

# OSART Good Practices

## CHEMISTRY

### Organization and functions

Cruas, France

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To ensure proper monitoring and tracking of liquid and gaseous releases, the environmental and chemistry section has set up a specific system which is used together by operations and chemistry. This is practically a logbook with detachable sheets that is specific to each type of release:

- red log for nuclear auxiliary building releases (KER),
- yellow log for balance of plant releases (SEK),
- orange log for the liquid waste discharge system TER (these tanks can be used only after obtaining a regulatory authorization),
- blue log for gaseous releases.

There is a set of 6 sheets per release established. Each step of the effluent processing is registered on these sheets, like:

- No.1: isolation and mixing, condition of dilution pump per release location (filled in by operations),
- No.2: sampling, analysis and definition of optimal release conditions (filled in by environmental chemistry),
- No.3 and No. 4: actual release and subsequent summary report (filled in by operations),
- No.5: report on regulatory chemistry analysis (filled in by environmental chemistry),
- No.6: One page of pre-printed sticker labels with a unique release number. These labels are put on each sample taken before the release and on those that are used for monitoring and tracking the receiving environment. The labels are filled in by environmental chemistry.

Each sheet represents a page of the "effluent" data base which is used for transmission to the regulatory body, as well.

The benefits for plant staff are clear recognition and improvement of working conditions due to the followings:

- same identification number on each sheet and label that makes a link at all times between the sample, the analysis and the release,
- color code applying to the sheets and labels, making it easy to distinguish between the various types of releases,
- the first four sheets are carbon paper, ensuring that all data are kept by the various users with limited risks of errors that could results from having to write the information several times,
- first sheet remains in the operations log avoiding double request for an analysis,
- sheets No.4 and No.5 are identical, they are used for monitoring the whole release process, No.4 being kept by operations and No.5 archived by environmental chemistry,
- radiological and chemical limit values are also indicated in the document, specific or real-time constraints can be added if necessary.

Chemistry staff are 'cross-trained' in Doel 1/2 and Doel 3/4 systems.

Doel NPP operates units 1 and 2 with 433 Mwe net power each, and units 3 and 4 with 1006 and 1040 Mwe net power respectively. Units 1, 2 and units 3, 4 of the plant are of different PWR designs. Consequently the names of the plant systems, the location of the sampling points and the process computer are different for Doel 1, 2 and Doel 3, 4. The chemistry specifications are similar, but have some differences for Doel 1, 2 and Doel 3, 4. The laboratory equipment and the counting room are the same for both Doel 1, 2 and Doel 3, 4.

The chemistry service provides 'cross training' for chemistry technicians, whereby technicians from units 1, 2 are also trained to work on units 3, 4 and vice versa.

- The training program is specific, well-defined and comprises both theoretical and practical parts. It covers all subjects which are different for units 1, 2 and units 3, 4.

- The training is required by and defined in a procedure.

- The training includes initial training and annual retraining.

The benefits of 'cross-training' for the plant include greater flexibility to assign staff to cover higher workloads, and the ability to ensure sufficient staffing in emergency or epidemic situations.