

Keeping Time



ISSUE 3

In the News

GREYHAWK adds Paul Steen to its London team of delay analysts. Paul joins Greyhawk from Sir Robert McAlpine where he was recently involved in the planning and programming of the prestigious £170million Watermark Place project in London. During his time with Sir Robert McAlpine, Paul gained a valuable insight into quantitative delay analysis and critical path scheduling. Prior to his work at Watermark Place, Paul gained experience with Norwest Holst where he was heavily involved in the planning function on a number of significant building and civil engineering projects in the North West of England including a £30 million student accommodation development and an £8million hospital refurbishment. Paul is a fantastic addition to our growing London practice and we are delighted he has chosen to join GREYHAWK.

GREYHAWK's UK business continues to go from strength to strength with our recent appointment as experts on a marina development in the State of Guernsey and our appointment as claims consultant on a £100 million town centre redevelopment in West London.

GREYHAWK recently hosted a breakfast seminar at the RIBA Headquarters in Portland Place to mark the launch of Anthony Caletka's book "Delay Analysis in Construction Contracts" published by Wiley-Blackwell. The event was jointly organized and hosted with co-author Dr P. J. Keane.

GREYHAWK is credited by *Kansas City Star* as having concluded successful negotiations of contractual claims with Design/Build Contractor and is appointed by Kansas City Aviation Division (KCAD) as Independent Advisors on Consolidated Rental Car Facility for Phase II services.

Gary Berman, founder, president and CEO of GREYHAWK has been elected to the board of directors of the Engineering & Construction Contracting Association (ECC).

NYU (New York University) appoints **Anthony Caletka**, Adjunct-Professor in the School of Civil Engineering offering Graduate (MS) course in Advanced CPM Scheduling and Forensic Delay Analysis

GREYHAWK promotes Senior Principal Charles Romanoli to Chief Operating Officer, succeeding Steve Tell. Chuck is President of Mid-Atlantic CMAA Chapter.

Welcome to the third issue of the **GREYHAWK** newsletter 'Keeping Time'.

In this edition, Tony Caletka explains how to take the "pulse" of your project and provides insights into the need for effective project governance and enterprise risk management. These tools protect the interests of an EPC contractor's shareholders, Joint Venture Partners, and all stakeholders generally, to avoid surprises by identifying trends and issues which would otherwise threaten the success of a large capital expenditure.

Additionally, Gary Berman contributes to our knowledge of structural steel and disputes resulting from the "Disconnect with Steel Connections" by explaining that, when it comes to structural steel, the money is "*in the details*".

Have you taken your project's pulse lately? By Anthony Caletka

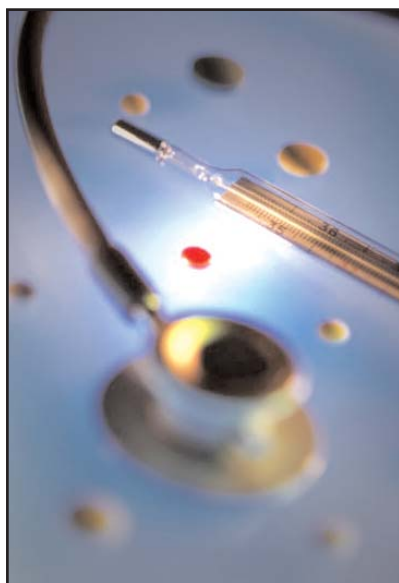
Project Health Check : Management Function or Management Hindrance?

On any major project or CAPEX today, sophisticated project controls, procedures and management plans will have been developed with experienced project management teams in place. However, if history is an indicator, many of these projects will find their way to a dispute, with 16% of projects likely to incur a delay and 35% likely to experience a cost over-run¹.

Is it possible that one of your projects is currently running behind schedule, over-budget or has there been a surge of potential delays plaguing the site-team which have not been adequately raised in the latest monthly project status report? Perhaps you need Independent Project Review (IPR) from an external advisor to test the accuracy of the information reported, the costs being incurred, the progress being achieved and the time being logged on timesheets coded to your project. These are just a few of the areas explored during Independent Project Reviews (Construction Audits, Peer Review, Due Diligence Assessments, Value for Money Assessment etc...) IPR's can be carried out voluntarily or to comply with funding agreements, Enterprise Risk Management (ERM) frameworks, or statutory requirements and can often identify trends which may threaten the success of the project, impacting your ability to 'open for business'.

It is very rare that an IPR will result in a simple 'thumbs up'. IPRs often identify necessary improvements or procedural changes which result in reduced risk, increased transparency, awareness, enhanced risk management and more robust project governance.

¹ Global Construction Survey 2007, KPMG, Construction Procurement for the 21st Century



IPRs can be carried out at the project or portfolio level, and from two perspectives, the business unit and the organisational level. In GREYHAWK's experience, IPR's are more effective when the review has the full commitment from management and a stakeholder sponsor personally appointed to agree with the scope of the audit, and to ensure we have access to project staff, records, communications and all relevant information to allow the audit team to form an accurate picture of the project.

The issues addressed in each IPR will vary but need to be systematic to determine if your organisations strategic, operational, reporting, and compliance objectives are being met. IPRs identify non-compliance and deviations in project governance, record keeping, progress monitoring systems, payment and cost control and weaknesses in the organisation's risk management capabilities.

A 'risk' is simply the likelihood of any deviation from an expected or defined outcome. The consequences can be certain or uncertain and can have positive or negative effects on your objectives. Both threat and opportunity should be held

with equal regard and an organisation with a mature risk management culture will have a greater emphasis on opportunity and a more aggressive appetite for risk. Project audit teams may also identify integrity issues (overbilling, double billing, over-valued assets/claims recovery). IPR's may uncover inefficiencies by the managing partners of a CAPEX JV or Special Purpose Vehicle (SPV) where the interests of minority partners are not being protected with the same financial efficacy.

Whatever the method of project delivery, every entity exists to provide value for its stakeholders. That value is protected and maximized when senior management sets strategy and objectives to efficiently and effectively deploy resources in pursuit of the entity's overall objectives and ensuring delivery methods are in alignment with the organisations risk appetite and operational strategy². An independent project review, or 'health check' on any large EPC (Engineer-Procure-Construct) contract is undertaken by technical, legal and accounting teams. They usually include both 3rd party and internal independent sponsors to facilitate accessing key staff and the gathering of project information and data. The primary categories of examination are usually broken down into manageable elements and include:

- Scope Development/Control
- Time Management
- Quality Assurance/Quality Control
- Project Governance
- Cost Control/Record Keeping
- Risk Management

Depending on the size and complexity of the project, these elements could be grouped or organised to suit the frequency, budget and timescale available to carry out each audit. IPR's can be carried out as 'one off' health checks or scheduled at predetermined intervention points throughout a project's lifecycle, with each audit concentrating on one of the six elements described above. Project audits on PFI/PPP³ projects are required prior to financial close and are often required throughout the project at predetermined stage gates. GREYHAWK has found from experience that to maximize the benefits of an IPR, the project or sponsoring organisation should already have in place.

- A compelling business plan, stating the objectives of the project.
- A mechanism to assess compliance of the completed project to its original objectives
- Clearly identified stakeholders with an interest in the project
- A defined method of communication to each stakeholder
- A specification for the project monitoring of deliverables
- Clear assignment of project roles and responsibilities.
- A current, published project plan that spans all project stages.
- A robust system for progress reporting.
- A robust system for identifying, monitoring, and allocating risks and contingency usage.
- A central document repository for the project ('Paper is King')
- A centrally-held glossary of project terms, acronyms, definitions, coding structure, WBS codes, etc.
- An effective change management system (time, cost, scope alterations/deviations)
- A process for recording and communicating new risks identified during the project
- Standard project governance documents Project Execution Plan / Project Management Plan)

If these elements are not in place, the IPR will surely result in immediate benefits with recommendations on how to establish these elements on existing or future projects. On large projects, either full-scale or smaller, more focused, IPR's can be carried out at different intervention/stage gates.

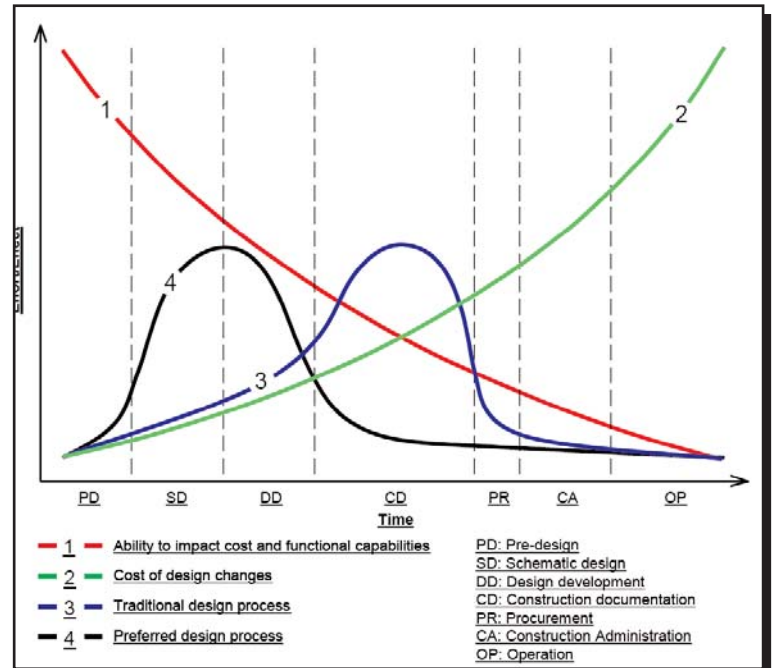
² Enterprise Risk Management - Committee of Sponsoring Organizations of the Treadway Commission, 2004 (COSO)

³ Project Finance Initiative/Public Private Partnership

The stages of many building type projects, for example, are usually defined as:

- Conceptual Design
- Schematic Design
- Design Development
- Procurement
- Operation

On EPC delivered projects, particularly chemical and oil & gas projects, the FEED⁴ (Front-end Engineering Design) stage replaces the conceptual, schematic and design development phases. As the "effort/effect" figure⁵ illustrates, the "Ability to Impact Cost and Functional Capabilities" reduces from Pre-design (PD) to Operation (OP), with minimal influence during Construction Administration (CA) stage. An IPR carried out during the CA stage would focus on different elements of project governance than those reviewed during earlier stages, with diminishing influence (see red line).



Involving an independent 3rd party can promote benefits during the Risk Assessment, Risk Management, or Risk Monitoring Stages.⁶ Reviewing the effectiveness of both Project Governance and Risk Management are seen as the most intensive effort required by the audit team. The benefits of the IPR are enhanced as the IPR team becomes more familiar with the organisation and its policies by ensuring consistency between project delivery and the original intentions set out in the business case and by uncovering any "optimism bias⁷" or "strategic misrepresentation⁸", either by those executing the plan (in the field), or by those reporting progress and making crucial decisions from afar.

The IPR encompasses only part of an ongoing process of ensuring that an active rather than just a controlling role is taken by those accountable for project delivery. This is because Project Governance is not well understood or executed in organisations which are becoming complacent with inaccurate and untimely information. Some organisations actually postpone key decisions regarding time sensitive project delivery issues until the next regularly scheduled board meeting. Corporate-wide (enterprise) based reporting systems usually require progress and decision support information from individual projects to be reformatted and abridged into standardized reporting formats. This results in important detail being sacrificed due to restrictions in standardized reporting formats.

What is a Project Health Check?

A proper project audit should see each project as part of an overall program or capital investment. Depending on the timing, the IPR may evaluate different aspects of risk throughout the project's lifecycle to address the following tasks:

- Evaluate the elected design solution to determine if it is consistent with the original project objectives in the business case
- Answer the questions
 - "Is the business case being achieved?"
 - "Are appropriate measures of success being monitored and achieved?"
- Evaluate project proposals to see if the proposals selected represent the best investment of funds and resources and were within the proposing firm's capability and capacity to deliver

⁴ The FEED stage starts with material and energy balance calculations and a project governance plan. It includes preliminary equipment design and layout and the initial project schedule and cost estimate. The FEED stage usually ends with major equipment specifications, a definitive estimate and a project execution plan.

⁵ Collaboration, Integrated Information and the Project Lifecycle in Building Design, Construction and Operation Presented by the Architectural/Engineering Productivity Committee of The Construction Users Roundtable (CURT) - 2004

⁶ Business Risk Assessment. 1998 - The Institute of Internal Auditors

⁷ Optimism bias is the demonstrated systematic tendency for people to be over-optimistic about the outcome of planned actions. This includes over-estimating the likelihood of positive events and under-estimating the likelihood of negative events. It is one of several kinds of positive illusion to which people are generally susceptible.

⁸ Strategic misrepresentation is the planned, systematic distortion or misstatement of fact-lying-in response to incentives in the budget process. Examples of strategic misrepresentation in budgeting illustrate that it is a contingent strategy responsive to a system of rewards in a highly competitive game where resource constraints are present. Not all budget advocacy requires or involves misrepresentation, nor is all budgetary strategy intended to misrepresent.

The use of objective foresight, risk-informed decision making, will increasingly displace the subjective methods employed by the chain of command. No institution can escape the growing, relentless legal consequences of a rule-based governance¹¹."

- Evaluate staffing and allocated resources (staff and consultants), to see if they align with existing procedures/execution plans and aspirations (skill level, experience, expertise and numbers?)
- Evaluate performance in controlling progress, scope, risk and financial contingencies
- Review the stakeholder's commitment to the project as well as their awareness and involvement in overcoming obstacles and managing change
- Review planned vs actual outputs, (plant and labour) and the benefits and value of any deviations identified against both the original plan and any revised expressly stated expectations
- Ensure the project management team is focused on and is 'Steering' the project into the organisations core services (Oil refining, Drug production, chip production, sludge treatment, gas storage, manufacturing, etc.)

The goals and benefits of the audits are many, but should assist the project team in identifying and removing obstacles, managing critical success factors, and identifying weaknesses or bottlenecks in the organisation's project delivery capability - resulting ultimately in the ability to deliver projects in less time, for less cost, with more certainty and less risk to the organisation's core services.

Why do I need a project health-check?

Project Audits have been required for companies subject to the Sarbanes-Oxley Act (SOX) since 2002 as a regulation to protect shareholder value from risks which were most publically highlighted following the scandals uncovered at firms such as Enron, WorldCom and Tyco. A recent survey⁹ indicated that 61% of South-American, European and Asian companies are "totally prepared" for SOX implementation.

Although 80% of European companies surveyed consider that SOX is an adequate response to the main risks by strengthening their internal control systems, 56% find that the costs derived have not been compensated for by the benefits expected. 85% believe that the workload is noticeably more significant than initially predicted. Publically traded organisations still carry capital projects in-progress as assets, while construction and engineering firms often report outstanding construction claims and disputes in arbitration or litigation as deferred income or assets, often overstating the likely net return.

GREYHAWK staff have implemented project audits for government agencies and private CAPEX/PFI/PPP consortia as part of the overall Project Control Cycle, which is consistent with, accepted methods of implementing continuous improvement¹⁰. Suggestions and observations resulting in improved processes and procedures often come from outside, independent observers, whether carried out for mandatory or voluntary reasons. The goal of the sponsor implementing an audit should be to:

- Transparently identify the relationships between all internal and external groups,
- Identify improvements to the flow of information regarding the project to all stakeholders,
- Ensure informed decision support systems are in place (time, cost, scope, risk, safety, quality),
- Ensure the appropriate review of issues encountered is occurring in a timely manner,
- Review the effectiveness of significant changes to project procedures,
- Review the effectiveness of significant changes to management staff or key project participants,
- Enhance awareness and benefits of using early warning systems and event tracking systems,
- Ensure that required approvals are sought and obtained before implementing change, and
- Improve compliance with procedures, design parameters, and statutory obligations

The financial benefits of carrying out an IPR is not usually immediately apparent or realised. Increases in efficiency, productivity and effectiveness of the existing staff and procedures will result in financial savings, enhance shareholder value and improve the likely-hood of successful project delivery. The most important benefit is the avoidance of litigation, cost over-runs or other surprises resulting from failure to adhere to processes and procedures governing the conduct of the delivery team or senior management, which could otherwise reflect negatively on shareholder value.

Anthony Caletka - acaletka@greynawk.com

"an increase in the pragmatic foresight competency is so large, and abrupt, stakeholders are increasingly aware that most of the damage they suffer, legally, should have been prevented. Obedience to the rules is no longer an excuse to a damaged stakeholder¹¹."

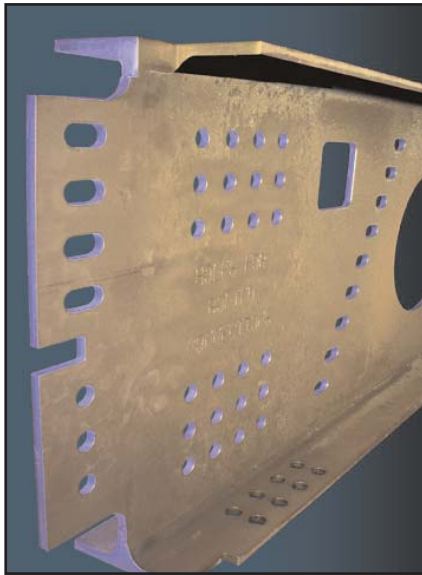
⁹ Mazars worldwide survey on the Sarbanes Oxley Act, 2006

¹⁰ Six Sigma, Kaizen, Deming Cycle and Lean Construction are all models for continuous improvement of quality and efficiency.

¹¹ Corporate Governance of State-Owned Enterprises - comment letter on Draft OECD Guidelines, William L Livingston, 2005

The Disconnect with Steel Connections

By Gary S. Berman, PE, FCMAA



Fabricators of structural steel have different shop configurations. Fabricators customize their shop with different computerized and non-computerized equipment, various methods of drilling and punching, different locations in the process for bending plate and you can bet that each believes they have the most efficient set-up. What is interesting is that for the most part, each does have the most efficient set up for their shop size, location, sophistication and clients.

When the structural engineers of record (SER) figured out that they could no longer design the most efficient connections for fabrication (least weight, greatest strength, easiest to fabricate and erect), it became customary to pass the engineering of the connections to the fabricator. The fabricator using staff resources or outside consultants, now had to employ a professional engineer to prepare the detailed connection design. The benefit to the fabricator is that they can now influence the connection design to assure efficiency. The advantages to the SER are that they are no longer criticized for inefficient designs and that they are now only responsible for checking the design of another professional.

The disadvantage to the industry is that the weight, complexity, and bolt/weld configurations are not now known when the fabricator bids the project. On virtually every dispute with which GREYHAWK has been associated, the planned versus actual complexity of connections has been a component of most conflicts. This is because fabricators have to use their best judgment in calculating an amount of money to include in their bid for connections; and assumptions have to be made.

The assumptions broadly include the exact number of connections, whether they are simple shear or moment connections, what size gusset and stiffener plates and in what configuration, how many and what size bolts, and what can be assembled in the shop or in the field - on the ground or in the air. Because of these variables, fabricators often estimate connection weight as a percentage of main member steel and then apply a unit cost to that. This is the dilemma. While one can say it was appropriate for the structural engineers to shift the risk for connections to the fabricators, the consequence is often an ensuing dispute over the difference between what was planned and what was actually required. To cope with this issue, in the United States, the AISC Code of Practice requires the structural engineers to provide the fabricator with important information in the bid documents. Information such as connection type and loads are the most common information. The Code also calls for the SER to design and detail special or complex connections. Also, items such as column web doubler plates, bearing stiffeners, web reinforcement, continuity plates and other ancillary steel must be shown on the bid drawings or described in sufficient detail to allow the fabricator to create an accurate bid.

While the global decision to allow fabricators to control the design of the connections has merit, this decision had a consequence that has not been addressed by codes or customary practice. It is unreasonable to expect fabricators to engineer the connections in advance of being awarded the work. One solution is for the SER to estimate and put an allowance for connections on the bid form knowing that future differentials will have to be reconciled. Other than that, it will be important for the fabricator to highlight their assumptions in their bid and look to argue their point for additional compensation at a later point in time remembering that, when it comes to Structural Steel,

"the money is in the details".

Gary is a structural engineer and former steel fabricator and erector with more than 30 years experience. He is recognised as one of the leading structural steel experts in the U.S. He can be contacted at gberman@greyhawk.com

In House Training Seminars Offered by GREYHAWK

At GREYHAWK we are able to draw on a huge reservoir of experience, expertise and knowledge to deliver a series of first class training seminars. Our experience of managing complex projects in the UK and internationally and our regular appointment as expert witnesses on major disputes across many jurisdictions enables us to deliver seminars based upon the very best and the most recent experience.

All of our training programmes are tailored to suit your particular needs and requirements. We can deliver a full days training incorporating several key topics or we can deliver a single topic across a full day. The choice is yours. The important thing to remember is that our seminars are aimed directly at improving the performance of your business and your people.

Some of our recent seminar topics are shown:

PARTNERING

We look at recent developments in the use of partnering as a method of procuring projects in the construction industry and also the evolving use of partnering contracts such as NEC3 and PPC2000. We consider not only the legal aspects of partnering but also the practical effects of framework agreements, gain/pain sharing, supplier selection processes, value engineering obligations, open book accounting and target cost.

PUBLIC PROCUREMENT

The public procurement regime is a vital tool for the introduction of some real competition into the tender process and the delivery of tangible efficiency gains. If your business operates within this dynamic sector you need to stay in touch with all the latest developments. Our training seminar considers the various key stages to procurement and deals with important issues such as the Public Contracts Regulations, OJEU compliance, PQOs, tender compliance and contractor selection.

DELAY AND DISRUPTION

Delay and disruption are two words that often have both parties to a construction contract running for cover. We take a close look at the more common conditions of contract and how they work in practice. We examine in detail the duties and obligations of the employer, the contract administrator and the contractor with regards the extension of time and compensation events. We consider the pros and cons of particular methods of delay analysis, what level of documentation is required to prove a claim and how and when liquidated damages may become payable.

CONTRACTUAL AWARENESS

Our contractual awareness programme falls into two distinct but closely related sessions. We take a close look at the pre-contract and post tender stage of the procurement process and consider what the parties should be looking for and what they should be wary of. The second session tends to concentrate on the role and function of the contract administrator and the contractor during the construction stage. Both sessions consider recent case law and the interpretation of common contract clauses.

PROGRAMME MANAGEMENT

A contract compliant and properly managed programme will save you time and money and may help you avoid a dispute. GREYHAWK provide both detailed and summary programme management seminars that discuss and work through all the critical stages of programme management including the preparation, reviewing, updating and revising the baseline programmes. The aim of the seminar is to ensure that your programme will not only be contract compliant but also inline with current protocols and provides a sound baseline for your project. We can also provide contract specific advice as to possible pitfalls or develop a CPM programme illustrating the most common mistakes when preparing and managing your programme.

ADJUDICATION PRINCIPLES IN PRACTICE

What is adjudication, how does it work, what are the time scales and the likely costs involved? What are the particular problems to look out for and why does the court sometimes refuse to enforce an adjudicator's decision? Whilst reading the legislation or books on the subject is one thing actually taking part in a quick fire 28 day process is another. This session is case law led and considers various important decisions from the UK courts.

If you are interested in these or any other seminars on construction related issues then please call Brenda van den Heuvel on +44 (0)207 014 3350 or email her @ BvdHeuvel@greylhawk.com.

Project & Program Management Consultants
Great People : Great Service : Great Results

United Kingdom
Clerkenwell Workshops
31 Clerkenwell Close
London, EC1R 0AT
+ 44 (0)20 7014 3350 (t)
+ 44 (0)20 7014 3351 (f)