Kellogg, Brown and Root
Gas Plant Civil Design

END USER: Confidential
CLIENT: Kellogg, Brown and Root (KBR)
START DATE: 2011
COMPLETION: 2012

KBR SCOPE:

Full design of the gas plant including civil, piping, instrument, electrical and mechanical engineering components.

12d DIMENSIONS:
- Land Development
- Oil & Gas

Project Summary

Design of the civil engineering components of the gas plant, and their export from 12d Model and import into PDMS.

PDMS is a popular plant design software product that enables users to design a 3D computer model of a process plant. All information in PDMS is stored in databases, allowing multiple users in multiple disciplines to work with a single source of engineering data at the same time.

Every change in PDMS is reflected and available to other users, enabling the identification of cross-discipline clashes.

For more information

To find out more about how you can create better designs faster with the 12d Model solution for civil engineering design, visit www.12d.com.
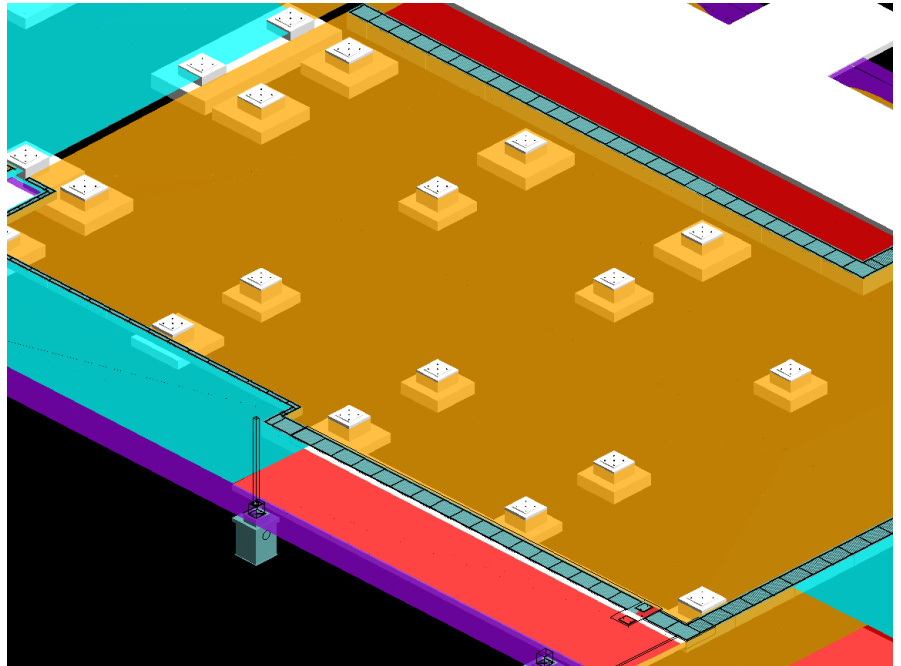
Americas: Vancouver
E: americas.sales@12d.com
P: +1 206 905 1464

Australasia: Sydney
P: sales@12d.com
M: +61 2 9970 7117

Europe: London
E: sales@12d.co.uk
P: +44 845 051 0372

Gas Plant, Indonesia
12d Interface with Plant Design Management System (PDMS)

PDMS Model reflecting 12d design integrated with other PDMS design elements

The Challenge

PDMS does not support civil engineering components such as road design and works. PDMS does not have a specific type of element to represent a TIN surface.

This prevents other disciplines from checking clashes, sufficient cover and clearances to the design ground level and/ or roads.

Civil design surfaces can be exported to PDMS but the process takes time, requiring additional work in CAD prior to the import to PDMS.

This does not support the ability to quickly and efficiently redesign civil engineering elements and make them available in PDMS for other disciplines to access.

The Solution

A macro was developed that automated the work flow to shorten the turnaround required for civil element updates in PDMS.

It also reduced the amount of manual CAD editing required, reducing the incidence of error encountered when executing manual modification.

It allowed 12d users to fully utilise 12d Model's flexibility without having to export to other software for editing. The macro can be used on any PDMS project by modifying mapping files.

Result

The flexibility of 12d Model and the ability to create custom macros streamlined an existing process that did not support the efficient and accurate redesign of civil engineering elements, if and when necessary.

Civil engineering surfaces can now easily be exported between 12d Model and PDMS, providing other disciplines with the latest information to complete their mission critical design elements.

12d° Model

Roads and Highways

12d Model's design option is the smarter solution for the design, modification and maintenance of Road and Highway projects.

Enjoy advanced 3D tools to design local and major roads, intersections, roundabouts, highways, interchanges and much more.

Ports and Dredging

12d Model is the solution for port infrastructure and dredging, easily managing the very large datasets and complex volume calculations often required by these projects.

A complete range of flexible and customisable volume calculation tools allow teams to extract and present the information quickly and easily.

Land Development

12d Model is the most versatile solution for the creation of sustainable land development projects, including residential, commercial and industrial developments, recreational areas, landfills, and agriculture projects.

Easily manage all aspects of your land development project from earthwork quantities, road design utilities and drainage design.

Airport Infrastructure

12d Model provides a solution for the design, construction and analysis of new airports, as well as the upgrade and maintenance of existing runways and airport infrastructure.

Easily manage large airport infrastructure projects and share data across multi-disciplinary teams.

Rail

12d Track has been specifically designed for the survey, design and construction of light, heavy and high speed rail projects.

Extensive railway tools in 12d Track allow the rail designer to quickly and easily design their projects. These options are built on the existing 3D modelling and design tools available in 12d Model.

Mining Infrastructure

12d Model's powerful set of exploration, site investigation, survey and analysis tools are crucial for the initial design, construction and ongoing operation of mining projects.

Comprehensive tools for the survey, design and construction of access roads, railways, earthworks and services allow for the coordinated design and management of mining infrastructure from within 12d Model.

Drainage, Sewer and Utilities

12d Model provides comprehensive tools for the design, analysis and optimisation of stormwater and sewer projects using rational, dynamic (hydrograph) and 2d drainage methods.

Powerful clash detection management allows for efficient 3D modelling of service networks such as gas, electricity, telecommunications and water prior to construction.

Surveying

12d Model is a complete surveying package providing the tools to manage all facets of surveyed data including LIDAR, topographical, as-built, conformance, traversing, geodetics, data mapping, labelling and much more.

The 12d Field option runs on a ruggedized tablet and gives the user access to full 12d Model functionality, allowing you to take the entire project into the field with the most comprehensive pick-up and set-out tools.

Oil and Gas

12d Model assists with the design, construction and mapping of oil and gas pipelines, original site exploration and the wide range of infrastructure required for oil and gas projects.

Accurate 3D modelling and the ability to share data between users allow teams to quickly and easily coordinate designs.

Construction

12d Model is the ultimate software for construction with powerful set-out options, direct interfaces to machine control and detailed conformance reporting and auditing.

Manage 3D data and control volumes, quantities and progress claims with 12d Model. Set-out your project and undertake conformance and as-built surveys live on-site using 12d Field.
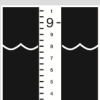
Rivers, Dams and Hydrology

12d Model handles very large datasets and interfaces with a wide range of analysis packages, making it perfect for flood studies and the management of rivers and dams.

12d has partnered with industry leading analysis software, allowing users to apply 2D drainage analysis from within 12d Model.

Environmental

12d Model's ability to handle very large datasets combined with flexible and comprehensive 3D analysis and modeling tools make it perfect for a wide variety of environmental projects.

Existing workflows can adopt 12d Model easily as it allows users to directly interface with GIS systems and most software packages and file formats.

Why Choose 12d?

- Powerful data processing & intelligent functionality.
- Modular, easy to update & completely customisable.
- Seamless integration with major industry software and hardware.
- Used in over 55 countries worldwide.
- Friendly support & training from industry experts.

Americas: Vancouver
E: americas.sales@12d.com
P: +1 206 905 1464
Australasia: Sydney
P: sales@12d.com
M: +61 2 9970 7117
Europe: London
E: sales@12d.co.uk
P: +44 845 051 0372

12d Model