It has been a decade since the last update to ISO 29001 – the quality management system standard for product and service supply organisations to the petroleum, petrochemical and natural gas industries. The recent revision wasn’t just about bringing it up to speed with ISO 9001:2015 – the international standard for quality management systems – but was also to help quality professionals work towards a better future for the sector. Ted Fletcher, Convenor of the ISO/TC 67 Working Group that developed ISO 29001:2020, and Group Secretary Jarno Dakhorst, discuss how the standard update will be beneficial to oil/gas businesses in 2021 and beyond.

Words: Richard Young
The latest update to ISO 29001 introduces a risk-based approach to the way organisations specify and implement quality management system requirements in the oil and gas industry; ensuring that processes systematically identify organisational and specific product and service risks to assure safety, reliability and performance. ISO 29001:2020 further promotes standardisation across the sector by providing a framework for aligning requirements with complementary management system standards – such as the American Petroleum Institute (API) Specifications Q1 and Q2. This is an important objective for a global industry with diversified and high-risk supply chains because quality assurance requires not just technical nous and adaptability, but also no small dose of diplomacy, according to Jarno Dakhorst, Group Secretary of the ISO/TC 67 Working Group that developed ISO 29001:2020.


“The oil and gas industry felt it was too generic for the specific risks and processes within the sector. Due to the critical needs of the international oil and gas industry, this sector requires rigorous conformity to engineering, user and regulatory requirements.”


“The oil and gas industry felt it was too generic for the specific risks and processes within the sector. Due to the critical needs of the international oil and gas industry, this sector requires rigorous conformity to engineering, user and regulatory requirements. The industry handles volatile liquids and gases, often at high pressures, through a variety of products and processes. So considerations for the safety of personnel, including the public, are of paramount importance.” Fletcher continues: “Additionally, protection of the environment and of business continuity – maintenance of revenue streams, both for companies and for national economies – require a high level of operational integrity.”

ISO/TS 29001:2003 was updated in 2007, and then again in 2010 after ISO 9001’s update in 2008. “The 2010 version of ISO/TS 29001 added back in some of the heavy engineering elements that the sector was looking for,” explains Fletcher. “And there was broad collaboration between the US and other parts of the world to create bridges between the American Petroleum Institute (API) and the International Organization for Standardization (ISO), to the point where ISO/TS 29001 was co-branded with API Spec Q1.”

International outlook

It is that last point that hints at the interesting opportunities – and challenges – that lay ahead for ISO 29001. In an industry reliant on global supply chains, any mismatch between standards can be, at best, a pain; at worst, it’s a barrier to commercial opportunities or a risk to the environment. That’s where the ISO/TC 67 Working Group came in. “It was clear that ISO 29001 had to be updated to reflect the needs of a broad cross-sector of operators in different locations – the North Sea, Middle East, Australia, America – especially as API Spec Q2, the new US standard for service supply organisations in the petroleum and natural gas industries, was much more North America-centric,” says Fletcher.

Both he and Dakhorst are at pains to point out that ISO 29001 has nothing directly to do with major disasters such as the Macondo oil rig blow-out in April 2010. In fact, ISO/TC 67 created a taskforce to provide recommendations related to the standards portfolio in response to specific industry events – both revising existing standards and developing new ones – although ISO 29001 itself was not on this list.

But the aforementioned accident in the Gulf of Mexico – better known as the Deepwater Horizon oil spill – was still a wake-up call for the oil and gas industry, particularly in the US. And because the disaster was in part caused by quality assurance gaps in the supply chain, rig operator Transocean and contractor Halliburton attracted as much opprobrium as the owner, BP. This
scenario highlighted just how important supply chain quality standards could be. An updated industry certification standard for oil and natural gas service providers, API Specification Q2, was already in progress when the disaster struck, and the API rapidly accelerated its development after the crisis, getting a draft out by December 2011.

Diplomatic dilemmas
“The process [to develop the revised standard] wasn’t straightforward,” says Fletcher. “In 2011/12, we encountered many issues around collaboration globally, because there were sanctions in place with some of the key players in the global industry.” Safety and quality are crucial factors for any oil and gas installation.

“It was very challenging in 2011 to interpret sanction regulations, and as is often the case with these things, the answer you get will depend on which lawyer you ask,” adds Dakhorst. “ISO and IEC lawyers said there was no issues and a discussion could take place outside the scope of the sanctions. But many of the companies that needed to be involved asked for their own legal interpretation and felt there was a risk of violating sanctions if, for example, they provide technical assistance to the group that hasn’t been in the public domain. They needed a safe harbour.”

What followed was deft diplomacy. The solution was provided by the International Association of Oil and Gas Producers (IOGP). “It allowed us to have a development environment for those discussions that didn’t impinge on the sanctions,” explains Fletcher. Adding to his sentiment, Dakhorst says: “We were able to develop a document that was mature enough to send to ISO/TC 67 for the Draft International Standard (DIS) ballot, a public consultation that allows all interested parties to comment as well. So some organisations that were excluded from the first part of the process were still able to make key contributions.”

As a result of the finesse, the so-called IOGP Standards Solution – which allowed the drafts to be developed in-house, and then forwarded for public debate in the ISO world – collaboration and co-ordination increased again. “We can work now to avoid conflicts in requirements,” says Dakhorst. “API Q1 and Q2 are not straight equivalent standards, but we are aligned now – and we have equivalence matrices. The high-level structure of ISO 9001 set the benchmarks, and ISO 29001’s approach to sector-specific risks and opportunities gets us much closer to API.”

Building confidence
The group’s work had been further complicated by the 2015 revision to the ISO 9001 standard on quality management systems. “We’d also seen both purchasers and suppliers define a context for the application of the standard, looking at the risk and processes pertinent to the delivery of good business outcomes – and they were quite different,” says Fletcher.

Dovetailing with the widely applied ISO 9001 and getting international agreement has been important, due to the sophisticated nature of the industry. “We talk about unique sector risks, but we’re also a very diverse industry, and parts of it are very bespoke,” says Fletcher. “In the aerospace or automotive industries, you also see this diversity of risks – and they’re also very acute – but you tend to have a very small number of producers with quite a standardised output.”

“So geographically, geologically, in terms of niche suppliers and operators – it’s much harder to drive for standardisation,” he expands. “That means ISO 29001 is all about building confidence in solutions to common challenges – making sure they’re safe to operate, produce reliable results and are efficient.”

And just as the original ISO/TS 29001 was in part a reaction to ISO 9001 becoming less specific for heavy industry, this new version is also an attempt to fill the gaps where ISO 9001:2015 doesn’t quite nail things for oil and gas.

“ISO 9001:2015 went from the language of procedure of record, to ISO-style language on ‘maintain and retain documented information,’” Fletcher highlights. “The information gurus loved those words – but for our sector, it was a terrible change. We had to bridge to the comparative standards – principally, the ISO/TS 29001:2010 Standard and API Spec Q1 and Q2. We developed matrices so that where ISO 9001:2015 did not prescribe documentation, we..."
would explain how a requirement could be achieved. It takes the uncertainty away from those implementing and those assessing performance.”

The other big change in ISO 9001:2015 was a new view on risk. “It’s been very challenging for our sector – and especially quality professionals in the industry,” says Fletcher. “They’ve had to shift from a conformance basis – ‘do you have a procedure and do you conform with it?’ – to the 2015 model, ‘do you understand your process objectives? Have you understood the risks and put effective controls in place? And are you achieving your outcomes?’ That’s a step change.”

**Annex C is key**

The meat of ISO 29001, then, gives real clarity to operators and suppliers despite the sector’s diversity. But for Fletcher, some of the most important work in the document crops up in the appendices – and particularly the new Annex C, Risk and opportunity management and conformity to the requirements and information. And contractors. ISO 29001:2020 section 8.4.2 obliges the supplier to maintain control over the things that are provided externally as if they were within their system. “Three steps down the supply chain, you still need to understand those risks and your contracts – and quality management has to have visibility of what’s happening down there,” Fletcher asserts. “That’s the core principle of Annex C.”

**Creating value**

The International Association of Oil & Gas Producers (IOGP) initiated Joint Industry Programme (JIP) 33 is also aiming to set quality requirements and information deliverables, in addition to technical requirements. And there’s a focus on bringing in engineers as well as operators and contractors. One reason for this is to acknowledge that while ‘value’ is often obvious in the execution of a project, or even in the manufacturing processes (both guided by quality standards), a critical source of value is design and development. “World Quality Day took place on Thursday 12 November, and this year it was all about creating customer value,” says Fletcher. “We see that as a cornerstone for ISO 29001 – creating value not just in shareholder returns, but across all considerations.”

“World Quality Day took place on Thursday 12 November, and this year it was all about creating customer value... We see that as a cornerstone for ISO 29001 – creating value not just in shareholder returns, but across all considerations”

“While there were some commonalities, the lack of genuine standardisation meant there were lots of uncertainties about what each purchaser and operator might apply.”

By fleshing out a cascading contract model in Annex C, the ISO/TC 67 Working Group aims to provide principles and tools that can be applied to standardise those elements. It’s too early to expect this to be a requirement for conformity with the standard, but the Annex helps to build expectations for information sharing and emerging best practice.

The principles are already being tested in the field. The IOGP JIP 33: Standardizing Procurement Specifications, has 12 member companies working on common requirements. “Rather than all the companies taking an international standard and writing our own variance, we’ve agreed to look at the key things to define in terms of specific requirements or defined optionality we can all agree on,” says Fletcher, adding: “suppliers then know they’re going to be dealing with standard product and don’t have to deal with one for each oil and gas operator – they’ll all come with the same specification.”

API Spec Q2 includes guidance on quality in service design – including the integrity of equipment and the certifications of contractors. ISO 29001:2020 section 8.4.2 obliges the supplier to maintain control over the things that are provided externally as if they were within their system. “Three steps down the supply chain, you still need to understand those risks and your contracts – and quality management has to have visibility of what’s happening down there,” Fletcher asserts. “That’s the core principle of Annex C.”

“As a working group, we’re not only looking at protocols and competencies for assessing the implementations of the standard, but also the overarching operating management system standards requirements for the operators in the sector”
for ISO 29001 – creating value not just in shareholder returns, but across all considerations – around environmental, social and governance factors (ESG), for example, where the right to operate sits at the heart of the ability to create value.”

Echoing his statement, Dakhorst adds: “Our approach aims to help manage risk and opportunities, but also to improve performance and cost-effectiveness. The low oil price environment means that last point is very important. Recognition of quality management systems to ensure conformance with ISO 29001 means you can benchmark quality capability throughout the supply chain.” And while that’s essential for risk management, it also helps to create a clear parameter for exploiting opportunities in a responsible way.

“As a working group, we’re not only looking at protocols and competencies for assessing the implementations of the standard, but also the overarching operating management system standards requirements for the operators in the sector, so we can start to have common approaches and benchmark against each other as to how well we’re managing opportunities and businesses in the sector,” Fletcher explains.  

**The next steps**
The direction of travel for quality standards in the oil and gas industry seems clear: more transparency, improved risk management and better quality management. A lot of that rests on data in current times – and IOGP now has its Digital and Information Standards sub-Committee (DISC) whose mission is to define common standardisation of information in the sector, which will make quality assessments easier and further improve global comparability.

Fletcher hopes that ISO 29001 will also help drive a quality ethos more deeply through the oil and gas sector. “The new approach emphasises context and the risk profile of the organisation or opportunity,” he says. “Each organisation will have a risk matrix in terms of material outcomes and what the impacts might be. Companies are moving to quality evaluations in the context of the risk to the organisation, project or facility.”

He elaborates: “So, when you talk to the line managers at that level, you can relate the impact of the value of a pump, say, to the risk of the whole facility. Then you can relate that risk to where they’re buying a pump, because you understand the supply chain – that’s part of the context. It makes it much easier to understand for someone in the field and they’re not alienated by ‘quality-speak’.”

Another area Fletcher flags up is assessment. “There are subtle changes, with more clarity around some of the sector-specific issues, for example, by requiring certain information to be documented to facilitate conformity assessment and by adding requirements related to managing risks and opportunities, following the principles of ISO 31000,” he continues: “The biggest challenge is – if you’ve written a contract based on ISO 9001:2015 or ISO 29001:2020 – do you have the competencies to assess the effectiveness of the implementation of the systems? Our view is that it’s a challenge not only for the whole quality movement, but for the oil and gas sector – traditionally working on a compliance auditing methodology.”

Dakhorst highlights that the ISO/TC176 Working Group is also in the process of developing a new ISO document, which deals with “competency only”. As well as this project, Fletcher tells *Quality World* that the group is “developing tools for people in the sector to generate the value from the standards. That’s fundamental,” he asserts.

Fletcher hopes the new approach to risk and value in ISO 29001:2020 will rekindle enthusiasm, and give the high stakes for quality in a sector where failures can have catastrophic effects on the (occupational) health, safety and the environment, if the right business processes and systems are not in place from the beginning.