A PLM approach to support nuclear decommissioning

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Résumé

At this time, the first generation of nuclear power plants is gradually being taken out of service and decommissioned. Around 300 nuclear facilities will be stopped around the world in the next 20 years and more than 10 decommissioning operations are on-going in France. Decommissioning is defined by the IAEA (International Atomic Energy Agency) as "the administrative and technical actions taken to allow the removal of some or all of the regulatory controls from a facility". This means that decommissioning activity does not begin when the facility is permanently shut down, but starts as early as the design stage. In the case of nuclear power plants (NPPs), this stage starts with the redaction of decommission file. This process is long, complex and requires the determination and the description of the decommissioning scenario of the installation, which means the description of all the operations which are run from the final shutdown of the PWR units. Amount of data are needed to establish a physical and radiological inventory of the totality of the NPP. Such data are spread over a large number of stakeholders (facility operator, ANDRA, maintenance, etc.), which all have specific Information Systems (IS). Such IS can be of different families (like PDM – Product Data Management, ERP – Enterprise Resource Planning, etc.), with very specific points of view on the data. Moreover, due to the long lifetime of the nuclear facilities, some of the information and data may not be digital and by consequent, uncertainties, inconsistencies or non-maturity may occur. A PLM approach has been proposed to tackle this issue.

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