

International Experts in Claims Analysis, Dispute Resolution, and Project Management for Process, Oil & Gas, Pipeline, Power, Industrial, Infrastructure, and Building Construction Projects



LONG INTERNATIONAL

## Project Management Consulting Services

### OVERVIEW

Depending on our client's current and future needs on projects, Long International can assist in the critical aspects of project management, cost and schedule control, contract administration, claims prevention, and dispute resolution. Our services are structured to establish an open and collaborative environment between all key parties to evaluate project planning and execution issues and facilitate identification of solutions.

All services by Long International are performed by seasoned professionals who are well versed in all aspects of project delivery. These services can be provided individually or collectively at our client's direction, and will be tailored to fit the specific needs of our client's projects.



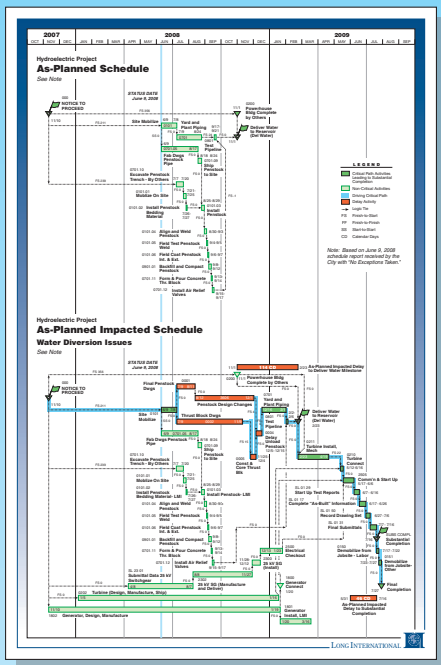
### DEVELOPMENT/REVIEW OF PROJECT MANAGEMENT PLANS, AND PROJECT CONTROLS/CONTRACT ADMINISTRATION POLICIES & PROCEDURES

Long International can provide guidelines, assist with the development and review of our client's Project Management Plan to ensure that it sets forth the communication, management, control, and documentation policies, protocols, and procedures that our client intends for the project. We can thoroughly review and examine the plan to ensure that it reflects the scope of work and responsibilities of each party engaged on the project. Owner or Contractor responsibilities can be determined for the various project responsibility matrices consistent with our client's planned staffing assignments and contract terms and conditions and job instructions. We recommend an integration of the responsibilities with the Work Breakdown Structure (WBS) to facilitate communication. We recommend that the Project Management Plan should identify the following:

- Project scope and description
- Project parameters including design criteria, cost goals, quality objectives, schedule objectives, definition of terms, administrative protocols, and financial factors
- Permitting requirements and responsible governmental agencies
- Detailed criteria for the production and content of the design and construction documents

- Contracting strategy for the basic engineering package and the detailed construction contract
- Purchasing Strategy and Procurement Plan
- Measurement and quantification conventions, constructibility procedures, and value engineering
- Master Project Schedule with required milestones, Owner's Equipment Procurement Schedule, and the detailed Engineering, Procurement, Construction, and Start-up/Occupancy schedules as they are developed
- Testing, turnover, start-up, and commissioning, or occupancy schedule requirements and procedures
- Estimating and project budget development procedures, budget reporting procedures, contingency utilization authority, and change control systems for total cost management
- Progress reporting requirements and progress review meetings for proper communication
- Management information systems including project cost and schedule controls, issue tracking, change management and control, procurement and material receiving logs, RFI logs, document control, and drawing tracking
- QA/QC procedures and inspection approach
- Construction strategy including site constraints, access, mobilization, staging, and ongoing operations

# Project Management Consulting Services



## PREPARATION OF AS-PLANNED SCHEDULES AND SCHEDULE UPDATES

Long International can prepare or revise the baseline CPM schedule, based on the contract scope of work requirements, contractual deadlines, resource loading and constraints, procurement plan, construction equipment availability, subcontracting plan, and the Contractor's basic plan and sequence for performing the work. After the initial draft is prepared, the baseline schedule would be reviewed with the Contractor to ascertain if it is consistent with the contractor's objectives. As work is progressed, we can also prepare schedule updates based on the actual progress of the work, and include in the updates any change orders and other delays that have affected or will impact the Contractor's planned performance. If requested, we can also meet with the Owner's representatives to discuss the baseline schedule and schedule updates. We can also prepare time impact analyses and requests for time extensions as a result of delays.

## SCHEDULE QUALITY ASSURANCE REVIEWS

Many project schedules are often poorly prepared and require extensive rebaselining during project execution to become a useful project management tool to properly measure progress, determine the effect of changes in scope, and forecast the completion of contractual milestones and overall project completion dates. Poorly prepared schedules do not provide a reliable tool to measure the amount and responsibility for delays that occur during project execution to provide a basis for a time extension or to assess the need for acceleration to mitigate delays. To rectify these common problems with project schedules, Long International provides Schedule Quality Assurance Services. We have experienced scheduling experts who can evaluate the reasonableness of the scope, logic, and critical path of the baseline schedule and schedule updates. In addition, we have tools that can provide detailed comparisons of changes made to schedule updates and the effect of those changes on delay or acceleration of the work and resource utilization.

## COST ESTIMATE AND FORECAST REVIEWS

We can review cost estimates as they are prepared for a project to determine if all of the work scope is included, and advise our client if engineering and project management costs, equipment and materials costs, labor rates and productivity, and the appropriate levels of design development and contingency are included based on the completeness of the engineering and design upon which the estimate is based. We can then assist our client with cost forecasts as additional engineering is completed and field construction is performed to take into account equipment and material cost trends, impact of changes, actual engineering and construction labor productivity, and delays which would affect time-related costs.

## COST AND SCHEDULE RISK ANALYSES

Cost and schedule risk analysis is the process of associating a degree of confidence with each schedule activity or relationship lag duration or with line items of the cost estimate. Defining probability distributions for the schedule activity durations and cost estimate line items allows one to forecast the probability of achieving milestone target dates or cost forecasts at completion. Either as part of the baseline schedule

preparation and initial cost estimate reviews, or as part of schedule updating and cost forecast process, we can provide risk analysis services that would apply Monte Carlo probability determinations based on risk factors known for the project and based on our experience. Examples of risk factors that could affect schedule activity durations and costs include but are not limited to:

- Uncertainty in the scope of the work
- Uncertainty in quantities to be installed
- Extended design development effort for "first of a kind" projects
- Poor labor productivity
- Unusually severe weather/natural disasters
- Late governmental approvals, e.g., permits, customs, regulatory
- Extended time required for procurement and delivery of equipment and materials
- Civil unrest/work stoppages
- Lack of qualified labor
- Late funding approvals
- Extended start-up period required to achieve full production
- Differing site conditions
- Unanticipated escalation of equipment and materials costs
- Contractor default
- Defective work

Project duration and cost forecast models derived from the schedule and cost risk analysis models strengthen management control by providing insight into the causes, degree of probability, and probable magnitudes of schedule slippage and cost overruns on the project.

## REVIEWS AND CRITIQUES OF CONTRACT DOCUMENTS, PROPOSALS, & BID PACKAGES

Long International's staff of over 60 professionals has extensive U.S. and international experience on large, complex projects incorporating conventional-phased, fast-track, or EPC turnkey concepts. Our senior personnel have on average over 35 years of experience working for major oil and chemical companies, manufacturing companies, power generation companies, public owners, international engineering and construction companies, mechanical and electrical contractors, construction consulting firms, banks, insurance companies, and financial institutions. Our experts have managed, designed and built projects, and managed the cost and schedule control functions of projects. By performing an independent cold eyes review of contract documents and bid packages, we can identify and eliminate potential inconsistencies, ambiguities, conflicts, errors, and omissions that, if uncorrected, could lead to costly changes, delays, and claims during the execution of the project.

## ANALYSIS OF CONTRACT LANGUAGE

By performing a technical review of the contract prior to its execution with an eye toward how it would be administered and executed by the Owner's and Contractor's project management personnel, we can identify exculpatory clauses and risks that would require special attention to avoid costly disputes.

*"Our experts have managed, designed and built projects, and managed the cost and schedule control functions of projects."*

# Project Management Consulting Services

## ON-SITE COST AND SCHEDULE CONTROL, PROGRESS REPORTING, SCHEDULE DEVELOPMENT, AND ASSESSMENT OF LABOR PRODUCTIVITY

Long International's personnel can provide the expertise to provide on-site project management consulting services for clients needing experienced personnel that can be stationed at the project site. Using a structured approach for cost and schedule control, progress reporting, schedule development, and assessment of labor productivity, our involvement in the early stages of your project provides the greatest opportunity to most effectively control costs, schedule, and quality of the work.

We tailor our On-Site Services to meet your specific needs. A sample of these services includes:

- Development of procedures, standard reports, coding structures, metrics, and templates
- Control budget development/perform job cost control
- Development and coding of actual costs, coordination with accounting, and preparation of projected expenditures
- Updating and tracking of contingency budget
- Development and maintenance of change order logs and supporting documentation
- Development and maintenance of request for information logs and supporting documentation
- Development and maintenance of field change order logs and supporting documentation
- Preparation/review cashflow reports
- Baseline schedule development, including work breakdown structures, activity identification, durations, responsibilities, and resources
- Development of project/construction management staffing requirements
- Verification of field progress/preparation of schedule updates
- Preparation of look-ahead schedules
- CPM scheduling training for client personnel
- Identification of risks and impact issues
- Analysis of schedule delays and impacts for extensions of time/compensable delay costs
- Tracking of purchased and installed quantities, and corresponding labor man-hours/preparation of periodic labor productivity reports
- Preparation of daily reports
- Preparation and/or review of weekly reports and monthly progress reports
- Linkage of CPM schedule to project cost report

## ANALYSIS OF TECHNICAL ISSUES, SCHEDULE IMPACT, AND PRICING OF CHANGE ORDERS

Disputed change orders that go unresolved during the execution of a project can lead to delay in the implementation of the work required by the Owner. A Contractor's interpretation of the technical requirements of the contract design documents and specifications may differ from that of the Owner. Long International's extensive engineering, schedule analysis, and cost estimating experience provides the background to analyze the technical entitlement, schedule impact, and pricing of unresolved change orders to negotiate and settle change order claims and avoid costly disputes at the completion of the project.

## CONTRACT ADMINISTRATION/ OWNER'S REPRESENTATIVE

Our clients often experience engineering, project management, change management, scheduling, and cost control resource availability issues on their projects. We can provide qualified and experienced personnel on a periodic or full-time basis to address these resource needs to help ensure proper contract administration and monitoring of project schedule, cost and quality performance.

## PREPARATION OF DOCUMENT CONTROL AND TRACKING PROCEDURES

Decision management is central to effective project management as well as cost and schedule control. Our project management experience has taught us to appreciate the necessity of a responsive and accurate issue/event tracking system to support the needs of managers at each level of project responsibility. We can assist in the development and maintenance of an issue/event tracking log designed to suit the specific needs of the project with respect to issue and/or event identification, follow-up and expeditious resolution. Unresolved items should be reviewed at regular progress meetings. Resolution of each issue should also be recorded in the log to document the project history.

## PROJECT REVIEWS/AUDITS

Long International can also provide project reviews/audits of the project management, contract administration, and project cost and schedule performance of active projects. We recommend these audits on projects at the following key milestones:

- Completion of basic design and development of detailed design procurement and construction bid packages
  - 30 percent detailed design completion
  - Start of construction
  - Start of piping erection or start of building interior buildout
- A project manager can be entrenched in the project details and optimistically believe the project is in better shape than it really is. The primary purpose of the project reviews/audits will be to verify that project personnel are following recommended practices for:
- Cost control
  - Change management and control
  - Schedule reviews and approvals
  - Documentation control and maintenance
  - Provision of timely responses to Contractor requests for information
  - Contract administration
  - Invoice reviews and approvals

In addition, Long International's experience in the analysis of problems on projects can be used to identify potential problems that may evolve into delays and cost overruns, and recommend mitigation measures before such problems escalate into major disputes. Our recommendations provide practical solutions based on a cause-effect analysis. If the audit is performed early in the project, recommendations can be implemented to improve project execution and reduce time and cost overruns.



*“Using a structured approach for cost and schedule control, progress reporting, schedule development, and assessment of labor productivity, our involvement in the early stages of your project provides the greatest opportunity to most effectively control costs, schedule, and quality of the work.”*

## Prevention and Resolution of Engineering and Construction Claims Through Effective Contracting, Contract Administration, Project Controls and Project Management

Seminar Reference Manual



April 2018



### PROJECT MANAGEMENT/ CONTROLS SEMINARS

It is vital for contractors and owners alike to keep current on a project's schedule and cost by maintaining a reliable cost and schedule control system. Scope changes, changes in labor costs, qualified labor shortages, increased equipment and materials costs, delays, and other foreseeable and unforeseeable events can negatively affect both the cost and schedule of an engineering and construction project. Maintaining a reliable schedule and cost control system enables an owner, an engineering firm, and a contractor to analyze the progress of design development and engineering, the productivity of labor, the performance and efficiency of construction equipment, the cost of equipment and

materials, and the proper allocation of overhead expenses. The improvement of cost, schedule and quality performance on projects is key to improving the levels of efficiency in project execution. A reliable cost and schedule control system allows for changes as a project progresses. If construction costs are running higher than the contract budget, corrections can be implemented during the project, thus increasing the likelihood that a project will be financially successful and completed on time.

To this end, Long International provides services to review existing project management/project controls procedures, develop recommendations for establishing or improving project management and cost and schedule control functions, and develop effective project management methodology in all areas of the Company's operations. This effort will involve collecting industry standard procedures and sample stage gate processes, and developing various project tracking tools, templates and checklists. The processes and procedures will be designed to be consistent with our client's needs and capacity to better manage its projects. We will then provide on-site training to the client's staff who are responsible for the implementation and execution of projects.

Long International is experienced in project cost and schedule control and our personnel are familiar with common systems and practices. We have assisted with the implementation of cost and schedule control systems, trained individuals and companies in cost and schedule controls practices, advised on cost and schedule control policies and procedures, and analyzed costs and delays on troubled projects worldwide.

### CLAIMS PREVENTION TRAINING SEMINARS

Long International's senior personnel have extensive claims analysis and dispute resolution experience encompassing over 400 projects worldwide. This experience has taught us many lessons to avoid the costly problems created by claims. We believe that the essential elements of a Claims Prevention Program include the following:

- Understanding the contract
- Knowing the basic claim entitlements and avoiding them
- Reviewing and approving of as-planned schedules and understanding schedule administration
- Utilizing independent biddability/constructibility reviews
- Preparing of quality contract documents
- Implementing timely contract administration
- Integrating cost and schedule control
- Adhering to the contractual change management system
- Requiring proper and thorough documentation
- Documenting cause/effect of delays and increased costs
- Mitigating claims during engineering and construction
- Implementing periodic project reviews by senior management
- Analyzing risks before signing contracts
- Implementing an effective dispute resolution process

Long International has significant experience in providing Claims Prevention Training Seminars to address and implement the program components listed above for our clients' management, engineering and construction staff. We have developed the basic framework of a training seminar entitled "Prevention and Resolution of Engineering and Construction Claims Through Effective Contracting, Contract Administration, Project Controls and Project Management." This seminar will be tailored to each client's organizational structure, project execution styles, and level of experience, and can be provided in one- or two-day formats, depending on the level of detail that suits our client's availability and needs. Topics typically include the following:

- Why Claims Occur-The Red Flags
- Claim Types
- Contract Clauses
- Documentation
- Scheduling and Delay Analysis
- Quantification of Damages
- Claims Prevention
- Dispute Resolution

In addition to training, we have developed detailed checklists for the following:

- Bid Preparation Issues
- Reviews and Approvals of As-Planned Schedules and Schedule Updates
- Site Inspections Prior to Bidding
- Project Documentation
- Problem Identification and Analysis
- Contractor's Risk Analysis

These checklists can be utilized during project execution to better enable our client's management teams to manage and control their projects.



#### PROJECT REVIEW CHECKLIST

PROBLEM	Yes	No	Unclear
<b>LABOR-MAN-HOUR ISSUES</b>			
<input type="checkbox"/> Are the man-hours on timesheets coded to specific cost accounts?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Are we tracking labor productivity by individual cost accounts?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Are we tracking progress by earned value?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Is our productivity acceptable?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Are we tracking the productivity of our subcontractors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Is the productivity of our subcontractors acceptable?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Have we taken any measures to improve our productivity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Have our productivity improvement measures been successful?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Is our Project Manager providing weekly labor and quantity budgets to the Foreman?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Do we have a baseline or planned manpower loading chart based on our original contract work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Do we have a current manpower loading chart for the completion of the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Is our manpower level significantly higher or lower than the baseline manpower curve?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> If it is, have we evaluated the productivity impact of such deviations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Are we forecasting labor for future weeks by work activities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Are we preparing three-week lookahead schedules for labor forecasts?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Are we preparing eight-week lookahead schedules for labor forecasts?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Have our labor forecasts deviated significantly from actuals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Have we evaluated the productivity of future activities based on the productivity trends of the activities that already have some history?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Are copies of timesheets in the project files?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Are our timesheets signed by the Project Manager?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### PROJECT REVIEW CHECKLIST (Sample Page)

