

ENERGY EXPERT: ISSUES IN FOCUS

A quarterly review of disputes and complex issues in the hydrocarbon production and processing industries.

Baker & O'Brien, Inc.

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Equipment Failures – Were Unique Environmental Conditions to Blame?

International Arbitration, North America

By J. David Morgan and Gary Devenish

Successful capital projects follow a structured process divided into three distinct phases that form the Project Lifecycle: 1) Project Definition or Front-End-Loading (FEL); 2) Project Execution or Engineering, Procurement, and Construction (EPC) and; 3) Commissioning, Startup, Operation, and Handover. Even though the Project Lifecycle is well defined, there may be slight differences in terminology and the required deliverables for each phase. In addition, every project is unique, and the responsibility for each of these phases should be well defined in the commercial agreements.



Projects typically achieve more favorable outcomes when the Project Definition or FEL phase is properly resourced and adequate time is allotted for completion. As part of the FEL process, it is important to identify, evaluate, and define all external factors and environmental conditions at the facility location.

An international chemical company requested a proposal from an EPC contractor to design and build a new power and steam cogeneration facility (the “Facility”). The Facility consisted of two gas turbine power generation units, based on previously completed FEL work. The EPC contractor developed a proposal, was awarded the work, and completed the detailed design, procurement, construction, and commissioning of the Facility.

Shortly after start-up, the operating Facility experienced significant and frequent equipment failures. Follow-up assessments found that the primary cause of the failures was accelerated corrosion due to the unique environmental conditions at the Facility site. Eventually, the owner and EPC contractor entered arbitration over the following disputed areas: (1) was the FEL information correct; (2) was the Facility built fit-for-purpose based on the FEL information; (3) was the Facility operated and maintained correctly; and (4) who was responsible for each phase of the Project.

Baker & O'Brien was retained to render opinions on the: (1) best practices for development of a power plant project; (2) environmental and operating conditions of the Facility; (3) responsibilities of each party for the successful execution of each phase of the Project; and (4) quantum of economic damages. Baker & O'Brien developed expert reports and provided testimony during arbitration proceedings.

Petrochemical Plant Power Loss – Unexpected Lights-Out and Associated Implications Litigation, North America

By Dan Finelt

When a process plant experiences an unplanned shutdown, returning to normal operations can be a challenge. A loss of power to the site is a typical cause for this type of event. When a large petrochemical facility experienced a power outage, the facility suddenly shut down. This resulted in damage to equipment that had been operating normally prior to the event. Subsequently, following necessary repairs over a number of days, the plant was able to return to normal operations; however, not without incurring lost production and mitigation costs associated with the event.



and (3) equipment damage costs directly associated with the power interruption. In order to complete our assessment, we calculated the lost production of various chemicals produced at the facility and their historical variable profit margins to calculate the lost profit from operations. In addition, we reviewed mitigation costs, such as increased maintenance and labor overtime cost associated with the event. Finally, we reviewed the equipment damage costs to arrive at a total business loss impact as a result of the power outage.

Baker & O'Brien was requested to assess: (1) the lost profits due to lost production and sales; (2) the costs associated with mitigating the loss;

Following the development of an expert report, the matter was mutually settled between the parties.

Inadvertent Valve Disassembly Results in Loss of Containment

Litigation, North America

By Mel Sinquefield

During reinstatement of equipment following a refinery process unit turnaround, a pump suction valve had to be opened for flow alignment. When the valve handwheel freely turned and failed to open the valve, the operator decided to remove the gearbox so he could manually turn the valve stem



with a wrench. However, the operator mistakenly removed the valve top cap bolts instead of the gearbox bracket bolts, which resulted in a loss of containment, explosion, and fire.

A few personnel present in the vicinity at the time of the release were injured from the explosion and fire and filed a claim for their injuries. Baker & O'Brien was engaged to investigate a number of relevant issues: 1) the incident cause; 2) applicable plug valve standards; 3) gearbox bracket mounting and design changes; 4) operator training and competence; 5) industry practices for operator maintenance; 6) human factors and the error type; 7) potentially related incidents and OSHA notices; and 8) the likelihood of an incorrect gearbox removal. We provided expert opinions and rebuttals in the following areas of expertise: operations, maintenance, process equipment design, process safety management, competence management, risk management, incident investigation, and human factors.

Consulting Support for Complex Commercial Disputes

When faced with complex commercial disputes in the energy-related industries, clients often turn to Baker & O'Brien for its independent and objective support. For over 25 years, the firm's consultants have employed their engineering knowledge, industry experiences, and commercial acumen to provide assistance on a wide range of matters. Our project experience includes disputes involving operational incidents, standards of care, asset valuation, commercial supply terms, product quality, large engineering and construction projects, and intellectual property.

Our clients include many of the world's largest law firms, insurance providers, and operating companies. Law firms rely upon Baker & O'Brien to evaluate

technical and commercial aspects of a case and provide expert testimony. Our analyses, conclusions, and expert testimony have been heard by judges, juries, and arbitration panels around the world. On insurance matters, clients rely upon Baker & O'Brien's assistance for investigation of industrial accidents and quantification of resultant property damage and business interruption losses. We are also called upon to assist insurers in subrogation actions by evaluating causation theories and claims for damages.

We welcome the opportunity to discuss our qualifications in more detail as they relate to your specific area of interest.

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