

No short cuts to a satisfactory contract

John Challenger and David McLurgh explain why, 45 years on, IChemE's Forms of Contract continue to be industry's go-to contract of choice

The Institution of Chemical Engineers (IChemE) has for over 45 years published a range of standard contracts for the chemical industry, the first of which was the *Model Form of Conditions of Contract for Process Plants Suitable for Lump sum Contracts (The Red Book)*. The drafting committee recognised the need to create a contract that dealt with projects that were performance based, involved a combination of engineering skills, and accommodated the complex way in which the purchaser and the contractor allocated roles and responsibilities over the various phases of development of a new process plant.

The unique economic factors, multi-disciplinary technology and potential catastrophic risks associated with the process plants industry require knowledgeable and precise drafting of key issues of which the following need to be taken into account:

- responsibility for the design which can be based on a combination of the proprietary technology design of the process licensor or purchaser, the detailed design of the contractor and specialist equipment or system suppliers, hence there is no single point of responsibility when it comes to design;
- the financial standing of the purchaser usually far exceeds that of the contractor such that the purchaser is the party most

able to bear any catastrophic losses;

- impact of the timescale of a project that can cross business cycles and changes in government and law that can affect priorities, and risks management;
- chemical, biochemical, oil, gas or nuclear plant all include complex dynamic processes that are a potential source of a catastrophic failure which can result in serious injuries, fatalities, pollution and serious property damage; and
- the impact of regulatory controls relating to quality, the environment and safety.

The IChemE contracts seek to properly balance the above factors providing a flexible framework for project execution which reflects the actual scope, complexity, size, sequence of construction and need for financial planning all within highly-regulated safety and qualitative frameworks.

the importance of the specification, schedules and the guidance notes

In the context of output performance-based contracts the IChemE *Forms of Contract* are the only standard suite of contracts providing not only the legal terms but, through the schedules and guidance notes, a framework for developing the level of detail needed to specify the project and the sequence of events for the successful passage from project inception through commissioning,

take-over to operation, and performance testing. While the application of inappropriate contracting strategies or contract management can lead to disputes, the prime cause of most major contract problems are incomplete, vague or ambiguous scope definition linked with poorly drafted schedules. While most of the key considerations that should be addressed in the specification and schedules may appear obvious they are frequently incomplete and inadequately defined, becoming a source of disputes.

While the legal terms seek to properly allocate risk based on an analysis of where this is best managed, the real challenge in contract formation is completing the 21 schedules that fully define the project. Too frequently, the excellent and informative guidance notes included with each form of contract are not consulted by those drafting the contracts. The guidance seeks to highlight the need to provide a detailed specification and description of the works, supported by completed schedules that cover all aspects of the project, in particular the completion, handover and testing regimes required. Therefore, both parties must expend the time and effort needed to provide sufficient detail in the specification to avoid any ambiguity in the requirements that the plant must meet.

The specification must incorporate the technical details for the plant together with a list of all the design standards and codes of practice, to which the plant is to be built. Equally important is the inclusion of the output capacity and tolerances in schedule 17 (*Performance guarantees and damages for failure*) against which the overall performance will be assessed in the testing regime defined in Schedule 16 (*Performance tests and procedures*). If a third party inspectorate is to rule on the sufficiency of the plant to meet statutory or regulatory standards this should be clearly included in the specification. The specification should also address any work involving modification or extension of, and any impact on, existing plant such as the need to maintain production, the condition of existing plant and all interfaces between old and new facilities. Whilst the specification defines the

“ The IChemE contracts are geared to the unique challenges of contracting for dynamic performance based plant and the overriding message is for both parties to spend adequate time pre-contract to thoroughly draft the specification and schedules. ”

plant, schedule 1 (*Description of the works*) specifies what the contractor must do in terms of process technology, design work, engineering and other services including procurement, equipment items, materials of construction, field supervision, labour, tools, plant, and temporary works. The schedule should include all the information that the contractor requires to carry out the works and make clear the dividing lines between the respective responsibilities and scope of work of the contractor and purchaser, thereby defining the limits of the contractor's responsibilities under the contract. Each item must fall within the responsibility of either the purchaser or the contractor, whatever separate agreements either party may have with others in connection with the project. When technology is licensed from a third party, whether by the purchaser directly or by the contractor as part of his obligations, care must be taken to define the role of licensor's personnel in checking and supervising design documentation, the provision of advice and interpretation of licensor documentation, role in training, construction, and advising on and supervising start-up and any performance tests. The parties also need to allocate responsibility for the performance of the licensor and the consequences of any defective performance or delay especially if the process design is provided by a licensor under a direct contractual arrangement with the purchaser. If the contractor offers a plant complete with process design then he takes full responsibility for this aspect even though the relevant information comes to him from a separate licensor.

Quality assurance is now widely accepted internationally as mandatory in the manufacturing and construction industries. As a minimum, the contents of a master plan should be included in schedule 6 (*Quality assurance and validation*), with a tabulation of the responsibilities of the purchaser, contractor, subcontractors and supplier clearly allocated. Sections should be included on qualification activities which, when completed, will provide detailed documentation on all of the checks that have been carried out during the project to ensure the robustness and reproducibility of the process when in operation. Validation may be required as part of

the overall quality assurance programme. The purpose of validation is to create documentary evidence providing assurance that the product from a manufacturing process will consistently meet its defined specifications and quality characteristics in all required circumstances.

The parties should therefore jointly review in detail the specification and schedules prior to the contract being awarded to remove inconsistencies and ensure they hold a common understanding of what is required. This practice is often neglected.

transfer of responsibility and liability

From both a contractual and safety perspective it is critical that responsibility for the plant should pass from the contractor to the purchaser in a clearly-defined way. The following are some of the key factors to consider:

- (a) compliance with the specification and with the description of the works;
- (b) operational dependence of particular tasks or sections of the plant, thereby setting a logical sequence in the approved programme;
- (c) application of financial incentives or damages;
- (d) transfer of care, custody and control;
- (e) site management and health, safety and environmental requirements;
- (f) introduction of raw materials; and
- (g) insurance cover and liabilities.

what constitutes completion of construction?

Terms within the sequence of construction and handover are often confused with individuals substituting their own definitions for terms like 'start-up', 'pre-commissioning', 'commissioning', 'ready for commissioning' or 'ready for startup' rather than using terms specifically defined in the contract. In the IChemE forms, 'completion of construction' is used for establishing that the plant is physically complete in compliance with the specification and great care should be taken in defining what constitutes this key stage in a project since this can also be used for assessing delay and applying liquidated damages.

Each party's roles should be defined with great precision in schedule 15 (*Take-over procedures*) and should include all plant

checks, inspection procedures, equipment tests and take-over tests, including documentation to be provided by the contractor.

It is emphasised that these activities are crucial to the ultimate success of the project and should not be rushed by undue pressure to start production. The purchaser should only take over once the contractor has demonstrated that the plant is up to standard and ready for the raw material to be introduced.

conclusions

Whilst the IChemE forms of contract have an enviable record of extremely low instances of dispute, users need to understand that the way projects are procured can implant later sources of dispute into the specification and schedules. Probably more than any other specific field of construction the process plant industry requires a multi-disciplinary approach to procurement with support from internal engineering, procurement, financing, risk management and legal teams who all need to possess in-depth experience of plant design and construction.

The format of the IChemE contracts provides a high degree of integration between each component of the contract linking, the contract agreement, general conditions of contract, specification and schedules and extreme care must be taken in any redrafting to ensure that it does not have a detrimental effect on the contract as a whole. The IChemE contracts are geared to the unique challenges of contracting for dynamic performance based plant and the overriding message is for both parties to spend adequate time pre-contract to thoroughly draft the specification and schedules. The philosophies followed therein represent a thorough analysis of what works best for the chemical and related industries. They reflect the need for co-operation and flexibility while fairly allocating risk considering both the ability to control and manage an issue and who can best meet any resulting financial exposure.

John Challenger (jgchallenger@btinternet.com) is non-executive chairman at WH Partnership; **David McLurgh** is general counsel at Foster Wheeler Energy

