A DIFFERENT ANGLE ON THE EXPERT WITNESS ROLE – THE PROJECT MANAGEMENT LENS

Kingsfield’s Approach

Kingsfield Consulting believes it has a unique and effective approach to the Expert Witness function in arbitration / litigation processes for resolution of disputes in the international engineering and construction (E&C) industry, particularly where projects are undertaken on an engineer, procure and construct basis (EPC).

By taking a holistic approach as Expert Witness - Project Management we replicate the way in which projects are actually delivered thereby combining such matters as schedule / delay, cost, risk, work performance, efficiency / productivity, project management competence etc. into a single investigation, analysis and report rather than dealing with such matters individually, as is often the case when disparate experts are involved. We have found that our approach has several advantages that are appealing to clients and their legal teams;

➢ Interface with a single entity (Expert) that maximises effectiveness, efficiency and economy

➢ “Joined-up thinking” that puts the issues relating to delay, cost, etc into perspective and provides a coherent account of the issues at dispute within the ambit of the Expert’s terms of reference

➢ Making available the multiple skills and experience of industry professionals specialising in schedule / delay analysis, risk, cost, management, human behaviour, management competences, etc in a single team and that collectively contribute to the investigation, analysis and report preparation

➢ The possibility of multiple Expert Report authors thereby avoiding focus on a single person as Expert

➢ Creating the opportunity for individual authors to give evidence in hearings on their particular aspects of the Expert Report that affords the opportunity to re-visit the issues set out in the Report from a variety of perspectives

➢ Combining the breadth of report contributors’ experience and expertise and aligning their individual perspectives to provide the most objective and focussed assessment possible of the project issues, their impacts and how these were managed by the disputant parties that assists in the understanding and determination of responsibility and liability for the matters at dispute
The investigation, analysis and preparation of a Project Management Expert Report is undertaken by a Kingsfield Consulting team. Clearly, the team make-up and the contribution by individual team members depends upon the nature of the dispute and where expertise and experience needs focussing. This is a matter for discussion with the client and its legal advisors.

**Rationale**

EPC projects are delivered by project teams. The effective project management of those teams is a significant determinant to outturn project results; project success or failure largely depends upon how the project has been managed by the owner and the contractor. However, the EPC contract determines the actual project management role to be performed by the owner and the contractor. In a lump sum turn-key (LSTK) arrangement in which the contractor takes the majority of the risk, the contractor ought to have maximum management control whereas the owner’s participation in this respect ought to be minimal; but in a cost reimbursable arrangement the opposite is the case. In each instance the owner and contractor will be judged upon how they each performed their respective management functions and responsibilities.

It is not the known and planned activities that create the project management challenges but it is the unplanned events and circumstances. We believe these ought properly to be defined in the broad context of change as “...Any action, incidence or condition that makes differences to an original plan or what the original plan is reasonably based on...” (Ibbs and Vaughan, 2014). In the publication - Change and the Loss of Productivity in Construction: A Field Guide - Prof. William Ibbs advises that seven factors can substantially magnify losses relating to change as defined and of these “…Management practices…” are a key contributor, particularly with respect to the contractor’s and owner’s respective decisions and responses to a range of matters occurring in the day to day performance of EPC work and delivery of projects.

Thus, effective project delivery depends to a significant extent upon the elimination of “surprises” by realistically assessing the challenges likely to confront the project, continually reviewing these throughout delivery and taking and implementing appropriate management decisions to avoid the challenges or mitigating their impact. Following extensive study the Construction Industry Institute (USA) has developed and published its Four-Casting tool to assist in the management of projects. This comprises the three pillars (Project Characteristics, Forecasting Practices and Management Processes) underpinned by the behaviour and culture of the project as illustrated below.
The CII have correlated the predictability of project outcomes against these factors and the message is that successful projects are those that effectively manage all of these facets — in contrast to the more traditional approach of concentrating on the ‘iron triangle’ of cost, time and quality. It also recognises that continuous assessment and project agility in reacting to change are critical in the timing and impact of interventions when surprises occur.

The project challenges often have implications and consequences for matters such as risk, schedule, resources, productivity, cost, organisation, work performance etc. The key issue is not that these occurrences arise but how the owner and contractor, respectively, respond to and make decisions regarding these within the context of their particular obligations and responsibilities under the EPC contract; human behaviour in all these respects is a fundamental issue. Indeed, in our experience, disputes arise not because of such occurrences but because one or both parties did not exhibit the appropriate responses and / or make the requisite management decisions in order to obviate or mitigate the impact of the occurrence and hence the burden of the effects and consequences became too great for one or both parties.

Occasionally there might be an event(s) occurring of a magnitude that it is clearly recognisable for what it is, the impact is easily identifiable and the contractual / legal liability readily discernible; these are relatively easily managed. However, it is more usual on EPC contracts for there to be a myriad of occurrences progressively arising throughout the project that are not readily identifiable, the impact is unclear and contractual / legal liability is not so easily discernible. Effective management of these accumulating occurrences is a significant challenge and the failure by one or both parties to exhibit appropriate behaviour is frequently the root cause of dissatisfaction, frustration, claims and disputes. At best, the situation is “messy”.

Understanding the “messiness” is to grasp what it means to undertake and deliver E&C projects on an EPC basis.

Defining Project, Project Management and Project Manager

Project, Project Management and Project Manager are frequently used expressions that are applied to very many different industries, businesses and ventures and for which there are universally recognised definitions;
Project: Is a unique, transient endeavour, undertaken to achieve planned objectives, which could be defined in terms of outputs, outcomes or benefits. A project is usually deemed to be a success if it achieves the objectives according to their acceptance criteria, within an agreed timescale and budgets. Projects are separate to business-as-usual activities that require people to come together temporarily to focus on specific objectives and thus effective teamwork is central to successful projects.

Project Management: We agree with Dr. Martin Barnes that “...At its most fundamental, project management is about people getting things done...”. Accordingly, project management is primarily about managing discrete packages of work to achieve objectives. This requires the application of processes, methods, knowledge, skills and experience to achieve the project objectives. It involves the process and activity of planning, organising, motivating, and controlling resources, procedures and protocols.

Project Manager: This is the person responsible for leading a project from its inception to execution and delivery. The role includes planning, execution and managing the people, resources and the project scope. Project managers must have the discipline to create clear and attainable objectives and to see them through to successful completion.

Project management is often mistakenly depicted as a neatly packaged, supposedly scientifically derived and evidence based linear process (eg. PMBOK) whereas the “messiness” means that actual project management practice is, according to research by Chris Rodgers, more akin to “muddling through” whereby project managers apply their expertise and judgment in response to what they are experiencing and observing. The figure below illustrates the differences between espoused theory and actual practice.

To understand “muddling through” is to grasp why and how some projects that experience challenges are delivered successfully and others are not; the key lies in the capability in the project team to “muddle through”. A linear project management approach is invariably destined to end in catastrophe.

All E&C projects undertaken on an EPC basis are complex, some are mega. Complexity is inherent in: the production of multi-disciplinary engineering deliverables, the procurement of bulk materials and itemised equipment, the interface and coordination between the engineering and procurement functions to deliver buildable work packages to the site at the right time and in the planned sequence, the management of interfaces between subcontracted construction work packages and the transition from area construction work packages to systems based testing and commissioning.
Multi-party joint ventures / consortia, multiple and often dispersed engineering and procurement operating centres, multi-cultural workforces, global material and equipment vendors and remote site locations simply add to the complexity; this is compounded by project size, aggressive time schedules, competitive pricing and “narrow margins”.

The effective management of change, as defined, is not only crucial to project outcomes but is a complicated and difficult undertaking.

While the generic definitions apply equally to E&C EPC projects, the implications for complex project management are very considerable; understanding this is vital if the effects of change, as defined, in a dispute situation are to be addressed properly and fully so that there is a sound and just decision by the court or tribunal.

**Traditional Expert Witness Practice: Flawed Thinking**

The use of expert witnesses in the resolution of disputes on major international E&C projects is well established practice.

**Function**

It is generally understood that the primary function of an expert witness is to express his / her independent expert opinion based on the information provided to him / her. This is required when it is necessary to have opinion evidence to assist in the resolution of the dispute. In this context the appointed expert has the duty to help the court or tribunal on matters within their expertise so that the judge and jury or tribunal are provided with a ready-made explanation and understanding which they, due to the technical nature of and / or recognised industrial practice relating to the facts, are unable to formulate themselves. Thus the expert is required to provide the court or tribunal with technical information or industrial practice which is likely to be outside the experience and knowledge of a judge or jury or tribunal. Therefore expert evidence is sought in disputes where detailed scientific, technical knowledge and / or industrial practice are key issues.

The complexity of E&C projects carried out on an EPC basis clearly falls within these technical and / or industrial practice parameters.

**Requisites**

It is also generally understood that anyone can be appointed as an expert provided they have the requisite knowledge or experience of a particular field or discipline beyond that to be expected of a layman. Indeed, an expert witness is an expert who makes his / her knowledge and experience available to a court or tribunal to help them understand the issues of a case and thereby reach a sound and just decision. Further, for the expert witness to be of real assistance to a court or tribunal the expert evidence must also provide as much detail as is necessary to convince the judge or tribunal that the expert’s opinions are well founded. This may include;
1. Factual evidence that
   > Is obtained by the expert witness and which requires expertise in its interpretation and presentation and / or
   > May not of itself require expertise to explain its meaning but is inextricably linked to evidence that does require such expertise for explanation

2. Requires explanation of technical terms or topics and / or hearsay evidence of a specialist nature.

**Typical Appointments**

In the EPC industry expert witnesses are typically appointed to provide opinion on matters such as delay, disruption and extension of time entitlement, reimbursement of additional costs deriving from changes, disruption and loss of productivity and technical matters including for instance work quality, ground conditions and plant performance.

Occasionally, expert witnesses might be appointed to address other matters including for example risk, alternative methods of evaluation such as *quantum meruit*, shipping and logistics, insurance issues etc.

In each case the expert appointed will be appropriately qualified and experienced in the particular subject upon which he / she is requested to provide opinion.

**Typical Scope and Approach**

Typically, the practice is to obtain expert opinion on specific aspects of the project but not the whole. However, this practice often neglects consideration of the interfaces and interdependencies between the various expert topics and the corresponding reports such as those between delay analysis and costs, disruption and productivity losses and delay and / or cost etc.

Each expert invariably carries out his / her investigation, analysis and report preparation largely in isolation of the other experts appointed even though they may all be working from the same facts and evidential documentation.

The potential for conflict, contradiction, duplication and misunderstanding between the various expert witnesses is therefore high with the risk that rather than assisting the court or tribunal confusion abounds, thereby defeating the prime objective of their respective appointments.

Furthermore, the background, qualifications, experience and interests of such expert witnesses invariably conspires against them considering, in the context of the topics and issues upon which they have been requested to express opinion, matters such as management organisation and practices, project management competences, teamwork and relationships within and between the owner’s and contractor’s respective project teams, decisions and responses by the respective project teams to issues occurring and behaviours exhibited by the parties and all of which are crucial when considering change related disputes on E&C EPC projects and yet, are rarely, if ever, considered.
Moreover, such expert witnesses rarely, if ever, have the requisite background and experience to consider and express valid opinion on the owner’s and contractor’s overall project management capability and performance. In this context, for example, an "expert engineer" does not necessarily qualify as an "expert project manager".

A Credibility Question

Disputes on international E&C EPC projects frequently involve delays, liquidated damages and additional costs arising from events impacting the schedule. Accordingly, an expert dealing with delay analysis and related matters is frequently appointed.

The focus is invariably directed to delays to the critical path(s) in the commonly held belief that some form of critical path analysis will provide the “correct answer” to all schedule related issues. Primavera is often the analysis tool of choice. This is fundamentally flawed thinking. While a critical path analysis may be applicable in certain instances it is not the panacea for all schedule related analysis. For example, where delay is driven by disruption and / or loss of productivity, a critical path analysis is largely useless and a different approach is required.

Yet a great deal of arbitration / litigation has consumed a significant amount of effort, time and money in conducting such analysis only to find that two “independent” experts on the same case have widely differing opinions about delay events, their actual impact and the liability for either extension of time or delay liquidated damage, despite having based their respective analyses on the same basic data. This, not surprisingly, has led to some well publicised criticism of such experts and their analyses.

Further, since such analyses are often conducted in isolation of other project related matters including, for instance, other expert reports, it is not too difficult to understand that there are bound to be huge differences between the respective experts’ findings if one or both are only working with a portion of the relevant data and not therefore addressing the entire project story, even supposing that the appropriate analysis methodology has been used.

In our view disputants have a right to feel aggrieved when copious amounts of money have been expended on seemingly endless analysis only to culminate in a highly unsatisfactory award simply because the experts have not addressed the entire project story or at least all of those aspects relating to the issues at dispute. In this context we understand that probably 70% of cost and effort involved in dispute resolution might be attributed to collation, organization and interrogation of factual evidence and of which a substantial component is consumed by expert witnesses. Therefore an approach that is effective, efficient and economic ought to be appealing.
Project Management Expert: A Different Angle On Disputes

The need to capture in a comprehensive expert report the entire project story or the part thereof that considers the full impact of change upon work performance, project delivery and outturn results in a way that assists the court or tribunal to reach a sound and just decision regarding liability and compensation or relief is, in our view, absolutely compelling.

We believe that it is about bringing more certainty to the outcome of arbitration and litigation by taking a pragmatic approach to the real issues and addressing these from various project management perspectives including risk, time, cost, quality, organisation, resource utilisation and productivity, performance and progress that captures not only the “what”, as most subject matter experts' reports do, but also the “how”, “why”, “when” and “where” in the context of such matters as interfaces and interdependencies across the entire EPC process, project management competencies, the responses and decisions made with respect to changes (as defined), the behaviours exhibited throughout work performance and project delivery particularly with respect to alignment on common objectives and the level of collaboration, the presence and effectiveness of teamwork etc.

However, it is highly unlikely that one person has the requisite qualifications and experience to qualify as an expert witness within the meaning of established rules and practice to undertake the necessary investigation, analysis and report preparation; we know of no such person. Hence, it is why we consider such work ought to be undertaken by a team of industry specialists, and who may jointly author the report, hence combining all the requisite qualifications and experience to undertake such investigation, analysis and report preparation. In Kingsfield we have such teams.

Project Management Expert: Kingsfield Track Record

Although the Project Management Expert Witness is not a common feature in international arbitration or litigation on E&C projects, Kingsfield has acted in this capacity for EPC Contractors on several major projects.

Case Example 1

Kingsfield was appointed to provide an expert report and testimony regarding the delays and cost overruns in a dispute under an EPC contract between the principal contractor and the boiler / balance of plant contractor (BOP) on a 600MW power plant in the UK. The issues turned on the actual impact on the schedule and costs of more than 3000 individual “delay events” (changes). It was immediately clear that a traditional critical path analysis approach using Primavera would not only be very time consuming and costly but would be unlikely to yield the desired results in terms of demonstrating time extension and recoverable costs. It was also clear that the root cause and ultimate impact of the delays and cost overrun turned on the parties’ respective project management competencies and performance in dealing with the “delay events” in particular and the project delivery in general.
Kingsfield’s approach was to compare and contrast the performance of the well qualified, relatively young, technologically savvy but inexperienced principal contractor’s team with the BOP contractor’s team of engineers, construction and project management people with vast experience of delivering boiler plants on an EPC basis all over the world. We grouped the delay events into 15 manageable packages of common subjects or themes and then examined how these had been managed by the parties. For example, we considered perpetual revisions to P&ID’s, their impact on Isometric drawing production, material procurement and deliveries and piping prefabrication and erection as well as the ripple effect into other engineering disciplines such as structural design. We then considered the 15 Packages collectively to identify not only cumulative impact but also commonalities of behaviour by the respective parties in dealing with these issues.

While the package events and their cumulative impact certainly caused disruption and delay to the schedule, the absence of effective responses and decisions by the principal contractor’s project management to the plethora of issues magnified the impact in terms of delay and cost. Our report provided counsel for the BOP contractor a platform from which to build the case in arbitration.

**Outcome:** The Tribunal apparently concurred with our assessment and opinion and counsel’s case presentation since it awarded the BOP contractor full relief from liquidated damages and a substantial increase in the contract price as well as a considerable proportion of the cost of the arbitration.

**Case Example 2**

Kingsfield was appointed to act as the project management expert on behalf of the claimant (EPC Contractor) in connection with a gas plant in an arbitration in the Middle East. By the time of Kingsfield’s appointment the arbitration had been running for almost nine years and in that time five other experts had been appointed to deal with the local law, delay, cost, productivity and alternative evaluation. The initial briefing was to respond to the report prepared by the respondent’s (Owner – national oil company) project management expert. However, in discussion with counsel it soon became clear that the contractor’s case was mired in immense detail with numerous rounds of pleadings and submissions, witness testimony and experts’ reports but lacked direction and focus. Kingsfield was then tasked with telling the project story from beginning to end and in this process put the findings and opinions of various experts’ reports and witness of fact witness statements into context as well as address and respond to the project management expert’s report.

Kingsfield’s approach was to peel back the project history to the very beginnings before contract award and then consider the various events occurring on the project in the context of the parties’ respective obligations, commitments and promises under the Contract and afterwards and their handling of these contrasted with well recognised industry project management practice. Our investigation, analysis and findings set out in our detailed report found the respondent seriously wanting in that the behaviours exhibited had substantially exacerbated the delay and costs incurred by the contractor which provided solid and justifiable explanation of the total delays caused and which hitherto no amount of cpa and other analyses could identify or quantify.
OUTCOME: Telling the project story from first principles provided for the tribunal an easily understandable explanation of the contractor's case. Within less than two months of this forum the Parties had reached an amicable settlement on terms very favourable to the contractor.

Outcome: Six months after submission of our expert report the tribunal invited the parties to explain their respective cases in a pre-hearing forum in which all the experts from both sides attended and presented and explained their findings. For the contractor, Kingsfield’s report and presentation was “centre-stage”. Telling the project story from first principles and putting the witness statements and other experts’ report findings into context provided for the tribunal an easily understandable explanation of the contractor’s case and highlighted the shortcomings of the owner’s performance and the inadequacies of the witness statements and experts’ reports supporting its case. Within less than two months of this forum the Parties had reached an amicable settlement on terms very favourable to the contractor.

Case Example 3

Kingsfield has recently completed a project management expert report in connection with a dispute on a 370 MW power plant delivered under an EPC lump sum contracting arrangement in South America. The Kingsfield report features the boiler plant design and delivery by one of the EPC contractor consortium members, the challenges facing the contractor and how these were responded to and decisions made by, respectively, the boiler contractor, the other consortium member and the owner. In this report Kingsfield addresses the project story from the perspective of the boiler contractor in order to simplify as far as practicable for easier understanding by the Tribunal the consequences of the events occurring and how, by not facing up to and addressing the issues and then making appropriate decisions and taking the corresponding actions, the owner not only caused the boiler contractor to sustain significant cost but also contributed significantly to the delay. The report also addresses and responds to other experts and our approach in telling the entire project story reveals and highlights the flaws in these reports.

Outcome: The dispute was recently settled by amicable negotiation; the boiler contractor’s expectations were more than satisfied with this settlement.