Safety Science 108 (2018) 149–160

Contents lists available at ScienceDirect

Safety Science

journal homepage: www.elsevier.com/locate/safety

"We can stop work, but then nothing gets done." Factors that support and hinder a workforce to discontinue work for safety

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ARTICLE INFO

Keywords:
Stop work
Authority to stop
Safety
Resilience engineering
Oil and gas

ABSTRACT

Workers have a legal obligation not to perform unsafe work. In many organisations this obligation is supported by an explicit authority to discontinue work or to stop the work of others if the conditions of work are unsafe. The supporting document is often called an 'Authority to Stop an Unsafe Task.' However, when conducting work at the sharp operational end of the organisation, stopping work for safety might be challenging at times. A better understanding is required about the stopping of work and the application of an 'Authority to Stop.' The aim of this research is to identify some of the factors that support and hinder a workforce to effectively stop work when a task is deemed unsafe. 10 focus groups were conducted with workers of various roles in the liquefied petroleum gas (LPG) industry. The findings outline reasons to stop, challenges and supporting factors of stopping, as well as ways of stopping. The results indicate that the stopping of an unsafe task does not solely hinge on the willingness of individual workers to stop, but also depends on contextual factors surrounding the stop work decision.

1. Introduction

The ability for a worker to stop a task when faced with an unmanageable safety risk is important across all schools of safety management—from behaviour based safety to cultural and complex-systems approaches. Abdelhamid and Everett (2000), within the behavioural safety tradition, identify "deciding to proceed with a work activity after the worker identifies an existing unsafe condition" (p. 54) as one of three "root causes" of construction accidents. Tharaldsen et al. (2008) used "I stop working when I think it's dangerous for me or others to continue" (p. 432) as one of five outcome measures to determine the longitudinal effect of safety climate. Theories such as "drift" (Dekker, 2011) and "normalisation of deviance" (Vaughan, 2004) describe the danger of small incremental steps towards danger, and emphasise the importance of opportunities to detect and correct unsafe situations.

For example, Eagle Farm Racecourse in the northern Brisbane suburb of Ascot, Australia, was undergoing major redevelopment in 2016 (Bavas, 2016; Blucher, 2016; McCormack and Armstrong, 2016). The upgrade involved the construction of several hundred horse stables and facilities in the centre of the racing track. On 6 October 2016, two workers were killed when a crane was being used to lift a nine-tonne concrete slab into an excavated pit, where the workers helped to move the slab into place. The slab fell and fatally crushed both the 55 and 34 year-old workers.

In the days following the accident, several workers previously employed at the site reported via their union that they had voluntarily quit the job due to safety concerns (Blucher, 2016; Branco, 2016). Other workers stated that they were worried an accident might happen, but stayed working. One of the deceased workers themselves had raised a concern with the fit of the concrete slabs with their supervisor and attempts were made to overcome the problems (Kos, 2016).

Why are workers sometimes willing to stop work—even at the expense of their employment—whilst at other times they press on despite signs of danger?

This paper describes a study carried out in an organisation that has a formal 'Authority to Stop an Unsafe Task' policy, informally known as the 'Authority to Stop Work' (ASW). The ASW policy includes a signed statement by the executive management team:

> *"Safety is our first priority. We want it to be yours too. Whatever your role, you have the authority and full support of the Executive Management Team to stop your own work and that of anyone else if you think it is unsafe. Whether the task is big or small, whether you need to stop for 5 minutes, 5 hours or 5 days, we will support you to do what it takes to do the job safely."*

Such stop work policies are common in high-risk industries such as construction, mining, oil and gas, and energy distribution (Mackenzie, 2017). ASW policy is deemed a valuable and critical element of safety programs, e.g. due to intending to make work safer by increasing the likelihood that workers will stop unsafe tasks (Gochfeld et al., 2006;

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https://doi.org/10.1016/j.ssci.2018.04.032
Received 24 May 2017; Received in revised form 15 March 2018; Accepted 30 April 2018

Hurwitz, 2014; Johnson, 2015; Lozowski, 2013; Marks et al., 2016; Tracy, 2014; Walter, 2012). The use of ASW is widely recommended, relied on, and requested by regulators (Beaubouef, 2013; Efendi, 2016; Morrison, 2015; Muscatello and Heshizer, 2002). Good safety leaders are expected to recognize and reinforce the application of an ASW policy within their teams (Quesnelle, 2016). Some companies perform stop work drills to identify and support everyone's understanding and use of ASW policy (Mozzani, 2017), or hand out ASW awards to employees who have stopped for safety, such as the "Governor's Stop Work Authority Award" (Wyoming Department of Workforce Services, 2017).

Stop work policy not only provides workers with the right and authority to discontinue work but also with the responsibility and obligation to follow such policy (Efendi, 2016; Ivensky, 2016; Walter, 2007). In case of an accident, workers are sometimes held responsible for not stopping or stopping too late (Bromwich, 2011; "Is There a "Feasible Means of Abatement"," 2016; Johnson, 2010; Khalifa, 2015). An accident usually raises questions why stopping did not occur, such as in the time leading up to the Deepwater Horizon rig explosion:

> BP and Transocean ignored a lot of warning signs, and now a lot of people who survived the explosion say they were worried about those warning signs. So why weren't they raising hell? Everyone aboard Deepwater Horizon had Stop Work Authority. The most damning thing we know about BP's safety culture is that nobody blew the whistle. Safety and health professionals should ask themselves whether they would raise hell to stop something that looked like a disaster waiting to happen. And they should ask themselves what would happen if they missed it or were too cowed to blow the whistle: Would others at their operation raise hell anyway?
>
> (Johnson, 2010, p. 220)

However, ASW policies build on unrealistic assumptions about work, such as that:

- people always stop when a situation is unsafe;
- everybody knows what is safe or unsafe. This does not have to be further specified;
- warning signs of disasters are always present and clearly visible;
- safety can always be the first priority;
- stopping colleagues is always possible;
- big and small tasks can be stopped, independently of the type of work and the duration; and
- it is always safe to stop.

The literature refers to such assumptions as "work-as-planned" or "work-as-imagined" by management (Clay-Williams et al., 2015; Dekker, 2003; Hollnagel, 2012, 2014; Hollnagel et al., 2006; Lay et al., 2015; Lundberg et al., 2009; Nemeth et al., 2011; Sujan et al., 2015). Where management believe that it is easy and reasonable to stop work, they are surprised when the ASW policy goes unused, and may even hold workers responsible for neglecting to stop when in hindsight they clearly should have.

Work as it is actually done in daily operation ("work-as-done") always differs by some degree from work-as-imagined (Borys, 2009; Clay-Williams et al., 2015; Hollnagel, 2009, 2012; Lundberg et al., 2009; Sujan et al., 2015). Risks may be hidden and danger not always clearly visible. Workers face challenges, conflicting goals, and uncertainty about whether work can be continued or has to be stopped (Gomes et al., 2009). Gaps may exist between work-as-imagined and work-as-done (Costella et al., 2009; Dekker, 2006; Hollnagel, 2012, 2014; Lundberg et al., 2009). The views of those who imagine and plan versus actually perform the work potentially differ.

For work to succeed it is important to examine, understand, monitor, and reduce gaps between work-as-imagined and work-as-done (Abech et al., 2006; Costella et al., 2009; Dekker, 2006; Hollnagel et al., 2006). This allows organisational decision-makers to be well informed about daily operation and support workers to be successful at work (Dekker, 2006). A large gap mirrors managerial leadership that is poorly informed about the challenges of actual work, which may obscure risks of daily operation and indicate organisational brittleness rather than resilience.

The ASW policy represents work-as-imagined by the management. Applying this authority in everyday operation is work-as-done by the workforce. This paper aims to better understand the application of authority to stop work in practice, and—more specifically—to explore the factors that support and hinder workers in discontinuing unsafe tasks. The findings are discussed in terms of "stopping as imagined" versus "stopping as done in everyday work situations."

2. Methods

2.1. Participants

All participants in the present study worked for a single major energy supplier in Australia at one of 8 different LPG terminals. Workers were informed of the study and recruited by attending a toolbox talk held by the first two authors, or via their terminal managers. All workers received the same information about the study and given time to make a decision about participation. Participation was entirely voluntary. Neither selection criteria nor restrictions in the number of participants were applied. Anyone at the terminals was invited to participate, independently of their role, age, or experience (see Table 1). Nobody who wanted to participate was excluded. Workers who agreed to participate were randomly allocated to a focus group. 4 focus groups were held with 4 participants, whereas 6 groups with 3 participants. Focus groups were chosen as a method to obtain personal and group opinions, allow participants to interact with each other, and stimulate group discussion.

Table 1 provides an overview of participants' roles, age and experience. In total, 34 people decided to attend a focus group, all but one were male, and all but one were directly employed by the energy supplier. Participants had worked for the supplier between 1 and 30 years, with an average of 8.5 years (SD = 7.7). Participants' average age was 45.8 years (SD = 9.1). The average duration of the focus groups was 68.1 minutes (SD = 16.0), ranging from 45 to 99 minutes.

Table 1
Participants' roles, age and experience.

		Number of participants:
Roles	Drivers (tanker, cylinder truck)	18
	Fitters (Service & Installation, maintenance)	4
	Leading hands	4
	Terminal managers	4
	Operators (terminal, tanker)	11
	Administration staff (sales, scheduling, office assistance)	3
Age bands	18–30 years	2
	31–40 years	9
	41–50 years	11
	51–60 years	10
	61 + years	1
	Missing (no response)	1
Experience bands	0–2 years	6
	3–5 years	12
	6–10 years	8
	11–20 years	4
	21–30 years	4
	Missing (no response)	0

Note. The numbers regarding participants' roles do not equal the total number of participants (34) as some participants (9) act in multiple roles, e.g. driver and terminal operator.