



ENGINEERING AND CONSTRUCTION

Project Development, Project Performance, Change Order Management, Construction Disputes

Engineering and construction companies rely on Baker & O'Brien's project management expertise to evaluate project costs and schedule over-runs. Our consultants' expertise in project management—from maintenance turnarounds to engineering, procurement, and construction of major new facilities—has been applied to resolve construction disputes in diverse settings, from negotiation to litigation. Leading engineering and construction companies have also retained Baker & O'Brien to provide independent technical and commercial expertise in project development, project performance, and change order management.

RELATED EXPERIENCE

■ **Conceptual Design of Technical Services Department**

Performed a conceptual design of a Technical Services Division for a petroleum refining technology licensing company. The objective was to restructure the company's technology delivery methodology to generate improved gross margins, increase customer satisfaction and retention, and additional products and services. Advised the client on defining the critical aspects of the Technical Services Division and the best approach to designing and implementing the new group structure and function.

■ **Gasification Project Assessment**

Assisted in the evaluation of a petcoke-to-substitute natural gas facility to support possible equity investment. Assessment included review of technology, commercial issues, and economics.

■ **Bitumen Technology Evaluation**

Provided technical expertise in evaluating new technology for upgrading Canadian Oil Sands bitumen to saleable products. Reviewed technical reports and presentations, and prepared an assessment of the technical risks associated with developing a commercial scale unit.

■ **New Petroleum Products Terminal**

On behalf of a major international construction company, prepared a preliminary feasibility study on a new petroleum products import terminal to serve the local market. Study included facility layout and size estimates for docks and storage tanks.

■ **Fischer Tropsch (FT) Liquids Market Study**

Evaluated potential markets for Fischer Tropsch products, and the logistical requirements to access those markets from a coal-to-liquids facility. The products included LPG, naphtha, jet fuel, and diesel, and the analysis included expected netback pricing (FOB the plant) to support financial modeling of the capital project.

■ **Construction Dispute - Gas Plant**

Provided expert reports and testimony regarding project management issues, alleged defects, and liquidated damages for international arbitration between owner and contractor. The project involved an offshore platform, an undersea pipeline, an onshore pipeline, an onshore cryogenic gas processing plant, and a sales gas pipeline.

■ **Refinery Feasibility Studies**

Assisted an engineering and construction firm in preparing feasibility studies for two projects in Russia. One of the projects was a new "grassroots" refinery project, and the other project was to build a new FCC gasoline complex in an existing refinery. Work included modeling of refinery operations and yields, analysis of feedstock and products markets, and evaluation of project economics.

■ **Thermal Cracker/Lube Unit Yields**

Prepared yields for a thermal cracker unit and lube oil extraction unit. Used PRISM unit models to assist in developing the yields and stream properties.



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■ **Hydrotreater Balance**

Developed a charge and yield material and volumetric balance for a simple refinery containing a naphtha hydrotreater/catalytic reformer and diesel hydrotreater. Summarized feedstock and product properties.

■ **Engineering & Construction - Liquidated Damages Dispute**

Reviewed claim relating to assessment of liquidated damages and inadequate delivery of Operating Manuals.

■ **Turbine Fire**

Performed review of root cause analysis of the failure of a 125 MW generating steam turbine.

■ **Coal Gasification Plant Accident**

Provided assistance to a mechanical contractor for a root-cause investigation of a fatal accident at a coal gasification plant.

■ **Refinery Construction Dispute and Arbitration**

Following previous arbitrations regarding liability for change orders and delays associated with a refinery expansion/upgrade, Baker & O'Brien was engaged to estimate the "quantum" amounts associated with over 400 individual claims that had been addressed by the arbitration tribunal and its technical advisor. We testified regarding our estimates at a final arbitration hearing.

■ **Lender's Independent Engineer**

Served as independent engineer for a "grassroots" olefins project. Prepared the technical due diligence for a US\$4 billion facility on behalf of international export credit agencies and onshore and offshore lenders.

■ **LNG Technical Advisor**

Provided technical support regarding the FERC filing process, reviewed FEED study deliverables from contractors, and advised with regard to other contracts in support of the project, including geotechnical issues, noise survey, vapor dispersion, etc. Also reviewed progression and risks involved in estimates of project CAPEX and OPEX.

■ **Storage Tank Foundation Failure**

Following the failure of a storage tank foundation, we reviewed the applicable documentation and prepared an affidavit concerning the standard of care used during its construction.

■ **FCC Construction Litigation**

Provided expert testimony regarding allegations that construction errors in the installation of an FCC catalyst cooler resulted in a significant business interruption claim. Assisted in discovery, analyzed operating data, evaluated design issues, calculated property damages and business interruption losses.

■ **Mexican Refinery Construction Dispute**

Served as consulting and testifying experts in an ICC arbitration involving an upgrade and expansion of a large refinery complex in Mexico. Evaluated over 400 separate claims by the owner for alleged improper design and invalid extra work orders for refinery and pipeline projects. Assignment included preparation of an expert report and testimony before the International Court of Arbitration in Mexico City.

■ **Petrochemical Plant Explosion**

Provided expert witness testimony and a expert report regarding a petrochemical plant reactor explosion, the design and sizing of the pressure relief valve (PRV), and standard operating procedures.

■ **Acrylonitrile Plant Construction Dispute**

Assisted in a dispute between a major EPC firm and an owner concerning claims that the owner's interference with a lump-sum EPC contract resulted in a large cost overrun. Assisted with discovery, evaluated construction documents, analyzed project disruption, evaluated change orders, and prepared trial exhibits.