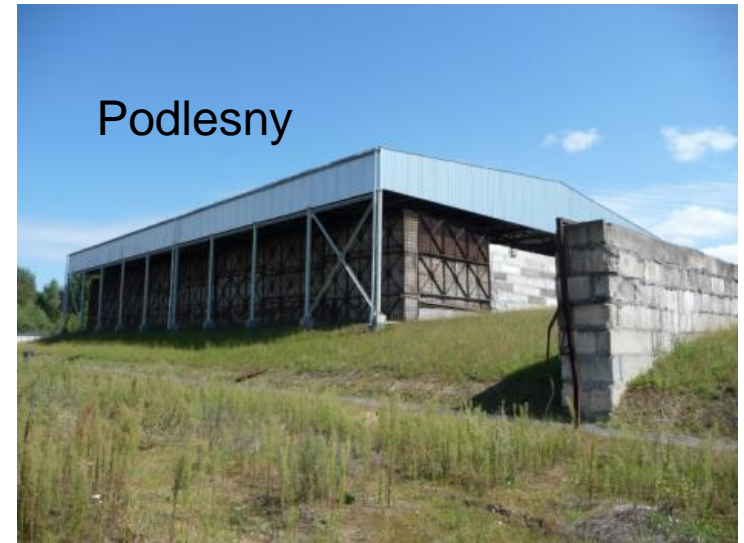
(~ 70% investigated of the
tot.area of ~12km²)



RWDS - Radioactive Waste Disposal Sites

Engineered facilities:

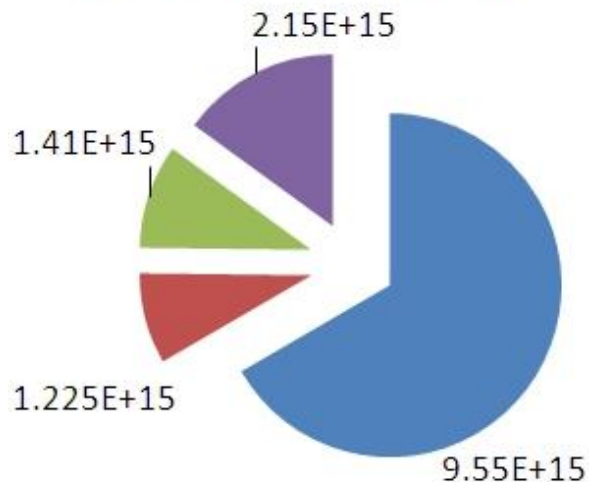
- Podlesny
- ChNPP 3rd Stage



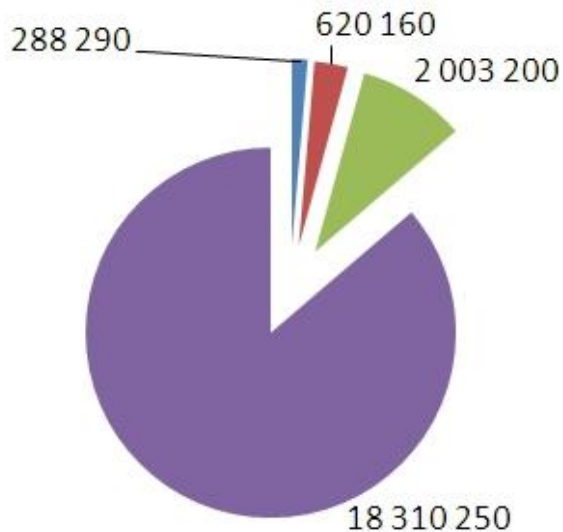
- RWDS contain (potentially) HLW – LLW originating from Sarcophagus site (1986-87)
- Inventory is highly uncertain
- Waste storage conditions do not comply with safety requirements

Radwaste Inventory data for ChEZ

Waste activity, Bq (2000)



Waste volume, m³



- Contaminated soils in the local zone of Shelter
- RWDS
- RWTSP**
- Contaminated soils in the near zone of ChNPP

Aims of Project D

Investigation of radioactive waste burial and temporary storage sites in the ChEZ:

- Characterization of waste disposal sites using airborne geophysical techniques (location, gamma-dose survey, ...)
- Developing a comprehensive database of RWTSP/RWDS with relevant information need for safety assessment (inventory, storage conditions, environmental parameters...)
- Developing and applying a methodology on safety assessment
 - Determination of priority of remediation
 - Evaluate and identify appropriate remedial options to put RWTSP/RWDS into the safe conditions

Time Schedule – Key Milestones

Deliverable (Technical report) / Description	Deadline
Inception Report Task D1	30 September 2014
Task D 2: Input data analysis and developing approach to safety assessment	26 February 2015
Task D 3: Mapping of the trenches and clamps using aerial techniques	24 August 2015
Task D 4: Creation and population of a database of RWTSP and RWDS	13 January 2016
Task D 5: Implementation of safety assessment and ranking of RWTSP and Recommendations for measures to improve their safety	5 August 2016
Task D 6: Implementation of safety assessment of RWDS “Podlesny” and “ChNPP 3rd Stage” and recommendations for measures to improve their safety	14 October 2016
Final report	16 March 2017
Dissemination of project results and Project Finalization	14 April 2017

Challenges / difficulties

- Developing criteria for safety assessment and decision making for RWDS/RWTSP in Chernobyl zone (ChEZ) context
- Presence of Long-Lived wastes (trans-uranium elements) in RWDS / RWTSP / ChEZ – long-term consequences for safety
- Predicting future evolution of ChEZ boundary (for safety assessment purposes)
- Airborne characterization techniques
- Dealing with uncertainty in inventory for RWDS

D3.2 Airborne Geophysical Investigation

- Platform (under consideration)
 - Helicopter
 - Unmanned air vehicle
- Methods
 - LIDAR light detection and ranging (-> DTM digital terrain model)
 - Ortho-mosaic imagery
 - Gamma-spectrometry
 - Near-IR digital (optional)
- Optimum conditions
 - no canopy / foliage; no snow, no heavy rains, fog, mist
 - 2 time windows: spring and late autumn (2015)

Ukrainain sub-contractor: IEG Instutute, team of Yu.Zabulonov

Exchange and joint field missions in ChEZ are under consideration with:

- IAEA experts (RWTSP aerial gamma-survey),
- Japan experts of JAEA ROTE-team (inside-building surveying – RWDS)



Expected results

- Maps showing trenches + clamps in the various RWTSP
- Comprehensive list of trenches + clamps integrated to Database / GIS (location, inventory, relevant environmental parameters ...)
- Safety assessments for the RWTSP and ranking according to level of radiological safety
- Safety assessment for RWDS "Podlesny" and "ChNPP 3rd Stage"
- Recommendations for remedial measures for RWTSP and RWDS (as to put them into an acceptably safe condition)
- Know-How transfer to End User and capacity building
- Contribute to improvement of overall safety level in ChEZ / Ukraine

Thank you for your attention!

