

OSART Good Practices

CHEMISTRY

Organization and Functions

Tricastin, France

Mission Date; 14-31 January, 2002

A very comprehensive system of chemistry performance indicators is established. The main chemistry performance indicators connected to chemistry, radiation protection effluents and the environment are used with short-term trend evaluation (3 weeks). Expected and limit values of indicators are also expressed. The values are upgraded once a week and are easily accessible for all the plant's employees via the electronic IT system. In the form of a weekly newsletter with pictograms, the system is used for the presentation of chemistry results for plant management and other departments. This type of relationship has the advantage of enhancing the commitment of plant management and other departments in the chemistry area. As a result, chemistry deviation treatment is performed more rapidly.

Sta. M. Garona, Spain

Mission Date; 18 Feb.-2 Mar., 2002

System technicians connected with plant systems for which they have to take over responsibility

The manager of the chemistry section together with the chemistry personnel have developed a method by which every technician of the chemistry section is responsible for following up each particular system of the plant in relation to chemistry and radiochemistry items. They also have to file and record all the operative incidents to enable them to find root causes related to chemical and radiochemical condition changes. With this purpose every plant system has been associated with a particular technician who is responsible for preparing plots of different parameters, which have been previously established for the control of each particular system. Each technician also has to report about the performance of his systems in all regular meetings of the chemistry section. They also contribute to the preparation of the chemistry report, which is performed at the end of each fuel operation cycle by means of plots and by written reports in which all the comments that they have filed during the operation cycle for each particular system must be included.

The methodology established is reporting several benefits. Some of them are:

- Allows to observe, in a closer way, all analytical results.
- Improves the follow up of the chemical and radiochemical behaviour of the plant systems.
- The personnel themselves consider that they are more useful and, in this way, they feel more motivated.
- This method engages them to follow up the performance of the systems in a much better way than before it was established.

Zaporozhe, Ukraine

Mission Date; 6-23 Sept, 2004

To reduce the volume of radioactive waste, Water Radiochemistry Laboratory personnel developed an ion exchange resin performance test and extended the service life from 4 to 7 years. This reduced the opportunity for radiation exposure during resin replacement and reduced the amount of resin waste significantly, when compared 2001 and 2003 data. This achievement by the chemistry group supported plant management goals.

Penly, France

Mission Date; 29 Nov.-16 Dec., 2004

The chemistry and operation liaison folder is established as a communication tool between the ST department and OP department.

The folder is kept in the main control room and includes the following:

- Chemical and radiochemical parameters (data related to technical specifications, including the equivalent iodine 131)
- list of the activities carried out during the day
- the corrective actions to be performed
- the parameters to be monitored
- the key activities to be carried out on the next day
- miscellaneous comments or observations

The information exchanged during the morning and the evening briefings, between the chemistry department coordinator (CPA) and the shift supervisor from operations, is tracked on a daily basis in this folder. The contents of the liaison folder is continuously improved.

This folder guarantees:

- suitable tracking of information
- technical specification related data immediately available out of working hours
- the 'equivalent iodine 131' data is available if required in the event of an emergency (EPP)
- a monitoring document displaying the main chemistry and radiochemistry trends

As a result, the liaison folder has contributed to facilitate and ensure the relationships between chemistry and operation departments and to optimize the coordination of the units.

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.