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Mind the Gap!

Pitfalls and Risks to Consider When Moving Production to the U.S.

Anyone who has traveled or lived in London will recognize the phrase “Mind the Gap!” The saying originates from the London Underground in which an automated announcement warns passengers to exercise caution as they prepare to cross the platform and board the adjacent train. The expression serves as an appropriate metaphor for European chemical, energy, and manufacturing companies attempting to move their businesses across the “gap” of the Atlantic Ocean to the U.S. Unfortunately, the awareness of the gap between European and U.S. codes and standards often comes too late during the transition, resulting in increased project costs, extensive delays, and even risks to the entire company. To avoid these issues, owners should be aware of the regulatory and legal gaps prior to any commitments to purchase or establish new production capacities in the U.S.

Focus on Risk Management and Gap Identification

In general, technical issues can be categorized according to their potential risk and the time required to address them. Issues that can be addressed with design revisions or additional permitting measures may present relatively minor impacts on the project cost and schedule. Conversely, latent issues that do not surface until the commissioning or operation of a manufacturing facility are much more problematic due to increased costs to correct the issues at a late stage and to the potential loss of production capacity.

Given the mandatory nature of applicable codes and standards, owners must decide whether to suspend operations or to make a risk-based decision to continue operating until corrective actions can be implemented. For example, assume the design team neglected to specify quality control (QC) requirements to test weld seams on the facility’s piping. In Germany, the missing information would have been caught during the “Pruefung vor Inbetriebnahme” (inspection before commissioning, similar to a pre-startup safety review performed in the U.S.) through a third party as part of the permitting process. In the U.S., however, unless the owner specified these requirements upfront with the pipe fabricator, the issue may not have been uncovered until after commissioning since there is no authority to confirm that the pipes were tested and inspected in accordance with applicable U.S. codes prior to commissioning.

Since international projects are prone to higher risks, additional precautions should be exercised to reduce, if not eliminate, the emergence of hazardous issues.

The Disconnect Between European and U.S. Laws, Codes, and Standards, Coupled with the Role of RAGAGEP

European companies are often surprised to learn that no official entity within the U.S. is responsible for verifying the safety of a plant's design and the conformity to applicable codes and standards. As described in our article, **"Navigating the Land of Opportunity."** European companies frequently assume that the U.S. provides a legal and support framework similar to that in Europe. With this assumption, foreign companies often believe they are safe and compliant unless instructed otherwise by an agency with regulatory oversight. This assumption is only partially valid in the U.S. since its laws provide minimal guidance and safeguards vis-à-vis European laws.

In the U.S., owners face a patchwork of laws, regulations, and diverse industry standards commonly called "RAGAGEP" (Recognized and Generally Accepted Good Engineering Practices). To achieve compliance, the owner must act independently to confirm adherence to all applicable rules and guidelines and, most importantly, to ensure plant safety. Identifying and following RAGAGEP in the U.S., therefore, is necessary to minimize the risk of incidents; yet even such adherence will not insulate the company from litigation in the event of an incident. Conversely, in Europe, the adherence to EU standards and codes of a plant design will be certified by independent third parties and governmental agencies prior to startup, thereby providing the European entity with a very high degree of "Rechtssicherheit" (legal safety), serving as a significant limitation of the company's liability exposure and the protection from civil lawsuits.

How to Develop Compliance with RAGAGEP

While a company with established, successful operations in Europe may be inclined to replicate its existing plant designs as constructed pursuant to EU standards, a 1:1 replication only serves to satisfy select U.S. requirements. Such replication presents further risks because any deviation of RAGAGEP typically requires a thorough understanding of all risks. Although RAGAGEP may allow a company to deviate from the standard practice, such use must be properly documented, and even then, the company will encounter increased scrutiny in the event a safety incident occurs.

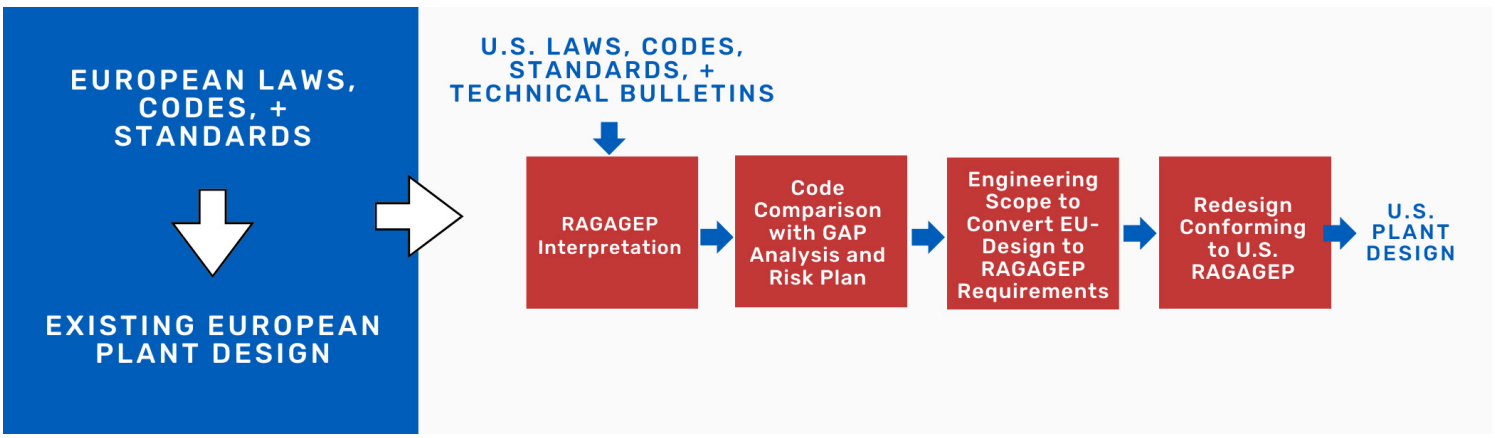

Figure 1: Pathway to "copy" an EU-Production plant into a RAGAGEP conforming design. This process allows us to identify the upfront risks and cost implications of converting the plant to U.S. standards.

Due to the complexity, many companies elect to transfer their RAGAGEP compliance risk to a third-party engineer. This approach works well for standardized products, such as designing and building packaged units based on functional descriptions, yet it may lead to increased costs when applied to entire operations.

How to Minimize the Risk of "Over-Compliance" or "Over-Design"

RAGAGEP is a process of identifying the applicable norms and standards, and due to inherent ambiguities, overlapping, and contradicting codes and standards, differing code interpretations are inevitable. The engineer typically exercises extreme caution, causing some portions of the operation to function poorly compared to their original design or with significant cost overruns. Therefore, we strongly recommend that an independent owner's representative perform a gap analysis at the commencement of the project with a risk assessment to allow for a streamlined transfer of the EU plant design into the U.S.

Who Should Be Involved in the Gap Analysis?

According to the Occupational Safety Health Administration (OSHA), RAGAGEP extends to the entire life cycle of a plant, from engineering and operational design to preventive maintenance. RAGAGEP is not a single document but a collection of all applicable codes, standards, technical bulletins, and other recommended practices available in the U.S. and tailored to the specific operation. As mentioned in our earlier article, the U.S. legal system essentially transfers full identification and application of RAGAGEP to the owner.

Given that RAGAGEP extends beyond technical matters, a gap team should include an experienced and qualified engineering team, legal counsel, project manager, construction manager, and procurement team familiar with European and U.S. codes and standards. This team should serve as a direct advisor to the owner's project leadership team. The gap team will be tasked with developing a RAGAGEP package in direct comparison with the existing European plant norms and simultaneously complying with all applicable codes and norms tailored to the U.S. production process. This package will be part of the project's operating system and will serve as a guide as the teams construct, operate, and maintain the plant.

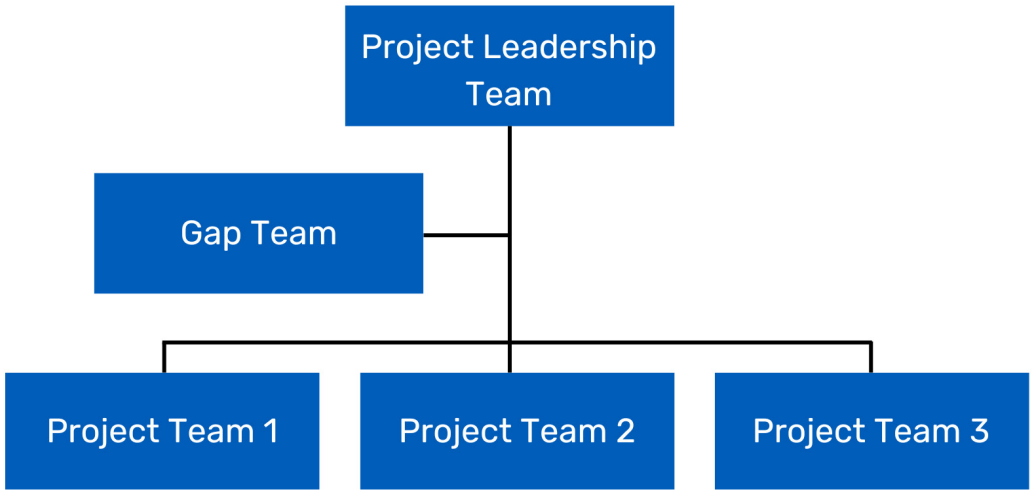

Figure 2: Gap team embedded within the project organization

When Should the Gap and Risk Management Teams Be Involved?

Many companies seek legal guidance after an incident has occurred, yet with this approach, the resulting financial exposure will be exponentially more expensive than the cost of conducting a gap assessment at the beginning of the project. We recommend forming a gap team and developing a gap analysis as part of the risk matrix during the initial feasibility analysis, thereby reducing long-term costs and enhancing the safe operations of the final project.

At Chambliss and MxV Consulting Group, we are a team of legal and technical advisors familiar with European and U.S. codes and standards to support your new endeavors as well as your existing U.S. operations by building the bridge between both worlds. If you have questions regarding replicating your company's operations in the U.S., identifying gaps, and minimizing risks, please contact Brian Eftink, Jeffrey Maddux, or Helge Nestler for more information.

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