



Contractual Recovery of Cost and Schedule Impacts Due to Defects in the Employer's Invitation to Bid Documents

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1. INTRODUCTION

The issue of whether an EPC Contractor under a lump sum or other form of contract where the Contractor has cost and/or schedule risk can be held responsible for defective design information provided in the Owner or Employer's Invitation to Bid (ITB) documents has been the subject of numerous legal disputes. The US Supreme Court first addressed this issue in the case of *United States v. Spearin*. In that case, the court decided that, if "the contractor is bound to build according to plans and specifications prepared by the owner, the contractor will not be responsible for the consequences of defects in the plans and specifications." This decision has generally been interpreted to mean that a Contractor does not have a duty to investigate the adequacy or sufficiency of design documents provided by the Employer. A Contractor would, therefore, be entitled under the change order or variation clause of the contract to additional costs and/or schedule impacts attributable to errors, omissions, inaccuracies, or defects in the ITB.

The issue gets more complicated, however, when the contract states that the Contractor is responsible for any design defect in the ITB. By including contract language such as: 1) "Contractor takes full responsibility for the Basic Engineering as provided in the ITB," or 2) "Contractor agrees to remedy defects in the ITB," responsibility for the defects in the Employer's ITB documents may shift to the Contractor. Employers will argue and Arbitration Tribunals will generally find that, by accepting the design risk, the Contractor is liable for the costs and schedule delays for correcting errors, faults, and defects in the ITB.

However, even in situations where the Contractor has contractually accepted the design risk, it may still be entitled to recover the cost and schedule impacts attributable to defects in the ITB documents. Depending on the specific language of the contract, Employers may not be released from liability for errors in the ITB, even though the contract seemingly places all responsibility for ITB errors onto the Contractor. This article considers the circumstances under which the EPC Contractor can circumvent that contractual obligation, and receive compensation for cost overruns and schedule delays due to errors, deficiencies, or other shortcomings of the ITB.

The Contractor's ability to recover for its additional costs and schedule delays, despite having assumed contractual responsibility for these deficiencies, depends on a number of factors, including: 1) the specific provisions and wording of the contract, 2) the magnitude, range, and scope of the design deficiency, and 3) the degree to which the defect was the result of specialized licensor and proprietary information which was not available to the Contractor during tendering. The following is a discussion of conditions that give rise to a Contractor's release from its contractual obligation to correct errors, omissions, and defects of the ITB at its own cost and within the original contract schedule.



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2. CONTRACTOR RESPONSIBILITY FOR ERRORS IN THE ITB

The ITB establishes the design basis of the project and provides the specific technical and performance requirements to be achieved. The ITB fixes the Basic Engineering Package, which is sometimes referred to as Front End Engineering Design (FEED) package. The accuracy and sufficiency of the Contractor's bid amount may vary depending on the level of completeness and the extent of deficiencies of the Basic Engineering Package. Often times there are latent defects in the design which are not discoverable until after contract award when the Contractor proceeds to Detailed Engineering. These latent defects may result in additional project costs and schedule impacts that were never reflected in the Contractor's bid amount. While Contractors typically include design development and contingency allowances in their bids, often these amounts are inadequate to cover unknown, latent errors, faults, or other defects of the design package. Unable to determine what these latent defects are during the tendering phase, there is no allowance for these unknown costs in the Contractor's price. Inclusion of such allowances would lead to the Contractor's price being non-competitive because other competing bidders may have excluded such allowances from their bid prices.

The technical work product from the ITB on a process plant, power, oil & gas, or other industrial project typically includes process flow diagrams, heat and material balances, equipment lists, equipment data sheets and specifications, plot plans, preliminary P&IDs, general arrangement drawings, conceptual building and structural drawings, piping line lists, electrical one-line drawings, instrument lists, motor lists, soils reports, building plans and elevation drawings, etc. A bidder's Lump Sum price is developed on the basis of information provided in the ITB.

After contract award, the successful bidder proceeds with the Detailed Engineering phase of the project, which expands on the basic design of the ITB. The Detailed Engineering phase produces a final 3D model; final equipment, electrical, and instrumentation specifications; final P&IDs that are released for construction; detailed drawings related to instrumentation, electrical facilities, buildings, and civil works; detailed piping drawings, including isometrics and stress calculations; and other final engineering documents. It has often been a matter of dispute whether changes made to the Basic Engineering Package constitute scope changes, and thereby are governed by the variations clause, or whether they are simply further definitions of basic engineering which is not a scope change as it is part of Contractor's Detailed Engineering obligation under the contract. Detailed Engineering is then followed by the procurement, manufacturing, and construction phases. The project schedule is then updated to reflect the procurement, manufacturing, and construction requirements derived from the Detailed Engineering.



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Oftentimes, however, latent defects in the Employer's ITB are not discovered until the Detailed Engineering phase. Such defects may include but are not limited to the following:

- Incorrect information in a drawing or drawings;
- Inconsistencies between drawings;
- Inconsistencies between drawings and specifications;
- Incorrect specification information; and
- Omissions from the ITB.

When latent defects are discovered, the Contractor will typically assert entitlement to a variation for its additional costs and schedule delays under the grounds that it "reasonably relied" on the deficient ITB information to prepare its Lump Sum price. The Contractor's argument is as follows: the Contractor reasonably relied on the information provided in the ITB to prepare its Lump Sum bid and project schedule; however, it was discovered after contract award that there were latent defects, inconsistencies, and inaccuracies in the ITB information which were not revealed to the Contractor until advancement of the design in Detailed Engineering. Once discovered, measures were taken by the Contractor to correct the latent errors, faults, and other defects. These corrections resulted in additional costs and schedule delays. As the Contractor had relied upon the correctness of the information in the ITB, and the Contractor could not have discovered the latent defects during the tendering phase, the Contractor is entitled to the additional costs and schedule extensions to correct the defective and deficient design.

This argument centers on the issue of "foreseeability" of the latent defect. As missing, erroneous, and/or conflicting information was not foreseen or foreseeable to the Contractor (or any other experienced Contractor) at the time of contract award, the Contractor asserts entitlement to a contract variation. This argument may be rejected by the Employer and Tribunal on the grounds that the Contractor's scope of work, as defined in the contract, included all work necessary to satisfy the Employer's requirements, whether that work was expressly stated, or implied/inferred to be necessary for the completion of the Contractor's works. By assuming responsibility for the ITB design, the Contractor accepted the risk of missing, erroneous, and conflicting design, equipment, or material information, whether this information was foreseeable or not, as long as it was essential to achieve the objectives of the project.

The Employer and Tribunal may also argue that, by assuming responsibility for the Basic Engineering in the ITB, the Contractor has also accepted responsibility for all information contained in the ITB, in all its various states of completeness and accuracy. While certain parts of the ITB may be more developed, detailed, and error-free than others, the Contractor's tender was based on the ITB, as it had been developed up to that stage, with some parts of the design more advanced and error-free than others. As it was clear to the Contractor that the engineering and design included in the ITB were at different levels of advancement, by accepting responsibility for the ITB, the Contractor has also assumed the risk that there might be latent errors, defects, faults, or incompleteness in the ITB. Therefore, Employers and Tribunals will



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likely reject the Contractor's claims for cost and schedule impacts, arguing instead that the Contractor has accepted engineering and financial responsibility for making the Basic Engineering complete and error free.

Employers and Tribunals may further argue that the Contractor was in a position to protect itself commercially for the risk of latent errors and incompleteness in the ITB by adding contingency, and/or by increasing the budget and schedule for design development activities. Additionally, the Contractor could have mitigated the potential exposure to latent defects in the ITB by meeting with the vendors whose designs were incorporated within the ITB; these vendor discussions would have provided the Contractor with a better understanding of the risks that they were accepting due to the incompleteness of the ITB.

The Contractor's ultimate success in defending its position for entitlement to additional costs and schedule relief as a result of a defective ITB will depend on the following: 1) the specific provisions and wording of the contract, 2) the magnitude, range, and scope of the design deficiency, and 3) the extent to which the latent defect was due to specialized licensor and proprietary information that was not available to the Contractor during tendering. Each of these potential defenses is discussed below.



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3. LIABILITY FOR ADDITIONAL COSTS AND SCHEDULE DELAYS FOR LATENT DEFECTS IN THE ITB DEPENDS ON THE SPECIFIC PROVISIONS AND WORDING OF CONTRACT

Contract language is crucial for determining who is financially responsible for correcting defects in the Employer's ITB. Under the 1999 Yellow Book, for instance, a variation would be issued to compensate for the Contractor's additional costs associated with the ITB defect, if the Employer Representative determines that other experienced Contractors would similarly not have discovered the error during tendering. Under these circumstances, the liability for the defective design falls onto the Employer. Specifically, Clause 5.1 provides that, once notice is provided by the Contractor of an error or fault in the Employer's Requirements, the decision as to whether a variation would be issued to the Contractor depends on whether "*an experienced contractor exercising due care would have discovered the error or fault... before submitting the Tender*"

The Yellow Book provision is in contrast to Clause 5.1 of the FIDIC 1999 Silver Book, which states that "*The Employer shall not be responsible for any error, inaccuracy or omission of any kind in the Employer's Requirements as originally included in the Contract and shall not be deemed to have given any representation of accuracy or completeness of any data or information*" The clause further states that "*any data or information ... from the Employer shall not relieve the Contractor from his responsibility for the design and execution of the Works.*"

Clearly, liability for a defective ITB falls unequivocally on the Contractor under the Silver Book, while it is less absolute and more conditional under the Yellow Book. The old FIDIC Orange Book also takes the less onerous approach by allowing the Employer's Representative to determine whether a variation should be issued for the extra costs to remedy errors or defects in the ITB. Clause 4.1 of the Orange Book states:

"The Contractor shall give notice to the Employer's Representative of any error, fault or other defect in the Employer's Requirements or such items of reference. After receipt of such notice, the Employer's Representative shall determine whether Clause 14 [the Variation Clause] shall be applied, and shall notify the Contractor accordingly."

Thus, there is a condition of notice by the Contractor prior to shifting the responsibility of error, fault, or other defect to the Employer.

Some contracts provide contradictory clauses for allocating risk for a defective ITB, one unequivocally stating that the Contractor is responsible for all ITB design flaws, while another clause states that an Employer's Representative will determine whether the Contractor is entitled to a variation for a defect in the Employer's Requirements. Unfortunately, the contract is typically silent on the conditions under which a variation will be allowed. Such conflicting clauses make it difficult to ascertain which Party has assumed the liability for a defective ITB.



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Some contracts include clauses such as “Design Development Not a Variation” which shift the risk for defective specifications onto the Contractor. These clauses may contain wording such as the following:

“Should any Works be required which are not denoted in the specifications but which in the reasonable opinion of the Employer and the application of good engineering practice can be considered necessary for the proper execution of the work, then Contractor shall perform these works as if so denoted in the contract and Contractor shall not be entitled to any cost or schedule relief.”

The problem with these clauses is obtaining agreement amongst the parties as to what is “necessary for the proper execution of the work.” This problem may result in scope creep without requiring the Employer to issue a variation. The Contractor may be forced to provide enhancements at its own cost, that were never considered in its original bid, on the grounds that such enhancements were required for the proper execution of the works.

“ITB Endorsement” clauses may also be used to allocate the risk of ITB deficiencies to the Contractor. The following is a typical ITB Endorsement clause:

“Contractor acknowledges that it has fully familiarized itself with the ITB and has fully checked and verified all aspects thereof and has drawn to Employer's attention any errors, omissions, deficiencies, inaccuracies in the ITB. Contractor hereby endorses the ITB and takes full responsibility therefore as being a suitable design and to satisfy Employer's requirements as set out in the contract. Any error, omission or discrepancy in the ITB documents shall not result in or give rise to a time extension or price adjustment under the Variations Clause of the contract.”

These clauses also are problematic when the tendering phase is of insufficient duration for the Contractor to fully familiarize itself with the ITB, or where the design is technologically sophisticated or requires specialized, proprietary equipment, and processes that are not known to the Contractor prior to contract award. This risk is particularly challenging when there is substantial interaction of specialized equipment and processes with other items in the ITB.

While a clear understanding the contractual requirements for the allocation of risk is essential for determining liability for the additional costs and schedule delays as a result of a defective ITB, oftentimes, the contract contains unclear, conflicting, and inadequate conditions for determining the allocation of design risk to the contracting parties. These problems complicate the contractual discussion as to which party has assumed the risk for a defective ITB.



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4. MAGNITUDE, RANGE, AND SCOPE OF THE DESIGN DEFICIENCY MAY ALLOW FOR SHIFTING OF RESPONSIBILITY TO THE EMPLOYER FOR ITB DEFECTS

Despite its acceptance of risk for a defective ITB, the Contractor may argue that the risk should be reallocated to the Employer on the grounds that the magnitude, range, and scope of the latent defects was so significant that the Employer has, in effect, breached its implied warranty of the accuracy of the basic design and engineering in the ITB and the sufficiency of the design to meet project objectives. The Employer's implied warranty of design is breached when the magnitude, range, and scope of defects in the ITB makes it impossible or prohibitively expensive to deliver a project that will meet performance, quality, operational, or safety objectives. In such a situation, the Contractor may successfully argue for the reallocation of responsibility for the defective ITB to the Employer. Entitlement for the cost and schedule impacts attributable to the defective ITB may be allowed on the basis of the Employer's breach of its implied warranty of the design due to the sheer magnitude of latent defects in the ITB.



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5. LIABILITY FOR DEFECTIVE DESIGN MAY SHIFT TO EMPLOYER IF THE DESIGN DEPENDS ON LICENSOR AND PROPRIETARY INFORMATION NOT AVAILABLE TO THE CONTRACTOR DURING TENDERING

In cases involving complex, technologically sophisticated, state-of-the-art systems, particularly ones that rely on patented, licensor, or proprietary information not readily available to the Contractor during the tendering phase, the Contractor may be released from its contractual acceptance of the design risk. Despite clauses to the contrary, the liability of a defective ITB may shift to the Employer when the Employer has superior knowledge of licensor and proprietary information and, on the basis of such knowledge, has represented to a Contractor the feasibility of achieving the project objectives by carrying out the works in accordance with the ITB.

The Contractor may reasonably argue that, where the design is based on significant amounts of licensor and proprietary information, the burden is on the Employer to ensure that the ITB documents are accurate, complete, and detailed. In such cases, any contractual requirement for the Contractor to accept responsibility for the defective design may not be enforceable, thereby allowing the Contractor to recover its additional costs and schedule delays to remedy the errors.

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6. CONCLUSIONS

An EPC Contractor may be entitled to recover the cost and schedule impacts attributable to errors, inaccuracies, or defects in the Employer's Invitation to Bid (ITB), even though the Contractor has contractually agreed to accept financial responsibility for deficiencies in the ITB. The Contractor's success in arguing for a shift of the financial risk to the Employer will depend on the specific provisions and wording of the contract; the magnitude, range, and scope of the design deficiency which calls into question the Employer's implied warranty of the design; and the degree to which the latent defects were on specialized licensor and proprietary design, which were unknown to the Contractor during tendering, and further the degree to which this specialized design impacted the overall design. When there is no strong contractual argument for shifting the risk to the Employer, the Contractor may also want to consider articulating the position that the design changes were in fact "enhancements" to the ITB design, rather than corrections to a defect in the ITB. However, this contention will require the Contractor to show that there was no defect in the ITB, as project objectives were achievable if the original ITB design were implemented. With new design enhancements, the Contractor would have to show that higher levels of project objectives were achieved than those identified in the ITB.

About the Author



Joy E. Pechet, PMP, was a Senior Executive Consultant with Long International and has nearly 30 years of experience in cost and schedule analysis, project controls, and claims preparation and negotiation for large domestic and international construction projects. Her expertise includes schedule delay analysis, loss of productivity studies, budget and cost variance analysis, and cash flow studies. She has prepared damage and lost profits analyses for breach of contract, business interruption, and wrongful termination disputes. In addition, Ms. Pechet has successfully evaluated and negotiated extension of time, loss of productivity, and acceleration claims for coal and gas-fired power plants and large infrastructure projects throughout the world ranging in size from US\$100,000 to over US\$1 billion. Ms. Pechet is an expert in delay claims, forensic planning, contract management, dispute resolution and avoidance, project controls, disruption and productivity analysis, Primavera software, and FIDIC contracts. She has prepared both assertive and defensive claims for owners, contractors, and subcontractors, applying various delay claim techniques including Time Impact Analysis, Windows Analysis, Impacted-As-Planned, and Collapsed-As-Built to quantify delay. She has produced loss of productivity analyses to quantify the schedule impact. For further information, please contact Long International's corporate office at (303) 972-2443.