Oil & Gas Requirements Checklist:

The Essential Guide to Authoring Clear and Compliant Specifications

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QRA

INTRODUCTION

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In the oil and gas industry, ensuring employees and companies as a whole have properly documented requirements and designated processes is of the utmost importance to safety, regulatory compliance, and company success. However, writing requirement documents can be both time-consuming and challenging. To be effective, these documents must be written clearly and accurately and strike a balance between being to the point and readable enough as well as sufficiently detailed to answer all questions.

Given these challenges, our team has worked with many oil industry professionals to learn about what they want to see in such documentation they are reading as well as learn the tips and tricks they use while writing such products themselves.

If the written instructions and requirements are unclear, the oil and gas engineering projects in practice will suffer as a result. To assist you in documenting your processes and mandatory requirements in the oil and gas sector in a clear, concise, and accurate fashion, we've used our knowledge, expertise, and research to create this one guide + checklist that we hope will help keep your projects on track.

1. AUTHOR EACH REQUIREMENT TO BE CLEAR AND SPECIFIC

More than most industries, companies in oil and gas tend to be multi-tiered with various layers of contractors and sub-contractors, as well as a mixture of departments and technical and non-technical teams within the company. This variety in teams that have unique responsibilities and sets of experiences creates the risk that requirements created by one party will be too vague or will be easily misunderstood for the other relevant teams who will be using them. You don't want your carefully written instructions to be subject to a game of telephone where the person writing the requirements is too far removed from the work. If this happens, it'll introduce mistakes, uncertainty, and potentially outdated information.

To prevent this common mistake in oil & gas requirements writing, always take care to ensure each requirement and step within that requirement is written clearly and specifically so that there is no vagueness or room for misinterpretation. And once the requirement writing is complete, go back and do a final check to confirm your requirements meet this standard.

2. ENSURE YOU DON'T ASSUME THAT YOUR KNOWLEDGE IS COMMON KNOWLEDGE

The oil industry has a very high level of specialization and all roles within the sector will require detailed and technical knowledge. These factors combine to create potential issues with requirement writing when a specialist in one area will unduly assume a level of technical knowledge from people in other areas. Many areas of the industry use requirements, including internal procedures, external regulations or standards (such as ISO 29001[i]), competitive RFPs, and more. Each of these areas of requirements has its own understood knowledge or procedures, all of which may differ. This problem is further exacerbated by the previously mentioned nature of contractor work, sub-contractors, and segmented teams within the company. You don't necessarily know who will be reading the requirements or what their experience and base of knowledge are.

To ensure that your requirements are useful to those reading them, it is imperative not to assume too much about your readers' understanding. Be sure to carefully spell out acronyms and define important terms when they are first used to help guide your reader, and when doing so conform to standard acronyms, abbreviations, and symbols as spelled out by relevant guidelines like the Document Format and Style Manual from the American Petroleum Institute.[ii] And critically, once those terms are defined it is essential to use them consistently and accurately so as not to confuse the reader. So, in order to write effective requirements, go through to make sure they are written in a way that are likely to be understood by someone early in their time in the oil and gas industry, being careful not to go too far the other way and explain overly basic terms that will cause members of the field to glaze over the elementary information (it's a delicate balance, but an important one to strike).

Write in a way that the expected readers within the industry can pick up and follow the requirements, regardless of the baseline knowledge you expect them to have.

3. INCLUDE COMPLETE AND TIMELY INFORMATION ABOUT REQUIREMENTS

In addition to making sure requirements are fully useful to those in the oil and gas industry, information also needs to be complete and thorough. Incomplete requirements where assumptions are being made without being explicitly stated can be dangerous. For example, these requirement documents are often written and used for management to know what employees or outside contractors should fill a given role. Thus, if the requirements are written with incomplete information then you introduce the chance that someone reading it won't fully understand what a role or a task needs and they will hire an unqualified worker for the position, leaving a skills gap. As noted by an expert in the field during our research, "By aligning user needs with how specifications are written, review time and risk of error are significantly reduced."

Oil and gas requirements might also suffer from being outdated, as the industry has a long history and deep roots. "Standards can be quite old," noted an expert in the field during the research for these tips, "as the industry doesn't update them as much as they should." Parroting requirements from older documents risks repeating information that is now out of date and insufficient. So, when using old documentation as a resource, be sure to check in on the latest developments and standards in the oil and gas industry to make sure your new requirements are accurate and up to date.

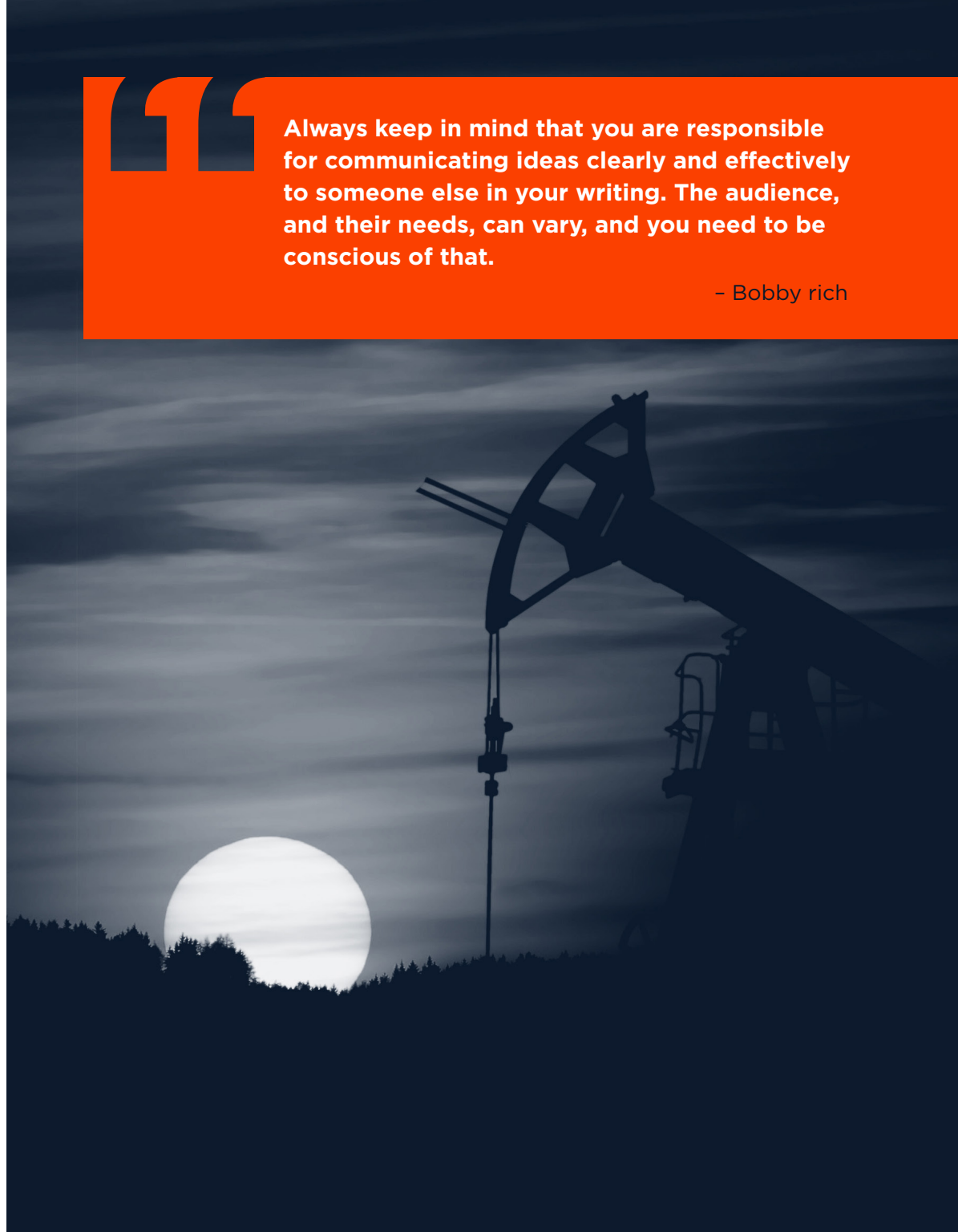
A critical goal, thus, is to make sure information is comprehensive and complete. When finished with writing the requirement, reread it as if it will be the *only* document read during the hiring decision, the budgeting process, or the project planning, and if that worries you that you might be omitting current information then it's time to give the document another pass.

4. CHECK TO SEE IF YOU'VE WRITTEN FAIRLY FOR THE READER'S POINT OF VIEW

As noted, workers in the oil and gas fields tend to be highly trained, fairly specialized, and deeply technical in understanding. If you are writing a requirement document as one of those knowledgeable individuals, it can be too easy to forget that your reader may not share that detailed engineering knowledge. Worse, you might be writing the requirements document without even knowing who the reader or the multiple readers are who have varying levels of understanding and knowledge. Knowing the audience is the number 1 tip that many technical writing experts emphasize, and it's of utmost importance in the oil and energy industry.[i]

To account for this, author and review your document from the perspective of a reader with an unknown level of background knowledge who cannot ask you clarification questions and who might pass the document on to someone less knowledgeable than you. If from this point of view, you worry that the requirements document doesn't have enough information then you should rewrite.

Putting yourself in the readers' shoes will help you write more effectively for the less technical and knowledgeable audience.



> **Always keep in mind that you are responsible for communicating ideas clearly and effectively to someone else in your writing. The audience, and their needs, can vary, and you need to be conscious of that.**
>
> – Bobby rich

5. CONSULT THE APPROPRIATE TYPE OF REQUIREMENTS DOCUMENT AND ASSOCIATED PROCESSES AND DOCUMENTATION SO YOU KNOW YOU'RE FOLLOWING THE RIGHT FORMAT

Oil and gas are among the most highly regulated industries from a government standpoint. Additionally, major companies in the sector are typically quite large with many additional internal oil and gas specifications, and when those requirements are not tightly followed then there's a chance for a lot to go wrong. For these reasons, oil and gas workers often work within numerous different types of requirements or specifications simultaneously.

Between safety requirements,[i] quality requirements, [ii] industry standards,[iii] functional specifications, [iv] and more, there are numerous levels of specifications to follow at any given time. As a result, when you are writing oil and gas requirements, you must take a step back and recognize which category of requirements they fall under and model your writing based on the unique needs of that type.

Be sure to use the correct type of requirement as a reference, if needed, because there are many different versions of oil specifications and requirements across the oil and gas industry.

6. WHEN RELEVANT, REFER FIRST TO THE SPECIFICATIONS PROCESSES OF THE LOCAL REGION

In addition to the various types of oil and energy requirements under which such projects will constantly find themselves, all organizations will also have to go through very standardized processes based on regulations, including those from the city, provincial, or federal governments. Before diving into any requirements writing, it is important you check what is necessary based on the local jurisdiction.

Don't just focus on corporate internal processes when there are external boxes you have to check first, and make sure to include those in your writing process (again, making sure they are up to date and include citations to the version and date of the requirement used for future reference).

Mandatory requirements from governments, whether local, federal or anything in between, must take precedence. So, before diving into company-specific guidelines and requirements, make sure the mandatory regulatory ones are first addressed and properly integrated.

7. BEFORE STARTING YOUR WRITING, CONDUCT AN ADEQUATE ROUND OF RESEARCH

Too often, professionals in any field will assume they know it all and have experienced everything, unwisely thinking they don't have to pursue additional learning. Those in the oil and gas industry are no different in this regard, and this hubris is risky. Not only is there always someone out there who will know more than you that you can learn from, but the status quo of the industry is constantly changing with new technologies, market developments, and public policies.

As you sit down to write your oil and gas requirements, check your ego at the door and do some simple research to ensure you have all the facts and up to date information. Your final document will be much improved for it.

Even if you think you have all the necessary information, don't forget to do a round of research to confirm that fact or add new and important information to your tool belt while writing.

8. USE ACTIVE AND POINTED ACTION WORDS THAT PUT THE OBLIGATION ON THE RIGHT PERSON

In terms of writing style, using active and pointed action words in requirements writing is quite important. So many different hands get thrown into projects within the company, from outside contractors, related to regulatory oversight, and more. Because of this interconnected tendency, it's not always clear who the onus is on for given actions. But using active voice through strong words will "produce clearer, more concise writing" according to the Society of Petroleum Engineers.[i]

As such, when writing oil and energy requirements, do not allow ambiguity to take hold. Use directed words, or imperatives, (e.g., shall, must, will) and identify responsible partners (e.g., the process engineer, the safety officer, the overseeing company) clearly so that it's abundantly obvious who must take the given action and what that action is. That way there won't be any kicking of the can down the line, but rather the right person will take responsibility. When writing and especially once the requirements document is complete, review and make sure the language you choose emphasizes action and responsibility.

Wrong	Right
The pressure level should be tested every hour.	The safety engineer must test the pressure level every hour.
Ensure all team members are aware.	The project manager will deliver the message to all team members so they are aware.
Safety is to be a top priority.	All team members shall place safety as their responsibility

9. SHARE THE REQUIREMENT DOCUMENT WITH COLLEAGUES ACROSS DEPARTMENTS FOR REVIEW

If you've followed all the tips for oil and gas requirements writing to this point, you may feel confident that you're well on the path to a successful and useful requirements document. However, multiple sets of eyes must always review such documents.

While you may think you've followed all of the above tips correctly, someone else is sure to notice a term you've left undefined, an unclear instruction, or a citation that's out of date. Peer review is always helpful, and it's particularly important to get such a review from someone who works a different job than you. That way, the reviewer will be approaching your document from a fresh perspective and identify areas that need strengthening that you or your peers in the same department may not have realized.

Before declaring pencils down and job complete, share your oil and gas requirements document with colleagues, both within your department and in unrelated areas so that they can provide a review and a fresh perspective.

10. SET A DATE TO REVISIT IN THE FUTURE

The oil and gas industry has many fast-moving parts that are likely to evolve constantly. Government requirements get updated or reach expiration dates, industry codes can change year-to-year, and even company policy is sure to be dynamic.

As you reach the end of your oil and gas requirements document, be sure the date of writing or publication is made explicitly clear and then take responsibility for scheduling when the document should be revisited. It might be once per year for an annual confirmation check that it's still accurate, or it could be more frequently if you expect certain aspects to need updating based on industry news or expectations.

Because of the constantly evolving state of the oil and gas industry, never assume that a requirements document will be perpetually relevant, and continually check in to update and confirm the accuracy and relevance of data.

CONCLUSION

When authoring a requirements document for oil and gas projects, the goal should be to create a final deliverable that is helpful, clear, and accurate. Writing in a way that accomplishes these goals is oftentimes easier said than done, but if you follow all of these tips then your requirements document will be more likely to accomplish your ultimate goals. The key takeaway from this tip sheet should be that planning, research, and clarity in writing will create a stronger and more effective document.

ABOUT QRA

QRA Corp's mission is to accelerate the design process across industries who are tackling the most complex systems by empowering them to build tomorrow's safe, secure, and incredibly powerful products. QRA's technology, patented toolsets and capabilities have been used to avoid stressful reworks, enable confident engineering, and find previously undetected catastrophic flaws.

QRA's requirements analysis tool, QVscribe, harnesses Natural Language Processing to automatically apply the best requirements analysis tactics by leading industry experts. Automated requirements analysis empowers engineering teams to build faster by identifying errors where they matter most – in the requirements.

To learn more about QVscribe and find additional helpful resources for improving your requirements and your RE processes, visit qracorp.com/qvscribe. To discover how QVscribe can help your organization improve and accelerate its requirements definition and analysis processes, click here to schedule an online demonstration.

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- ☐ 6) When Relevant, Refer First to the Specifications Processes of the Local Region
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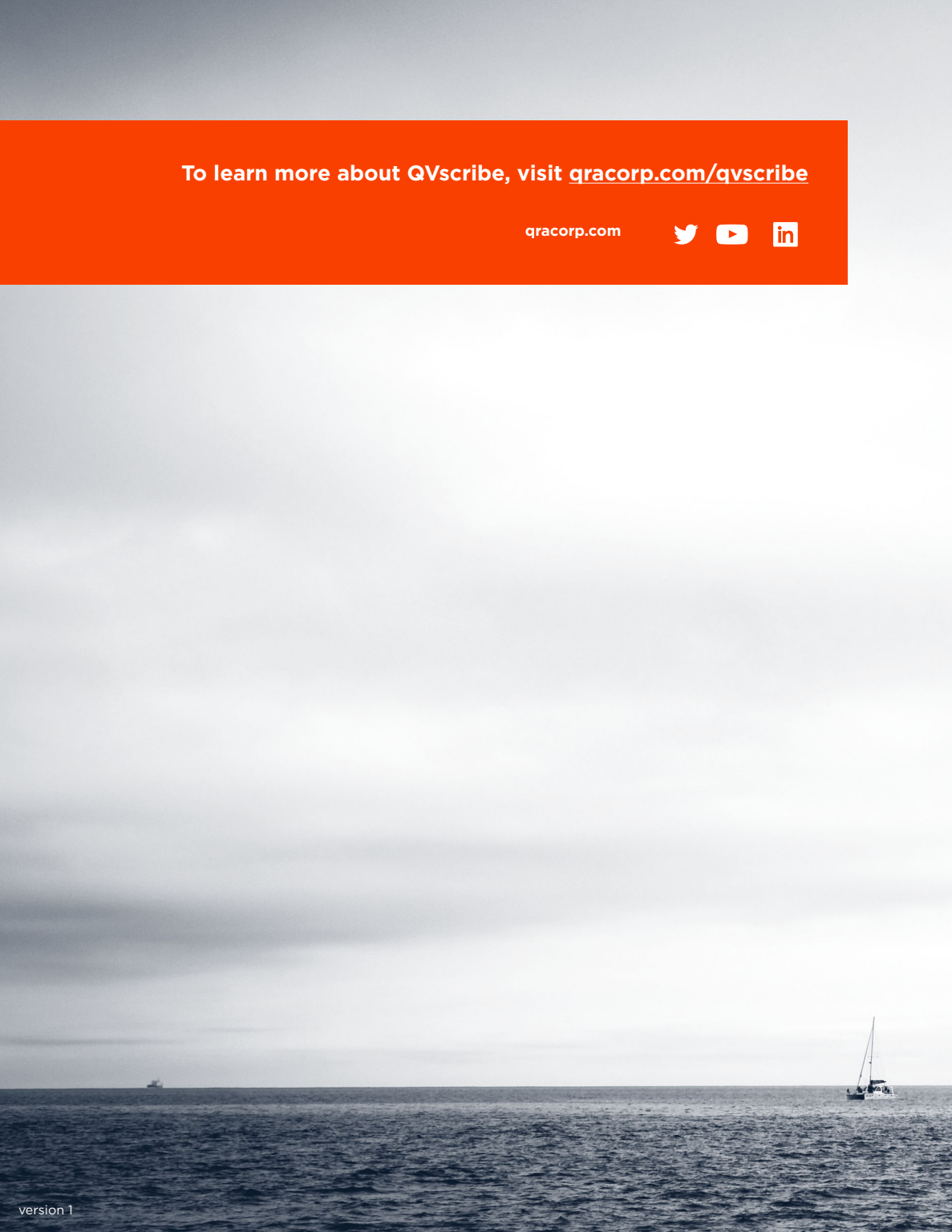

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