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Meeting Expectations: A New Model for a Just and Fair Culture

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Abstract

The paper first discusses the problem of non-compliance in high hazard industries, as these constitute the most frequent type of dangerous activities in terms of accident outcomes. Evidence is drawn from aviation and the petrochemical sectors. The causes of non-compliance are found to form a ‘lethal cocktail’ of i) the expectation that rules will have to be bent, ii) the feeling of powerfulness, iii) the existence of opportunity and iv) poor planning of work. Non-compliant behaviour can be seen as a natural response of motivated and competent individuals, often selected for their ability to show initiative, in the face of poor planning and the existence of alternative ways to get the job done. Six distinct types of non-compliance are identified, two unintentional – failures of Understanding and Awareness -, Situational, Exceptional and one for Company Benefit and one type for Personal Benefit. The issue of reckless non-compliance is discussed, together with the difference that must be considered between one-off and routine non-compliances. A previous model for the management of non-compliance, the Just Culture, is analysed and found to have a number of shortcomings, including a sensitivity to the manner of implementation, the implicit messages it sends about the importance of punishment as a way of managing non-compliance, and a lack of explicit recognition of managerial accountabilities. A new model, Meeting Expectations, is introduced in which all the distinct types of non-compliance are recognised, as well as non-intentional human error and expected and exemplary behaviours. For each of these types of behaviours there is a set of consequences defined for both the individual and their line managers.

Introduction

Failures to follow established rules and procedures form a major cause of accidents in all high hazard industries (1,2). Attempts to confront the issue of non-compliance to rules and procedures are to be found in a wide variety of industries, including aviation, health care, railways, and fire-fighting as well as the oil and gas business, both up- and down-stream. Compliance with procedures was identified by Boeing as the primary measure for preventing accidents in commercial aviation (3), where well over 50% of all major aviation accidents between 1982 and 1991 could have been prevented if the pilots had followed procedures. The UK Civil Aviation Authority has replicated these findings more recently (4). In that study two of the most frequently identified circumstantial or causal factors were respectively found to be incorrect/inadequate procedures and deliberate non-adherence to procedures. At first sight the problem appears easy to solve: all that is necessary to achieve a high level of safety, whether personal safety or related to process safety management, is to ensure the highest level of compliance to the rules and procedures among the work-force. This should apply to both company and, especially, contractor personnel, if only because the latter are more likely to be directly involved with hazardous operations. The best way to ensure compliance is also seen as the setting of clear expectations and the existence and enforcement of severe penalties for violations where necessary. This paper discusses a number of problems that arise with this simplistic notion and proposes a new model designed to overcome objections while being aimed at driving non-compliance down.

Non-compliance with guidelines, rules and procedures is especially dangerous because it disrupts, at least temporarily, the assumption that everyone will be working according to those procedures¹ so that the actions of others can be based upon the compliance of those under examination. Because non-compliance is forbidden, violating individuals will usually remain silent (just get the job done). Free (1,5) found that violations normally became dangerous when an error (slip, lapse or mistake) (6) was made, whether by themselves or, frequently, another. She proposed an equation that linked the two

¹ The word procedure is used here as a generic term to cover guidelines, rules, procedures and specific work instructions.

Violation + Error = Death/Disaster

The problem then reduces to either one of reducing errors or of managing non-compliances. The equation also highlights one difficulty, which is that individuals may find it extremely difficult to foresee the consequences of their actions when non-compliances are often performed in secret, errors are felt to be unpredictable both in nature and frequency of occurrence and both may be performed by different parties.

Helmreich and his colleagues (7,8), studying errors and violations on the flight deck of commercial airlines in the US, found that intentional non-compliances constituted 54% of all errors, with procedural errors being 29% (83% in total). But they also found that, in the cockpit environment, only 2% of violations were rated as consequential, while 23% of the procedural errors increased the risk to the flight. The most dangerous errors were those of manual proficiency (stick and rudder skills) as making such errors close to the ground can be extremely unforgiving. In the oil and gas industry there may be a slightly different picture, as failures of proficiency skills do not typically lead, of themselves, to disaster unless individuals also fail to comply with rules like the wearing of PPE or, in vehicle accidents, seatbelts. Nevertheless the picture from the oil and gas industry, looking at actual accidents like the Boeing and CAA (3,4) studies, is that the predominant behaviour identified, at least in fatal accidents, is non-compliance. Taken together these results suggest that non-compliant behaviour is very frequent and, occasionally, lethal. Manual skills, while very sensitive when there are no other barriers in place (consider the case of a surgeon operating close to the aorta), do not appear in many accident reports just because the other barriers are present and have been effective, while non-compliance often involves the removal of effective barriers which make a serious outcome much more likely. It is for these reasons that it is important to manage non-compliance within the workforce.

The Just Culture

In order to achieve these ends the concept of ‘The Just Culture’ has been widely propagated (9), providing managers with a clear procedure for deciding whether a violation is to be treated as blame-free or whether some form of coaching or discipline is appropriate (Fig. 1). This Just Culture model is used in a considerable number of oil and gas organizations. The logic behind the model is that individuals who break the rules should not be punished if it becomes clear on investigation that there was no attempt at sabotage or deliberate creation of danger, nor if there were clear system-induced causes. If, however, it was apparent that the procedure were clear and workable then the individual should be subject to some level of punishment, up to and including dismissal. The Substitution Test (10) should also be applied, in order to ascertain whether other individuals, with the same level of experience, would be likely to behave in the same way, even if the violation had been induced by the system. If there is clear evidence of shortcomings in training, selection or experience, then the failing should be regarded as a system-induced error. One last assessment examined whether the individual had a history of violating procedures and only those who were cleared by all tests could be considered blame-free and not requiring coaching or discipline. In the case of system-induced violations or errors there is a note pointing out that it is “management/supervision responsibility to correct root causes of system issues.”

A Case Study, Texas City

The Texas City disaster provides an example of how individual non-compliances and the failure to manage them played a significant role in the run up to the accident.

The original BP investigation report (11; pp 157-158) identified violations by both workers and supervisors as immediate causes of both the loss of containment and the failures in the raffinate start-up procedures. The Baker Commission report (12) went much further after they had investigated the wider safety culture in BP Americas refining operations.

“Interviews also confirmed that Texas City has a long-ingrained culture of noncompliance with HSSE policies and procedures.54 Hourly workers interviewed reported that prior to the ISOM accident, policies and procedures commonly were not followed, and they explained that generally Texas City fostered a culture of “casual compliance.” Many management employees interviewed echoed this concern and additionally explained that no one enforced the consistent implementation of policies and procedures.” (12; p. 109)

The report went on to state that:

“The assessment noted that these problems and issues were very deeply rooted. ... The consulting firm’s assessment went on to discuss Toledo’s “toleran[ce] of non-conforming behaviours” at all levels of the refinery, bad morale and apathy, hostility between the unionized workforce and management, and a lack of accountability or consequences for noncompliance.” (p. 113).

Finally Baker noted that BP themselves had identified many of these problems:

“Likewise, the 2003 gHSEr Audit—Summary of Findings, which outlines key issues found in multiple gHSEr audits,

indicates that the BP contractor management system was not rigorously applied, resulting in a tolerance of noncompliance with regards to contractors.” p. 163.

The Chemical Safety Board report (13; pp. 176 - 168) confirmed these findings:

“In May 2004, the Texas City site performed a “Control of Work Review,” which revealed deficiencies in compliance with the Golden Rules. The three primary areas of concern were risk assessment, use of nitrogen, and lifting operations. The review found that plant personnel generally complied with policies and procedures, but there was variability among operating units and tasks performed. The report concluded that site leadership needed to communicate to the workforce “that productivity and progress in other areas is not acceptable if it comes at the cost of noncompliance with HSE policies and procedures.”

The Texas City site’s response to the “Control of Work Review,” which occurred after the two major accidents in spring 2004, focused on ensuring compliance with safety rules. The response stated that the review findings support “our objective to change our culture to have zero tolerance for willful non-compliance to our safety policies and procedures.” The report indicated that “accepting personal risk” and noncompliance based on lack of education on the rules would end. To correct the problem of non-compliance, Texas City managers implemented the “Compliance Delivery Process” and “Just Culture” policies. “Compliance Delivery” focused on adherence to site rules and holding the workforce accountable. The purpose of the “Just Culture” policy was to ensure that management administered appropriate disciplinary action for rule violations. The “Just Culture” policy indicated that willful breaches of rules, but not genuine mistakes, would be punished. The Texas City Business Unit Leader announced that he was implementing an educational initiative and accelerated the use of punishment to create a “culture of discipline.”

As is also stated in these reports, there is no indication that these states of affairs were unique to the company.

The causes of non-compliant behaviour

The reasons why people are likely to be non-compliant have been investigated in a study of North Sea offshore personnel, at all levels in the organization (14,15). Four main factors predicted whether people would or would not bend the rules in the offshore environment; these have been labelled the *Lethal Cocktail*. These four factors are:

- **Expectation** – the expectation that the rules have to be bent to get the job done, and nothing has changed
- **Powerfulness** – the feeling that one has the ability and experience to do the job without slavishly following the procedures
- **Opportunity** – seeing opportunities that present themselves for short cuts or to do things ‘better’
- **Planning** - Inadequate work planning and advance preparation, leading to working ‘on the fly’ and solving problems as they arise

Score on these four factors explained 64% of the variation in reported non-compliance (there was also evidence that responses to this were candid and accurate). This means that we can predict quite accurately whether people will violate or not from knowing about whether they expect to find themselves being non-compliant (asking if they *intend* to bend the rules turns out to be of no predictive value; no one reports bad intentions, but many have pessimistic expectations). One can also predict that a highly competent and experienced workforce will be more likely to treat procedures as advisory rather than mandatory. While there will be few non-compliances if no opportunities exist, the existence of opportunities to take short cuts will be exploited, especially by those most highly motivated to do the work. This study finally showed that non-compliance is a natural human response to poor planning in the field – if the work is not sufficiently well thought through, people will do whatever it takes to get the job done.

Another study in the oil and gas industry (16) showed that it is possible to distinguish two types of individuals. One, *Sheep*, are compliant guardians of high standards, the other, *Wolves*, are opportunistic go-getters who treat procedures as advice rather than as compulsory ways to achieve their ends. 64% of the population studied were classified as wolves. This finding is consistent with the specifications set for employment in the industry, where independent-minded, technically competent individuals are sought after; exactly those characterised as wolves. What these results mean is that the management of non-compliance has to take into account both the nature of operations and the types of people recruited in the oil and gas industry. Simple telling wolves to be compliant, and like sheep, is liable to lead to disappointment when procedures stand in the way of getting the job done as quickly and as cheaply as possible.

Revisiting the just culture

The Just Culture model did not appear to have prevented the Texas City accident, the punishments appear not to have achieved the desired effect, and in another case there has been evidence that the use of the model was itself directly contributory to an accident, when one of the victims was on a final warning. In particular it appears that the model is quite sensitive to the way in which it is implemented. A heavy-handed approach, emphasizing punishment and delivered top-down can prove counter-

productive. A number of other issues arose when the model was re-examined. One is that the pictorial representation sends a strong message, counter to the intention of most users, another is that the roles and responsibilities of supervisors and management are reduced to fixing problems after they have been identified, the third is that there are a number of different types of non-compliance that have been discriminated more recently that do not figure explicitly in the model.

1. The pictorial representation goes from left to right and therefore stresses the worst cases first. Together with a considerable amount of space devoted to different levels of discipline this is easily interpreted as a model for punishment, consistent with the way it was presented at Texas City (see CSB quote above). In fact, in one offshore implementation it was labelled “Seven ways to get yourself sacked” by the workforce. The visual structure implies that individuals subjected to the process are assumed to be guilty unless they can prove innocence.

2. The model is often experienced as unfair, as management bear no more responsibility than for fixing problems after they have been identified as a result of some behaviour by a non-compliant individual on the work floor. Yet supervisors often know and condone such behaviours, if only to get the job done, and managers often send conflicting messages about safety and production, especially to contractors. There is an argument to be made that line management either knows what is happening and condones it, or does not know what is going on because it does not want to find out. In either of these cases line management should also be scrutinized. Furthermore, as identified in the CAA study (4) another major source of problems is incorrect or inadequate procedures and correctness and adequacy of the procedures must, in the first instance, be the responsibility of management.

3. Early studies of non-compliance identified a small number of different types of violation. Free (1), in her study on railway procedural violations, identified four types

- *Routine* – when people think the rules don’t apply to them;
- *Situational* – when the situation necessitates rule violation to get the job done at all;
- *Optimizing* – for kicks, or when people feel they can do better;
- *Exceptional* – when the rules are not able to deal with a novel situation or are felt to be impossible to follow.

Reason, Parker and Lawton (17) reduced these to only Routine, Situational and Exceptional and Reason (9) discusses a group of violations that might be better classified as mistakes, when people did not know they were in violation, leaving the definition of non-compliance to include only deliberate behaviours. The problem is that this categorization has a number of inconsistencies:

- legal systems often assume that people will know a law even when they do not – ignorance of the law is no defense;
- Optimizing violations may be done for a wide variety of motives that seem to require different approaches, whether an individual is optimizing for personal benefit or for the organization;
- Routine violations may be either situational or optimizing (but presumably not exceptional). They do not form a natural separate class, so the type of definition for routine violations actually differs from the type used in the other senses.

The Just Culture model appears to have a number of shortcomings, not just because the logic is incorrect – the different types of non-compliance are identifiable in hindsight, but not in terms of the personal consequence – but also because it is prone to heavy-handed implementation and is heavily weighted toward punishment. As such it is difficult to use the Just Culture model as a way of supporting the drive towards an advanced safety culture (18) as well as providing a mechanism to elucidate vital information *before* an accident happens.

Types of non-compliance

Analysis of the logic behind the set of categories of non-compliances, based upon access to large numbers of occurrences, has led to an extended structure that will need to be taken into account because a primary consideration for distinguishing these different types is the difference in the consequences for those committing them and the remedial measures necessary to prevent re-occurrence.

If we consider why we would wish to install a just culture and use a specific methodology to support that, we find that there are a number of reasons. One is that we wish to create a culture in which non-compliance is no longer the norm, if only because non-compliance is so dangerous, as discussed above. Another reason is that we wish to have a culture in which people feel free to report their own errors and non-compliances so that these can be remedied without having to wait for a public incident. The following categorisation of types of non-compliance is used in the Hearts and Minds brochure *Managing Rule Breaking* (19)

Unintentional non-compliances

There are two different types of unintentional non-compliance:

1. Unintentional Understanding failure – when people have a different understanding of what the procedure is and what they have to do.

2. Unintentional Awareness failure – when people are not aware of the existence of a rule or procedure and therefore operate with any reference to it.

1. The Chemical Safety Board provides a cogent example of the first of these (20). Not surprisingly there was a major incident due to failure to follow the required procedures.

“The majority of workers at the Kean Canyon plant spoke only Spanish, but the plant had no operational policies or procedures in that language. Among the employees, only the production supervisor and three other operators were bilingual. Although the plant’s generic OSHA training program included a few Spanish videos, material safety data sheets (MSDSs) identifying the hazards of the explosives were only provided in English. Likewise, safety training sessions and tests were developed and conducted in English and then translated by one of the bilingual personnel. Sierra’s reliance upon informal translation created opportunities for error and miscommunication.”

In other cases people may well have been provided with a written procedure, even in their own language, but there has been no assessment of whether their understanding is what was required. An example from the EP industry is:

“The slings should be doubled wrapped with a choke hitch taking care not to cross over the sling on the underside of the pipe or pipe bundle. The choke hitch should be pulled tight to secure the bundle and a bulldog grip fitted. A tie wrap should then be fitted to prevent the reeving eye slipping over the bulldog. The included angle between the choke hitches shall not exceed 120 degrees.”

As this is a procedure for a highly safety critical activity, it is essential to ensure that everyone involved has the same, and the correct, understanding (a picture would have helped).

2. People who are unaware of either the existence of, or significant change to, a procedure can be particularly dangerous. A contractor who is sent straight to a hazardous job without being briefed may not know what they do not know, yet others may act as though the procedures are being followed, even at a distance such as on a pipeline. Improvements to procedures, usually as a result of a previous incident, may take a long time to percolate through to operations where they are needed. All of these represent situations where many activities are predicated on knowledge, and compliance with, a procedure of which the critical individual is in ignorance.

In both of these cases the requirement for compliance to ensure safe activities is fully present, but the conditions for appropriate remediation are quite distinct, and in neither case is the original violator the source of the problem or the remedy – these are presumably some of the system-induced violations of the Just Culture model. In the first case training the workers, and assessment of the competences acquired, may be appropriate, but translating procedures into the language of the workforce is not a task that involves the workforce at all.

Either of these two classes may be routine, but it would take competent supervision to detect the problems, unless there was an actual incident, just because the workforce, being ignorant, is in no position to report the problems they will be having.

Intentional non-compliances

Here we distinguish three major types, *situational*, *optimizing* and *exceptional*. all of which are known and intended behaviours, and make a further distinction with the optimizing non-compliance:

3. Situational non-compliance – where the situation is such that it is impossible to do the job and be compliant. There may not be enough time or resources to perform the task properly;
4. Optimizing non-compliance *for company benefit* – individuals take short-cuts believing that this will achieve what they believe the company, and their superiors, really want;
5. Optimizing non-compliance *for personal benefit* – short-cuts taken to achieve purely personal goals;
6. Exceptional non-compliance – deviations from the official procedures that may be difficult to follow under specific, and usually novel, circumstances.

3. Many situations arise in which the official procedures are actually incorrect, out of date, impossible to follow or to complete with all the requirements. Possible reasons for many of these problems are change – the equipment has changed but the procedures haven’t, continuous accretion of extra checks as a result of one-off incidents, shortage of resources such as time to get the job done or people to fulfil necessary roles, or special tools that have not been made available. All too often the actual working practice is quite safe, but the procedures have not been brought into line with practices. Workers and supervisors often know this but still no-one can or will implement the changes and all too often people give up trying to have the changes documented as their efforts have gone unheeded. The problem here is the actual working practice may well be safe – subject to the proviso of interaction with other peoples’ expectations and errors – but that the norm of non-compliance is made easier every time a poor procedure is ignored. Even naturally compliant workers may find their boundaries becoming vague. The solution of choice for many of these non-compliances is often to fix the procedure rather than fixing the worker, but there is a responsibility on those workers and their supervision to identify such procedures. It is then the responsibility of their line

management to ensure that the process of bringing procedures up to date, or making them workable, is carried out. Because change is inevitable, procedures will always need to be reviewed so that they are up to date. Only if this commitment is visible will the expectation be combated that procedures can be treated with contempt.

4. While there is a common perception that workers take short-cuts because they find it personally easier or more attractive (see 5), the evidence is that many more short-cuts are taken because there is the belief that the company will benefit. Free (1) found that most violations by railway shunters were attempts to 'get the job done'. These individuals were not getting a personal benefit, nor were they out for kicks, but rather they thought that their organisation, and presumably the future customers and passengers, would want them to be as quick as possible. Furthermore these individuals do not always restrict themselves to what they see as low risk activities when they choose not to follow the rules; this might be explained by reference to the *powerfulness* and *opportunity* factors, leading to a possible illusory state of feeling of control that may well be unjustified ("Don't do this until you have as much experience as I have" might be a common illustrative quote). Typical examples involve placing continued production ahead of safety when a procedure requires a shut-down - but an experienced worker knows how to perform a work-around.

5. There are, also, clear examples where an individual has served only their own goals, such as getting off work early, or taking a short cut to reduce the amount of physical effort. In road transport there are many opportunities for individuals, outside of the scrutiny of the organization, to act in their own interests, rather than complying with the requirements of the organization, such as speeding, using a mobile phone or failing to wear a seat belt. Some of these may be trivial (e.g., not wearing full PPE while standing in an open field), while others may be extremely dangerous for the individual (e.g. not wearing a seatbelt) or for others (not checking whether a system is isolated or control settings are correct because it would be "too much bother" – see discussion of recklessness below). In all cases these non-compliances represent the taking of the line of least resistance for the individual with little consideration of whether others might be inconvenienced or, indeed, brought into danger.

6. Exceptional non-compliances are just that, exceptional. Most occur when a novel situation arises and people feel they should not apply the standard operating procedure, or even that they cannot. Emergency services often commit more of such non-compliances when they feel driven to try a different approach to that recommended. Exceptional non-compliance is often a solution, as shown by the survivors of Piper Alpha who jumped into the sea rather than collect together and wait at their muster station. In contrast the firemen on 9/11, who did follow the official procedures for building evacuation, were of little use to anyone, hampered down by their heavy equipment and taking the stairs rather than the lifts. At the same time there are exceptional violations that represent a natural but unsafe solution, such as when people jump into a trench to save a colleague who has collapsed with H₂S poisoning or people who fail to follow the grizzly bear procedure (lie very still on your back). In such cases the official procedure is actually the best, but extremely hard to follow for people who find themselves placed in such a situation – the armed forces recognize this and train such situations extensively.

One issue that must be confronted is that of recklessness. Any procedural non-compliance could be so potentially dangerous that it would constitute reckless behaviour, a step further than mere negligence. In such a case it would be necessary to determine whether the individual in question actually knew how dangerous it could be. While many non-compliant behaviours may appear reckless to observers equipped with hindsight, the picture may be very different to those on the spot. This is one area where the substitution test – "Would others with the same skill and experience have acted the same way under the circumstances?" – can be applied (10). Reckless behaviour requires a clear understanding of the potential consequences and a blatant disregard of the risks at that point in time. Anyone who has behaved in the same, non-compliant, way over many years without having had an accident can feel that the real risk, expressed in probability of occurrence of the bad consequences, is low, so that a charge of recklessness would be hard to support because they could, genuinely, have decided that the risk was both acceptable and reasonable. Recklessness is an appropriate term when the risk is clearly disproportionate.

Finally all of these violations, with the possible exception of the exceptional, may or may not be performed routinely. This may be by many people or just by one person. In the former case the non-compliant behaviour has clearly become the norm, for good or bad. In the latter it appears that a single individual may have a different view of the world and be behaving idiosyncratically; if the behaviour is actually risky then the person in question may need to be recalibrated. Non-compliant behaviour that has become routine, especially among several members of a workforce, can have a pernicious effect on the way other people regard the importance attached to rule-breaking. Even if the 'new' procedure is actually better or safer in isolation, if managers and supervisors are not seen to respond (possibly by changing the official procedure using a risk-management process), then other more dangerous non-compliances will become easier to perform. The road to disaster is truly paved with good intentions.

Accountability up the line

The detailed analysis of the different types of non-compliance above reveals that there are many ways in which different non-compliances can be made to occur. Failures to understand the exact requirements of a procedure or lack of awareness of its

existence are not problems that can be laid just at the feet of those supposed to comply with those procedures. The responsibility must lie higher and someone could, and should, be held to be accountable for ensuring that they are both known about and correctly understood. If managers turn a blind eye then there should be some consequences for them because it is their responsibility to deliver safe performance. Similarly if procedures are inaccurate or inadequate (4), then managers again have to be called to account for failures to provide accurate and useable procedures. After all, the workforce cannot be expected to perform the task of procedure quality control unless they are specifically tasked to do so. If there is a problem here the question to be asked is: did managers know, and turn a blind eye to achieve production targets and an easy life, or did they not know, in which case what form of management are they providing? In the latter cases there is a responsibility on the workforce to report the problems and, where appropriate intervene by refusing to work with such procedures that may prejudice safety performance. There is also a responsibility on the management to look for such occurrences and listen when they are told about them.

Where company-benefit optimizations are involved, the failure to follow an established procedure in order to satisfy perceived company goals may sometimes represent a real improvement. The problem then lies more with the inter-relationship between a specific procedure and others which might prove dangerous but which could be open to a risk-managed application. The equation showing the interaction between non-compliance and unintentional error can apply equally well even if the 'new' way of working is, in isolation, safe enough, because others will still be working under the assumption that the official procedures will be being followed. Managers should be open to improvements, especially from subject matter experts, but these need to be openly risk-managed rather than just left to happen. Again there is a responsibility of the individual not to keep a proposed improvement a secret, just as it should be the responsibility of management not to squash initiative on the grounds that they are superior. With a workforce often selected to display initiative², such attempts must be expected and managed to ensure that safety is not compromised, while the workforce is not de-motivated. If non-compliances for company benefit are tolerated, or even encouraged, by line supervisors and management without some action being taken, then it should be clear that they are setting an unacceptable example and some consequences need to be considered for them, rather than just (or even) for the individual actually being immediately non-compliant.

Personal benefit non-compliances are clearly now the category that should receive the most scrutiny. They serve no purpose for the organisation and make the individual's life easier. The questions here are: why is the person working here? And, what does management think about them? In the case of extreme personal benefit non-compliances it is also necessary to ask what management was doing; was this a one-off or did they know about such behaviour and condone it? One of the most extreme examples of such personal benefit behaviour, truly reckless but actively condoned by his superior officers as an example of 'the right stuff', was Lt. Col. Bud. Holland, who crashed a B52 in front of the public while performing a dangerous and unrecoverable manoeuvre at very low altitude at an air show.

In summary, there are clear reasons why it is not just the individual who is non-compliant who has a measure of responsibility. Up the management line it is possible to point to clear accountabilities of supervisors and more senior managers who variously set examples, can condone non-compliance, and who should be ensuring that the procedures are up to date and fit for purpose. In cases where non-compliance is routine, even when the actions are probably benign, the fact that non-compliance is common is enough to create a culture in which non-compliance becomes increasingly normalised. Given the risks associated with non-compliant behaviours, it is essential that all involved play their part in ensuring that, even in an organisation full of competent and motivated wolves, there is no opening for such opportunities for disaster to strike. The problem is: How can we ensure this, given the problems identified with the original Just Culture model? The next section describes a new approach, generalised to errors as well as violations, for the management of unusual behaviour.

A new model: Meeting Expectations

Managing non-compliance is primarily about ensuring that the incidence of non-compliance is reduced to a minimum that should be zero. The effects of change and development, however, mean that there will always be a struggle to maintain this position. The nature of the workforce recruited by the oil and gas industry, placing a premium on expertise and the exercise of initiative, means that this will always be an issue that needs active management rather than just hoping that it will recede. The Just Culture model represented a significant improvement in helping define how non-compliances are to be managed. Unfortunately it suffers from a number of shortcomings, although sensitive implementation may overcome many, but not all, of these. The implementation problems are primarily due to failure to embed a Just (and Fair) model into a wider investigation and management process. But there is another reason for implementing such a system, the development and support of an advanced safety culture. One of the critical components of an advanced HSE culture is a just culture, that supports a reporting culture (21) because it enables the growth of trust, both from workforce to management and from management to the workforce. Some such system, supporting both the reduction of non-compliance and the development of trust, needs to be implemented in such a way that it is not only just and seen to be just but also, to engender mutual trust, must be seen to be fair. That is to say that there must be a clarity of expectations which determines where the 'line' is drawn, expectations that are shared by all parties.

² An examination of the recruitment material for oil and gas industry jobs suggests that skill, independence and initiative are what is necessary to get a job, all ingredients of the lethal cocktail.

In order to achieve a truly acceptable approach it is necessary to extend the model to the wider area of non-intentional human errors. Behaviours that are below expectations will run the full gamut from trivial slips to dangerous and reckless non-compliance. But more importantly, there are a number of behaviours that need to be encouraged, those that are at or above our expectations. Those above expectation behaviours will involve people putting themselves in some personal discomfort, such as admitting what they could have kept secret in order to improve the system, or exercising true HSE leadership by applying the principles of risk management to activities rather than hoping it will be alright as long as one is silently compliant. There needs, therefore, to be a balance between reward and punishment, and it needs to be clear to all how these are to be assigned. This model, called *Meeting Expectations*, is shown in Fig. 2. It represents a set of decisions on how behaviours are to be viewed, and what individual consequences are to be attached to those behaviours. Consequences can be either positive, reward, or negative and are defined for both the individual who has performed some behaviour and up the management line. The model takes into account the different types of non-compliance identified above (See Fig. 3 for a decision tree) as well as the discussion about accountability for actions and situations that create the environment. In particular exemplary behaviours should not only lead to some reward of those exposing themselves, but should likewise (symmetrically with the negative expectations) lead to positive consequences for the supervisors and managers of those individuals. This represents a fairly deliberate piece of social engineering (21) intended to support the development of an advanced HSE culture (18).

The Meeting Expectations model provides definitions of exemplary, expected and below expectation behaviours that are very clearly defined to all parties, together with quite explicit descriptions of the types of consequence (reward, coaching or discipline) to be expected at both the individual and the managerial levels. As such it is intended to shape behaviours away from condoning non-compliance and toward actively managing the problem. Tables 1 and 2 show the extended definitions of the behaviours and the associated consequences suggested (they must always be subject to local considerations and national cultural differences). The fact that each one of the different types of sub-standard behaviours, whether errors or non-compliances, has a distinct pattern of consequences is indicative that the differentiation is a valid one.

One requirement for implementation of the model, when it is applied to individuals after specific event that start the process, is that those using it should have followed a training package and passed an assessment test (22). Without this type of training assignments are too often inaccurate, with a wide range of non-compliances seen as reckless and many errors seen as non-compliances. The initial training, which takes about 20 minutes, raises the accuracy of identification from below 50% to above 85% (22).

Conclusion

This paper has discussed the problem of non-compliance and the use of models to manage such behaviour and drive its incidence down as far as possible. This has required the identification of six different types of non-compliance. Many, but not all, of the different types of error and non-compliance are the direct result of individuals' response to situations created by the environment in which they find themselves, environments created and maintained by supervisors and line managers. In the Meeting Expectations model fairness is obtained by ensuring that all those who deserve scrutiny get it, rather than concentrating on front-line individuals' behaviours with a throwaway proviso that systemic problems identified need to be fixed by management. As a result there have been positive response to the model from trades unions on both sides of the Atlantic Ocean. In fact, in today's social environment unions and individuals will agree, without managerial intervention, that there are totally unacceptable behaviours that need to be prevented. Air traffic controllers, for instance, will draw clear lines and will exercise sanctions on their own colleagues who cross the line. The drilling community has moved from a culture in which personal injury was a sign of membership to one where it has become unprofessional to lose fingers, where certain behaviours that used to be required are now seen as totally unacceptable.

Implementation of this model requires the active participation of Human Resources, as there are real consequences specified, both positive and negative. Implementation will require all involved to agree to the model and the procedure that it defines, before it is applied. Experience suggests that it is more acceptable to those on the work floor who have traditionally been the object of attention when non-compliance is uncovered. The explicit inclusion of positive aspects and consequences, together with identification of accountabilities up the line, will make it appear to be more fair. One possible exception will be those in management who have, up till now, escaped scrutiny and could remain in the lee, so extra attention needs to be paid to such individuals when implementing the model. It is important to stress that the model can be evaluated as successful if *no* negative consequences are applied, if individuals are rewarded to having and creating a culture in which such issues are treated proactively and in the open, so that the frequency of non-compliance drops and the use of active, professional risk management increases.

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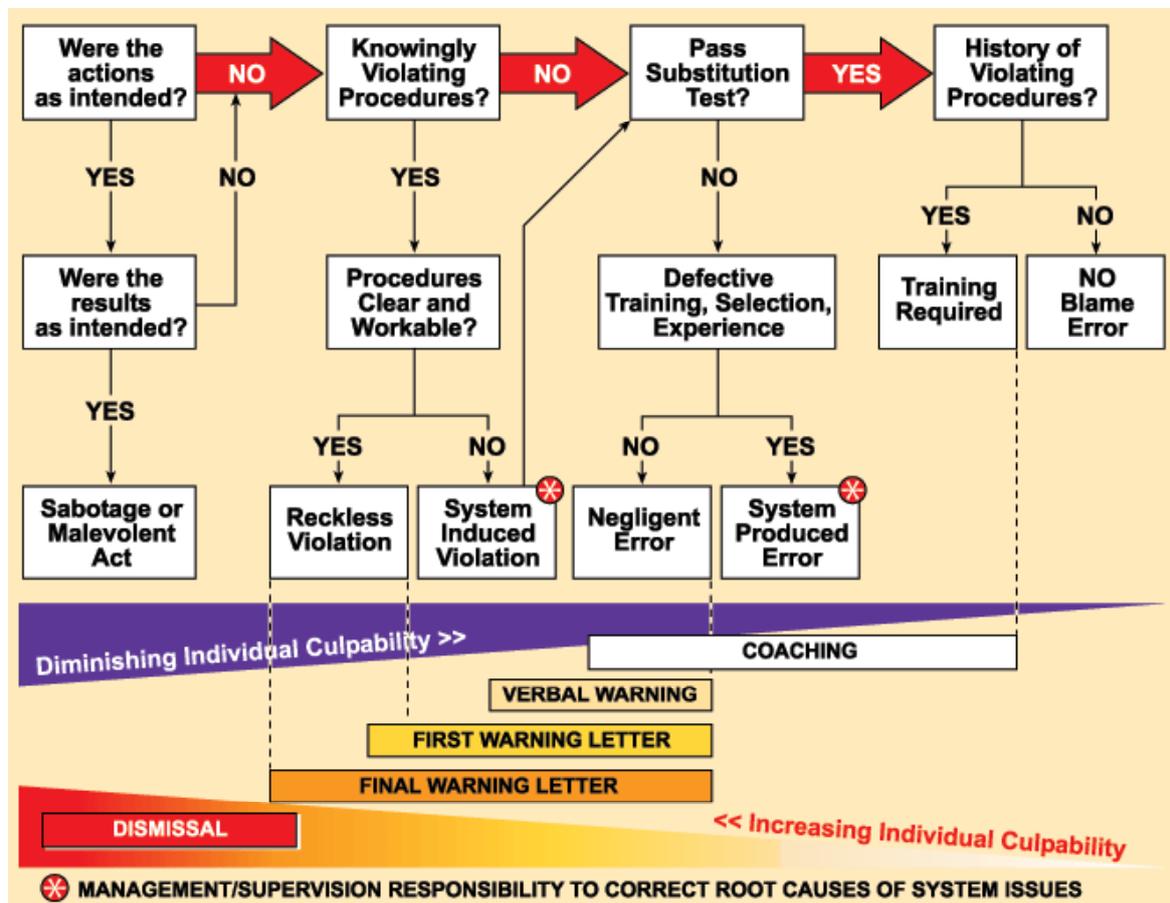


Figure 1. The original Just Culture model

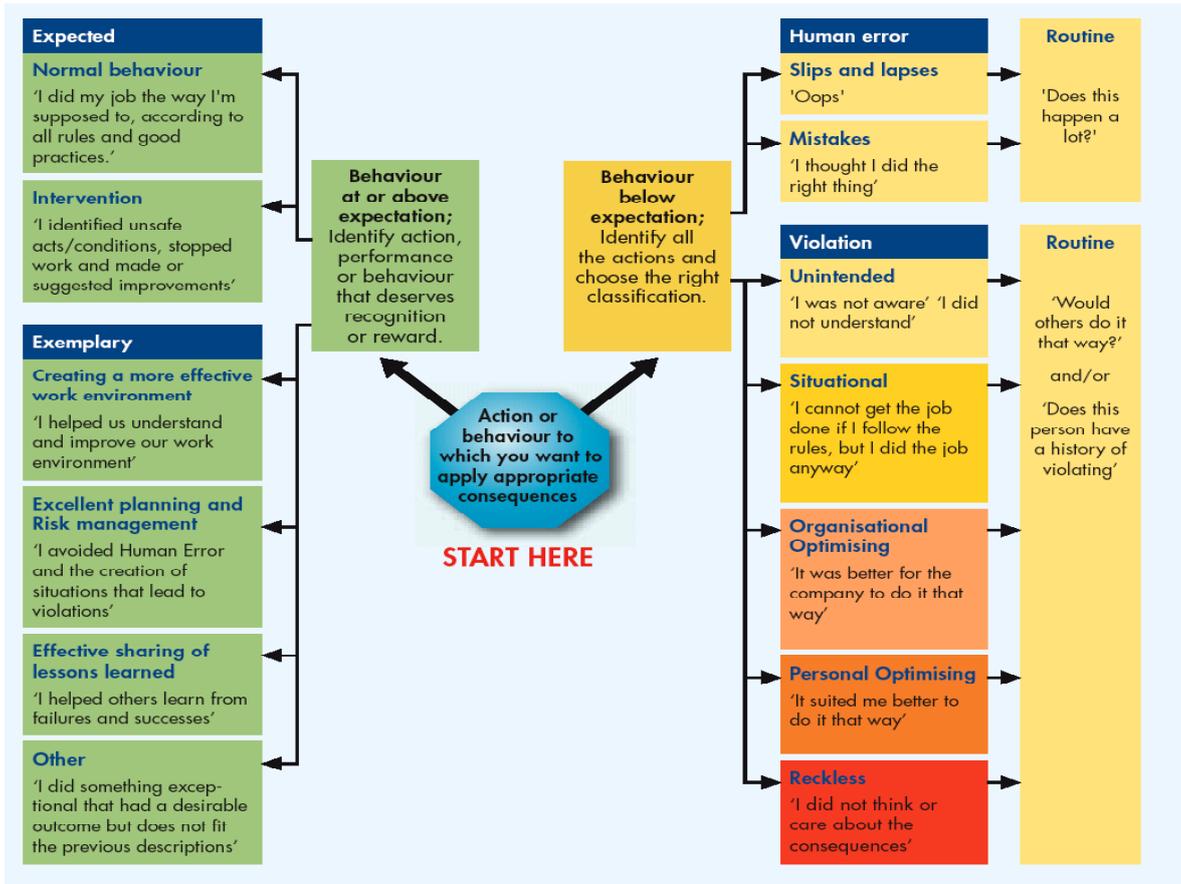


Figure 2. The Meeting Expectations Model

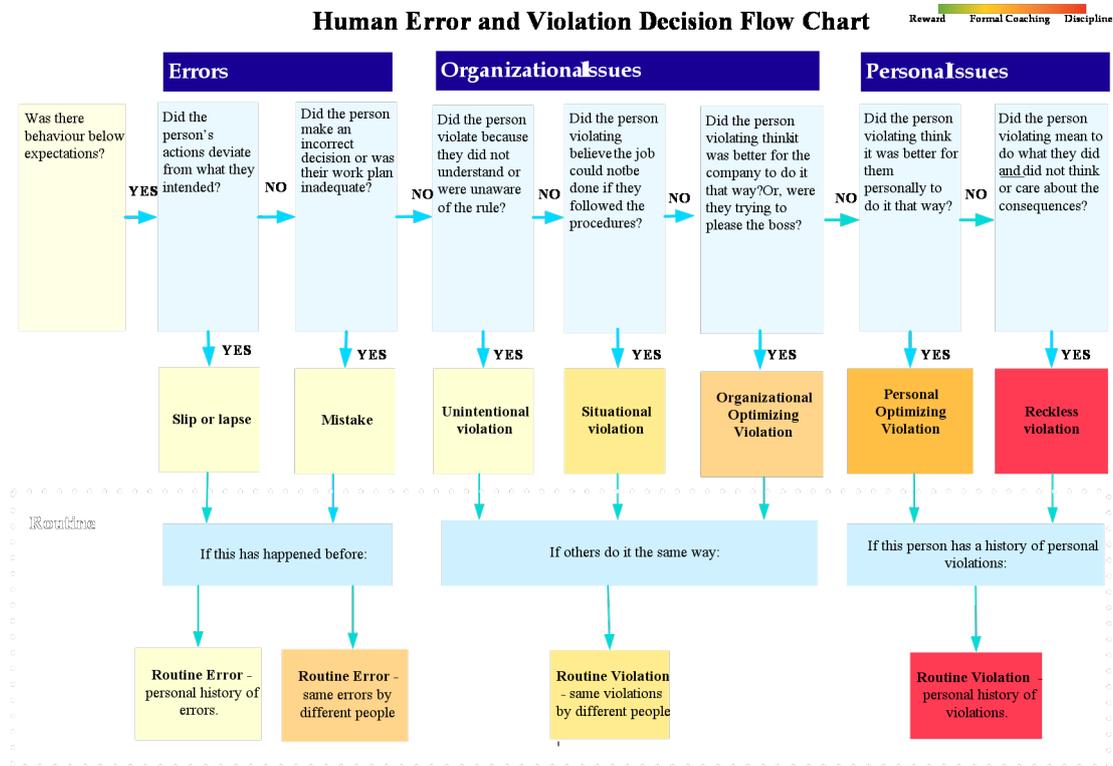


Figure 3 The decision tree for determining the types or error or non-compliance



Behaviour	Description of Behaviour	Consequences for the Individual	Consequences for the Managers of the individual
Excellent in Risk Identification, Planning and Management	Risk identification, planning or risk management has reduced the likelihood of human error or the creation of situations that lead to violations. This is characterised by taking a step back from a situation to reflect on what is happening and how the risks could be better managed. Examples of models that help with this are: Effective contractor management, Job Hazard Analysis and The Rule of Three.	Recognition / Reward - at the discretion of the line manager, in line with local HR policy and in agreement with HR manager. Examples are: <ul style="list-style-type: none"> • Praise • Public Recognition • Special Recognition Awards (SRA) • IPF • Positive performance appraisal • Career progression 	If this behaviour is displayed by a whole team, or regularly by some members of the team their supervisor/manager should also receive appropriate Recognition/Reward - at the discretion of the line manager, in line with local HR policy and in agreement with HR manager. Examples are: <ul style="list-style-type: none"> • Praise • Public Recognition • Special Recognition Awards (SRA) • IPF • Positive performance appraisal • Career progression
Creating a more Effective Working Environment	Creating trust, good communication and clear expectations in a team. E.g. effective use of 'Hearts and Minds' models 'Seeing Yourself as Others See You' 'Understanding Your Culture'.		
Effective Sharing of Lessons Learned	Sharing experience in a way that gives genuine benefit to others e.g. highly effective communication; using lessons learned to improve a working practice.		
Normal Behaviour	Doing what is normal and required for your job.		
Effective Intervention	Recognising and intervening in a potentially problematic situation. Examples: stopping your own job or someone else's; catching errors; preventing someone from breaking a rule. Also includes being receptive to others' interventions.	Recognition from line supervisor and supervisor's management.	Encouragement and recognition from line manager and senior managers if whole team is working this way.

Table 1 The consequences of expected and exemplary behaviours.

Behaviour	Description of Behaviour	Consequences for the Individual	Consequences for the Managers of the individual
Human Error	Human error is a part of life that can rarely be eliminated entirely. Disciplinary actions in line with local practices and guidelines are usually not appropriate when slips, lapses or mistakes have been made, but many things can be done to prevent their (re-)occurrence.		
Slips and Lapses	Actions that did not proceed as planned e.g. something was done twice, the wrong way or a step is forgotten.	Coaching on how to spot errors, what influences the occurrence of slips and lapses and the importance of reporting them to aid detection of trends and underlying causes.	Coaching in Error Management.
Mistake	Mistakes are actions that proceed as planned but do not achieve their desired end. (Incorrect decision or inadequate plan).	Competence development/ coaching	Coaching in Error Management and Competence Management.
Routine Error <i>Same errors by different people</i>	It is not the first time that this type of error or mistake has happened.	Whole team to receive coaching on how to spot errors, what influences the occurrence of slips and lapses and the importance of reporting them to aid detection of trends and underlying causes.	Coaching in Error Management and Competence Management. Performance appraisal affected for not addressing clear problems in own area.
Routine Error <i>A personal history of errors – when the same errors are not made by others in similar situations</i>	It is not the first time that this type of error or mistake has been made by this person. Other people in similar situations do not make this error.	Assessment of fitness to work (abilities and suitability for this type of job). If appropriate, competence development and coaching, if not consider assigning alternative more appropriate type of work.	Coaching on Fitness To Work.
Unintended Violation	A rule or procedure violated because people were not aware of the rule or did not understand it.	Competence development/ coaching	Coaching on how to ensure procedures are correct, available, and understood.
Situational Violation	A job cannot be done if the rules are followed. Instead of stopping the job it is done anyway and the rule is violated.	Coaching on the need to speak-up when rules cannot be followed and to stop the job until it can be done safely. Mild disciplinary action in line with local practices and guidelines.	Coaching on Managing Rule Breaking. If this type of situation has occurred before performance appraisal is affected for not demonstrating commitment to rule compliance.
Organisational Optimising violation <i>Optimising for company benefit</i>	The person committing the violation thought it was better for the company to do it that way. The violation was committed to improve performance or to please the supervisor.	Coaching on the need to speak-up when rules cannot be followed and to stop the job until it can be done safely. Mild disciplinary action in line with local practices and guidelines.	Performance appraisal is affected Coaching on Managing Rule Breaking. If this type of violation has occurred before there should be formal discipline for reckless supervision in creating a culture that encourages this behaviour.

Table 2 The consequences for errors and violations

Behaviour	Description of Behaviour	Consequences for the Individual	Consequences for the Managers of the individual
Personal Optimising Violation <i>Optimising for personal benefit</i>	The person thought it was better for them personally to do it that way e.g. getting a longer work break, easier way of doing the job, doing it faster, etc.)	Formal discipline. If this has happened before, then formal warning process should be followed. Consider anonymous publication of the violation and its consequences for worker and their managers.	Performance appraisal is affected for not becoming informed about clear problems in own area. Coaching in Managing Rule Breaking together with team. If this type of situation has occurred before performance appraisal is affected for condoning violation or not taking action. The reason for condoning this behaviour should be investigated; the model and flowchart will help determine whether the manager's behaviour was an error or violation.
Reckless Violation	The person committing the violation did not think or care about the consequences. Gross Negligence can be considered a part of this type of violation.	Final warning or immediate removal for wilful and reckless violations. In worst cases, consider dismissal in line with local practices and guidelines and possible criminal proceedings.	Coaching in how to recognise and deal with such behaviour earlier.
Routine Violation <i>Everybody does it like that</i>	Other people would have done or do it the same way. Checking for this type of violation can be done by using the 'substitution test'. Substitution Test: Would a significant proportion of individuals with the same training and experience have acted in the same way under the same circumstances?	Whole team to receive coaching in: Managing Rule Breaking	Performance appraisal may be affected for becoming informed about clear problems in own area. Coaching in Managing Rule Breaking together with team. If this type of situation has occurred before performance appraisal is affected for condoning violation or not taking action.
Routine Violation <i>A personal history of violations</i>	The individual has a history of violation, disregard for the rules and procedures in general, not just frequent violation of the rules under investigation.	Formal discipline. In worst cases, consider dismissal in line with local practices and guidelines.	Coaching in how to recognise individual violators. Performance appraisal is affected if it is found that violating is condoned or no action taken. If there are many routine violations of this type the reason for condoning this behaviour should be investigated, the model and flowchart will help determine whether the manager's behaviour was an error or violation.