

Session No. S510

**Best practice contractor management in oil & gas including the
geophysical sector**

or

**The role of best practice contractor management in improved
contract outcomes, including serious injury and fatality prevention
in the upstream oil & gas industry, with specific reference to the
geophysical sector**

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Introduction

Contracting provides firms the possibility of using specialized technology and provides extensive resources or specialized skill sets to obtain very specific outcomes that are important to the advancement of the business. Businesses can meet objectives, while reducing their own risk and at the same time not having the concern of keeping or maintaining the technology or providing the skilled people to operate that technology when it is no longer needed. As the upstream oil and gas industry has become more complex with higher risks and higher capital costs, contracting many services, such as seismic data acquisition, drilling, construction and pipelaying, has become a staple part of the business.

The International Association of Oil and Gas Producers, or IOGP (previously the E&P Forum, and later OGP) stated in the introduction to the first version of their guidelines for working together in a contract environment in 1999 that:

Prior to 1985 the work force was predominately company employees. Since 1990 there has been a significant increase in the use of contractor staff, with a resulting shift in responsibility and risk from the company to the contractor population (OGP, 1999, p1).

Published figures show that in the oil and gas industry, contractor man hours can account for more than 80% of the exposure on a project.

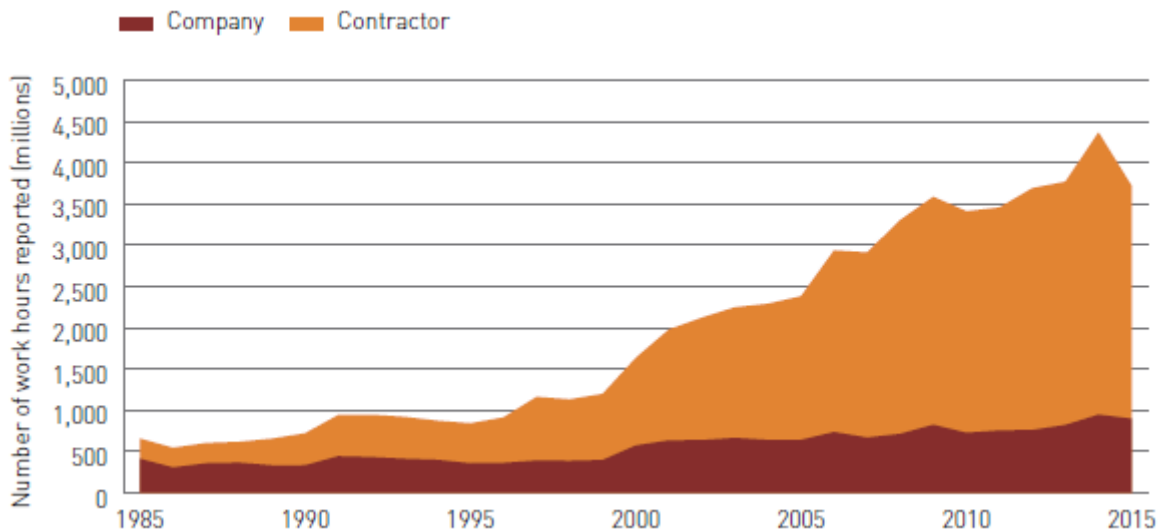


Figure 1: Oil and gas company and contractor work hours reported to IOGP (1985 to 2015) (from IOGP, 2017a, p6)

A recent study into the safety culture of the offshore oil and gas industry estimated that in the US Gulf of Mexico there are “about 75 operators, 17 drilling contractors, and more than 1,000 contractors and subcontractors [who] provide support to offshore drilling, production, and construction activities” (NAS, 2016, p16). Some contractors are single person specialists, but many work for large contractor companies that employ thousands (NAS, 2016). An economic impact study in 2011 estimated that there are in excess of 300,000 people working in the oil and gas industry in the Gulf of Mexico, most of them contractors (Quest Offshore, 2011). The same dependence on contractors is repeated in all of the main oil fields both onshore and offshore around the globe, from Alaska to Siberia, North Africa to South-East Asia, the Middle East to Brazil. Effective contracting has become fundamental to the success of the oil and gas industry.

The importance of good contracting practices

Recent research by the Campbell Institute (2015) shows that occupational safety and health (OSH) is often poorly managed in contractor relationships, frequently because other criteria take precedence during the prequalification process and OSH is often overlooked or relegated to a review of lagging indicators such as EMR and TRIR. Many companies in the US oil and gas industry do not utilize an effective process for contractor selection and management. This situation offers an opportunity to improve contractor engagement and relationships with a robust contractor management process, in order to drive improved OSH performance.

Prompted by the noted increase in contracting in the oil and gas industry, the OGP (later IOGP) published the first version of its “*HSE management – guidelines for working in a contract environment*” in 1999 with the intent of reducing the contractor injury rates that they noted “had not been as good as that of companies [exploration and production companies]” (OGP, 1999, p 1). Insufficient safety standards for contractors and relaxed enforcement of such standards explain why contractor safety performance is

sometimes lower than owner organizations (Campbell Institute, 2015). For example, in 2015 nearly 60 percent of all construction laborers and over 90% of all structural iron and steel workers who died from a work-related injury were contracted workers (BLS, 2017). In a report for the Center for Disease Control (CDC), Mason et al (2015) showed that during the US shale boom between 2003 and 2013, contractors accounted for over 80% of the fatalities.

On a global basis, the OGP recognized the safety problems inherent in the contracting process and through a workgroup of oil and gas company volunteers and representatives of their contractors, produced the contractor management guidelines “to assist management of the company-contractor interface in this changing environment and to help in the achievement of further joint improvements in safety performance” (OGP, 1999, p 1). From their inception, the guidelines were intended as a standardised process designed to “enhance the company/contractor relationship by clearly defining roles and responsibilities, establishing expectations and maintaining communication throughout the relationship” (OGP, 1999, p ii); all of this based around a common set of values and industry standards. With the benefit of hindsight, it is apparent that by consistently implementing a shared, robust contractor management process and by having HSE requirements mutually accepted by client and contractor this has contributed to reducing injuries and fatalities among the more than 40 IOGP member companies as well as their contractors.

What is equally encouraging is that not only have injury and fatality rates fallen notably among the IOGP members and their contractors, the gap between incident rates for contractors and client companies has all but disappeared (OGP, 2003; OGP, 2009; IOGP, 2017b).

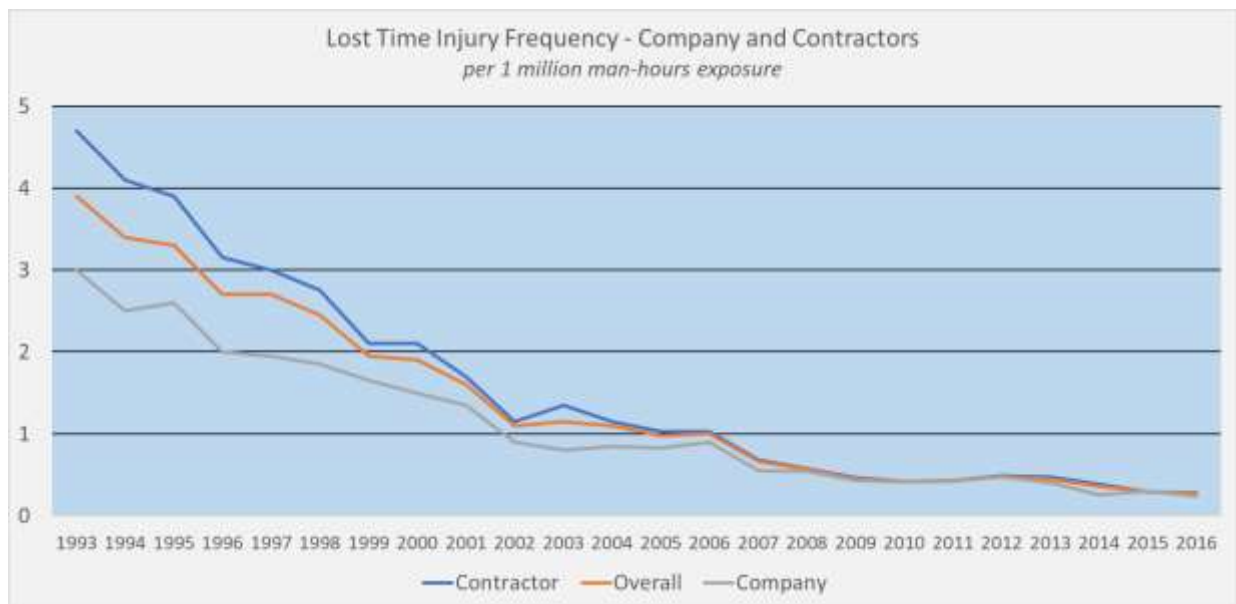


Figure 2: Lost Time Injury Frequency for Oil & Gas Companies and Contractors (from OGP annual safety reports)

This is especially encouraging when one considers that contractors often undertake specialized but high-risk tasks, overseen by company employees. The IOGP has been collecting safety data from its US and international members since 1985, always including the data from their members and contractors (IOGP 2017e). Being mutually responsible for lagging metrics appears to be relatively uncommon in some industries, even though it has been an OSHA requirement since 2011. The majority of the participants in the Campbell Institute (2015) study did not appear to keep track of their contractor statistics in their own

lagging indicators, purportedly because not counting contractor statistics ensured their own HSE performance was not negatively impacted.

Recently revised industry guidance

This paper examines the contractor management process laid out in the IOGP Report 423 titled “*HSE management – working together in a contract environment*” (IOGP, 2017a) now in its 29th year and 3rd version. The process is examined in light of other approaches to best practice contractor management, including its application in the geophysical exploration sector, in order to answer the question: what should effective contractor management really look like for any industry? The paper will endeavor to summarize key aspects of contractor management with some practical applications that can be used to improve contractor management in any industry.

The latest version of the IOGP report was issued in April of 2017, succeeding the second version which was published in June 2010 – too soon after the Deepwater Horizon explosion and oil spill to carry any real lessons from that catastrophe. This third version reflects lessons from that disaster and other evolutionary changes in the industry which have led to changes in management systems (such as IOGP Report 510 *Operating Management System Framework for controlling risk and delivering high performance in the oil and gas industry*) including a greater emphasis on risk management throughout the contract life cycle, verification of risk controls, improvement in client-contractor-subcontractor interfacing, and a notable focus on developing positive client-contractor relationships (IOGP, 2017a).

In numerous articles and papers written about successful contractor management, building strong relationships early in the contract life (e.g. Australian Constructors Association [ACA], 1999; IOSH/ASSE 2010; Campbell Institute, 2015) is fundamental in developing a positive culture that results in “externally verifiable excellent results with consistently low injury, illness and damage statistics in a culture of open, honest reporting” (IOSH/ASSE, 2010, p 3). The current version of IOGP Report 423 has improved how it highlights those critical culture-building “touch-points” from a health and safety risk perspective.

The IOGP Contractor Management Process

Report IOGP 423 breaks the contracting process into eight phases, describing for each one: objectives, key client and contractor HSE tasks and responsibilities, and risk management for that phase (IOGP, 2017a). It is important to recognize at this stage that IOGP envisions that the contractor management process can be cascaded down from client to prime contractor to subcontractors, stating that:

A key aspect of good HSE performance is managing the work that is executed by subcontractors. The principles described in this document are also applicable to them (IOGP 2017a, p 35).

They do warn, however, that the process is not infinite, and that it is better to limit the levels of subcontracting, preferably to one level down, and to clearly identify any subcontracted work before award, ensuring that the contract requirements are known at all levels and bridging documents are used at each client-contractor interface (IOGP, 2017a; IOGP, 2017c).

Planning

The first phase of contractor management described in IOGP 423 is Planning, where the Scope of Work is developed and the work risk assessed within the client organization. It is at this time that the feasibility of the project is analyzed. Initial risk assessments should include all stakeholders, including technical experts, finance, community and corporate affairs, engineering and so on. An attempt should be made to assess all risks with the information available, including major accident hazards, high severity event risk, timing, duration, environmental issues, logistics, materials and equipment, social, regulatory, highly specialized work, etc. IOGP (2017a) states that it is important at this stage to identify:

The inherent HSE hazards, effects, impacts and threats and assess the sources and types of risk and opportunities involved in conducting the work. This will aid both the client and later the contractor in developing risk controls/barriers to reduce risks, and ensure protection of all personnel, assets, reputation and the environment (p 14).

It also ensures that subsequent project goals and project scope are complete and unambiguous, which is the foundation of developing strong relationships with the future contractor (ACA, 1999).

Clearly defining project specifications, including HSE requirements, at this early stage, helps to set clear expectations for use in the tender documents (Rajendran et al, 2013). The scope of work and the initial risk assessment will provide the information necessary to define a contracting strategy aimed at doing those things necessary (such as selecting the right contractor) to mitigate identified risk during the contracting process and on into the project. The contracting strategy also specifies the amount of effort that needs to be put into each of the subsequent phases.

It is also during this first phase that the client company forms a specialized contract team. This team should be adequately empowered to make all key decisions (ACA, 1999) and “orchestrate the contract management network” (Cullen, 2015). Cullen (2015) says that contract management is not the sole domain of one person, or department (such as procurement or supply) but a cross-functional team with clear responsibilities and accountabilities. IOGP (2017a) recommends ensuring that members of the team cover the necessary disciplines required to develop a successful contract environment.

Sourcing and capability assessment

Once the scope of the work is known, levels of risk understood and the contract strategy has been defined, the next phase can begin. IOGP 423 identifies this next phase as the Sourcing and Capability Assessment phase which provides information about what contractors are available that are capable of doing the work technically and safely in the time required. Criteria are developed for prequalifying potential contractors, including operational, technical, finance, resource and quality capability, and specifically, HSE capability. IOGP provides a Contractor HSE capability assessment and scoring system tool as a supplement to Report 423 (IOGP, 2017b). The scope of the capability assessment is based on the scope of work and the level of risk identified in the previous phase. At the same time, criteria are developed for evaluating the prequalification submissions received back from the potential contractors. For some projects, audits of potential contractors may be necessary, depending on the level of risk, and how familiar the client is with the potential contractors. It is also at this stage that a decision can be made regarding the contracting mode. “The contracting mode determines whose HSEMS (client, contractor, or combination) will be used to manage the risks associated with performing the work” (IOGP, 2017a, p18).

There are three contracting modes:

- Mode 1 is where the contractor provides the people and equipment, but works fully under the client company HSEMS, and may also work under client company instruction;
- Mode 2 is a combination mode, where the contractor works under their own processes and HSEMS sharing the oversight with the client company in order to meet the contract objectives; and
- Mode 3, where the contractor works fully under their own processes and HSEMS.

Mode 2 contracts require a bridging process ending in a bridging document between the client and contractor's HSEMS, where the primacy of each party's processes is agreed. The prequalification process is arguably the most influential phase of the contracting process for early engagement with the eventual contractor and setting clear standards for HSE.

The Campbell Institute (2015) study found that:

In terms of relationships and communication, prequalification was found as an opportunity to develop solid relationships between owners and contractors and encourage contractors to modify their behavior in light of a long-term view of the contracting relationship" (p 3).

Audits are additionally an ideal time to have a face-to-face meeting in a structured setting allowing both parties to describe how their systems are intended to work and identify any gaps that may become problematic later in the contract relationship. Of the 14 companies that the Campbell Institute (2015) studied, 10 used third-party qualification companies to carry out the prequalification process. While using a third-party prequalification service may provide a level of convenience to client companies, it is probably at the cost of developing a strong client-contractor relationship early in the contracting process and, arguably, improved performance and results during the contract execution. ACA (1999) says that the ability to influence performance is highest at the very early conceptual stage of a project, as long as the opportunity is given to provide the right influence. Direct personal relationships have a strong influence on safety performance (Carrillo and Samuels, 2015) so the earlier relationship building can begin in the contracting environment, the better. Prequalification provides the ideal foundation on which to build these relationships.

Tender and award

Phase 3 of the contractor management process described in IOGP 423 is the Tender and Award stage. Risk-based tender documents are developed by the contract team in this phase to achieve the scope of work, establishing clear technical, operational and HSE specifications. It may be necessary to call on subject matter expertise to ensure that requirements made in the tender are actionable and realistic and adequately manage risk. As the tender specifications are developed, tender evaluation criteria are also decided. The client must also provide clear instructions in the tender package on what they want to see in the tender response, including the submission of any plans or method statements that provide clarity on how the work will be carried out. IOGP 423 has added the requirement for the contractor to present assurance and verification plans in the tender to monitor key or critical HSE risk controls, and the basis of an HSE Plan for the project.

As tenderers develop their bid, IOGP (2017a) recommends that "Contractors should be allowed the flexibility to use industry HSE guidance, recommended practices and standards if they are equivalent to

or exceed the client's requirements" (p 25). This is a fair recommendation; mutual agreement on terms and conditions reduces misunderstandings and improves relationships. Rajendran et al (2013) felt that clear specification of safety requirements has a positive impact on safety over the contract life. One sector of the upstream oil and gas industry, the geophysical industry, has provided their industry sector with a common set of safety requirements for inclusion in geophysical contracts. These are published in IOGP Report 432 *Managing HSE in a Geophysical Contract* (2017d). This publication contains guidance on risk management for the geophysical contractors and their clients, instructions on HSE Plan development and an extensive table titled "Minimum expectations for the control of specific risk areas", relevant parts of which can be included in geophysical contracts or can be used by contractors to build a risk-based HSE Plan for control of risk during the execution of the contract.

Once all bids have been received, the client company can go ahead and evaluate them, working towards awarding the work to the contractor who best fulfils the technical specifications, and meets HSE requirements, at a fair price. Often it is necessary to request clarifications on the bid submissions from tenderers or provide tenderers with clarifications as they develop their bid. It may be necessary to hold one or more clarification meetings with each potential contractor to ensure their offer meets the objectives of the scope of work. At this stage, relationships are strengthened (or weakened) by the level of ethics and fairness the client company displays in their negotiations. Once an award is made, the client company must advise the unsuccessful tenderers in a respectful and tactful manner. Respect, fairness and trust are core values and guiding principles that are indispensable in developing strong personal relationships (ACA, 1999), as much for the successful contractor as for the unsuccessful ones, who may well bid on future work.

Pre-mobilization

The next phase is when the contract participants finally come together in a contract environment, building the relationships between the project teams that will have an impact on the course of contract execution. IOGP (2017a) recommends that as soon as it is feasible after contract award, a "Kick-Off" meeting, or series of meetings should be held in which the contractor, and any subcontractors and other relevant stakeholders, get to meet the client and become more familiar with the project. This is probably the single most important relationship building exercise, where doubts are clarified, participants get to know each other, and plans for the future activities are developed. The schedule of activities and assignment of responsibilities aimed at eventual mobilization take place in these initial meetings, as well as programming regular planning meetings over the rest of the contract. At this stage, an adversarial relationship can easily be engendered if a lack of respect, distrust or unfairness is perceived by any of the parties involved. Cullen (2015) observes that true partnering behaviours are necessary at this stage to provide the environment for project success.

It is during this stage between contract award and mobilization when much of the work required to start the project happens. IOGP (2017a) cautions that adequate time must be made available in this phase to make sure all of the activities taking place can be completed adequately. Equipment is prepared and sent to the work site, personnel trained where necessary and client acceptance and validation audits and inspections are carried out. Key HSE activities that happen at this time are: combined hazard identification and risk assessment (HAZID) workshops, the development and finalization of project documents, the closure of any significant remedial actions, and any regulatory or compliance issues addressed. The HAZID workshops (and any training or planning workshops required to manage high

potential risks) serve to communicate the risks and hazards and their controls identified in the preceding phases to the people who will do the work, while giving them the opportunity to modify and improve risk controls. This is also the time where the people doing the work – the people exposed to the hazards – become owners of the risks and their controls and can use the information from the HAZID workshops to feed the assurance and verification activities that will take place during the contract execution. HSE Plans, including any emergency response arrangements and shared operations plans, and bridging documents, or other interfacing agreements, are finalized in this phase, and must be in place prior to mobilization occurring.

All of these activities will have shared responsibilities, including the involvement of subcontractors, if any, and serve to strengthen the contract relationships. Carrillo and Samuels (2015), citing Gergen (2009), noted that “in organizations, people continually communicate and interact, and in those interactions create a common understanding of reality, both as individuals and as a group” (p25) – they create relationships! Issues can accumulate and turn into disputes, so they must be resolved as soon as possible after they appear, recognizing and resolving high priority issues first before they become damaging to the relationship (Cullen, 2015). Both parties must be prepared to make concessions, communicate often and well and use the contract to steer conversations, but not let it interfere with finding solutions to problems (ACA, 1999) – over reliance on the contract has been shown to contribute to the failure of many projects (Cullen, 2015).

Mobilization

Once everything is ready and accepted, all documents are finalized, the equipment is in place, audits have been carried out where necessary to verify readiness, calibration carried out where necessary and has been found to meet the requirements of the client - mobilization begins. This fifth short phase is where everything comes together in the place of assembly ready for work, and the people who will be providing oversight for the client company are introduced to the contractor people. It is imperative at this stage to provide the client representative with a complete and clear understanding of his or her roles and responsibilities, and what is expected of them in how they relate to the contractor, monitoring and verification activities and reporting expectations. Just prior to the work beginning, a joint client-contractor team conducts a Start-Up Meeting (or series of meetings). These meetings are held:

To ensure understanding of risk related to planned activities/operations. The meeting also ensures all personnel involved in the operation are aware of the Scope of Work, HSE requirements and expectations, and that the latest risk assessments, controls, barriers, and HSEMSs are in place to minimize the risks in accordance with the HSE plan (IOGP, 2017a, p39).

These meetings may occur as one meeting, or as a series of meetings in order to inform every member of the contractor and client project teams (including any subcontractors and other directly impacted stakeholders, such as communities or members of other teams working in the area) of key aspects of the contract, the scope of work, how the work will be carried out and what has been agreed between all parties (especially the interfacing agreements in the bridging document). At the same time, any key performance indicators (KPIs) and scheduled assurance and verification activities are mutually confirmed.

Execution

IOGP's phase 6 is the actual Execution of the work. This could take days, weeks, months or years, depending on the scope of work. During the execution phase, the work is continually and consistently monitored to ensure the work is being carried out as intended and risks are being controlled as planned in the HSE Plan. Controls to prevent or mitigate identified hazards are checked "through a systematic, risk-based verification process that ensures proper HSE performance requirements are being delivered in a safe and effective manner" (IOGP, 2017a, p40) and contract HSE requirements are being verified "via a systematic, risk-based monitoring process ... by the contractor in a safe and effective manner" (IOGP, 2017a, p40). These activities should be continuous and may be used themselves as another layer of protection across the contract execution life-cycle. The client and contractor project teams will be communicating as often as the project needs dictate. Regular performance review meetings will be held in order to monitor performance, including HSE, and both parties will be reporting progress and any issues, problems or incidents. Client and contractor members will develop an effective management of change process to analyze and manage the risk of any contract or project changes. They will also jointly investigate and follow-up on any accidents, incidents or major non-conformities. Management teams from both client and contractor can be expected to visit the project from time to time to reinforce line management commitment to HSE issues and carry out management led audits.

It is fair to say that if the client and contractor have not developed a strong trusting relationship by this stage, it will probably become very difficult to do so. Every effort must be made to develop those relationships prior to the execution phase. Breakdowns in communication during the execution phase can have disastrous impacts on the final outcome of the contract, similar to a failed marriage:

The individuals in both parties need to exhibit constructive behaviours. In this sense, analogies that liken the commercial relationship to a marriage are appropriate. As many of us know, it takes two to have a good marriage and to make it work - or not. (Cullen, 2015, p10)

De-mobilization

Finally, the scope of work is completed and the penultimate phase of demobilization brings the contract towards an end. It is during the demobilization phase that there is "an increased probability of events and incidents as the contract infrastructure and contractor HSE management structures are being dismantled with people moving off the contract to new assignments" (IOGP, 2017a, p45). Extra resources need to be assigned to the demobilization to compensate for the "normal operational" controls that are being reduced or removed. An effective Management of Change process is especially relevant at this stage, and a clear understanding that work must be stopped and readjusted if there is doubt as to its safe completion. A specific demobilization plan with a demobilization-specific risk assessment and assigned roles, responsibilities and monitoring activities is an effective tool for reducing the probability of events and incidents (IOGP, 2017a).

Final evaluation and close-out

A short time after the completion of demobilization, the contractor and client elements of the project should conduct a joint evaluation of the contractor's and client's performances, including HSE, and to

provide feedback to their respective managements. A final Close-out meeting is a useful vehicle to share lessons learned, to provide input to improve future projects and to update the initial contractor capability assessments carried out during the sourcing and capability assessment phase. IOGP (2017a) recommends that:

Contracts should be closed out with a report of HSE performance and lessons learned, providing feedback for future knowledge and improvements. This may take the form of a close-out meeting where all parties are represented (p47)

The Campbell Institute (2015) study found that an area of improvement was an evaluation of contractors after a project had finished. “Only five [of 14] participants have a post-job evaluation or specific guidelines for contractor requalification” (p11). Consulting group Afterburner Inc. strongly recommends a debrief after every “mission” because debriefing “provides a powerful and essential structure” for organizational learning (Duke, 2016) and thence continual improvement in contracting practices.

Concluding discussion

Contracting whole or parts of projects is a reality of modern business. Good contracting practice can improve the probability that scopes of work are completed, on time, on budget and safely. Unfortunately, good contractor management in some industries has not kept pace with the increased rhythm of contracting, resulting in unacceptable increases in contractor employee deaths as evidenced by the aforementioned BLS and CDC reports.

The IOGP Report 423 “*HSE management – working together in a contract environment*” (IOGP, 2017a) provides a robust best practice contractor management framework that can be applied to any industry. Implementation of this framework with its emphasis on risk management throughout the contract life cycle, verification of risk controls, improvement in client-contractor-subcontractor interfacing, and a notable focus on developing positive client-contractor relationships across an industry has assisted in achieving some impressive HSE performance results during its nearly 30-years of use in the upstream oil and gas industry. Although there are no guarantees that any one contractor management process will assure the success of a contract, selecting the right contractor and developing strong, trust-based relationships through systematic contract management and effectively managing contract risk can improve the possibility of successful outcomes dramatically.

Good contractor management starts with good contract management. A lot of effort needs to be put into developing the scope of work and clear contract requirements, “the importance of complete and unambiguous project goals and a project scope cannot be over emphasized - it sets the direction for all subsequent work” (ACA, 1999, p16). Rajendran et al. (2013) also feel that a contract should be well-formed and properly written so that it is unambiguous about what the parties have agreed to ensure ease of interpretation and enforcement – “enforcement is an absolute requirement of any contract” (p 56). Once a good basis is formed, the effort of prequalifying and selecting the ideal contractor while developing a relationship that will last beyond the life of the contract, raises the possibility immeasurably that a contract will be successful.

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