CASE STUDY: ATOMENERGOPROEKT, RUSSIA

FACTS AT A GLANCE

Company: JSC Atomenergoproekt

Website: www.aep.ru

Description: JSC Atomenergoproekt is an engineering company that specialises in the general design of nuclear power plants (NPPs). The company delivers a wide range of services such as NPP construction, engineering, environmental monitoring, energy unit decommissioning, building and installation works, and procurement.
Industry: Engineering, IT

Country: Russia

PRODUCTS USED:

- SmartPlant P&ID
- Smart3D
- SmartPlant Foundation
- SmartPlant Foundation Tag Management
- SmartPlant Foundation Room Management
- SmartPlant for O/O
- SmartPlant Instrumentation
- SmartPlant Electrical
- SmartPlant Review
- SmartPlant Materials

KEY BENEFITS:

- Comprehensive solutions, which are helpful to any specialist when designing an NPP;
- Intergraph solutions help manage documentation and data at all stages of the NPP life-cycle

JSC ATOMENERGOPROEKT EFFECTIVELY MANAGES DATA ON NPP PROJECTS WITH INTERGRAPH SMARTPLANT ENTERPRISE TECHNOLOGIES

Creating a complex information system based on SPE products helps to form a single information asset and establishes data management throughout different NPP projects in Russia and abroad

ATOMENERGOPROEKT
State Corporation "Rosatom" Enterprise

IDENTIFYING GOALS

JSC Atomenergoproekt developed the designs of the majority of NPPs in Russia, Eastern Europe and CIS countries and is the General Designer of the Bushehr NPP in Iran, Kudankulam NPP in India, Belene NPP in Bulgaria, and Akkuyu NPP in Turkey. In addition, they are the General Designer and General Contractor of the Novovoronezh-2 NPP.

Also, JSC Atomenergoproekt is the General Designer of standard optimized and information-based technology running the power unit of VVER («VVER-TOI» Design). VVER-TOI is an evolutionary technology executed in the modern information environment. As the basic design program for serial construction of new generation power units, VVER-TOI provides optimal NPP construction management in Russia and increases competitiveness of Russian export offers within foreign markets.

JSC Atomenergoproekt supports the operation of existing energy units that they designed, and is in charge of revamping and decommissioning of these energy units. Such a wide range of activities requires a single information platform for better data management - Intergraph technologies provided such a platform.

Atomenergoproekt initially planned to implement technologies which would lead to project execution in a modern IT environment with the possibility of managing data throughout the entire life-cycle of energy unit. It was of utmost importance to create a single information system which would allow changes to be made automatically in project and engineering documentation, and navigate data and transfer information in any format requested by a customer. The company aimed at selecting and implementing technologies that could be easily used by all employees in charge of NPP design, one that would gather data from engineers to form an information model. In light of these criteria the company chose Intergraph solutions, which fulfilled all needs and demands of the NPP design process.

OVERCOMING CHALLENGES

Recovering Considering Atomenergoproekt's principles of project design work and existing technology standards, the company's engineers, together with Intergraph technical specialists, customized software solutions for specific needs.

Several key aspects of the project were successfully created:

- A system of documentation coding, enabling document management;
- Principles of project documentation formation;
- Document templates, building on the outline of the mechanism of project documentation package formation;
- Package of methodological documents for setting modules of information system.

Moreover, the detailed specification and manuals on how to work with the modules were made (more than 100 regulating documents). Employee training and technical support was organized to ensure the company's employees were fully aware of how to work with the information system of the project.

REALIZING RESULTS

After four years of collaboration between Atomenergoproekt and Intergraph, there now exists a complex information system based on Intergraph's SmartPlant Enterprise (SPE) products. This system enables the gathering of documentation within one single platform in order to manage data from different CAD sources effectively.

The central component is an engineering data management system based on an SmartPlant Foundation solution where bills and materials are listed. This system enables all project engineers from different CADs to make changes, with the system concurrently merging all engineering activities.

Intergraph technologies are now being implemented in most Atomenergoproekt branches and offices to create comprehensive documentation for NPP projects. Currently, solutions are being used in Novovoronezh-2 NPP, VVER-TOI, Kurskaya-2 NPP, Smolenskaya-2 NPP, and Nizhny Novgorod NPP projects.

The Intergraph technical support team and Atomenergoproekt have developed integrated Intergraph solutions with numerous settlement systems, ERP systems, project systems and structural CADs. This kind of integration makes it possible to decrease working hours for issuing project documentation, significantly diminish the risk of human error during data exchange, which eventually leads to better documentation quality. Within the VVER-TOI project the system was customized significantly – Intergraph generated Tag management and Room management applications.

The VVER-TOI project was executed with implemented Intergraph solutions which helped to lower costs during NPP energy unit batch design and for project and engineering documentation at VVER-TOI project sites.

MOVING FORWARD

Atomenergoproekt is constantly working on complex system developments. It is planned to fully adapt solutions for VVER-TOI project duplication, including the requirements management system and configuration and seriation system management. Although much effort is involved in the initial set-up of such a system, Atomenergoproekt recognizes that the benefits of Intergraph solutions far outweigh the initial challenges of implementation.

ABOUT INTERGRAPH

Intergraph helps the world work smarter. The company's software and solutions improve the lives of millions of people through better facilities, safer communities, and more reliable operations.

Intergraph Process, Power & Marine (PP&M) is the world's leading provider of enterprise engineering software enabling smarter design and operation of plants, ships, and offshore facilities. Intergraph Security, Government & Infrastructure (SG&I) is the leader in smart solutions for emergency response, utilities, transportation, and other global challenges.

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