

## Why Saenz Oil & Gas Implements Technical Toolboxes Solutions



Saenz Oil & Gas Services specializes in providing encroachment analysis and evaluation for oil and gas pipeline design and operations. The engineering team at Saenz has a vast amount of experience providing solutions for their clients. They rely on Technical Toolboxes because they know the software sets the standard for quality and productivity in practice.

Saenz has generously shared some of their clients' experiences, as well as their own. The three following cases exemplify the results that users consistently achieve with solutions from Technical Toolboxes.

### Accommodating The Demand for Land

Encroachment has become an inevitable challenge for both the oil and gas industry and developers. Companies that operate any significant length of pipeline face a continuous demand for encroachment permissions. As urbanization spreads outward, the conflict with established pipeline rights-of-way is inevitable. Engineers that perform crossing analyses may be called on to give dozens or hundreds of determinations each year.

There are more than 2.5 million miles of pipelines in the United States and an ever-growing population. Third-party encroachment is still one of the leading causes of damage or failure for oil and gas pipelines. As development drives activities and construction that battle for land with pipeline infrastructure, the liabilities and risks to operators grow proportionally.

The clients of Saenz Oil & Gas Services depend on them to evaluate encroachments and implement assessment practices that consistently meet regulatory and safety requirements. Saenz needs calculations and reference materials that help to deliver the most accurate and relevant answers. So, the company depends on Pipeline Toolbox from Technical Toolboxes to calculate the answers.

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## Case 1 : Encroachments

“Our clients, who are typically pipeline operators, operate and maintain thousands of miles of pipelines throughout the U.S. These operators are responsible for safely operating and maintaining these pipelines, which includes evaluating third party encroachments. Most of the time these encroachments consist of heavy construction equipment crossings, roadway

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crossings, or railroad crossings. Due to the vast number of pipelines they operate and maintain, the need arises to be able to quickly evaluate the proposed crossing and provide the encroaching party safety stipulations to avoid adverse impacts on the pipeline. One of the solutions to this problem is the use of Pipeline Toolbox software. We can quickly evaluate the proposed encroachment upon request from our client and provide them safety stipulations on how to protect the pipeline based on the results from using WLA, TLA, or API 1102 modules.”

## Case 2: Wheel and Track Load

**How using The Wheel and Track Load Modules helped one Saenz Oil & Gas client:**

“A residential developer was proposing to construct a roadway crossing over our 24” diameter natural gas pipeline that had about 2.5’ of existing cover. The issue was that the developer needed to remove the

top 10” of deep organic material and stabilize the remaining approximate 2’ of subgrade cover over the pipeline. In order to perform this task, they intended to have a large dozer to remove the organics and use a large drum roller to compact the subgrade. In order for us to quickly determine if this would be safe with less cover over the pipeline, we used the Wheel Load and Track Load Modules in Pipeline Toolbox. We were able to quickly determine if it would be safe by running the analysis and printing out a report of the results.”

In many instances, Pipeline Toolbox has provided the answers to the questions asked by engineers who need to complete construction activities such as creating road crossings. The solutions provided are more than binary go/no-go decisions; they define the improvements that will make it feasible. Whether the extra conditions and added construction required is worthwhile is a matter for managers. However, with the input of Pipeline Toolbox, they can make informed choices that minimize risk and provide for positive outcomes.

## Case 3: Unsupported Spans

### Use of Unsupported Span Analysis in an open trench:

“A third-party contractor was installing a large box culvert crossing 3’ below our pipeline by open trench excavation. Trench boxes could not be used to minimize the trench width to avoid excessive pipeline exposure. We needed a method to quickly evaluate the allowable unsupported span based on our pipeline specifications.



We used the unsupported span analysis in Pipeline Toolbox to provide a quick estimate of the allowable unsupported span, which we used to determine the support locations.”

This class of activities leaves pipeline exposed during excavations and potentially vulnerable to damage. The calculations and report from Pipeline Toolbox show how to proceed with trenching that exposes existing pipelines in operation and where they must be supported. It informs the planning and execution of the dig. Additionally, it provides for the safety of the existing pipeline and the justification for the encroachment.

## Conclusions

Many companies that operate pipelines look to Saenz Oil & Gas Services to perform precise and demanding encroachment evaluations. The Pipeline Toolbox from Technical Toolboxes enables Saenz engineers to deliver the solutions their clients need. The company ensures that its clients can be good neighbors while they stay in compliance with regulatory standards and maintain integrity in the long-term.

Development and urbanization confront pipeline operators with an endless array of encroachment scenarios: Can heavy equipment approach or cross a pipeline in operation? What preparations must they make to support pipelines exposed in trench excavations?

Technical Toolbox applications such as the Pipeline Toolbox modules for WLA, TLA, or API 1102 provide the answers. These tools define the safe limits for heavy equipment activity, excavations, and construction that encroach on buried pipelines.

Tools like Pipeline Toolbox make it possible to account for both the physical factors and the regulatory frameworks in which the oil and gas industry operates today. In their work for the industry, Saenz Oil & Gas Services frequently perform analyses that are both typical and essential for pipeline engineers. Whether it is determining the limits of unsupported spans during trenching or wheel and track load calculations, the company has been successful in supporting their clients by implementing solutions from Technical Toolboxes.