User name: MCC Capital Engineering & Research Incorporation Limited
Project name: World's first hydrogen metallurgy engineering demonstration project
Location: Zhangjiakou, Hebei, China

Background:

- MCC was retained to design and deliver the world's first hydrogen metallurgy project.
- By replacing coal with hydrogen, the groundbreaking facility will significantly reduce carbon emissions generated by iron and steel smelting.

Challenges:

- Project presented a large, complex engineering workload across industries and disciplines.
- Execute a shortened design cycle for a compact layout under strict safety requirements.

Solution:

- Bentley's design, construction management, and technology enabled the creation of a digital twin for the project.
- Construction simulation through SYNCHRO enabled them to avoid clashes during the build.

Outcomes:

- The open digital twin helped the team collaborate and bring together data in a geospatial context and at scale, improving infrastructure delivery and performance.
- Bentley helped MCC complete the project in two years, shortening the construction period by 33.33%.
- Through virtual planning, they optimized the shaft furnace structure, saving CNY 4.3 million, while reducing annual carbon emissions by 800,000 tons.

Quote: "The Bentley software and services deployed on this project gave us peace of mind in the results, speed of delivery, and reliability of critical monitoring information for early detection of any issues that may arise. This allowed the project team to proactively assess next steps and ensure the safe passage of trains throughout the corridor, keeping a vital commuter artery open for business." – *Samantha Ford, General Manager, Monir Precision Monitoring*

Image caption/courtesy 1: MCC used Bentley applications to design and construct the world's first hydrogen metallurgy plant. *Image courtesy of MCC Capital Engineering & Research.*

Image caption/courtesy 2: Bentley's design, construction management, and technology enabled the creation of a digital twin for the project. *Image courtesy of MCC Capital Engineering & Research.*

Image caption/courtesy 3: Construction simulation through SYNCHRO enabled them to avoid clashes during the build. *Image courtesy of MCC Capital Engineering & Research.*

For more information, please contact Bentley PR at PR@news.bentley.com.

# # #