CUMULATIVE IMPACT AND OTHER DISRUPTION CLAIMS IN CONSTRUCTION

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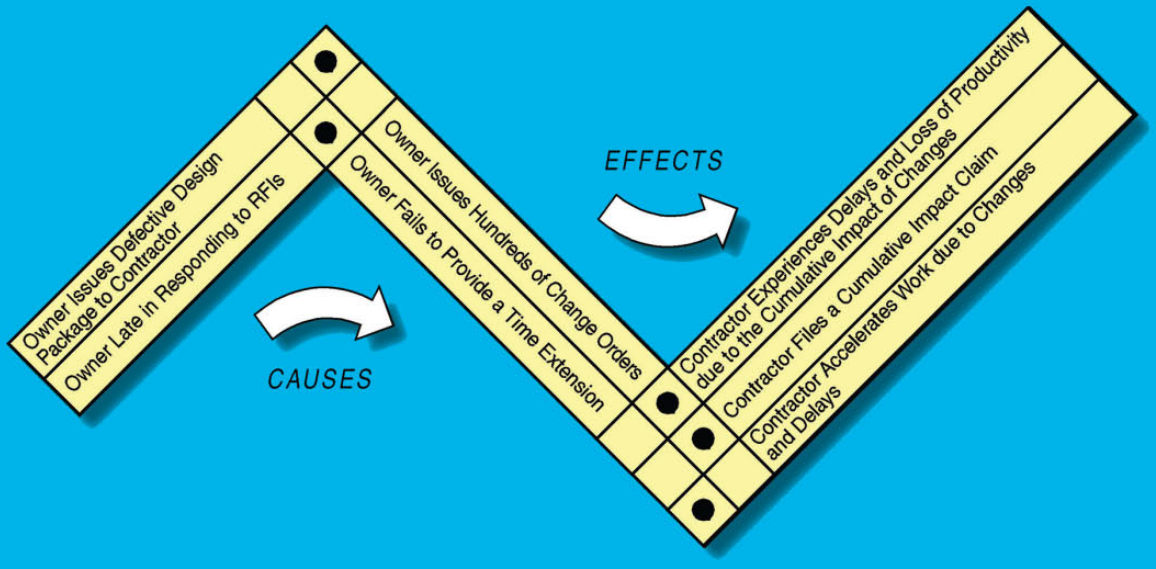

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Preface

Construction contracts usually contain a "Changes" clause by which the owner can bilaterally or unilaterally request changes to the scope of work that is to be performed by the contractor, and these requests are typically converted into change orders. However, the owner's actions or inactions can also result in constructive changes to the contract. Change orders to adjust the contract price and time for completion result from a wide range of owner responsible events, including but not limited to, owner-directed increases or decreases in the scope of work to be performed by the contractor, owner-directed changes in the means and methods of the contractor's performance or the materials or equipment to be installed, owner-directed changes in the contractor's planned sequence in which the work is to be performed, design changes, changes in the performance specifications, differing site conditions, constructability issues, late responses to the contractor's properly prepared submittals and requests for information, delays in the delivery of owner-supplied materials and equipment, failure to secure permits in a timely manner, owner interference with the contractor's work, owner delays resulting in changes in the weather season during which the work is to be performed, changes due to actions or inactions of other trades working on the project for which the owner is responsible, and "constructive changes."

A directed change order or a constructive change typically entitles the contractor to a time extension if the changed work is on the then critical path, and to additional compensation not only for all direct costs, time-related costs, and costs for direct disruption that are caused by the change, but also indirect disruption costs for the unforeseen impact of the change on unchanged work.

The disruptive effect of a change is a function of the size (man-hours and cost) of the change, the nature or scope of the change, the number of changes (although the number of changes may not be a sufficient determining factor in an assessment of cumulative impact), and the impact of the change on the other work. Also critical to the magnitude of the disruptive impact of a change is the time within the engineering and construction cycle when the change is issued. The further into the construction phase of the project, the greater the disruptive impact. If the changes are significant in scope and require significant additional man-hours to perform the changed and/or impacted work, direct and indirect disruption may occur.

The cost of direct disruption that is known and foreseeable should be included in the contractor's change order requests as they are submitted to the owner for approval. The indirect disruption is often unforeseeable and referred to as the cumulative impact of changes. If requests for additional compensation for these indirect disruption costs are not included as part of the change order process because they are not foreseeable, cumulative impact claims may be submitted by the contractor, usually

near or shortly after the completion of the project. These cumulative impact claims most often seek recovery of the contractor's additional expenditure of resources, typically labor costs.

By any measure, it is difficult for a contractor to recover claimed costs that allegedly result from the cumulative impact of changes, either during the project, through a request for equitable adjustment and claim negotiations, or through arbitration/litigation. The construction industry, courts, and arbitration panels in the United States generally agree that the theory of cumulative impact is reasonable, and that multiple change orders and other types of delays and disruption can negatively impact the contractor's performance of unchanged work such that a contractor expends additional time, man-hours, and costs in completing its "unchanged" base scope of work. Yet, as will be discussed, the standard of proof set by the courts in proving these cumulative impact claims is burdensome, and their decisions are somewhat subjective. Further, the construction industry has no definitive standard to calculate loss of productivity claims that allegedly result from the cumulative impact of changes. Finally, the concept of cumulative impact claims has not always been accepted in dispute resolution venues outside of the United States.

Cumulative impacts remain largely an ill-defined concept. A more thorough understanding of cumulative impacts as defined by the construction industry and courts and boards will aid the contractor in preparing its damages and proving causation. The information herein provides a blueprint for the contractor seeking to recover costs that result from disruption and the cumulative impact of changes. Conversely, information is also provided that can be used by the owner to identify weaknesses in the contractor's claim submittal, and to better defend against such a claim.

The term "contractor" is used throughout this book to indicate the party claiming damages for disruption and cumulative impact. Subcontractors may also be claimants. The term "owner" is used throughout this paper to indicate the party defending against a disruption and cumulative impact claim. Engineering and construction firms, prime contractors, or construction managers may also be defendants against disruption and cumulative impact claims that are submitted by subcontractors.

Chapter 1 discusses disruption and cumulative impact as defined by the construction industry, as well as by courts and boards. Legal considerations affecting disruption and cumulative impact claims, and the challenges that contractors may encounter to sustain a cumulative impact claim, are discussed in Chapter 2. Methods for estimating loss of productivity man-hours for disruption and cumulative impact claims are presented in Chapter 3, including references to commonly referenced industry studies. Chapter 4 presents examples of productivity loss and cumulative impact calculations using various industry studies and methods. A discussion of quantum/damages quantification methods associated with construction claims is presented in Chapter 5,

and these quantum/damages calculation methods are discussed in the context of preparing cumulative impact and other disruption claims. Chapter 6 provides information for preparing a cumulative impact or disruption claim during the project. Finally, a discussion of cause-effect analysis is provided in Chapter 7.

Appendix A includes 18 cases in which a court or board awarded a contractor monies pursuant to its disruption claims. In six of these cases, the theory and legal precedent associated with cumulative impact was specifically discussed. Appendix B includes 31 cases in which a court or board denied a contractor's disruption claims, along with a brief description of the reasons for rejecting the claim. In 24 of these cases, the theory and/or legal precedent associated with cumulative impact was specifically discussed. Appendix C provides a list of documentation that is typically preserved on an engineering and construction project.

This book contains information from numerous published sources, and in many cases, the claims made by the various writers of those publications are restated herein. Therefore, the views and conclusions in this book are not necessarily those of the authors.

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About The Authors

Richard J. Long, P.E., is Founder and CEO of Long International, Inc., one of the world's largest construction claims consulting companies, which also provides project management consulting services. Based in Colorado with offices throughout the U.S. and the Middle East, Long International focuses its practice on owners, engineering and construction firms, and contractors performing oil & gas, petroleum refining, petrochemical, chemical, power, mineral processing, manufacturing, industrial, building, and infrastructure projects worldwide. Mr. Long has over 40 years of U.S. and international engineering, construction, and management consulting experience involving construction contract disputes analysis and resolution, arbitration and litigation support and expert testimony, project management, engineering and construction management, cost and schedule control, and process engineering. As an internationally recognized expert in the analysis and resolution of complex construction disputes for over 30 years, Mr. Long has served as the lead expert on over 300 projects having claims ranging in size from US $100,000 to over US $2 billion. He has presented and published numerous articles and training seminars on the subjects of claims analysis, entitlement issues, CPM schedule and damages analyses, and claims prevention.

Before forming Long International, Mr. Long was Senior Vice President, Contract Administration for a major electrical and mechanical contractor. In this role, he had corporate-wide responsibility for technical management and oversight of the preparation and resolution of construction claims. In addition, he was responsible for the development, training, and implementation of project management policies and procedures to ensure that profit, cost, schedule, scope, quality, and safety objectives were achieved. For 13 years, Mr. Long managed the construction claims practices of two large consulting firms. Prior to his consulting career, Mr. Long gained 13 years of project management and process engineering experience on petroleum refining, oil shale, synfuels, mining, and power generation projects with Tosco, Fluor, and Conoco.

Mr. Long earned a B.S. in Chemical Engineering from the University of Pittsburgh in 1970 and an M.S. in Chemical and Petroleum Refining Engineering from the Colorado School of Mines in 1974. He is a Registered Professional Engineer in the State of Colorado. Mr. Long is based in Littleton, Colorado, and can be contacted at rlong@long-intl.com and (303) 972-2443.

Rod C. Carter, CCP, PSP, is a Principal with Long International and has over 15 years of experience in construction project controls, contract disputes and resolution, mediation/arbitration support, and litigation support for expert testimony. He has experience in entitlement, schedule, and damages analyses on over thirty construction disputes ranging in value from US $100,000 to over US $2 billion. His experience includes heavy civil, nuclear, environmental, chemical, power, industrial, commercial, and residential construction. He is proficient in the use of Primavera Project Planner software, and has extensive experience in assessing the schedule impact of RFIs, change orders, and other events to engineering and construction works.

Mr. Carter specializes in loss of productivity, cumulative impact, and quantum calculations, and has held a lead role in assessing damages on more than a dozen major disputes. In addition, Mr. Carter has developed cost and schedule risk analysis models using Monte Carlo simulations to address the uncertainty of estimates and claims. He has testified as an expert in construction scheduling and damages, and has presented expert findings to an international arbitral tribunal.

Mr. Carter earned a B.S. in Civil Engineering from the University of Colorado at Boulder in 1996, with an emphasis in Structural Engineering and Construction Management. Mr. Carter is based in Littleton, Colorado, and can be contacted at rcarter@long-intl.com and (303) 463-5587.

Harold E. Buddemeyer is a Senior Principal with Long International and has over 40 years of experience in all aspects of program and construction project management and construction disputes. His experience includes construction and property damage/business interruption claims analysis, preparation, defense, and negotiation of settlements on projects including refineries, offshore oil & gas, petrochemical plants, heavy civil and mining projects, tar sands facilities, nuclear, coal and gas-fired power plants, and building projects. Mr. Buddemeyer's project experience includes project cost/schedule control, systems and procedures development and implementation, and program planning, as well as capital and operating cost estimating and economic analysis during the design, construction, and start-up phases of a diverse cross section of projects.

Mr. Buddemeyer has over 30 years of construction contract disputes consulting experience. In this regard, he has been responsible for entitlement and issue analysis; change order analysis; labor productivity analysis; cost and damages analysis;

schedule delay and impact analysis; claim report preparation and rebuttal; negotiation and mediation assistance; the organization, development and maintenance of document databases; assistance to counsel during discovery; and depositions and interrogatory preparation.

Mr. Buddemeyer has testified in U.S. and international arbitration. He was enrolled in a professional degree program, majored in applied mathematics and operations research, and minored in Chemical and Petroleum Refining Engineering at the Colorado School of Mines from 1965 to 1970. Mr. Buddemeyer is based in Littleton, Colorado, and can be contacted at hbuddemeyer@long-intl.com and (303) 798-8594.

Douglas J. Nutter, Long International's Manager of Graphic Services, prepared the graphical illustrations throughout this text and formatted the text for layout and indexing. He has nearly 40 years of experience in design, illustration, cartography, and graphic production for technical support, arbitration, and litigation. Mr. Nutter is skilled in developing complex technical issues and data into concise presentations for use by counsel, juries, and arbitration panels. Prior to his consulting career, Mr. Nutter gained 12 years of engineering drafting and graphics experience on petroleum refining, oil shale, synfuels, mining, and power generation projects with Tosco Corporation.

Mr. Nutter has provided graphic design, illustration, and technical support for construction claim preparation, analysis, defense, and negotiation of settlements for various parties, including owners, contractors, transit agencies, universities, sureties, financial institutions, law firms, and architectural firms. Mr. Nutter is based in Littleton, Colorado, and can be contacted at dnutter@long-intl.com and (303) 427-4368.

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