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Development of a Nano Exposure and Contextual Information Database (NECID)

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Introduction

For the assessment of exposure to nano objects and subsequent research studies, there is a need for a harmonized documentation of results and contextual information of workplace measurements. IFA and TNO are leading a group of PEROSH institutes, that develop for this purpose the "Nano Exposure and Contextual information Database, NECID". Based on the experience of the group to workplace measurements and other databases for hazardous substances NECID focuses on the detailed description of activity and material as well as the ambient conditions. This results in significant differences in the structure to the existing databases. As the starting point the intended user group are research institutes and might be expandable to third parties.

Aims

- Harmonization and improvement of exposure measurements of NOAA (Nano Objects and their Agglomerates and Aggregates)
- Uniform documentation of measurement and data treatment
- Multiple use by storing detailed contextual information and raw data: e.g. for
 - Exposure modelling
 - Scenario building
 - Epidemiological studies
 - Source of information for risk management
- International data base to enlarge data pool

Database structure and content

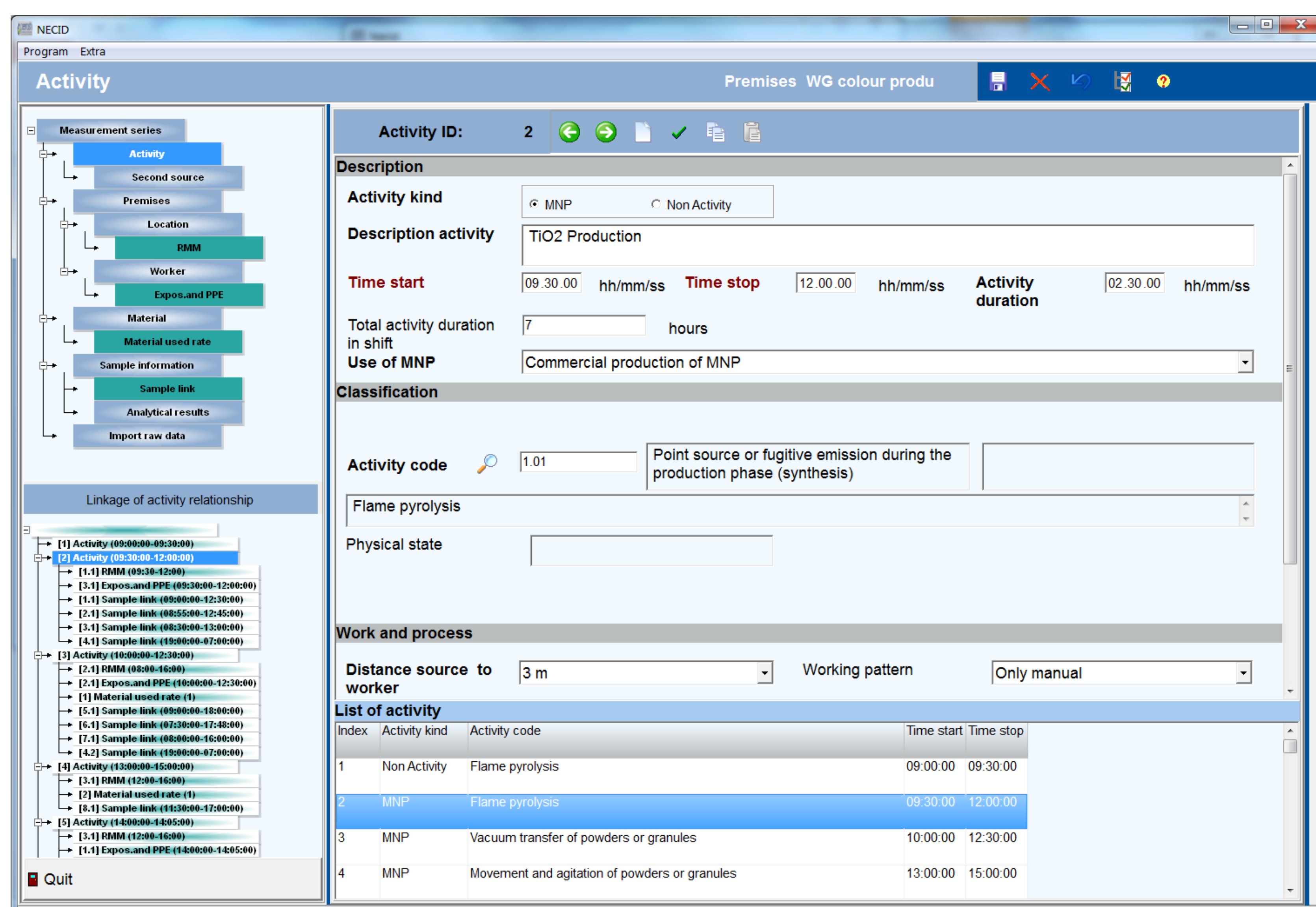
The data entry of one measurement series is structured in main and sub screens.

Main screens:

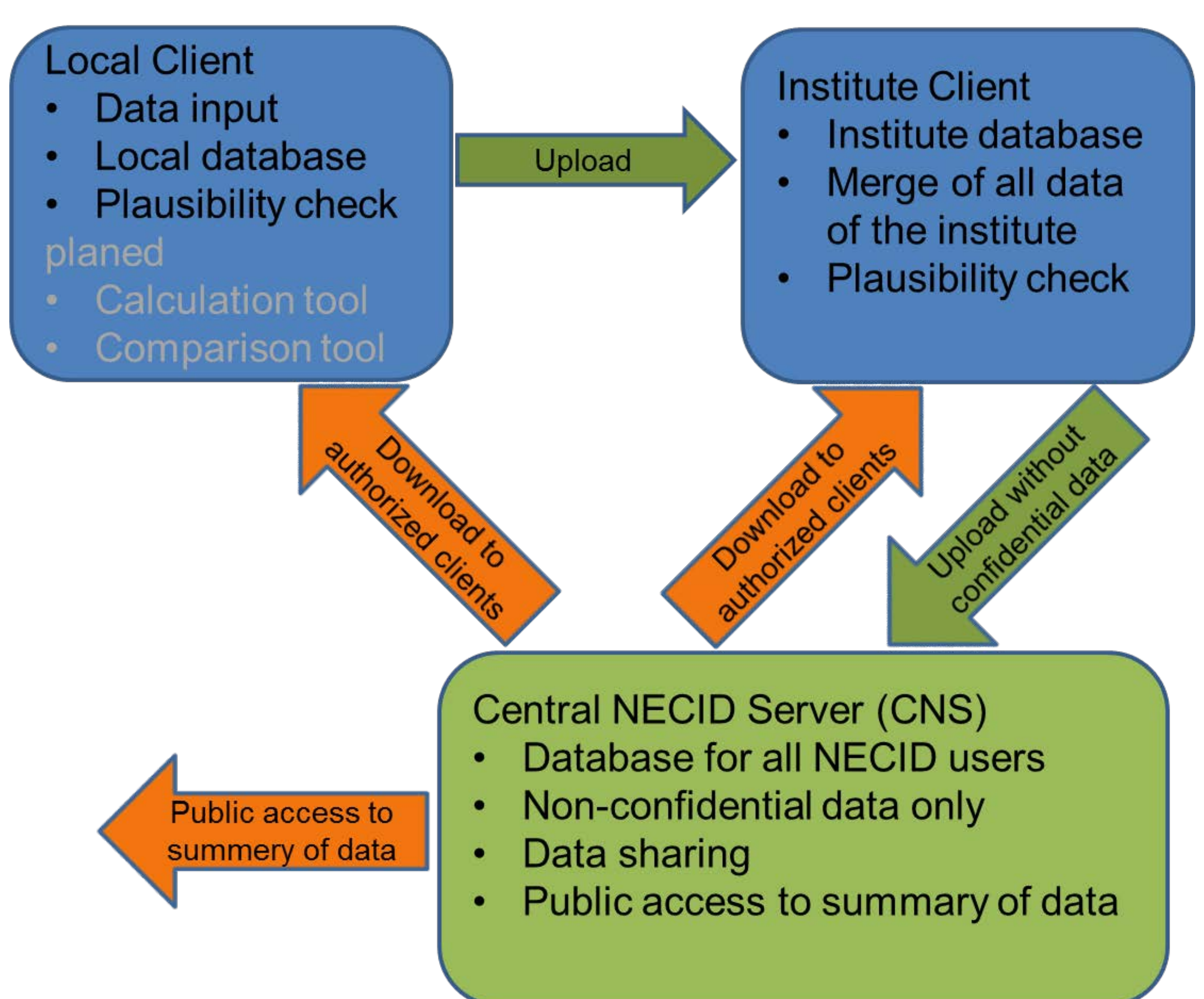
- Activity
- Premises
- Material
- Sample information
- Import raw data

Sub screens:

- Second source
- Location
- Worker
- Analytical results



Data flow



The client software allows the user to store all collected data of a measurement. If needed these data can be transferred to institute wide database. To fulfil the aim of an international database non confidential datasets should also be uploaded to the central server. Consequentially the data on the server are free for research use for all partners of the database and can be downloaded by all authorized users. Also a public access to some information of the database is planned.

Discussion

Since autumn 2013 a beta version of NECID is tested within the NECID-project and the EU-project NANODEVICE. Many other projects agreed to use the same data collection format. To push the harmonization process a cooperation with the EU-project eNanoMapper is ongoing to define a harmonized ontology for occupational exposure against NOAA.

A small analysing tool is implemented and NECID will provide a sustainable source of information for risk management, the development of occupational exposure benchmark levels/limits and can refine the compounding of individual assessment factors in exposure assessment and modelling to avoid unnecessary conservatism.

Outlook

From mid of June 2017 on NECID will be offered to all interested stakeholders. The NECID software licence is free of charge. More information under:

NECID@DGUV.de
WWW.NECID.EU

