TECHNICAL
TOOLBOXES

AC PowerTool
Success Stories

Table of Contents

Who Should Read This?

You work as a pipeline engineer, corrosion engineer, or an integrity engineer, or as a supervisor designing and implementing strategic solutions for a company that creates critical pipeline infrastructure or performing assessments and testing existing pipelines for elevated AC corrosion and safety concerns. Rather than continuing to lose time repeating complex mitigation calculations, implementing the AC PowerTool will equip you quickly to create and compare various models and inputs and variables. This, in turn, will reduce project times and save you and your pipeline company money.
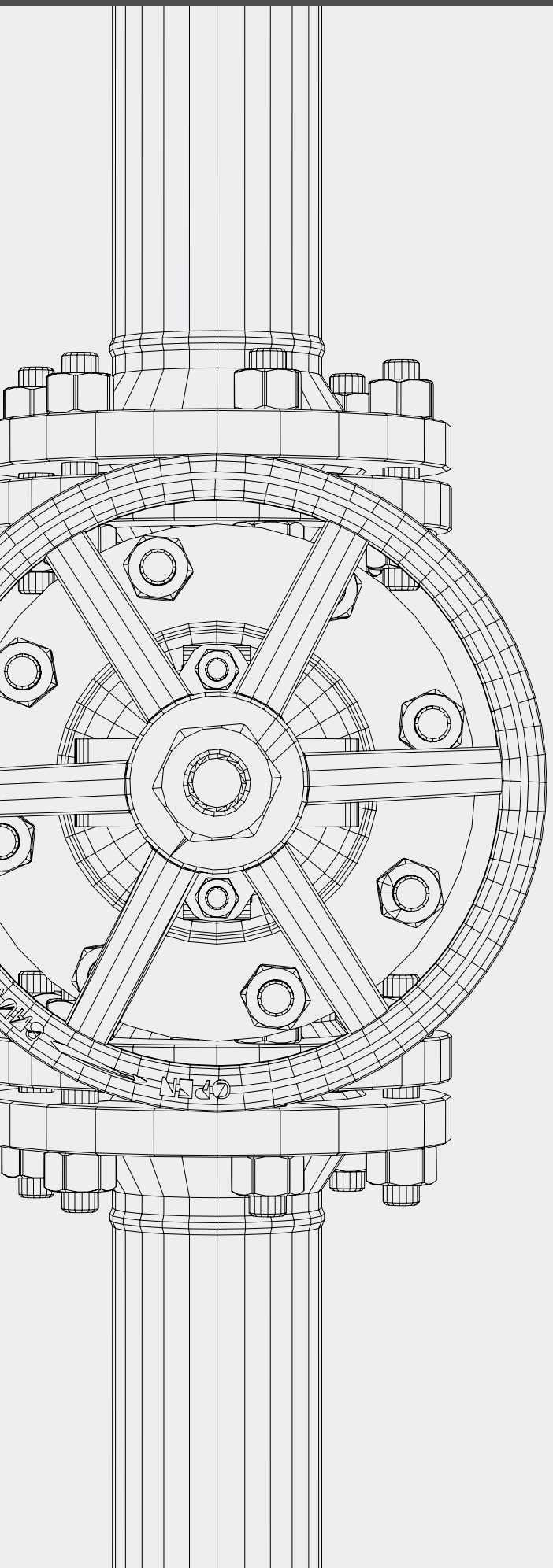
"Implementing the AC PowerTool will equip you quickly to create and compare various models and inputs and variables."

How the AC PowerTool Performs

The following real-world scenarios demonstrate how the AC PowerTool provides practical benefits to pipeline engineers like you and offers measurable advantages to the owners of pipeline construction and maintenance businesses within the industry.
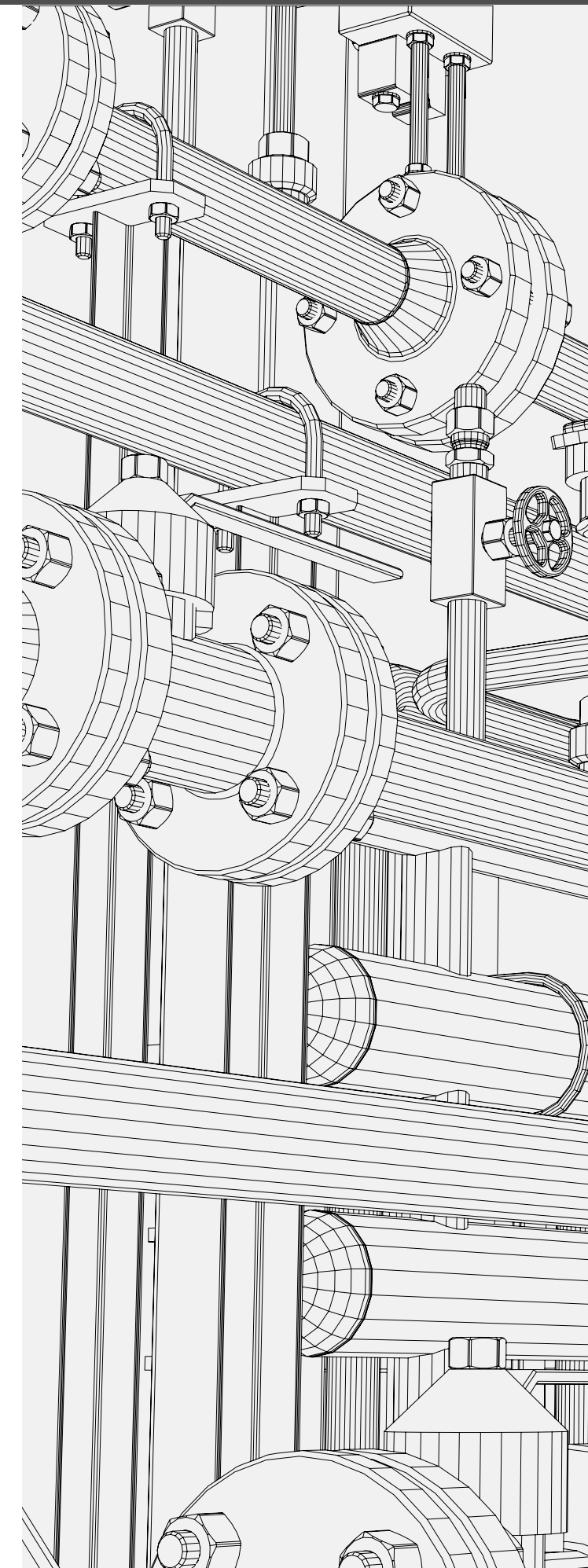
Example 1

The AC PowerTool software allowed a pipeline engineer to optimize a mitigation strategy specifically to reduce the amount of material required to construct a new system extension. Using the AC PowerTool, the engineer easily ran different mitigation models with varying inputs to determine which solution provided the best option in a single day, allowing the company she worked for to lower its overall construction costs. The model also enabled the company to reduce the amount of new mitigation ribbon and equipment installed in the ground by modeling the effects of its current grounding systems, saving even more money on the project.

Ultimately, this ability to easily compare builds and run different models resulted in the company saving an additional 15% on the overall cost of the project. Although, in this case, the mitigation solution still required some ribbon, the AC PowerTool helps users determine whether such installations are necessary. In certain situations, models may provide current grounding solutions that allow pipeline companies to avoid installing zinc or copper ribbon, eliminating associated costs completely.
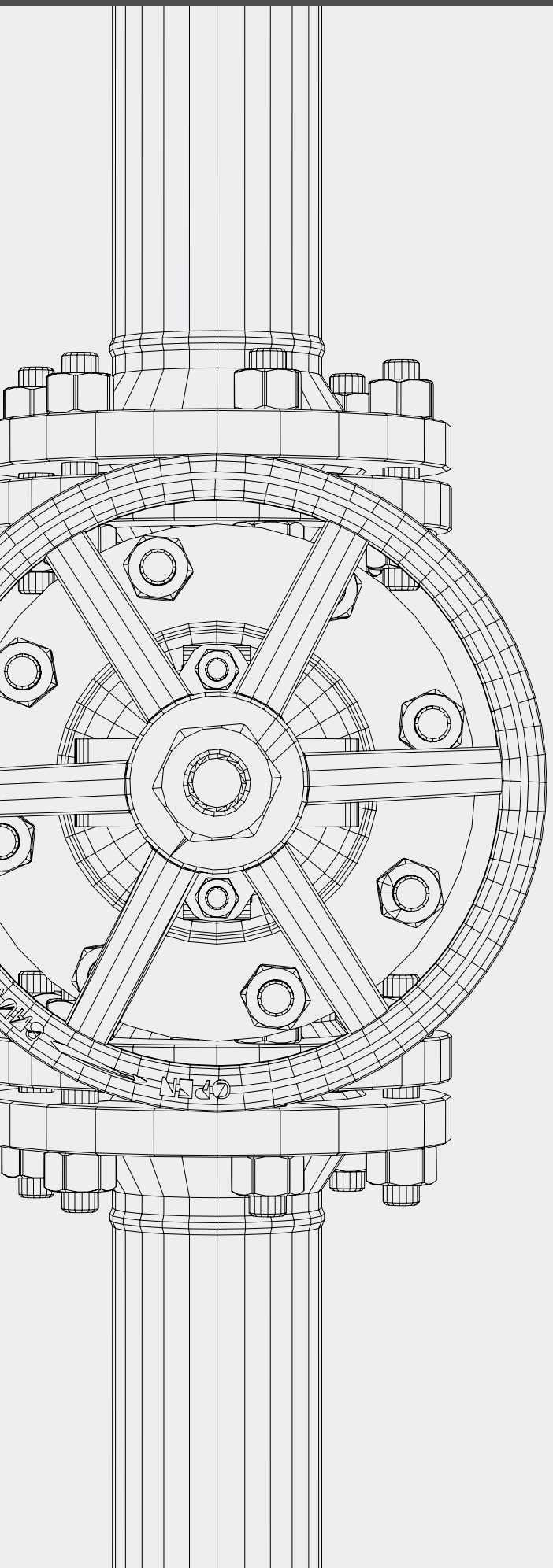
"Using the AC PowerTool, the engineer easily ran different mitigation models with varying inputs to determine which solution provided the best option..."

> **"[The AC PowerTool] dramatically reduces project expenditures and keeps project timelines moving forward."**

As in this situation, the AC PowerTool enables users to run multiple case scenarios within a short amount of time, freeing up this time for field testing or running more mitigation designs. Where other software requires extended periods of time to calculate a single model, the PowerTool reduces the time lost to processing mitigation models. In this way, the software dramatically reduces project expenditures and keeps project timelines moving forward.
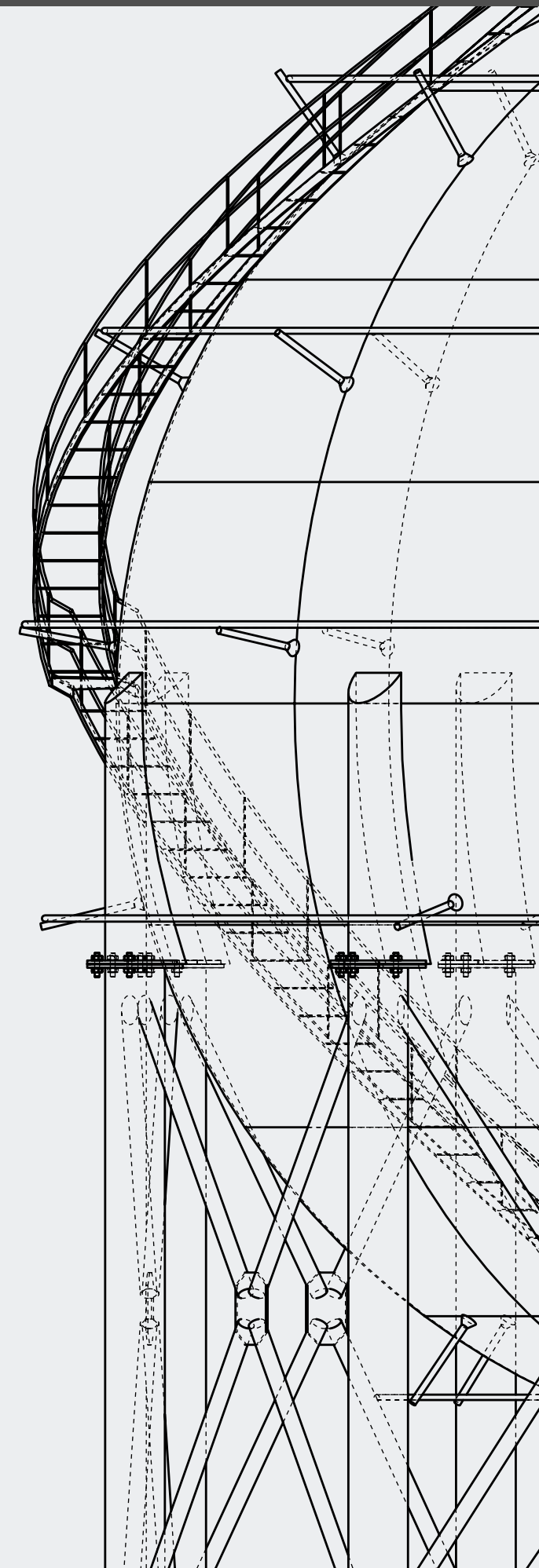
Example 2

With the advanced modeling software of the AC PowerTool, pipeline owners can identify and correct potential problems before they become problems in existing networks. Since the AC PowerTool accounts for existing power lines and pipelines, owners of pipelines can easily determine whether new or existing power lines negatively affect parallel pipelines.

In this case, a company anticipated elevated AC potentials on their pipeline which warranted an investigation to determine whether a newly constructed section of pipeline would require mitigation to keep employees safe from electrical shock hazards. The company requested that an internal expert investigate the new system to make a risk prioritization assessment.

Using the AC PowerTool, the engineer was able to determine which mitigation model, material, and equipment would reduce the risk of AC corrosion and shock hazards to an acceptable level. The owners were able to focus on specific field investigations that both ensured the safety of pipeline personnel and reduced the risk of AC corrosion on the pipeline. Because the owners were able to use an in-house pipeline expert to run the AC PowerTool mitigation assessment, they saved time and the thousands of dollars it would have cost to hire a third-party engineering firm.

"Pipeline owners can identify and correct potential problems before they become problems in existing networks. "

> "The PowerTool model affirmed the engineering firm's design as the least expensive, simplest solution for the area for the new section of pipeline."

Example 3

A pipeline company had hired a reputable engineering firm to generate a new AC mitigation design for an existing pipeline. However, the cost of the new design was higher than anticipated in the original project budget. Because it would be prohibitively expensive to hire another firm to provide a second opinion, the company owners chose to run the AC PowerTool before beginning construction. Despite the reputation of the firm, the owners of the company had been burned by overspending on a first offer in the past. They wanted to confirm the analysis and design while they could be easily corrected rather than performing costly alterations after building the pipeline.

In this case, the PowerTool model affirmed the engineering firm's design as the least expensive, simplest solution for the area for the new section of pipeline. However, had the analysis shown an alternate solution with associated cost savings, the company could have used an alternate design that was more effective at mitigating the induced AC on the pipeline or which reduced overall costs. Either way, the company was able to report that industry-leading software confirmed their confidence in their design to project investors and to proceed with construction.
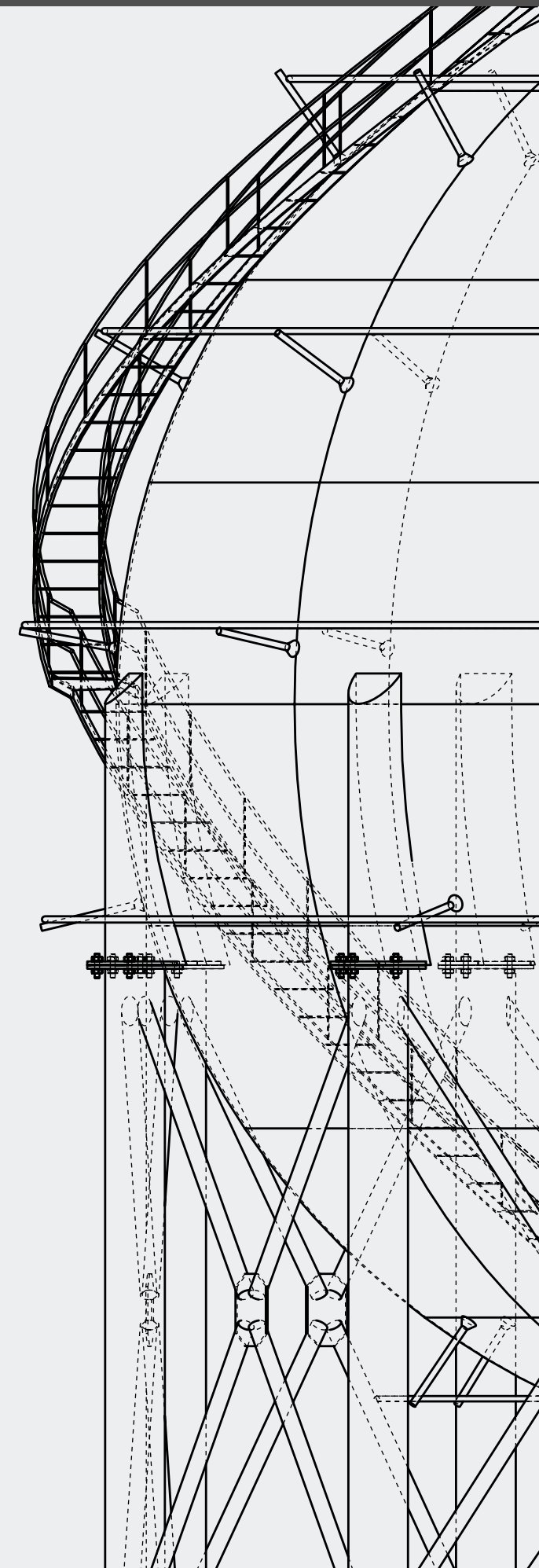
What Does the AC PowerTool Do?

When applied correctly by experienced pipeline engineers or industry experts, the AC Mitigation PowerTool effectively predicts both steady-state and fault conditions on pipeline sections to produce quality mitigation solutions at optimized costs. The software includes advanced reporting tools and an intuitive interface, making it easy to upload shapefiles and draw pipelines, powerlines, and section lines.

The AC PowerTool uses apparent resistivity to generate accurate fault calculations for variable depth of cover. The software quickly analyzes new and existing pipelines and powerlines to model multilevel Barnes layering and soil resistivity, coating stress voltages, and potentials for touch, step, surface, and ground. GIS map integration facilitates fast, comprehensive setup for sections and nodes. As opposed to other software, the PowerTool enables users to create and model various mitigation designs that include discrete grounds, distributed anode beds, and parallel wire placement within hours instead of days.
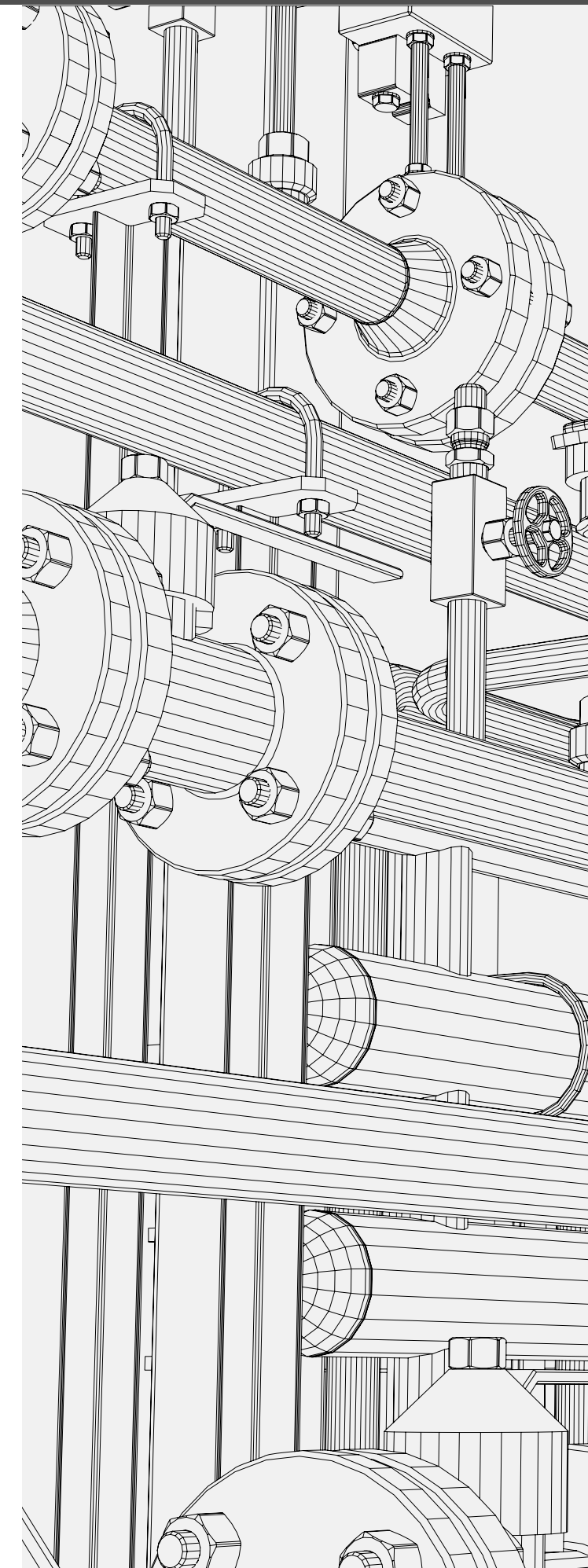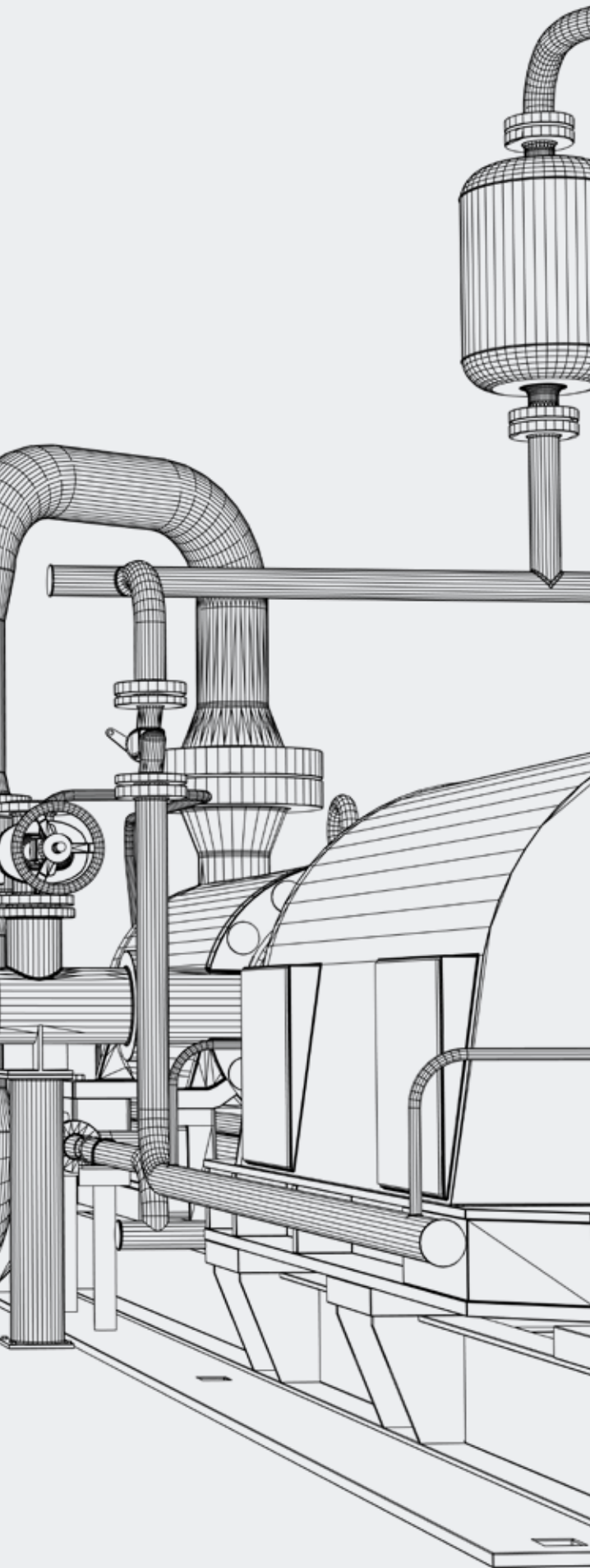
ESRI geospatial analysis capabilities feed the AC Mitigation PowerTool's PRCI engine, which automatically calculates relevant distances and angles for the model's input fields. Designed by pipeline engineers, this data automation accelerates project timelines while producing superior results.

Pipeline HUB Integration

The AC PowerTool is fully integrated into Technical Toolboxes' digital Pipeline HUB (HUB^{PL}), which enables it to communicate with other relevant applications to provide the most advanced mitigation solutions at the quickest speeds. The HUB^{PL} provides users access to a wide range of sophisticated software and training tools.

More than just automating calculations to save time, the HUB^{PL} platform integrates analytical tools to go beyond simple analyses to provide advanced insights into the design and fitness of pipeline infrastructure. The enhanced user experience of the HUB^{PL} interconnected library of up-to-date engineering industry standards and integrated maps and resources makes it even easier to access and apply the AC PowerTool application to drive production.

"The AC PowerTool is fully integrated into Technical Toolboxes' digital Pipeline HUB, which enables it to communicate with other relevant applications..."

> **"Get ahead of the competition and regulators by implementing state-of-the-art digital solutions software efficiencies."**

Conclusions

Powerful software applications like the AC PowerTool provide an effective means of performing mitigations analyses and solutions generation in-house, dramatically increasing your capabilities and time savings. Get ahead of the competition and regulators by implementing state-of-the-art digital solutions software efficiencies.

Equipped with the integrated capabilities of the Pipeline HUB and Toolbox applications like the AC Mitigation PowerTool, you will be better prepared to:

- Perform and streamline data collection and analyses

- Automate data to accelerate project timelines

- Pass audits and access database resources and history

- Prepare for and improve event response

- Store and share data

- Perform encroachment analyses

As the industry performs this shift toward data automation and calculation, give yourself the advantage of the HUB[PL] integrated database and maximize your team's efficiency.
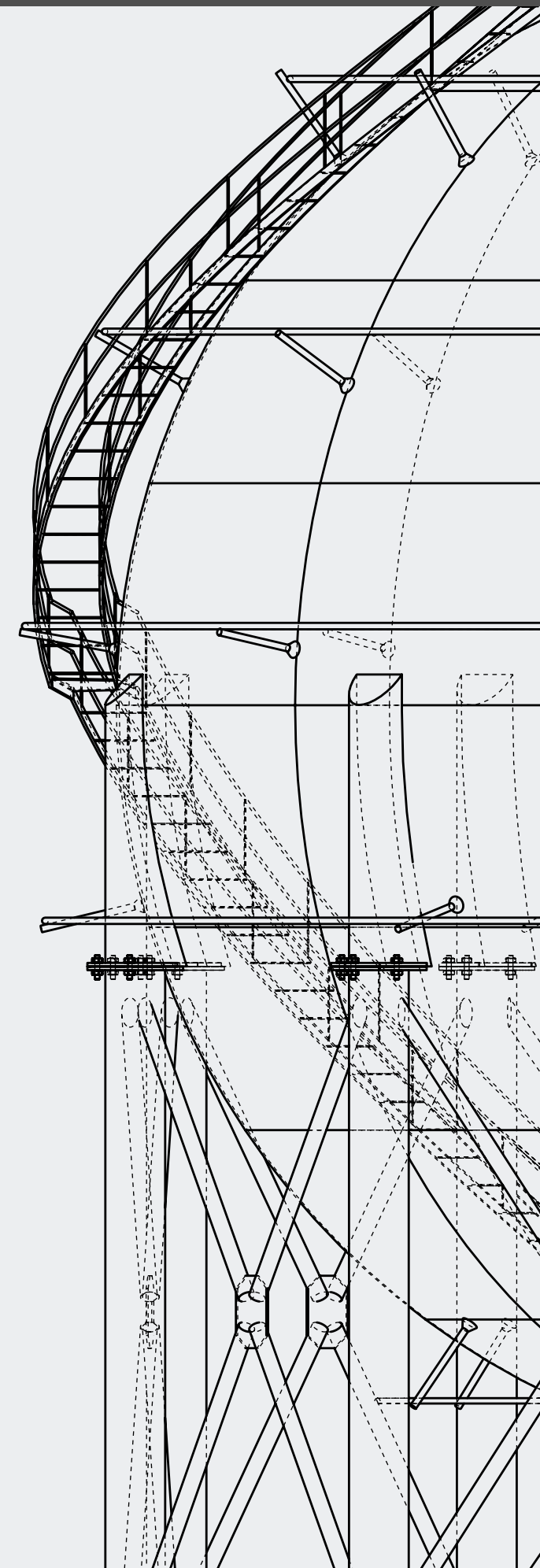
Next Steps

- Schedule a Demo
- Talk to a representative
- Ask us anything

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About Technical Toolboxes

Technical Toolboxes is a leading provider of integrated desktop and cloud-based pipeline software, online resources, and specialized training for pipeline engineering professionals worldwide. We deliver oil and gas industry training courses covering a breadth of topics with industry-recognized instructors. Compare the performance that Technical Toolboxes technology and training can make in pipeline engineering performance and you'll see a measurable difference. Our fit-for-purpose pipeline engineering software platform will help you reduce risk, lower the total cost of operations, and accelerate project schedules. Hundreds of companies rely on our certified, industry-standard technology to enhance their pipeline engineering performance.