

# CASE STUDY



# CADWorx & Analysis Solutions



“By using CADWorx, we were able to minimize site modifications on the piping spools, expedite fabrication, and ensure a smooth installation on site.”

## PRODUCT INDEX

Intergraph CADWorx®

## INDUSTRIES SERVED

- Oil
- Gas

## Black Cat succeeds on Qatar project through CADWorx® accuracy and automation

With headquarters in Doha, Qatar, Black Cat Engineering & Construction (Black Cat) has been providing engineering, procurement, installation, and commissioning for three decades on complex projects in multiple industries and disciplines. Their experience and capabilities extend from oil and gas to industrial facilities and infrastructures, with their multidisciplinary teams providing clients with expertise during the feasibility phases through to the professional execution of the projects.

Qatar Fertilizer Company (QAFCO) chose Black Cat to design and install a flash tank and knock-out drum for ammonia recovery and ammonia flare systems for two plants, the Ammonia 1 and 2 units, giving them a very short three-month schedule to complete the project. Located in Mesaieed, Qatar, the project required the design of 24-inch flare headers, 18-inch and 12-inch blow down headers, a new pipe rack, and a safety relief valve (SRV) outlet connection from all the equipment in the two units. Piping length totaled approximately one kilometer with diameters ranging from one inch to 24 inches in schedules 20, 30, 40, and 80. Black Cat's assignment encompassed design, erection, installation, testing, pre-commissioning, commissioning, and performance testing, plus overall project management and training.

### Producing accurate deliverables with CADWorx

Because 50% of the piping work was to be done with the plant shut down, full accuracy was a critical priority to ensure precise fit at installation so that the length of the shut down could be kept to a minimum. The project required accurate engineering deliverables including as-built models and drawings of equipment, pipe racks, and piping for the facility's two ammonia units to ensure both sound design and accurate deliverables for the small bore piping. Black Cat was able to leverage the visualization that Intergraph® CADWorx provides to ensure the accuracy of the model and design.

### Ensuring timeliness through collaboration and automation

The project's demands for accuracy were compounded by the short three-month schedule. Using CADWorx visualization for the modeling, Black Cat incorporated Intergraph CAESAR II® and PV Elite® to analyze stresses on piping and vessels. This collaborative design and engineering approach with the automation of the deliverables, including bills of material, allowed them to meet these combined challenges.

### Completing project without a costly shutdown

With the capabilities of CADWorx, CAESAR II, and PV Elite, Black Cat engineers saved significant time and finished the piping within a costly shutdown. “By using CADWorx, we guaranteed that the amount of site modification on the piping spools was minimal and that the piping fabrication and erection were executed smoothly,” stated Ahmad Akila, senior piping engineer at Black Cat.

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