



The High Costs of Paper Relief Systems Files

Dustin Smith, P.E. and Parimal Desai

Smith & Burgess

Process Safety Consulting

7600 W. Tidwell Rd., Ste. 600 | Houston, TX 770400
(713) 802-2647 | SmithBurgess.com

The High Cost of Paper Relief Systems Files

By Dustin Smith, P.E. and Parimal Desai

Effective management of process safety information (PSI) is critical for the operating facility in order to satisfy OSHA, EPA, state or corporate requirements as well as for the safety of workers and surrounding communities. Increasing demand for products, limited internal resources, and challenging operations deadlines makes managing process safety information more challenging. The regulators scrutinize PSI and other process safety management (PSM) elements during site inspections due to increased catastrophic accidents at various operating facilities in last two decades.

Most regulatory and corporate PSM Standards require that a PSM covered facility have a complete flare and relief systems design documentation based on the current operations of the facility. In reality, facilities will make a massive push to close the gaps after deficiencies are identified by an internal or external audit. To gather the PSI data to that is either scattered across the facility or is missing is a very labor and time intensive task. Most facilities will push large sums of money to get a field of engineers (usually an ENC contractor) to provide them with new documentation which is usually in non-updatable PDF files, or even worse, crates of 3-ring binders. At any operating facility, “change” is a constant. Hence, the challenge with this method is that the end product that arrives is outdated, inconsistent, and generally unusable.

Projects Based Workflow:

The users/customers of the process safety information data are: Corporate group(s), Site Environmental, Health and Safety group, Operations, Reliability and Maintenance group, Projects group, Engineering group, and Contracting companies. Most operating facilities have their process safety information edited or created by Projects and multiple ENC contractors working on the projects. This project based workflow model involves a team of engineers tracking down large amounts of the site’s data over the period of the project. While back at the facility, changes are a continually occurring. By the time the ENC Contractor’s expensive documentation arrives, the gaps of new site updates are completely missing, or at best, scribbled footnotes lost in the sea of paper folders.

Updating a simple change, in a relief device paper document, takes the typical process engineer between three and five hours. (Given they have a calculation template already made to perform the calculation.) How many available process engineers does your site have with a half day free?

As computers become more common, process safety documentation moved to vendor programs, in-house automated calculations, spreadsheets, etc. but the major shortcomings remain, as each documentation package is unique to the ENC company working on the project and can be found to be inconsistent with rest of the documentation at the facility.

Evergreening Workflow:

With over twenty years of industry experience, Smith & Burgess has found the most successful workflow comes from the evergreening model with a two-stage approach: i) utilize a database that is designed to capture change and reflect as-built, ii) employ a dedicated ownership of the site's updates.

I: A Database Designed for Change:

Have you ever opened a repair folder for a pump only to find a mess of files, most of which are out of date? This failure is caused by how simple it is to create multiple records. In fact, at the end of a five-year period, we have estimated the number of files will grow between two and five times the original number. This causes confusion as to which files represent the installed or current operation of equipment. The solution comes from utilizing an evergreening database that is built for continual updates.

II: Dedicated Ownership:

Facilities are a constantly evolving complex system. So employing an experienced documentation engineer, dedicated only to the site's updates would be ideal. Unfortunately, this is not realistic to most facilities' bottom line. Therefore, placing the ownership of your site's updates in the hands an experienced team such as Smith & Burgess is the simple and cost-effective alternative.

Proven Results:

The following results are from a refinery that contracted Smith & Burgess to keep their site's data evergreen and chose to use Salus, our relief systems design and documentation database. Refineries of this size will, on average, completely renew their relief systems documentation every five years from scratch. The chart below shows the benefits of having an evergreening system in place. *(Note: This site performed several capital projects and unit upgrades during this time.)*

Yearly Maintenance Costs with the Evergreening Workflow:	
Facility Cost Item:	Percent of Initial Relief Systems Study:
Site Training Cost	0.3%
Yearly Capital Projects Costs	2.0%
Yearly Expense Updates (MOCs)	1.2%
Total	3.5%

**Percentages are based on a 3-year average and then compared to the initial, 5-year revalidation cost.*

Summary:

So for a yearly cost of 3.5% of the total, initial cost - the site now has...

- **Proof** that site-wide corporate and regulatory standards are compliant.
- Incorporated the changes associated with all **capital projects** into the Salus Database and flare study. (The facility can be confident that the project did not covertly or adversely affect the capacity of the flare system.)
- All **run rate changes** (Expense MOCs) worked into the database with complete clarity as to what is currently operating and at what rates/conditions.
- Site **training** for the facilities employees and contractors.
- **Confidence** their flare and relief systems design data is usable, accessible, and accurate.

For those operating facilities that typically perform relief systems design and documentation revalidation efforts from scratch every 15 years, this method **costs 70% less** and is **100% compliant** with corporate and regulatory relief systems requirements.

If you would like to see a demonstration of how our new evergreening workflow model is saving covered facilities millions in unnecessary expenses, please let contact Dustin Smith or Parimal Desai at your convenience.

Dustin Smith, P.E.

Principal

(713) 802-2647

dustin.smith@smithburgess.com

Parimal Desai

Director of Business Development

(713) 802-2647

parimal.desai@smithburgess.com

Smith & Burgess

Process Safety Consulting

7600 W. Tidwell Rd., Ste. 600 | Houston, TX 77040
(713) 802-2647 | SmithBurgess.com