

## AFT Fathom Handles the Big Systems for Raytheon

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*Raytheon Engineers and Constructors is one of the world's leading companies in heavy engineering and construction. Raytheon serves the power, petrochemical, bio-pharmaceutical, and metals industries. They operate 50 offices worldwide and employ 15,000, of which 2,000 are located at the Philadelphia office.*

The world of heavy engineering and construction is a complex world where project management, compressed schedules, and interdisciplinary design teams are an integral part of the way of doing business. In such an environment, rapid communication among the various parts of the project team is essential. Reliable answers to design questions must be turned out quickly in order to maintain schedules and reduce the possibility of expensive design changes late in the design process.

As a leading company in heavy engineering and construction, the engineers at the Raytheon Philadelphia office realized that they could be more responsive to the demands of the design process if they had a better way of doing their pipe flow modeling. They decided to do some looking and the engineer who lead the evaluation was Jim Magee, a Project Engineering Manager. Before deciding on the right package, Jim compared a number of different products. According to Jim, AFT Fathom came out on top because of its user friendliness and Windows compatibility.

After purchasing a number of copies for their engineers, they have put AFT Fathom through its paces. And

AFT Fathom has proven to Raytheon that it is up to the challenge. "AFT Fathom has made flow analysis faster, saved man-hours, and justified the cost."

### **Comparisons with operating data**

Raytheon has used AFT Fathom to model a number of high capacity systems with good results. Jim told us, "We have modeled two major cooling water systems for a new steel mill in the Chicago area with flows of 20,000 to 30,000 gpm, as well as an existing cooling water system of 30,000 gpm at Bethlehem Steel's Pennsylvania Steel Technologies Plant. The AFT Fathom results have agreed with flow tests we did at the Bethlehem Plant. The other application is still under construction." The model Raytheon built for Bethlehem Steel is shown in the figure on the back.

One of the key benefits Raytheon has experienced by bringing in AFT

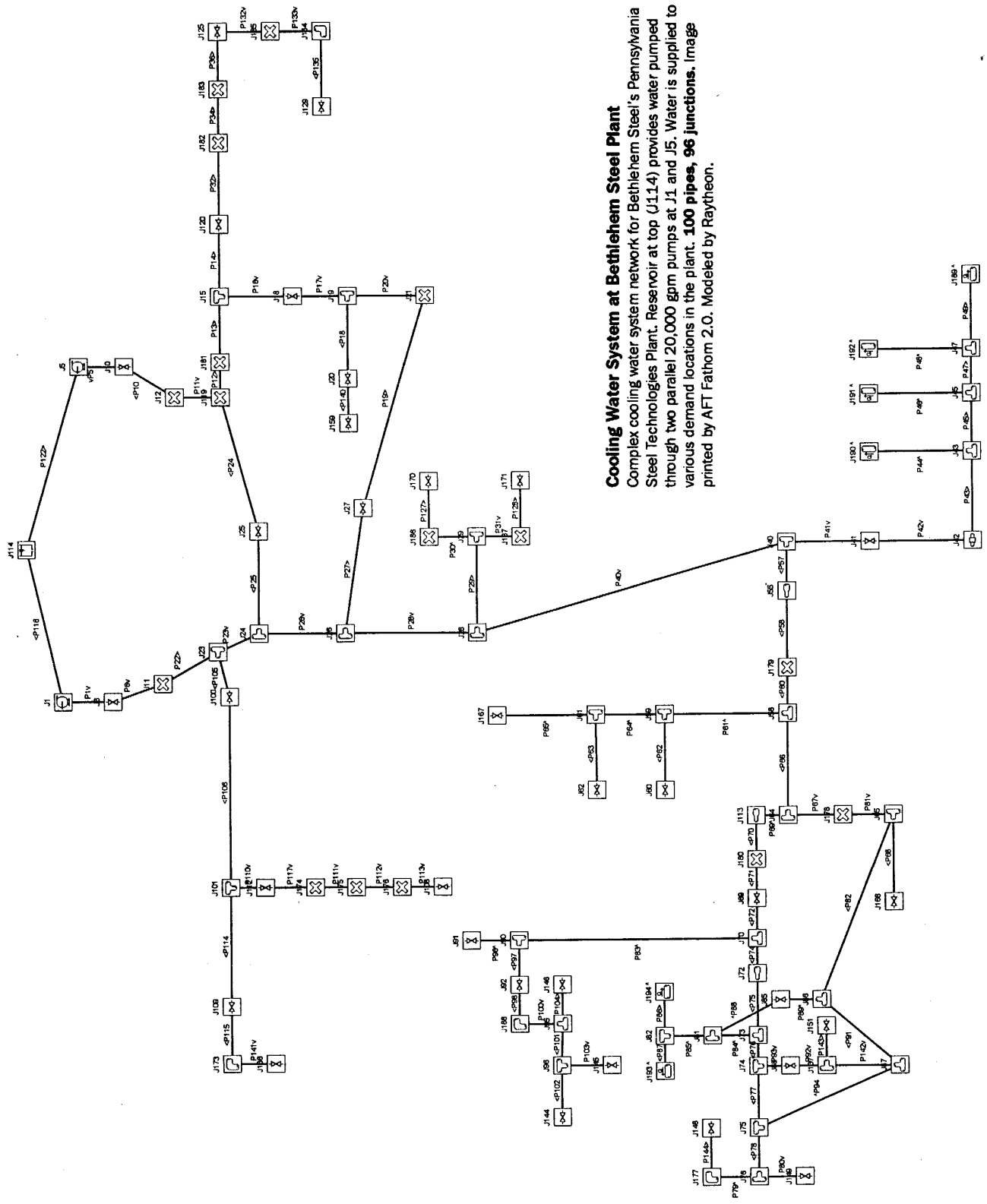
Fathom is that project engineers can perform the pipe flow analysis directly, without having to rely on staff engineers. This has further accelerated the communications process and allowed analyses to be performed in a more timely manner.

Being aware of Raytheon's successes with AFT Fathom and also aware that many of their projects involved compressible flow analysis, we invited Raytheon earlier in the year to be a beta site for AFT Arrow testing. Their assistance in testing, along with the other test sites, has been of major importance in bringing AFT Arrow to readiness for commercial use. We thank them for their participation and are excited to see how AFT Fathom has made an impact. We look forward to seeing AFT Arrow make a similar impact at Raytheon in the future.

***"We have modeled  
an existing cooling  
water system. . . .  
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For more information on AFT Fathom, contact Applied Flow Technology at (800) 589-4943 or (719) 686-1000 or fax us at (719) 686-1001.



**Cooling Water System at Bethlehem Steel Plant**  
 Complex cooling water system network for Bethlehem Steel's Pennsylvania Steel Technologies Plant. Reservoir at top (J114) provides water pumped through two parallel 20,000 gpm pumps at J1 and J5. Water is supplied to various demand locations in the plant. **100 pipes, 96 junctions.** Image printed by AFT Fathom 2.0. Modeled by Raytheon.