



# Engineering

# Software engineering

With an experienced nuclear workforce in locations around the world, Orano continuously invests in the latest technology, hardware, software, and training to put us at the forefront of nuclear safety software engineering and development.

Our experience on past projects makes us uniquely qualified to provide solutions to customers' software needs.

## Technical expertise

Orano maintains a wide variety of technical expertise in multiple functional disciplines, including all aspects of computer software development, use, and control. Our technical experts are well-versed in working to the requirements of NQA-1 and other standards, guides, and orders typically required across the DOE complex.

## Orano experience

Orano also has experience in developing and applying instrumentation and controls for safety-related processes, as demonstrated by complex work performed at the Hanford Site's low activity waste (LAW) processing facility's Programmable Protection System safety software application development program.

Orano successfully delivered the software solution to support LAW startup at Hanford on time, and have continued to support change orders.

## Problem

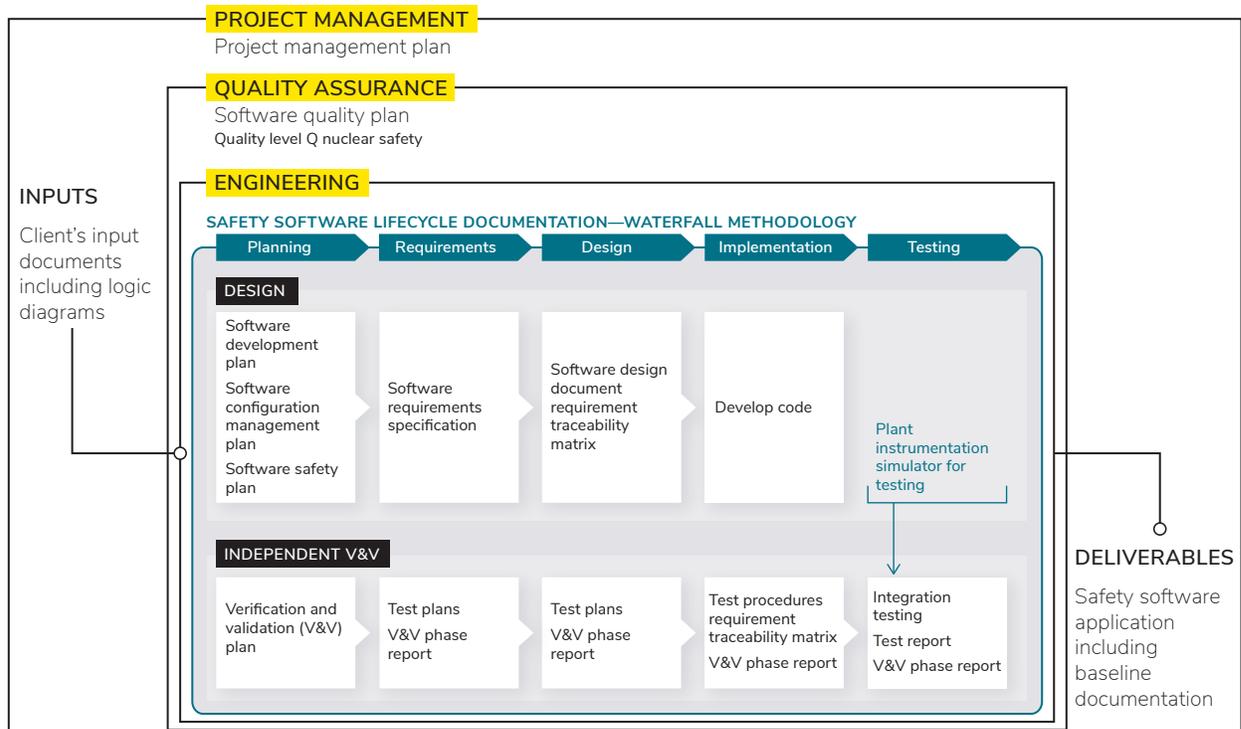
The need for PLC safety software application to demonstrate that the requirements are satisfied through the software lifecycle, and the application performs its safety functions as intended.

## Solution

Develop and apply instrumentation and controls for safety-related processes utilizing the controller platform—NRC safety qualified Triconex as outlined below:

## NUCLEAR SAFETY SOFTWARE APPLICATION DEVELOPMENT PROCESS

Controller platform: NRC nuclear safety qualified Triconex



## Orano Software engineering

Orano has also completed a large design, license, and construction project at DOE's Savannah River Site for the National Nuclear Security Administration (NNSA), including software validation processes on the Triconex platform for NNJ1, NNJ2, PFJ, and KKJ4 systems.

During this project, Orano led the software design group, responsible for planning, developing, and managing the implementation of many of the facility's software requirements, including:

- NPLC (Normal Programmable Logic Controller [PLC])
- SPLC (Safety PLC)
- LIMS (Laboratory Information Management System)
- Manufacturing Management Information System (MMIS)
- DataHistorian

This included managing the design, release, and verification and validation (V&V) of software for testing across 52 different processes.

## Capabilities

Orano personnel have specific skill sets developed on past projects with direct experience in:

- Project management plan development
- Software quality plan with NRC Q security clearance
- Engineering, including software design engineering and V&V
- Applicable codes, regulations, and standards including NQA-1, ASME, DOE O 414, ISA, IEEE, IEC, and DOE

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