

CLIENT CASE STUDY

“FLARE GAS RECOVERY EQUIPMENT REVIEW”

- ∴ **Facility Type:** Refinery
- ∴ **Services Provided:** FGRU Detailed Design Review

The Opportunity:

- ∴ In order to meet the minimum corporate and regulatory requirements, a major United States refinery was implementing a Flare Gas Recovery Unit (FGRU) and needed assistance to ensure that the proposed equipment was suitable for their location. The EPC company selected for the project was skilled at refinery greenfield and upgrade projects, but had limited experience with complex flare systems. Smith & Burgess was hired to provide owners with an engineering review of the detailed engineering package prior to final acceptance and construction.

Our Solution:

- ∴ The Smith & Burgess' engineers reviewed the detailed design specifications for the FGRU project and discovered that the EPC company failed to follow the operating company's engineering requirements. As a result, several of the vessel designs were unsuitable for the local conditions. Additionally, our operability review of the seal legs, compressor requirements, and instrumentation shutdowns indicated that the system would not operate reliably. The engineering team also reviewed the proposed system hydraulically and found that without modifications, the staged flare release goals would not be achieved. These changes would be required to meet the regulatory permit requirements.

The Results:

- ∴ In order to meet corporate and industry engineering standards, the Smith & Burgess team identified alternative designs that were implemented by the refinery prior to purchasing several large pieces of equipment. The original, proposed equipment could have potentially isolated the headers from the flare tip and would be operationally unsafe. With the minor equipment changes, the proposed FGRU design resulted in a more stable operation while meeting the site's regulatory permits under non-emergency conditions. All of Smith & Burgess' recommendations were implemented, and as a result the plant has been running satisfactorily for years.

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