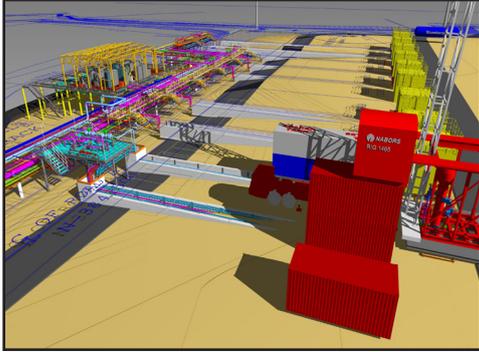


# CASE STUDY



# CADWorx & Analysis Solutions



## Total succeeds in Russian Arctic with Intergraph CADWorx Plant

Total Exploration & Production Russia (TEPR) is part of Total Group, the largest French investor in Russia which has been active in the Russian Federation since 1991. The company is Russia's largest trader of crude oil and product exports.

### Addressing design challenges in permafrost environment

TEPR operates the Kharyaga oil field in the Nenets Autonomous Okrug, Timan Pechora Basin which is north of the Arctic Circle on permafrost soil. The project involved the TEPR's construction department linking the extension of existing production facilities to accommodate new production and production increases from the oil field. The project included preparations to tie in pipelines from new remote pads and modifications to bring existent design solutions in line with modern safety requirements.

### Reconstructing an entire facility in 3D

Engineering projects of oil and gas fields benefit from 3D presentation. However, the facility's design documentation provided by the engineering contractor from 2002 was entirely in flat drawings which meant TEPR had to reconstruct the entire facility, including piping and structural design, in 3D.

Facing this challenge, the TEPR lead engineer chose Intergraph CADWorx Plant for the task because of its proven and easy-to-use 3D modeling capabilities. For the ongoing conversion involving two additional engineers, the 3D CADWorx model TEPR engineers produced provides a complete representation of the size of the production plant, and all the new facilities they add appear in this 3D model.

### Improving design processes with CADWorx

The construction department developed hook-ups of nine producing wells and two water injection wells and designed the pig receiving platforms and tie-ins for pipelines from the remote production pads.

"By using CADWorx we were able to get material take offs (MTO) for piping and structural items at the preliminary design stage," explained Andrey Zotov, piping and structural engineer at TEPR. "This allowed us to plan a budget accurately and place orders early for materials and components with long lead items such as valves." The 3D modeling with CADWorx also helped them analyze piping network and steel structures during repair work and quickly generate piping spool isometrics and MTO.

### Ensuring on time completion with CADWorx

The 3D reconstruction of these oil production facilities was a major task even for an experienced engineering company such as TEPR. During project meetings, they were able to use the 3D CADWorx models to demonstrate and review the new and proposed site modifications to ensure maximum clarity among all participants involved in the process.

"By using CADWorx Plant tools, we were able to do it with just three specialists, and with the reconstruction and expansion completed, the 3D model they created of the facility can be used for any future extensions development," Zopov said. CADWorx helped ensure quick installation of the pig receiving platforms and helped them start up remote pad production on time and report the project's completion to the Russian partners.

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#### PRODUCT INDEX

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