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Via rulescoordinator@rrc.texas.gov

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April Richardson
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Re: Comments on Proposed Rule Amendments to Chapters 13 and 14 (regarding Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG), respectively) (Rule Title: “Amend re: SB 1582 (2021) and other clarifications”)

Dear Rules Coordinator and Ms. April Richardson:

Environmental Integrity Project appreciates the opportunity to provide input on the Railroad Commission’s proposed rulemaking and amendments to Chapters 13 and 14 of Title 16 of the Texas Administrative Code regarding CNG and LNG regulations.¹

The Environmental Integrity Project (EIP) is a non-profit, nonpartisan organization dedicated to enforcing the nation’s antipollution laws. We work to empower communities and protect public health by holding regulators and industries accountable under the law, and by strengthening environmental policies.

In line with these goals, EIP respectfully submits the following comments. EIP’s comments highlight how the proposed rulemaking will affect the public health of Texans and Texas as a whole.

I. The Commission should allow for the confidential or anonymous reporting of unsafe CNG & LNG activities

The Commission proposes adding two new sections to Chapters 13 and 14 regarding the reporting of unsafe CNG- and LNG-related activities (§ 13.33 and § 14.2050, respectively). The proposed rulemaking states that these new Reporting Rules are intended to “outline the process by which industry members and the public may submit complaints about non-compliance.”²

¹ Proposed CNG Rules, <https://www.rrc.texas.gov/media/ujmk1p3x/prop-amend-ch13-sb1582-memo-rules-sig-10142022.pdf>; Proposed LNG Rules, <https://www.rrc.texas.gov/media/hcwpuoaz/prop-amend-14-2019-sb1582-and-truck-reg-memo-rules-sig-10142022.pdf> (These and all other websites cited herein accessed Nov. 22, 2022).

² Proposed CNG Rules at 1:33-34; Proposed LNG Rules at 2:3-4.

The proposed Reporting Rules are both substantively identical to each other and to the existing rule for reporting unsafe LP activities.³ The proposed LNG Reporting Rule states:

§ 14.2050 *Reporting Unsafe LNG Activities.*

- (a) *A person may report any unsafe or noncompliant LNG activities to AFS⁴ by mail, telephone, email, or fax. When possible, the person shall make the report using LNG Form 2022.⁵ Within five business days of receipt of such report, AFS shall notify the alleged non-compliant party in writing regarding the report and specify the reported non-compliant installations and/or activities.*
- (b) *The Commission may release the person's name in accordance with applicable open records procedures.*
- (c) *A person who reports unsafe LNG activities may be called to testify at a Commission hearing if one is necessary following the initiation of an enforcement action.*

As an initial matter, EIP applauds the Commission's express creation of a route for anyone to report unsafe LNG / CNG activities **and** for making these reports available through open records procedures.

However, EIP suggests that the proposed reporting rules may dissuade members of the public or employees from reporting unsafe activities for fear of retribution or retaliation if their identities can be revealed as proposed subsections b and c allow. Employees and neighboring community members—the frontline individuals with the closest view of CNG and LNG activities in general—are especially at risk of being dissuaded from reporting precisely because their close connection to operators and operations makes them more accessible for retaliation, whether perceived or actual.

To avoid this chilling effect on reporting, EIP suggests that the final rules should clarify that reporting individuals may either: (1) not include their name or identifying information (i.e., allow for anonymous reporting); or (2) protect their name and information from disclosure to the alleged non-compliant party and related entities (i.e., confidential reporting). EIP believes that the option for confidential reporting would provide a best-of-all-worlds scenario in which investigators would still be able to follow up with the individual making a report. However, EIP believes that both options should be provided and encouraged, so that the reporting individual has the flexibility to safeguard their personal information as needed—and to capture the most data on unsafe activities.

Without allowing for anonymous or confidential reporting, the Commission should expect that some unsafe activities will go unreported. Studies across industries—like petrochemical processing, aviation, medicine, nuclear facilities, and maritime operations⁶—and across areas of concern—such

³ Compare Proposed § 14.2050 (LNG Reporting Rule) with Proposed § 13.33 (CNG Reporting Rule) with 16 TAC § 9.38 (LP Reporting Rule).

⁴ AFS is the Commission's Alternative Fuels Safety department.

⁵ EIP understands that the Commission will hold a second comment period on the content of this form and CNG Form 1022; EIP's concerns about the chilling effect on reporting apply equally to the content of these forms as well.

⁶ See e.g., Ex. 1, Barach P., Small S.D. "Reporting and preventing medical mishaps: Lessons from non-medical near miss reporting systems." *BMJ*. 320:759–763. (Mar. 2000) <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1117768/>. ("For healthcare reporting systems there must be incentives to promote voluntary reporting—completely, confidentially, and objectively. Reporting should be the right, easy, and safe policy for healthcare professionals. . . . Experience with non-medical incident reporting systems in aviation, nuclear power technology, and petrochemical processing, offer lessons applicable to the design of safety reporting systems in health care.") See also Ex. 2, Excerpt of Fredrik Köhler, *Barriers to Near-miss Reporting in the Maritime Domain* (Dec. 2010) ISRN: LIU-IDA/KOGVET-A--10/014—SE. <https://www.diva-portal.org/smash/get/diva2:381821/FULLTEXT01.pdf> (in particular, §§ 2.3.4 & 2.3.5 summarize barriers to reporting)

as safety, public health, and equitable workplaces⁷—show that allowing for anonymous or confidential reporting increases the number⁸ and quality of reports made,⁹ decreases near misses,¹⁰ and improves safety overall. When seeking feedback on its own operations, the Commission itself tacitly recognizes that offering an option to submit anonymous responses is the best way to collect the most data.¹¹ Yet as written, § 14.2050 and § 13.33 do not point to laws that would protect a reporting individual's identity, nor is EIP aware of other rules or regulations that would protect all reporting individuals under the new proposed rules.¹² If such rules exist, the Commission could also cite them in its rulemaking, which would be an additional way to avoid chilling the reporting of unsafe activities.

II. EIP supports requiring the disclosure of 24-hour emergency telephone numbers

EIP also supports the Commission's addition of the requirement that all applications for LNG or CNG licenses or registrations must include a 24-hour emergency telephone number,¹³ as is already requested on those corresponding application forms (Forms CNG 1001 and LNG 2001) and for LP projects. Having a 24-hour number for regulators and others to use in case of emergencies should increase the safety of these operations and thus better safeguard public health.

III. Closing remarks

In sum, EIP thanks the Commission for the opportunity to comment on the proposed LNG and CNG rules and urges the Commission to amend these proposed rules consistent with these comments.

⁷ *Id.* The way fear dissuades reporting is especially clear in the workplace context, where the EEOC has found that “The fears that stop most employees from reporting harassment are well-founded. One 2003 study found that 75% of employees who spoke out against workplace mistreatment faced some form of retaliation.” Ex. 3, Excerpt of Feldblum, C. & Lipnic, V.A., *EEOC's Select Task Force on the Study of Harassment in the Workplace*. (June 2016). https://www.eeoc.gov/select-task-force-study-harassment-workplace#_Toc453686303.

⁸ “The lack of anonymity offered by most reporting processes is also an issue. Research has consistently demonstrated that offering anonymous reporting channels increases reporting rates by making it easier for people to report and protecting victims against retaliation.” Ex. 4, Harvard Business Review. *Do Your Employees Feel Safe Reporting Abuse and Discrimination?* <https://hbr.org/2020/10/do-your-employees-feel-safe-reporting-abuse-and-discrimination>.

⁹ Ex. 5, Excerpt of Stubben, S. & Welch, K., *Evidence on the Use and Efficacy of Internal Whistleblowing Systems* at 4. <https://deliverypdf.ssrn.com/delivery.php?ID=087089099092099122006018126012123005018043040037001065095010009113090103108024088067002010036056019123016101111006095102077028104087070023007099018029069027022099004020076112005126081119125125070125097091105102070019122016077084094010004076074106098&EXT=pd&INDEX=TRUE> (Feb. 29, 2020) (“Anonymous reports contain more information about the alleged activity.”).

¹⁰ *See generally*, Ex. 1 (Barach, 2000). *See also*, Ex. 6, WB&G, “Using Near-Miss Reporting to Prevent Future Accidents.” <https://www.wbgllp.com/single-publication/using-near-miss-reporting-to-prevent-future-accidents> (industry recognition of the importance of anonymous reporting of near-misses).

¹¹ The Commission's annual report on customer service allows anonymous feedback. Ex. 7, Railroad Commission, *Report on Customer Service* at 6. (May 18, 2022) <https://www.rrc.texas.gov/media/2j5h2eh4/rrc-customer-service-report-2022.pdf> (“To capture feedback from the agency's external customers, the Railroad Commission features a link on its website homepage to an online Customer Service Survey. The survey may be submitted anonymously, or the constituent may include contact information for follow up action by the Railroad Commission.”)

¹² For example, Texas Hazard Communication Act protects only employees taking certain actions under that Act. *See* Tex. Health & Safety Code, Chptr. 502. The Texas Whistleblower Act only protects public employees. *See* Tex. Govt. Code, Chptr. 554. And OSHA's Whistleblower Protection Program enforces the whistleblower provisions of only certain federal statutes. *See* OSHA. “Statutes.” <https://www.whistleblowers.gov/statutes>

¹³ *See* Proposed § 13.61(n) (CNG rules) and Proposed § 14.2014(i) (LNG rules).

Respectfully,

A handwritten signature in black ink, appearing to read "Claire Krebs". The signature is fluid and cursive, with a long horizontal stroke at the end.

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Exhibit 1



BMJ. 2000 Mar 18; 320(7237): 759–763.

PMCID: PMC1117768

doi: [10.1136/bmj.320.7237.759](https://doi.org/10.1136/bmj.320.7237.759)

PMID: [10720361](https://pubmed.ncbi.nlm.nih.gov/10720361/)

Reporting and preventing medical mishaps: lessons from non-medical near miss reporting systems

[Paul Barach](#), clinical fellow and [Stephen D Small](#), assistant anaesthetist

Reducing mishaps from medical management is central to efforts to improve quality and lower costs in health care. Nearly 100 000 patients are estimated to die preventable deaths annually in hospitals in the United States, with many more incurring injuries at an annual cost of \$9 billion. Underreporting of adverse events is estimated to range from 50%–96% annually.^{1–3} This annual toll exceeds the combined number of deaths and injuries from motor and air crashes, suicides, falls, poisonings, and drownings.⁴ Many stakeholders in health care have begun to work together to resolve the moral, scientific, legal, and practical dilemmas of medical mishaps. To achieve this goal, an environment fostering a rich reporting culture must be created to capture accurate and detailed data about nuances of care.

Outcomes in complex work depend on the integration of individual, team, technical, and organisational factors.^{5,6} A continuum of cascade effects exists from apparently trivial incidents to near misses and full blown adverse events.^{7,8} Consequently, the same patterns of causes of failure and their relations precede both adverse events and near misses. Only the presence or absence of recovery mechanisms determines the actual outcome.⁹ The National Research Council defines a safety “incident” as an event that, under slightly different circumstances, could have been an accident.¹⁰ Focusing on data for near misses may add noticeably more value to quality improvement than a sole focus on adverse events.

Schemes for reporting near misses, “close calls,” or sentinel (“warning”) events have been institutionalised in aviation,^{w1 w2} nuclear power technology,^{w3 w4} petrochemical processing, steel^{w5} production,^{w6} military operations, and air transportation.^{w7–w11} In health care, efforts are now being made to create incident reporting systems for medical near misses^{8,11–15} to supplement the limited data available from mandatory reporting systems focused on preventable deaths and serious injuries.

There are, however, powerful disincentives to reporting.^{16–18} Management attitudes and institutional climate can greatly influence the success or failure of reporting efforts.¹⁹ Reason identifies four critical elements of an effective safety culture—that is, a reporting, just, flexible, and learning culture.²⁰ Can this model be validated in health care? Given the lack of a review that addresses these questions, we report our preliminary findings of a study of incident reporting systems for near misses in non-medical domains.

Summary points

- Research studies have validated an epidemic of grossly underreported, preventable injuries due to medical management
- Recent policy documents have placed high priority on improving incident reporting as the first step in addressing patient injuries, and have called for translation of lessons from other industries
- Complex non-medical industries have evolved incident reporting systems that focus on near misses, provide incentives for voluntary reporting, ensure confidentiality while bolstering accountability, and emphasise perspectives of systems in data collection, analysis, and improvement
- Reporting of near misses offers numerous benefits over adverse events: greater frequency allowing quantitative analysis; fewer barriers to data collection; limited liability; and recovery patterns that can be captured, studied, and used for improvement
- Education and engagement of all stakeholders of health care and negotiation of their conflicting goals will be necessary to change the balance of barrier incentives in favour of implementing reporting systems



Methods

Our analysis comes from three main sources: a literature search to identify incident reporting systems and related research; a compi-

lation of nomenclature and classification of key features of select incident reporting systems; and interviews with directors of reporting systems and experts to explore the design of systems, output, and operational aspects.

Firstly, we searched computerised bibliographic databases for 1966-99, including Medline, ABI Inform, Psychlit, Social Science Citation Index, and the internet, for citations by keywords: incidents, accidents, human errors, near miss, risk, safety, quality assurance, and medical audit. Secondly, we hand searched the most relevant journals, studies in abstract form, dissertations, theses, and book chapters. We reviewed the references of each citation to identify additional descriptions of incident reporting systems in three non-medical domains. Thirdly, experts helped identify reports and issues missing from public citation lists. Definitions of key terms were extracted from reports of incident reporting systems.

The research built on interviews guided by a semistructured standardised questionnaire (see appendix 1 on website) with system directors and designers. The experts were identified from the literature search and interviews with other experts and included consultants concerned with safety monitoring systems in academia, industry, government, and the military.

Results

The box lists 12 of the 25 non-medical incident reporting systems we reviewed. Definitions were assembled from the literature of the commonest terms used to describe adverse events. With few exceptions, the existing studies each report data from different populations, and they often differ in the way they define, count, and track adverse events. We found a large variation in nomenclature with no fixed and universally accepted definitions (see table A on website). Experts commented on the importance of accepted definitions to focus priorities, data collection, research, and impact of changes in the systems.

Reporting systems for non-medical events

Aviation

- Aviation safety reporting system (ASRS)
- Aviation safety airways program (ASAP)
- Air Altitude Awareness Program
- Canadian aviation safety reporting system (CASRS)
- British Airways safety information system (BASIS) Air safety report (ASR) Confidential human factors reporting program (CHFRP) Special event search and master analysis (SESMA)
- Human factors failure analysis classification system (HFACS)

NASA

- Safety reporting system

Petrochemical processing, steel production

- Prevention and recovery information system for monitoring and analysis (PRISMA)

Nuclear (nuclear power and radiopharmaceutical industries)

- Licensing event reports (LER) Human performance information systems (HPIS) Human factors information system (HFIS)
- Nuclear Regulatory Commission allegations systems process (NRCAS)
- Diagnostic misadministration reports—regulatory information distribution system (RIDS)

We collected numerous structural characteristics about incident reporting systems for non-medical events (table 1). Seven of the 12 systems were mandated and implemented by the federal government, with voluntary participation. Ten systems were confidential, the other two anonymous. All stimulated elaboration by narrative. (The aviation safety reporting system has saved all of its 500 000 reports in their entirety.) Most offered feedback to their respective communities. Some offered legal immunity to reporters as long as data were submitted promptly (up to 10 days after the event for the aviation safety reporting system; see appendix 2 on website).



Table 1

Non-medical incident reporting systems

Reporting system	Ownership	Regulatory	Mandatory	Voluntary	Anonymous	Confidential	Narrative	Immunity	Threshold	Feedback
Aviation safety reporting system ^{w12}	Federal funded, administered by NASA	Yes	No	Yes	After filed	Yes	Yes	Yes	All non-accidents	Yes (Callb)
Aviation safety airways program ^{w13}	American Airlines	No	No	yes	No	Yes	Yes	No	All non-crashes	Yes
Airline Pilots Association ^{w14}	FAA in with private pilot association	No	No	Yes	No	Yes	Yes	No	All incidents	Yes
British Airways safety information system:										
Air safety report ^{w20}	British Airways	No	Yes	No	No	Yes	Yes	No	Safety related events	Yes (Flywi
Confidential human factors reporting program ^{w15}	British Airways	No	No	Yes	No	Yes	No but can expand	No	Human factor data	Yes
Special event search and master analysis ^{w16}	British Airways	Yes	Yes	No	Yes	Yes	N/A	Yes	Monitors flight data recorders	Yes
Human factors failure analysis classification system ^{w17}	US navy and US marines	Yes	Yes	No	No	No	Yes	No	All crashes	Yes
NASA ^{w18}	Federal	Yes	Yes	No	No	Yes	Yes	No	All safety events	Yes
Prevention and recovery information system for monitoring and analysis ^{w19}	Institutional	No	No	Yes	Yes	Yes	Yes	No	Accidents and near misses	Yes

We reduced these elements to several common threads characterising near miss reporting (box). Finally, we analysed the mix of barriers and incentives that ultimately govern the success of incident reporting systems (table 2).

Common conflicts in near miss reporting systems, with examples

- *Sacrificing accountability for information*—Negotiating moral hazards in choosing between good of society compared with needs of individuals
- *Near miss data compared with accident data*—Near miss data plentiful, minimises hindsight bias, proactive, less costly, no indemnity
- *A change in focus from errors and adverse events to recovery processes*—Recovery equals resilience; emphasis on successful recovery, which offers learning opportunity
- *Trade offs between large aggregate national databases and regional systems*—National offers longer denominators, capture of rare events; regional offers potentially more specific feedback and local effectiveness
- *Finding right mix of barriers and incentives*—Supporting needs of all stakeholders; ecological model
- *Safety has up front, direct costs; payback is indirect*—Spending “hard” money to save larger sums and reduce quality waste



- *Safety and respect for reporters as well as patients*—A just culture that acknowledges pervasiveness of hindsight bias and balances accountability needs of society
- *The need for continuous timely feedback that reporters find relevant; changing bureaucratic culture*—Critical to sustain effort of ongoing reporting

Table 2

Barriers and incentives to reporting

	Individual	Organisational	Society
Legal			
Barrier	Fear of reprisals, lack of trust	Fear of litigation, costs, sanctions undermine trust, bad publicity	Legal impediments to peer review, confidentiality, and multi-institutional databases
Incentive	Provide confidentiality and immunity	Provide confidentiality and immunity	Ensure accountability, enforce reporting statutes
Cultural (values, attitudes, beliefs)			
Barriers	Dependent on profession, code of silence, fear of colleagues in trouble, scepticism, extra work	Dependent on organisation, pathological, bureaucratic, generative cultures, ²⁶ don't want to know	Wide public trend towards disclosure, lack of trust owing to highly publicised medical errors, concerns that professions are too privileged, lack of education about systems effects
Incentive	Professional values: philanthropic, integrity, educational, cathartic	Become a leader in safety and quality; good for business	Enhanced community relations, build trust, improve health care, transparency
Regulatory			
Barrier	Exposure to malpractice, premiums will go up, investigation and potential censure, licence suspension and subsequent loss of income	It doesn't apply to us, we do our own internal analysis process, they can't understand our problems anyway	Need more effective regulations, resource intense
Incentive	Prophylactic, follow the rules	Fear of censure	Enhances regulatory trust, more public accountability
Financial			
Barrier	Loss of reputation, loss of job, extra work	Wasted resources, potential loss of revenue, patient care contracts, not cost effective	Cost more tax dollars to enforce, more bureaucracy
Incentive	Safety saves money	Publicity relations, improve reputation of quality and safety	Improves confidence in healthcare system

Comparison of near misses with adverse outcomes offers advantages: (a) near misses occur 3-300 times more often than adverse events, enabling quantitative analysis^{7,14,21}; (b) fewer barriers to data collection exist, allowing analysis of interrelations of small failures²²; (c) recovery strategies can be studied to enhance proactive interventions and to de-emphasise the culture of blame^{5,20,23}; and (d) hindsight bias is more effectively reduced.^{24,25}

The sum of barriers and incentives can be considered in terms of their impact on individuals, organisations, and society. Powerful disincentives to reporting depend on the organisational culture²⁶ and include extra work, scepticism, lack of trust, fear of reprisals, and lack of effectiveness of present reporting systems. Incentives to reporting included, in addition to confidentiality, that incident reporting systems should be prophylactic (provide some degree of immunity), philanthropic (reporters identify with injured patients and other healthcare providers that could benefit from data), and therapeutic (reporters learn from reporting about adverse events).²⁴ Incentives for society included accountability, transparency, enhanced community relations, and sustaining trust and confidence in the healthcare system.

Examination of successful non-medical domains indicates that the following factors are important in determining the quality of incident reports and the success of incident reporting systems: immunity (as far as practical); confidentiality or data de-identification (making data untraceable to caregivers, patients, institutions, time); independent outsourcing of report collection and analysis by

peer experts; rapid meaningful feedback to reporters and all interested parties; ease of reporting; and sustained leadership support.

Discussion

We aimed to provide an educational resource about incident reporting systems of near misses and related lessons on safety that are transferable from other industries. An organisation's interpretation of near misses influences how it collects information related to safety, and thus its capacity to prevent the recurrence of undesirable events.⁷ Tamuz emphasises that the use of broad ambiguous definitions of potential dangers aids discovery of risks that escape existing definitions¹⁸ (see table on website). Concessions to reporters ultimately lead to discoveries, which enable focused improvements in training, organisation, management of work, and the design of systems.

In medicine there is a long tradition of examining past practice to understand how things might have been done differently.²⁷ However, conferences on morbidity and mortality, grand rounds, and peer review all currently share the same shortcomings: a lack of human factors and thinking about systems; a narrow focus on individual performance to the exclusion of contributory team and larger social issues; hindsight bias; a tendency to search for errors as opposed to the myriad causes of error induction; and a lack of multidisciplinary integration into an organisation wide safety culture. The situation is akin to that of the field of injury control, where until there was focused public attention and demand for action on injuries and their prevention, injury remained a neglected health problem.²⁸ Only recently, however, have the quality and patient safety movements brought this mindset to bear on all healthcare services.³

Near miss reporting

We defined a near miss as any event that could have had adverse consequences but did not and was indistinguishable from fully fledged adverse events in all but outcome.²³ Reporting systems are thought to have contributed importantly to low accident rates in industries with huge catastrophic potential by enabling managers to take a proactive, preventive approach.^{13,19} Finally, near misses offer powerful reminders of system hazards and retard the process of forgetting to be afraid.⁷

Aviation reporting systems

Investigation into public accidents and confidential near miss analyses have been complementary in the successful effort to improve air safety.²⁴ After three decades, over 500 000 confidential near miss reports (currently over 30 000 yearly reports) have been logged by the aviation safety reporting system. Eligibility for limited immunity for non-criminal offences is a powerful incentive to report. Cracks in the framework of trust among stakeholders in aviation have been associated with notable decreases in reporting.¹⁸

Risk management in aviation illustrates how organisations cooperate, by capturing near miss information to augment the sparse history of crashes and injuries.²⁰ The decades long aviation effort to improve safety through system monitoring and feedback holds many important lessons for health care. Data from incident reporting systems on near misses have been effectively used to redesign aircraft, air traffic control systems, airports, and pilot training, and to reduce human error.¹⁸ An overarching lesson from 25 years of aviation experience is that methods for data collection and structures evolved to simultaneously maximise confidentiality, bidirectional information flow, and improvement in local processes.²⁹

Nuclear power reporting systems

In the highly charged political, financially accountable, and legal environment of the nuclear power industry, no penalties are associated with reporting non-consequential events, or "close calls," to the human performance enhancement system. The Three Mile Island disaster led to the emergence of norms throughout the industry. The dread of even a single potential catastrophe and its implications for all industry members outweighed any objection to a reporting system for near misses. Backed by communal pressure, local proactive safety methods became institutionalised and effective across the industry. The intensified approach to process improvement through a focus on safety led to financial gains through more efficient power production (fewer outages, shutdowns, and reduction of capacity).³⁰ As in aviation, there is a trend to capture the most nuanced information using a nested systems approach, with confidentiality and other protections increasing in proportion to the sensitivity, value, and difficulty of obtaining the desired information.

Reporting participation: mandatory versus voluntary

The analysis and evolution of reporting systems for non-medical near misses supports the contention that all reporting, to an extent, is voluntary. Clearly, both voluntary and mandatory approaches are required, each with its own benefits and limitations. Mature safety cultures are driven by forces external and internal to industries, and over time these forces nourish voluntarism and reporting of near misses. Furthermore, rapidly improving technology and information systems enable wider monitoring and public awareness

of adverse outcomes in open systems.³¹ These developments diminish distinctions between mandatory and voluntary behaviour.³²

Anonymous versus confidential provisions

The most obvious way of ensuring confidentiality of the data and reporter is to have the reports filed anonymously. For example, excerpts from reports to the aviation safety reporting system are published anonymously in a weekly newsletter, *Callback*, with candid accounts of actions contributing to dangerous situations²⁰ (see appendix 3 on website). Reports in numerous medical incident reporting systems travel only one way, anonymously.^{11,32,33,34}

O'Leary and Chappell point out, however, that anonymity is not always possible or desirable.³⁵ Analysts cannot contact reporters for more information; anonymous reports may be unreliable; and, in some situations, it is difficult to guarantee anonymity. Anonymity may also be criticised for its threat to accountability and transparency, both at variance with the ethics of professionalism.³⁶ It may, however, be important to provide anonymity early in the evolution of an incident reporting system, at least until trust is built and reporters see practical results.

Medical reporting systems

Health care has lagged behind other industries in implementing reporting systems and other initiatives related to safety.^{1,3,20} In the past five years, however, there has been a concerted effort in this direction. Studies in anaesthesia,^{11 w5 w24 w25} emergency care,¹² intensive care,^{32 w26 w27} transfusion medicine,¹⁵ cytology,^{w30} occupational and industrial medicine,^{w31 w32} cardiac surgery,^{w33} pharmacy,^{w34} and nursing^{w35}; the Veterans Administration near miss incident reporting system^{w36}; and in medicine research into human factors^{6,20 w9 w10} represent a critical mass of safety research.

A recent report from the Institute of Medicine, *To Err is Human*, strongly recommends complementary mandatory incident reporting systems and voluntary near miss reporting systems in health care.³ Experts in non-medical domains are quick to share anecdotes of dangers controlled by information from incident reporting systems. Many directors of reporting systems whom we interviewed believe that the debriefing process involved in confidential reporting of an incident brings closure, adds to long term recall, and supports behavioural change. The benefits of incident reporting systems in health care will be defined by a combination of: longitudinal observational studies of liability and injuries, ethnographic case studies, complex economic analyses, and strong face validity.

The barrier analysis

How can we transform the current culture of blame and resistance to one of learning and increasing safety? Understanding the balance of barriers and incentives to reporting is the first step (table 2). It will be essential to introduce norms that inculcate a learning, non-punitive safety reporting culture in professional schools and graduate training programmes, with support from consumers, patient advocacy groups, regulators, and accreditors. Some trial and error learning will be necessary. Legal protection for reporters will need to be reinforced, as it has as been in Australia and New Zealand, where incident reporting systems have been successful in gaining acceptance and credibility.³⁷

Cost benefit analysis

Many high risk fields such as nuclear power technology, aviation, and petrochemical processing have shown that implementing incident reporting systems for near misses are essential because they benefit their organisations more than they cost.^{7,30,38 w23} The system developed for petrochemical processing uses seven quality indicators to assess the effectiveness of reporting systems but highlights the fairness and the cost effectiveness. Directors of systems we interviewed believe that these systems not only reduce quality waste but are cost effective.³⁹ This is similar to the worker safety climate, where companies that have had to embrace the safety rules of the occupational safety health administration have discovered the profit of a healthy workforce.⁴⁰

Evidence based medicine and improvement in outcomes are accelerating the translation of lessons learned in other domains over the past decades.⁴¹ Studies of incident reporting systems for non-medical near misses hold promise for extending this trend and catalysing a shift in the healthcare culture from a punitive to a collaborative mindset that seeks to identify the underlying system failures.⁴²

Conclusions

Non-punitive, protected, voluntary incident reporting systems in high risk non-medical domains have grown to produce large amounts of essential process information unobtainable by other means. Non-medical incident reporting systems have evolved over the past three decades to emphasise near misses, in addition to adverse events, to encourage confidentiality over anonymity, and to

move beyond traditional linear thinking about human error, to analyses of multiple causation at the level of systems.

For healthcare reporting systems there must be incentives to promote voluntary reporting—completely, confidentially, and objectively. Reporting should be the right, easy, and safe policy for healthcare professionals. To maximise the usefulness of incident reporting systems there will be a need to balance accountability, system transparency, and protections for reporters. To ease the implementation of incident reporting systems, the community must be involved in system oversight, support, and advocacy. The top priority must be to design systems geared to preventing, detecting, and minimising effects of undesirable combinations of design, performance, and circumstance. Experience with non-medical incident reporting systems in aviation, nuclear power technology, and petrochemical processing, offer lessons applicable to the design of safety reporting systems in health care.

Supplementary Material

[extra: Definitions, extra references and appendices]

[Click here to view.](#)

Acknowledgments

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Footnotes

Competing interests: None declared.

website extra: Definitions, extra references, and appendices appear on the BMJ's website www.bmj.com

References

1. Leape LL. Error in medicine. *JAMA*. 1994;272:1151–1157. [[Google Scholar](#)]
2. Cullen D, Bates W, Small S, Cooper JB, Nemeskal AR, Leape LL, et al. The incident reporting system does not detect adverse drug events: A problem in quality assurance. *Joint Commission Journal on Quality Improvement*. 1995;21:541–548. [[PubMed](#)] [[Google Scholar](#)]
3. Institute of Medicine. *To err is human: building a safety health system*. Washington, DC: National Academy Press; 1999. [[Google Scholar](#)]
4. Baker SP, O'Neill B, Ginsburg M, Guohua L. *The injury fact book*. 2nd ed. New York: Oxford University Press; 1992. [[Google Scholar](#)]
5. Vincent C, Ennis M, Audley RJ. *Medical accidents*. Oxford: Oxford University Press; 1993. [[Google Scholar](#)]
6. Bogner MS. *Human error in medicine*. Hillsdale, NJ: Erlbaum; 1994. [[Google Scholar](#)]
7. March JG, Sproull LS, Tamuz M. Learning from samples of one or fewer. *Organ Sci*. 1991;2:1–3. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
8. Gambino R, Mallon O. Near misses—an untapped database to find root causes. *Lab Report*. 1991;13:41–44. [[Google Scholar](#)]
9. Van der Schaff TW. Development of a near miss management system at a chemical process plant. In: Van der Schaff TW, Hale AR, Lucas DA, editors. *Near miss reporting as a safety tool*. Oxford: Butterworth-Heinemann; 1991. [[Google Scholar](#)]
10. National Research Council, Assembly of Engineering, Committee on Flight Airworthiness Certification Procedures. *Improving aircraft safety: FAA certification of commercial passenger aircraft*. Washington, DC: National Academy of Sciences; 1980. [[Google Scholar](#)]
11. Runciman WB, Sellen A, Webb RK, Barker L. Errors, incidents and accidents in anesthetic practice. *Anesth Intensive Care*. 1993;21:506–519. [[PubMed](#)] [[Google Scholar](#)]
12. Shea CE. Manchester: University of Manchester; 1996. The organization of work in a complex and dynamic environment: the accident and emergency department [dissertation] [[Google Scholar](#)]
13. Van der Schaff TW. *Proceedings of enhancing patient safety and reducing errors in health care*. Rancho Mirage, CA: Annenberg Center; 1998. Hospital-wide versus nationwide event reporting: an empirical framework based on single-department studies in hospitals; pp. 190–192. [[Google Scholar](#)]
14. Battles JB, Kaplan HS, Van der Schaff TW, Shea CE. The attributes of medical event reporting systems. *Arch Pathol Lab Med*. 1998;122:132–138. [[Google Scholar](#)]
15. Kaplan HS, Battles JB, Van der Schaff TW, Shea CE, Mercer SQ. Identification and classification of the causes of events in transfusion medicine. *Transfusion*.



1998;38:1071–1081. [[PubMed](#)] [[Google Scholar](#)]

16. Vincent C. Reasons for not reporting adverse events: an empirical study. *J Eval Clin Pract*. 1999;5:1–9. [[PubMed](#)] [[Google Scholar](#)]

17. Wu A, Folkman S, McPhee S, Lo B. Do house officers learn from their mistakes? *JAMA*. 1991;265:2089–2094. [[PubMed](#)] [[Google Scholar](#)]

18. Tamuz M. Developing organizational safety information systems for monitoring potential dangers. In: Apostolokis GE, Wu JS, editors. *Proceedings of physical sciences annual meeting II*. San Diego, CA: Galen Press; 1994. [[Google Scholar](#)]

19. Roberts K. Research in nearly failure-free, high reliability organizations: having the bubble. *IEEE Trans Eng Manage*. 1989;36:132–139. [[Google Scholar](#)]

20. Reason J. *Managing the risks of organisational accidents*. Aldershot: Ashgate; 1997. [[Google Scholar](#)]

21. Petersen LA, Orav JA, Teich JM, O'Neil AC, Brennan TA. Using a computerized sign-out program to improve continuity of inpatient care and prevent adverse events. *Joint Commission J Qual Improvement*. 1998;24:77–87. [[PubMed](#)] [[Google Scholar](#)]

22. Kletz T. *Learning from accidents*. 2nd ed. Oxford: Butterworth-Heinemann; 1994. [[Google Scholar](#)]

23. Barach P, Small SD, Kaplan H. Designing a confidential safety reporting system: in depth review of thirty major medical incident reporting systems, and near-miss safety reporting systems in the nuclear, aviation, and petrochemical industries. *Anesthesiology*. 1999;91:A1209. [[Google Scholar](#)]

24. Billings CE. Some hopes and concerns regarding medical event reporting systems: lessons from the NASA aviation safety reporting system (ASRS) *Arch Pathol Lab Med*. 1998;121:214–215. [[PubMed](#)] [[Google Scholar](#)]

25. Fischhoff B. Hindsight does not equal foresight: the effect of outcome knowledge on judgement under uncertainty. *J Exp Psych: Human Perception Performance*. 1975;1:288–299. [[Google Scholar](#)]

26. Westrum R. Cultures with requisite imagination. In: Wise J, Hopkin D, Stager P, editors. *Verification and validation of complex systems: human factors issues*. Berlin: Springer-Verlag; 1992. pp. 401–416. [[Google Scholar](#)]

27. Bosk C. *Forgive and remember, managing medical failure*. Chicago: University of Chicago Press; 1979. [[Google Scholar](#)]

28. Haddon W. Advances in the epidemiology of injuries as a basis for public policy. *Public Health Rep*. 1980;95:411–421. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

29. Pidgeon NF. Safety culture and risk management in organizations. *J Cross-Cult Psychol*. 1996;22:129–140. [[Google Scholar](#)]

30. Lucas DA. *Human reliability in nuclear power*. London: IBC Technical Services; 1987. Human performance data collection in industrial systems. [[Google Scholar](#)]

31. Evans RS, Pestonik SL, Classen DC. A computerized-assisted management program for antibiotics and other anti-infective agents. *N Engl J Med*. 1998;338:232–238. [[PubMed](#)] [[Google Scholar](#)]

32. Beckman U, Baldwin I, Hart GK, Runciman WB, et al. The Australian incident monitoring study in intensive care: AIMS-ICU. The development and evaluation of a voluntary anonymous incident reporting system. *Anesthesia and Intensive Care*. 1996;24:315–326. [[Google Scholar](#)]

33. Geiduschek JM. Registry offers insight on preventing cardiac arrests in children. *ASA Newsletter*. 1998;62(6):16–18. [[Google Scholar](#)]

34. Staender S. Human recoveries and the management of critical incidents in anesthesiology. Annenberg, Rancho Mirage, Nov 8-10, CA. www.medana.unibas.cirs; accessed 25 November 1999.

35. O'Leary M, Chappell SL. Confidential incident reporting systems create vital awareness of safety problems. *ICAO J*. 1996;51:11–13. [[PubMed](#)] [[Google Scholar](#)]

36. Emanuel L. In reply. *JAMA*. 1997;278:21–22. (Reply to editorial by L Emmanuel (*JAMA* 1997; 278:21) and article by J H McArthur and F D Moore (*JAMA* 1997; 277:985-9).) [[Google Scholar](#)]

37. Runciman W. *Iatrogenic injury in Australia*. Adelaide: Australian Patient Safety Foundation; 2000. [[Google Scholar](#)]

38. Corcoran WR. *The phoenix handbook: the ultimate event evaluation manual for finding profit improvement in adverse events*. Windsor, CT: Nuclear Safety Review Concepts; 1998. [[Google Scholar](#)]

39. Langley G, Nolan K, Nolan T, Norman C, Provost L, editors. *The improvement guide*. San Francisco: Jossey-Bass; 1996. [[Google Scholar](#)]

40. Robertson L. *Injury epidemiology, research and control strategies*. 2nd ed. Oxford: Oxford University Press; 1998. [[Google Scholar](#)]

41. Berwick DM. Continuous improvement as an ideal in health care. *N Engl J Med*. 1989;370:53–56. [[PubMed](#)] [[Google Scholar](#)]

42. Millenson M. *Demanding medical excellence, doctors and accountability in the information age*. Chicago: University of Chicago; 1997. [[Google Scholar](#)]



Re: Comments on Proposed Rule Amendments to Chapters 13 and 14 (regarding Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG), respectively) (Rule Title: “Amend re: SB 1582 (2021) and other clarifications”)

Exhibit 2

MASTERUPPSATS I KOGNITIONSVETENSKAP

Barriers to Near-miss Reporting in the Maritime Domain

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2010-12-08

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Abstract

The catastrophic accident of the ferry Herald of Free Enterprise made it clear that the development of accident prevention in the maritime domain must not only rely on negative events but rather on proactive measures.

Near-miss reporting is becoming widespread as a proactive tool for accident prevention in various domains. This thesis aims to examine and identify barriers to near-miss reporting through studying the national reporting system INSJÖ and local company specific systems in the Swedish maritime domain.

Interviews with representatives from Swedish shipping companies (designated persons responsible for safety work in each company and officers responsible for the reporting at sea) were conducted as a means of data collection. Based on the data two separate analyses were made; one in a naturalistic fashion and one using a framework of barriers and incentives derived from various social technical domains in which near-miss reporting has been institutionalized.

The results of the two analyses highlight differences regarding how and with whom information should be shared. The therapeutic factor, to teach and learn from others was emphasized as important by the majority of the interviewees. Further, potential external influences, issues concerning anonymity and the risk of rehearsed benefits of reporting are also made visible. Finally, critique against the accident-ratio models, that introduced the near-miss concept, is presented and it is argued that these models might be too simplistic to explain why accidents occur.

It is concluded that, in order to create effective reporting systems and to decrease the risk of creating a disparity between rehearsed benefits and how the system is used in reality, it is important to give the personnel ownership of their own reporting system and the knowledge of how and why to use it. Nevertheless, near-miss reporting might be used as a powerful tool and incentive for proactive work and accident prevention.

Table of Contents

1 Introduction.....	1
1.1 Outline of this thesis.....	1
2 Background.....	3
2.1 The Maritime Domain	3
2.2 Definitions of accident, incident and near-miss.....	4
2.3 Reporting systems	8
3 Aim.....	17
3.1 Research question	17
3.2 Boundaries of the study	17
3.3 Scope of this thesis.....	17
4 Method	18
4.1 Interviews as method	18
4.2 Data collection.....	19
4.3 Data Analysis	20
4.4 Validity, reliability and objectivity.....	23
5 Analysis.....	26
5.1 Analysis 1	26
5.2 Reporting officers onboard	26
5.3 DP personnel	31
5.4 Discussion - analysis 1	39
5.5 Analysis 2 – Barriers and incentives to reporting.....	43
5.6 Discussion - analysis 2	50
6 Discussion	52
6.1 General discussion.....	52
6.2 Theoretical Framework	53
6.3 Methodology	55
6.4 Further research.....	58
7 Conclusions.....	60
References.....	61
Appendix A - Interview template	64

2.3 Reporting systems

The use of reporting schemes is becoming widespread in domains such as the chemical process industry, transportation and health care (Schaaf & Kanse, 2003). There are several studies on incident reporting and near-misses in these domains (Jones et al., 1999; Lawton & Parker, 2002; Evans et al., 2004; Elder et al. 2006; Sanne, 2008; Cambraia et al., 2010; Barach & Small, 2000).

Johnson (2003) divides reporting systems into three main categories; open, confidential and anonymous. Open systems provide all details concerning the report, in confidential systems are identification only available to alleged responsible parties, whereas anonymous systems de-identify and often to some degree de-contextualize stored reports. Johnson (2003) furthermore ascribes levels, in terms of local, national or international usage, to reporting systems. These characteristics imply different strengths and weaknesses (Johnson, 2003). An open system risks being limited in its use if the users are afraid of punishment and unwelcome exposure in the media. A benefit with an open system is that an investigator has all collected information available. A confidential system builds on trust, in the sense of that the 'responsible parties' that have access to all information do their job properly. Confidential computer-based online reporting systems might create new security issues and feel less trustful to people not used to computer-based systems. Anonymous systems might give the reporter more confidence in their submission, though an apparent problem might be the risk of decline in quality when the accountability of the submitted reports is removed. Johnson (2003) mentions the paradox of anonymity in reporting systems. He presents an example from the aviation domain where many people emphasize the importance of anonymity at the same time as they acknowledge that full anonymity requires de-contextualized reports. The vital information that could benefit an accident investigation might at the same time be part of the context and pose as identification. The removal of this information could render a report much less useful. Johnson (2003) also mentions that local reporting systems might tackle this problem better due to a smaller scope and more inherent local context to that can be used in an investigation.

Critique against anonymity in reporting systems is also presented by Barach and Small (2000), due to the potential threat to accountability and transparency. Barach and Small (2000) note that full anonymity risks being counterproductive in the sense of that you cannot contact reporters to get more and in some cases perhaps critical information. They also note that there is a risk that the reliability might be lower when accountability is withdrawn.

The following sections will present reporting systems in the maritime domain, studies showing barriers to reporting in general and studies acknowledging barriers that are found specifically in near-miss reporting. A cross-domain overview of near-miss reporting is of relevance to learn more about and perhaps find similarities and differences to near-miss reporting and its potential barriers within the maritime domain.

2.3.1 Reporting systems in the maritime domain

Reporting accidents and near-misses at sea is mandatory and bound by legislation for Swedish merchant and fishing vessels. This compulsoriness aims at supporting the authority when deciding whether legal action should be taken as well as to help the responsible authority to prevent further accidents (Transportstyrelsen, 2009). It is each ship's master or ship owner that is responsible to report these events (Transportstyrelsen, 2009). Accidents and near-misses are reported on the form

“Report on Accidents at Sea” that is sent to the Maritime Department of the STA by mail (Transportstyrelsen, 2009). These types of reports are common in most professional industries (Zachau, 2008) and are often stored in computerized databases, such as the Swedish maritime database SjöOlycksSystemet (SOS) - which will be presented later.

Reporting systems can be mandatory by law as well as non-mandatory to partake in (Barach & Small, 2000). Systems that are mandatory often have a larger ratio of accidents whereas non-mandatory systems often offer confidentiality and strive to stimulate near-miss reporting, generating reports of events that otherwise might get unnoticed during accident prevention work (Zachau, 2008).

One of the arguments for near-miss reporting is the ‘iceberg’ shaped ratio (Jones, Kirchsteiger and Bjerke, 1999; Heinrich et al., 1980; Bird & Loftus, 1976) - see [2.2](#) for figures and further definitions - which implies that near-misses at the base stand in direct connection to the amount of incidents and accidents further up the iceberg. Other benefits of near-miss reporting include a more proactive approach to safety work (Barach & Small, 2000).

The IMO's guidance on near-miss reporting (2008) states that every company should investigate near-misses as a regulatory requirement, as mentioned in the ISM code - and further define near-misses as a sequence of events and/or conditions that could have, but did not result in loss (such as human injury, environmental damage or negative business contact). The IMO (2008) further states that to gain full benefit of near-miss reporting both seafarers and onshore employees need to understand the definition of near-misses.

The IMO (2008) also mentions explicitly that companies must be clear about how reporters and the persons involved will be treated when a report is made and in which circumstances the reporter and those involved will be guaranteed a non-punitive outcome and confidentiality. Each company should strive to create a just culture that is built on both trust and responsibilities, and where sharing or reporting essential safety-related information is made without fear of retribution.

One example of a confidential reporting program is for aviation and the maritime in the United Kingdom (UK) the Confidential Hazardous / Human Factors Incident Reporting Programme (CHIRP). The reporting system's maritime program has been operative since 2003 with the aim to contribute to the enhancement of maritime safety in the UK, by providing an independent and confidential, though not anonymous, reporting system for employees and associates within the maritime industries (CHIRP, 2007). Reporting to CHIRP can be done both online through the website or by sending an e-mail and through ordinary mail or by telephone / fax (CHIRP, 2007).

There are other maritime reporting systems, such as The Mariners' Alerting and Reporting Scheme, MARS. MARS is a confidential reporting system, with the possibility to be anonymous, run by The Nautical Institute in London. The Nautical Institute functions as an international organization and forum for qualified seafarers and others with an interest in nautical matters (MARS, 2008). The objectives of the reporting system are to allow reporters to report accidents and near-misses without being afraid of litigation and to exchange information so that valuable lessons may be learnt by others; which might help to prevent similar accidents in the future (MARS, 2008). The reporter, often a member of the Nautical Institute is guaranteed anonymity for himself as well as for the ship. Reports are sent online through the website or printed and sent through ordinary mail. The reports are published on the Nautical Institute's website as well as in their monthly journal (Zachau, 2008).

In Sweden, SjöolycksSystemet (SOS) is a database for accidents and near-misses aimed at the Swedish merchant fleet. SOS was at the time of Zachau's (2008) study operated by the Swedish Maritime Safety Inspectorate (Zachau, 2008). The reports are sent in by ship captains or companies as legislation demands (Zachau, 2008), though Zachau (2008) noted that only 7-8 percent of the total reports are categorized as near-misses. The information in the database is public. Even though it does not contain the names of any persons, other information like ship names, positions and date make identification possible (Zachau, 2008).

According to Zachau (2008), the above mentioned low numbers of reported near-misses led to an agreement among the Swedish Maritime Safety Inspectorate (Part of the Swedish Transport Agency since 2009) together with ship owners, employees and the maritime industry to create the autonomous, confidential and anonymous database INSJÖ, with the goal to remedy the inaccurate ratio between accidents and near-misses. Section [2.3.1](#) has introduced reporting systems in the maritime domain, both systems primarily at work in Sweden and systems that are used internationally. The presented reporting systems range from open to anonymous and are aimed for both accidents and near-misses. Section [2.3.2](#) will present the reporting system INSJÖ in more detail.

2.3.2 INSJÖ

INSJÖ is an autonomous, confidential and voluntary reporting system with web-based reporting forms. Reports stored in the database can be retrieved directly online. The database is not open to the public and you need to login to view the reports (Zachau, 2008). INSJÖ's aim is to follow the ISM code, as adopted by the IMO, see [2.1.1](#).

Involved parties in the INSJÖ development are the Maritime Department of the Swedish Transport Agency (STA), the Swedish Shipowners' Association (SSA) and the Swedish Maritime Agency (SMA). The Merchant Marine Officers' Association, Swedish Ship Officers' Association, Swedish Seamen's Union and other concerned unions have also been involved in the project (INSJÖ, 2007).

INSJÖ contains roughly 2500 reports (INSJÖ, May 2010), with approximately 300 new reports added annually (Zachau, 2008). The essential content of the database are reports from companies, ships, safety committees and crews on board Swedish ships (INSJÖ, 2005).

The term near-accident is used in favor of the term near-miss in the INSJÖ database (INSJÖ, 2007), even though the properties of the first term coincide with the near-miss definitions in [2.2](#). For sake of coherence, the term near-miss will still be used in section.

The DPs for each shipping company have the possibility to forward the reports from their company to INSJÖ, and thus share knowledge of accidents, near-misses and non-conformities (non-conformities will not be presented further in this study) nationwide to all participants in the INSJÖ collaboration. It is not obligatory for shipping companies to do near-miss reporting through INSJÖ even though near-miss reporting in some form is strongly encouraged and closely tied to the DP role as it is assigned by legislature.

A report sent to INSJÖ is written by a reporter (in most cases the DP) on the basis of categorizations used in INSJÖ's reporting form, e.g. type of ship, type of event (accident, near-miss or non-conformity), event description, the cause of the event, the consequences of the event and measures

taken afterwards. All information regarding the event itself is written down in a free-text format. The independent company in charge of the database categorizes these answers in order to make the report searchable in the database. The DP gets feedback on his or her reports (originally sent in from a reporter on one of the shipping company's vessels), in the form of similar cases stored in the database. This feedback can be used to guide the DP when proper corrective actions are decided (INSJÖ, 2005).

This feedback process is shown in figure 1 below.

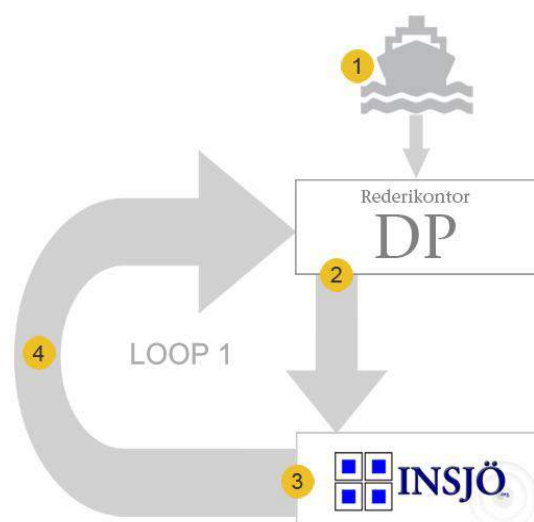


Figure 1. The feedback process in INSJÖ. (Copyright ICC, IPSO Classification & Control AB ICC, IPSO Classification & Control AB, Retrieved November 2009.)

Zachau (2008) did an analysis of INSJÖ and compared the voluntary INSJÖ database with the public, SOS database (SjöolycksSystemet) that does not provide anonymity and that cannot guarantee that legal actions will be excluded. Voluntary and confidential databases like INSJÖ should, according to several studies mentioned by Zachau (2008), contain a higher ratio of reported near-misses compared to incidents. He found that INSJÖ did not contain the expected ratio of near-misses in the database. The ideal relation would be 1:100, which would give more power to conduct such tasks as proactive safety work, due to a large amount of analyzable near-miss events, whereas INSJÖ had only a 50:50 relation. This is still a step in the right direction, according to Zachau (2008), if compared to SOS that contains far less near-miss reports in relation to the number of accidents. This most likely stems from the fact that accidents, by definition (see 2.2), often are easier to recognize, harder to ignore, due to their negative outcome, and obligatory to report. It is in contrast harder to always correctly identify and make sure that near-misses are reported in the same manner.

2.3.3 Near-miss reporting

Barach & Small (2000) mention several advantages using near-misses in reporting systems. They note that near-misses occur 3-300 times more often than negative events, such as incidents, which makes a quantitative and statistical analysis possible, this might help identify patterns in the data (Johnson, 2003). Barach and Small (2000) also note that the study of strategies and mechanism for making recoveries - that might determine whether the outcome will be negative or not - enhances proactive

means to hinder accidents. They furthermore mention that the post accident / incident hindsight bias – the inclination to rate a phenomenon as more predictable than it actually is - can be reduced when studying the interrelation between accidents and near-misses.

Jones et al. (1999) mention the ‘iceberg’ relation between the numbers of near-misses, minor incidents and major accidents as has been demonstrated in earlier studies (Heinrich et al., 1980; Bird & Loftus, 1976) and depicted by Heinrich et al. (1980) and Bird and Loftus (1976), see [2.2](#). Reducing near-misses at the ‘bottom’ of the iceberg will supposedly affect and reduce the amount of incidents and accidents further up.

Jones et al. (1999) point out that the actual amount of reported near-misses is far from satisfactory in many domains, and most likely not even near the actual amount or level of near-misses that occur in reality. This suggests that an increase of near-misses in different kind of incident reporting systems can and should be seen as a positive indicator of safety performance in the sense of that the near-miss reporting gets stimulated and helps to unveil occurrences of near-miss events that are not reported at present. Jones et al. (1999) present Norsk Hydro and their focus on near-miss reporting as an example where it was evident that the number of accidents lowered when the near-miss reporting went up. They suggest that the rate of near-miss reports is an important numerical indicator of industries’ safety awareness. The term safety awareness is not further explained or defined by the authors and will therefore not be elaborated upon in this study.

2.3.4 Barriers to Reporting

A collaborative hospital study (Evans, Berry, Smith, Esterman, Selim, O’Shaughnessy, & DeWit, 2004) showed that self-perceived barriers to incident reporting - near-misses included - for both doctors and nurses were lack of feedback and organizational factors relating to structures and processes for reporting (e.g. inadequate feedback on actions taken, long forms and insufficient time to report). Almost two thirds of all respondents in the study believed that the above-mentioned lack of feedback was the greatest deterrent to reporting.

Van der Schaaf & Kanse (2004) highlighted differences in perceived reasons for not reporting incidents in the chemical process industry. The management and safety staff did to some extent anticipate fear and shame as potential barriers to operators. They also anticipated that operators would view often experienced and common risks as something negligible to report, in the sense of that common occurring events would be viewed as ‘nothing new’, widely known by the personnel and without learning potential. Successful recoveries were also anticipated to be viewed as superfluous to report by the operators, because the situation would likely be seen as taken care of. To the surprise of management and safety staff the study showed a genuine difference between some of the anticipated barriers mentioned beforehand and the one brought up by participant operator. The operators de-emphasized fear and shame as barriers contrary to the beliefs of the management. The barriers mentioned the most concerned the fact that no remaining consequences were to be found, which made reporting non-valuable and insignificant. Other barriers were labeled as not applicable and referred to various reasons such as miscommunication and administration errors.

Elder, Graham, Brandth and Hickner (2007) studied barriers and motivators for what they present as error reporting (reporting of events that could lead to incidents or accidents) within the domain of

family medicine in the US. The term error reporting will not be further used or elaborated upon in this study. Common themes found during several focus groups were: 1) Burden of effort, 2) Clarity of request, 3) Perceived benefit and 4) Properties of the error.

The burden of effort in reporting referred mostly to lack of time to report and a risk of forgetting to file a report at all. The clarity of request referred to the difficulties to know what to report. Repetitive and frequent errors were found in this category as well as errors that were unlikely to recur. Other barriers in this category concerned what to write in the report and if it applied to a certain person's job to report a particular event. The benefit of reporting was not acknowledged or seen as a job requirement by some of the participants. Certain properties of an error also related to barriers; errors that were deemed as not serious and errors that were self-made were less reported.

Motivators to reporting were in most cases found in inverse of the barriers though more scarcely mentioned by the participant groups. Other common motivators mentioned involved receiving some sort of perceived benefit such as feedback or knowledge that lessons were made known to colleagues. Anonymity was also seen as a motivating factor in making reports.

In his study of the Swedish railroad domain, Sanne (2008) highlights how different accident etiologies and discrepancies between official policies and local practices can conflict in ways that hinder the official incident reporting process. Sanne (2008) describes that the reason for non-reporting in the railroad domain is due to different accident etiologies. Occupational and informal storytelling is the occupational norm, while the official incident-reporting scheme is not. Telling stories to teach and learn from each other can function as a way to address risk, though from a more narrow and local perspective; stories are shaped by the shared values and norms within the social context in which they are told, and the value of storytelling risk to be too limited in a larger organizational perspective. Sanne (2008) mentions how an awareness of these limitations could create insights in how change to a better incident-reporting climate could be accomplished and what kind of obstacles that has to be overcome. One of the most important conclusions from Sanne's (2008) fieldwork is that, in order to make incident-reporting work properly, employees must be given ownership of the incident reporting system, and know how and why to use it. Fear of disciplinary action must be addressed and a better focus on finding root causes, as often lacking in occupational storytelling, is important; as well as giving more feedback and education in the principles of incident-reporting systems within a more systemic perspective.

2.3.5 Barriers to near-miss reporting

Barriers relating to near-miss reporting are described in the IMO's *guidance of near-miss reporting* (2008). Common barriers mentioned are fear of being blamed, disciplined, embarrassed or found legally liable. Organizational barriers are also mentioned, such as unsupportive company management attitudes, insincerity about addressing safety issues and discouragement of the reporting of near-misses by demanding that seafarers conduct time consuming investigations in their own time. The IMO (2008) states that these barriers can be overcome by initiatives from the management. This can be achieved by encouragement of a just culture approach which covers near-miss reporting (IMO, 2008). The culture should be just in the sense of that the company gives people responsibility, earn their trust and promote that sharing sensitive information in most cases do not bring negative consequence to the people involved. The IMO (2008) describes the just culture as

featuring an atmosphere of responsible behavior and trust where people get encouraged to report important safety-related information without fear of reprisals. Even though a just culture is present in a company, the IMO (2008) emphasizes that a distinction between acceptable and unacceptable behavior must be upheld. They furthermore state that unacceptable behavior will not go unnoticed or be without the risk of facing consequences.

The just culture concept also includes supplying confidentiality to reporters when reporting near-misses, to ensure that enough resources are given to the investigation at hand and that near-miss reporting gets followed through with suggestions and recommendations for future conduct (IMO, 2008).

Barach and Small (2000) draw conclusions from domains (though not the maritime one) where reporting near-misses have been institutionalized to gain more insights to help to create similar schemes in health care, insights that might enhance the reporting and the prevention of medical mishaps. They list domains such as aviation, nuclear power technology, petrochemical processing, steel production and military operations to have these kinds of near miss reporting schemes. The authors list several barriers that were found in 12 non-medical incident reporting systems.

The authors divide different kinds of barriers (and incentives to those barriers) - found in the various studied domains - into three main categories: individual, organizational and societal; where each larger category could be further divided into four subcategories or aspects: Legal, cultural, regulatory and financial, see table 1 below.

Table 1. Barriers and incentives to reporting

	Individual	Organizational	Society
Legal			
Barrier	Fear of reprisals, lack of trust.	Fear of litigation, costs, sanctions, undermine trust, bad publicity	Legal impediments to peer review, confidentiality, and multi-institutional databases
Incentive	Provide confidentiality and immunity	Provide confidentiality and immunity	Ensure accountability, enforce reporting statuses

Cultural (values, attitudes, beliefs)			
Barrier	Dependent on profession, code of silence, fear of colleagues in trouble, skepticism, extra work	Dependent on organization, pathological, bureaucratic, generative cultures, don't want to know	Wide public trend towards disclosure, lack of trust owing to highly publicized medical errors, concerns that professions are too privileged, lack of education about system effects
Incentive	Professional values: philanthropic, integrity, educational, cathartic	Become a leader in safety and quality; good for business	Enhanced community relations, build trust, improve health care, transparency
Regulatory			
Barrier	Exposure to malpractice, premiums will go up, investigation and potential censure, license suspension and subsequent loss of income	It doesn't apply to us, we do our own internal analysis process, they can't understand our problems anyway	Need more effective regulations, resource intense
Incentive	Prophylactic, follow the rules	Fear of censure	Enhances regulatory trust, more public accountability
Financial			
Barrier	Loss of reputation, loss of job, extra work	Wasted resources, potential loss of revenue, patient care contracts, not cost effective	Cost more tax dollars to enforce, more bureaucracy
Incentive	Safety saves money	Publicity relations, improve reputation of quality and safety	Improves confidence in healthcare systems

Table 1 present barriers and incentives to reporting in 12 domains. Legal, cultural, regulatory and financial subcategories are viewed through their impact on the individual, the organization or the society

Barach and Small (2000) found that disincentives to reporting was the extra work needed, skepticism, lack of trust, fear of reprisals and lack of effectiveness of present reporting system. Incentives to report would be confidentiality, some degree of immunity, and that the reporting system should be philanthropic (that reporters identify with patients and other healthcare providers that benefit from the data), and therapeutic (in the sense of that reporters learn from reporting about adverse events). Barach and Small (2000) mention several important factors that determine the quality and success of incident reporting systems. These include having an independent outsourcing of the report collection, analyzing reports with help of peer experts, having sustained leadership support, making it easy to report and supplying rapid meaningful feedback to reporters and all interested parties.

Barach and Small (2000) highlight several changes or conflicts that can occur when taking the near-miss perspective. If the focus changes from errors and adverse events, the near-miss perspective might move the focus to resilience, in the sense of that successful recoveries from accidents are emphasized. There might also be tradeoffs between large aggregate databases and more regional systems. A national system might help to capture more rare events where more regional ones instead provide more specific and local feedback more efficiently.

Re: Comments on Proposed Rule Amendments to Chapters 13 and 14 (regarding Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG), respectively) (Rule Title: “Amend re: SB 1582 (2021) and other clarifications”)

Exhibit 3



Select Task Force on the Study of Harassment in the Workplace

Report of Co-Chairs **Chai R. Feldblum & Victoria A. Lipnic**

June 2016

Contents

PREFACE

EXECUTIVE SUMMARY

PART ONE: INTRODUCTION

PART TWO: WHAT WE KNOW ABOUT HARASSMENT IN THE WORKPLACE

A. REAL PEOPLE/REAL LIVES

B. THE PREVALENCE OF HARASSMENT IN THE WORKPLACE

C. EMPLOYEE RESPONSES TO HARASSMENT

D. THE BUSINESS CASE FOR STOPPING AND PREVENTING HARASSMENT

E. RISK FACTORS FOR HARASSMENT

PART THREE: PREVENTING HARASSMENT IN THE WORKPLACE

A. IT STARTS AT THE TOP

B. POLICIES AND PROCEDURES

C. ANTI-HARASSMENT COMPLIANCE TRAINING

D. WORKPLACE CIVILITY AND BYSTANDER INTERVENTION TRAINING

E. GETTING THE WORD OUT

F. IT'S ON US

PART FOUR: SUMMARY OF RECOMMENDATIONS

ACKNOWLEDGMENTS

APPENDIX A: ACTIVITIES OF THE SELECT TASK FORCE

APPENDIX B: CHECKLISTS FOR EMPLOYERS

APPENDIX C: CHART OF RISK FACTORS AND RESPONSES

PREFACE

Thirty years ago, the U.S. Supreme Court recognized claims for sexual harassment as a form of discrimination based on sex under Title VII of the Civil Rights Act of 1964. In the years that followed, courts have filled in the legal landscape even further.

Six years ago, when we came to EEOC as commissioners, we were struck by how many cases of sexual harassment EEOC continues to deal with every year. What was further striking to us were the number of complaints of harassment on every other basis protected under equal employment opportunity laws the Commission deals with today. We are deeply troubled by what we have seen during our tenure on the Commission.

With legal liability long ago established, with reputational harm from harassment well known, with an entire cottage industry of workplace compliance and training adopted and encouraged for 30 years, why does so much harassment persist and take place in so many of our workplaces? And, most important of all, what can be done to prevent it? After 30 years - is there something we've been missing?

As commissioners of an enforcement agency, we could have taken a cynical approach. We could have assumed that some people will always engage in harassment and that we cannot expect to control how people behave in increasingly diverse workplaces. That is especially so in an environment where every manner of rude, crude, or offensive material can be accessed and shared with others with a few strokes on a phone. We could have suggested that the Commission simply continue to do what it has done well for decades - investigate and settle charges, bring litigation, provide legal guidance, hear complaints from federal employees, and provide outreach and education.

We set cynicism to the side. We want to reboot workplace harassment prevention efforts.

Accordingly, we present this "*Report of the Co-Chairs of the EEOC Select Task Force on the Study of Harassment in the Workplace.*" We offer this report to our fellow commissioners, the EEOC community nationwide, our state partners, employers, employees and labor unions, and academics, foundations, and community leaders across the country. We present this report with a firm, and confirmed, belief that too many people in too many workplaces find themselves in unacceptably harassing situations when they are simply trying to do their jobs.

While we offer suggestions in this report for what EEOC can do to help prevent harassment, we caution that our agency is only one piece of the solution. Everyone in society must feel a stake in this effort. That is the only way we will achieve the goal of reducing the level of harassment in our workplaces to the lowest level possible.

This report, including the recommendations we set forth, could not have been prepared without the work of the Select Task Force on the Study of Harassment in the Workplace that was established by EEOC Chair Jenny Yang over a year ago. The Select Task Force consisted of a select group of outside experts impaneled to

In light of what we have learned in this area, we recommend the following:

- EEOC should work with the Bureau of Labor Statistics or the Census Bureau, and/or private partners, to develop and conduct a national poll to measure the prevalence of workplace harassment based on sex (including pregnancy, sexual orientation and gender identity), race, ethnicity/national origin, religion, age, disability, and genetic information over time.^[55]
- Academic researchers should compile baseline research on the prevalence of workplace harassment based on race, ethnicity/national origin, color, religion, age, disability, genetic information, sexual orientation, and gender identity.^[56]
- EEOC should confer with the Merit Systems Protection Board to determine whether it can repeat its study of harassment of federal employees and expand its survey to ask questions regarding harassment based on race, ethnicity/national origin, color, religion, age, disability, genetic information, sexual orientation, and gender identity in the federal government, and to disaggregate sexually-based harassment and gender-based harassment.
- EEOC should work within the structure established by the Office of Personnel Management to offer specific questions on workplace harassment in the Federal Employee Viewpoint Survey.

C. EMPLOYEE RESPONSES TO HARASSMENT

What do employees do when they experience harassment in the workplace? Based on the volume of charges and complaints filed each year, one might presume that many such individuals seek legal relief.

That presumption is incorrect. In fact, based on the empirical data, the extent of non-reporting is striking. As with all the evidence we discuss in this report, almost all of the data on responses to harassment come from studies of sex-based harassment.

Common workplace-based responses by those who experience sex-based harassment are to avoid the harasser (33% to 75%); deny or downplay the gravity of the situation (54% to 73%); or attempt to ignore, forget or endure the behavior (44% to 70%).^[57] In many cases, therefore, targets of harassment do not complain or confront the harasser, although some certainly do.^[58]

The most common response taken by women generally is to turn to family members, friends, and colleagues. One study found that 27% to 37% of women who experienced harassment discussed the situation with family members, while approximately 50% to 70% sought support from friends or trusted others.^[59]

The least common response of either men or women to harassment is to take some formal action - either to report the harassment internally or file a formal legal complaint.^[60] Two studies found that approximately 30% of individuals who experienced harassment talked with a supervisor, manager, or union representative. In other words, based on those studies, *approximately 70% of individuals who experienced harassment never even talked with a supervisor, manager, or union representative about the harassing conduct.*^[61]

The incidence of reporting appears to be related to the type of harassing behavior. One study found that gender-harassing conduct was almost never reported; unwanted physical touching was formally reported only 8% of the time; and sexually coercive behavior was reported by only 30% of the women who experienced it.^[62]

In terms of filing a formal complaint, the percentages tend to be quite low. Studies have found that 6% to 13% of individuals who experience harassment file a formal complaint.^[63] That means that, on average, anywhere from 87% to 94% of individuals did *not* file a formal complaint.

Employees who experience harassment fail to report the behavior or to file a complaint because they anticipate and fear a number of reactions - disbelief of their claim; inaction on their claim; receipt of blame for causing the offending

actions; social retaliation (including humiliation and ostracism); and professional retaliation, such as damage to their career and reputation.^[64]

The fears that stop most employees from reporting harassment are well-founded. One 2003 study found that 75% of employees who spoke out against workplace mistreatment faced some form of retaliation.^[65] Other studies have found that sexual harassment reporting is often followed by organizational indifference or trivialization of the harassment complaint as well as hostility and reprisals against the victim.^[66] Such responses understandably harm the victim in terms of adverse job repercussions and psychological distress.^[67] Indeed, as one researcher concluded, such results suggest that, in many work environments, the most "reasonable" course of action for the victim to take is to avoid reporting the harassment.^[68]

These findings raise serious concerns. We discuss the need for a comprehensive strategy to remedy this problem in Part Three of this report.

Our journey into the academic literature on the prevalence of, and responses to, harassment was illuminating. It taught us some things we did not know at all - for example, how radically different prevalence rates of sex-based harassment can be based on whether respondents are a probability sample or a convenience sample, and based on how survey questions are framed. It reinforced some information we already knew, such as the low level of formal reporting, although the high percentage of those who never talk to a supervisor or file a legal complaint was striking. And it laid bare the absence of empirical data regarding the prevalence of harassment based on protected characteristics other than sex.

D. THE BUSINESS CASE FOR STOPPING AND PREVENTING HARASSMENT

Let there be no mistake: Employers should care about stopping harassment because *harassment is wrong* - and, in many cases, it is *illegal*. Workplace harassment can produce a variety of harms - psychological, physical, occupational, and economic harms that can ruin an employee's life. These effects of harassment - on victims - are primarily why harassment must be stopped. So, again: Employers should care about preventing harassment because it is the right thing to do, and because stopping illegal harassment is required of them.

Moral obligation and legal duty are not the complete story, though. Based on what we have learned, employers should also care about stopping harassment because it makes good business sense.

The business case for preventing harassment is sweeping. At the tip of the iceberg are direct financial costs associated with harassment complaints. Time, energy, and resources are diverted from operation of the business to legal representation, settlements, litigation, court awards, and damages. These are only the most visible and headline-grabbing expenses. They also only address employees who report harassment, which, as we explained, may account for only a fraction of the harassment that occurs.

The business case extends far deeper. It encompasses employees who endure but never report harassment, as well as coworkers and anyone else with an interest in the business who witness or perceive harassment in the workplace. When accounting for all those affected by it, harassment becomes more insidious and damaging. In addition to the costs of harassment complaints, the true cost of harassment includes detrimental organizational effects such as decreased workplace performance and productivity, increased employee turnover, and reputational harm.

Direct Financial Costs of Harassment

When employers consider the costs of workplace harassment, they often focus on tangible, monetary costs associated with charges filed with EEOC, and with good reason. As previously noted, nearly one in three charges filed with the Commission in fiscal year 2015-27,893 of 89,385 charges - alleged some form of harassment.^[69] That averages to approximately 76 harassment charges filed *daily* - a number that has, unfortunately, remained steady over the years.

[45] AARP New York, NYC's Most Powerful Voting Group to Carry Concerns & Worries into Primary (2013), <https://states.aarp.org/nycs-most-powerful-voting-group-to-carry-concerns-worries-into-primary/>.

[46] See, e.g., *Oral Testimony of Zahra Billoo*, Faces of Workplace Harassment and Innovative Solutions, Meeting of the E.E.O.C. Select Task Force on the Study of Harassment in the Workplace (Dec. 7, 2015),

[47] As with studies on racial and ethnic harassment, studies of workplace discrimination based on religion do not disaggregate harassment from other forms of discrimination. See Sonia Ghuman *et al.*, *Religious Discrimination in the Workplace: A Review and Examination of Current and Future Trends*, 28 J. Bus. Psychol. 439 (2013) ("Empirical research on religious harassment in the workplace is surprisingly sparse... Often, harassment is lumped in with general measures of discrimination, making it more difficult to sort out the antecedents and consequences of harassment from differential treatment in personnel actions.").

[48] Jennifer L. Berdahl & Celia Moore, *Workplace Harassment: Double Jeopardy for Minority Women*, 91 J. Applied Psychol. 42 (2006).

[49] Jana L. Raver and Lisa H. Nishii, *Once, Twice, or Three Times as Harmful? Ethnic Harassment, Gender Harassment, and Generalized Workplace Harassment*, 95:2 J. of Applied Psychol. 236 (2010).

[50] *Id.* at 240-49.

[51] *Id.*

[52] Berdahl, *supra* n. 48, at 432.

[53] Joan C. Williams, *Double Jeopardy? An Empirical Study with Implication for the Debates over Implicit Bias and Intersectionality*, 37 Harv. J. L. & Gender 185 (2014).

[54] Berdahl, *supra* n. 48, at 433.

[55] The 2005 Gallup Organization poll regarding discrimination in the workplace, conducted by Gallup with input from EEOC, would serve as a ready model for a harassment poll. The Gallup Organization, Public Opinion Poll, *Employee Discrimination in the Workplace* (2005), http://media.gallup.com/government/PDF/Gallup_Discrimination_Report_Final.pdf. Notably, since 2002, Australia has conducted a national poll on sexual harassment every five years. <https://www.humanrights.gov.au/our-work/sex-discrimination/projects/sexual-harassment-know-where-line>.

[56] EEOC's Research and Data Plan for 2016-2019 authorized the agency's research division to study EEOC charge data as well as federal sector hearing and appeal statistics, along with EEO survey and Census data, to determine which private sector and federal, state and local government employers and industries were most frequently subject to allegations of harassment. See <https://www.documentcloud.org/documents/2702031-EEOC-Research-and-Data-Plan-for-2016-2019.html> (<https://www.documentcloud.org/documents/2702031-EEOC-Research-and-Data-Plan-for-2016-2019.html>). Researchers are often dependent on outside funding from private and public sources to conduct their research. Thus, this recommendation is directed toward such funders as well.

[57] Cortina & Berdahl, *supra* n. 14. The range of percentages results from five studies reviewed by Cortina & Berdahl. Three of the studies surveyed women only; two of the studies surveyed men and women. The five studies were: (1) Lilia M. Cortina, *Hispanic Perspectives on Sexual Harassment and Social Support*, 30 Personality & Soc. Psychol. Bull. 570 (2004) (working Latina women from different companies); (2) Caroline C. Cochran *et al.*, *Predictors of Responses to Unwanted Sexual Attention*, 21 Psychol. of Women Q. 207 (1997) (male and female university staff and students); (3) Amy L. Culbertson & Paul Rosenfield, *Assessment of Sexual Harassment in the Active-Duty Navy*, 6 Mil. Psychol. 69 (1994) (exploring experiences of women in the Navy); (4) Kimberly T. Schneider *et al.*, *Job-Related and Psychological Effects of Sexual Harassment in the Workplace: Empirical Evidence from Two Organizations*, 82 J. of Applied Psychol. 401 (1997) (working women from different companies); and (5) MSPB 1994, *supra* n. 16 (male and female federal

employees). Because these percentages come from a review of five studies, they include surveys in which respondents were asked if they had experienced "sexual harassment" (without the term being defined), had experienced any behavior from a list of sexually-based behaviors ("come-ons"), or had experienced any of those sexually-based behaviors and/or any gender-based derogatory comments ("put downs").

[58] The percentages in the four studies for targets of harassment confronting their harasser in some way were wide-ranging: 25% (Cochran - university staff and students); 33% to 57% (Schneider - working women in different companies); and 41% of women and 23% of men (MSPB - federal employees). The highest percentages were in the Navy study by Culbertson *et al.*: 54% of officers and 72% of enlisted personnel.

[59] Cortina & Berdahl, *supra* n. 14.

[60] *Id.*

[61] *Id.*

[62] *Written Testimony of Lilia M. Cortina*, Workplace Harassment: Examining the Scope of the Problem and Potential Solutions, Meeting of the E.E.O.C. Select Task Force on the Study of Harassment in the Workplace (June 15, 2015), <https://www.eeoc.gov/written-testimony-lilia-m-cortina-phd-professor-psychology-and-womens-studies-university-michigan> (<https://www.eeoc.gov/written-testimony-lilia-m-cortina-phd-professor-psychology-and-womens-studies-university-michigan>) (citing K. A. Lonsway *et al.*, *Sexual Harassment in Law Enforcement: Incidence, Impact and Perception*, 16 *Police Quarterly* 117 (Jun. 2013)).

[63] Cortina & Berdahl, *supra* n. 14. In the Navy study by Culbertson *et al.*, 6% to 8% filed a formal complaint; in the survey by Schneider of women in different companies, 6% to 13% had filed a complaint. Two of the studies had very disparate results. Cortina's study of Latina women in different companies showed a 17% to 20% rate for filing a formal complaint, while the study by Cochran *et al.* of university staff and students showed a 2% rate. The MSPB study found that, in 1987, 5% of both female and male employees took some type of formal action. MSPB 1988, *supra* n. 16. In 1994, for the study included in the Cortina and Berdahl review, the rate had increased to 6%. MSPB 1994, *supra* n.16.

[64] Cortina testimony, *supra* n. 62.

[65] Lilia M. Cortina & Vicki J. Magley, *Raising Voice, Risking Retaliation: Events Following Interpersonal Mistreatment in the Workplace*, 8:4 *J. Occupational Health Psychol.* 247, 255 (2003).

[66] Mindy Bergman *et al.*, *The (Un)Reasonableness of Reporting: Antecedents and Consequences of Reporting Sexual Harassment*, 87(2) *J. Applied Psychology* 230 (2002); MSPB 1994, *supra* n. 16.

[67] Bergman *et al.*, *supra* n. 66; Cortina and Magley, *supra* n. 65.

[68] *Written Testimony of Mindy E. Bergman*, Workplace Harassment: Examining the Scope of the Problem and Potential Solutions, Meeting of the E.E.O.C. Select Task Force on the Study of Harassment in the Workplace (June 15, 2015), <https://www.eeoc.gov/written-testimony-mindy-bergman-associate-professor-psychology-texas-am-university> (<https://www.eeoc.gov/written-testimony-mindy-bergman-associate-professor-psychology-texas-am-university>). As Bergman notes: "It is actually *unreasonable* for employees to report harassment to their companies because minimization and retaliation were together about as common as remedies and created further damage to people who had already been harassed. Further, because remediating the situation did not make the person whole - that is, did not overcome the damage caused by harassment - and helpful vs. hurtful responses were each found about 50% of the time, reporting is a gamble that is not worth taking in terms of individual well-being."

[69] See U.S. Equal Employment Opportunity Commission, Enforcement & Litigation Statistics, All Statutes (FY 1997 - FY 2019), <https://www.eeoc.gov/statistics/all-statutes-charges-filed-eeoc-fy-1997-fy-2019> (<https://www.eeoc.gov/statistics/all-statutes-charges-filed-eeoc-fy-1997-fy-2019>); U.S. Equal Employment Opportunity Commission, Enforcement & Litigation Statistics, All Charges Alleging Harassment (FY 2010 - FY 2019) <https://www.eeoc.gov>

Re: Comments on Proposed Rule Amendments to Chapters 13 and 14 (regarding Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG), respectively) (Rule Title: “Amend re: SB 1582 (2021) and other clarifications”)

Exhibit 4

**Harvard
Business
Review**

Diversity And Inclusion

Do Your Employees Feel Safe Reporting Abuse and Discrimination?

by Lily Zheng

October 08, 2020



Nicholas Rigg/Getty Images

Summary. Despite the high rates of sexual assault and harassment and pervasive discrimination based on race, gender, age, and sexuality in many workplaces, reporting rates remain extremely low. This is in large part because employees fear that the company... [more](#)

The #MeToo and Black Lives Matter movements each took the working world by storm, bringing to the forefront issues of workplace sexual assault, sexual and racial harassment, and discrimination. But while heightened awareness is making workplace conversations about sexism, racism, and other injustices more common, these interpersonal conversations alone will not remove the systemic challenges keeping inequity in place. One of the alarming symptoms of these challenges is the low rate at which employees report incidents of assault, harassment, and discrimination. Too many people don't feel safe at work, and, fearing repercussions, aren't willing or able to speak up about it. This vicious cycle keeps systemic inequity deeply

entrenched within many workplaces.

Despite the high rates of sexual assault and harassment — affecting up to 90% of women in some industries — and pervasive discrimination based on race, gender, age, and sexuality — experienced or witnessed by 61% of U.S. employees — reporting rates remain extremely low. A report by the EEOC found that only 30% of employees experiencing harassment on the basis of gender, race, national origin, disability and other protected classes make internal complaints, and less than 15% file formal legal charges. A meta-analysis similarly found that fewer than one-third of workers even informally talked with a supervisor about the sexual harassment they experienced, and less than 25% filed formal reports with their employers.

These studies consistently found that the primary reason for low reporting rates is retaliation, where employers or individuals respond to reports of discrimination or mistreatment by further punishing or marginalizing the victim. Retaliation is astonishingly common: 68% of sexual harassment allegations and 42% of LGBTQ+ discrimination allegations made to the EEOC also include charges of employer retaliation. (Because the EEOC considers charges of retaliation a separate “issue” from charges of discrimination on the basis of race, sex, national origin, and other protected classes, reliable data showing both retaliation and these other forms of discrimination together is sparse.)

There are several additional factors that drive low reporting rates.

One is the likelihood that victims receive any benefit from reporting in the first place. While companies encourage victims to go through internal reporting channels, these are often legalistic grievance procedures meant to reduce the risk of a lawsuit against the company. Forced arbitration, a policy adopted by many companies, requires that employees go through mandatory arbitration to resolve disputes and waive their right to sue. And even if they do, reporting to the EEOC rarely results in benefit to victims, with only 1% of federal discrimination, harassment, or retaliation claims succeeding in U.S. courts.

Another is the inflexibility of options available to victims. When MIT made an informal, confidential process available to employees in the 1980s, they found that 90% of those filing sexual harassment complaints preferred that route to the more formal one. Even 40 years later, many employers still lack these types of processes, discount informal reports of harassment or

discrimination, or offer few choices for victims looking for resolution.

The lack of anonymity offered by most reporting processes is also an issue. Research has consistently demonstrated that offering anonymous reporting channels increases reporting rates by making it easier for people to report and protecting victims against retaliation. While many companies have some form of anonymous reporting channel, resolution typically requires that employees come forward and expose their identities and themselves to potential retaliation as a result.

Toxic company cultures play a final role in low rates of reporting, with 53% of employees in one study citing hostile work environment as a reason for not reporting. If victims feel that not only is it unlikely that their report will result in a harasser being found responsible, but that their company would also then disregard the finding or shield the harasser from consequences, there is very little chance they'll choose to report in the first place.

Opaque, legalistic, and inaccessible reporting practices designed to prioritize lowering company risk rather than focusing on resolution and recourse for victims are a major part of the problem. In fact, companies that promote a fairer, flexible, and transparent process for victims may be better equipped to both address deep-seated problems in their workplaces and lower the likelihood that they will be the targets of highly visible discrimination or harassment lawsuits.

If you want to increase reporting rates at your company — and thereby make your workplace a more equitable, inclusive, and safe place to work — here are four practices that you can adopt to rebuild employee trust in reporting.

Demonstrate commitment to accountability from the top.

To build buy-in for any new reporting processes or tools, company leaders must build trust through their words and actions from the start. You can do this by not only making a public commitment to doing better, but by establishing and publicizing metrics to hold yourselves and the company accountable. If your efforts to develop a better process are driven even partially by a mishandling of a discrimination or harassment incident, you should focus on re-earning trust that has been lost. Strongly consider reaching out to any remaining employees who were affected, apologizing for harm done, and offering recourse to the extent possible.

Invest in neutral resources to support victims of harassment and discrimination.

One option is bringing in external resources through a private therapist or Employee Assistance Program (EAP). By giving employees explicit permission to access these services and making it clear that these providers are independent from the company reporting structure, you can provide employees with confidential support, counseling, and advice. While these resources can be expensive, workplace mental health interventions have been shown to have a high return on investment and similar approaches could provide much-needed support to employees facing harassment and discrimination.

Establish an ombuds office.

An ombuds is an off-the-record resource currently used by at least 13% of US companies to provide information and guidance to employees considering reporting. Because they are not an official reporting channel, ombuds can talk candidly to employees about fears and concerns and walk them through the options available to them, including but not limited to making a formal report. Importantly, ombuds serve as an alternative to legalistic hearing processes and allow employees some degree of flexibility in communicating their complaint to the individual(s) accused.

Create anonymous formal reporting channels that both protect reporters and inform organizational change.

A large range of anonymous reporting tools are available to companies, including hotlines, chatbots, website forms, and phone apps. One company in the food industry with a few thousand employees partnered with a third-party platform for their anonymous reporting and found that after 6 months reporting rates had increased by 30%. Faith in the new anonymous channel led employees to come forward earlier with issues that previously may not have been reported for months, if ever, allowing the organization to address problems before they developed into major incidents. While each tool has its own strengths and companies should design their solutions to best fit their own needs, effective solutions (whether fully internal, through an external platform, or a mix of the two) should be:

- **Convenient**, allowing employees to quickly make and submit reports with the desired level of detail, including witnesses if relevant.

- **Transparent**, allowing employees to see where a report is going and its status: whether received, reviewed, acted on, or resolved.
- **Flexible**, allowing employees to indicate the desired resolution to their report, ranging from the ending of unwanted behavior to education for a business unit to termination of the accused employee(s).
- **Responsive**, allowing employees to anonymously interact with an individual(s) who has their interests in mind throughout the resolution process.
- **Independent**, allowing employees to report without fear of retaliation or repercussions through a neutral process that preserves anonymity.
- **Actionable**, allowing employers to respond to reports without compromising the anonymity of reporters. One way to achieve this is by tracking and aggregating details from submitted reports and acting on patterns within that aggregated data.

Leaders who want to take a critical step toward ending discrimination, harassment, microaggressions, and mistreatment in their workplaces need to rethink and redesign the way reporting is done. When employers can successfully prevent retaliation, give victims agency and transparency throughout dispute resolution, and give victims resolution and recourse, they will be able to restore their employees' trust in reporting.

Lily Zheng is a diversity, equity, and inclusion strategist and executive coach who works with organizations to create high-impact and sustainable change. They are the co-author of *Gender Ambiguity in the Workplace: Transgender and Gender-Diverse Discrimination* and *The Ethical Sellout: Maintaining Your Integrity in the Age of Compromise*.

Re: Comments on Proposed Rule Amendments to Chapters 13 and 14 (regarding Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG), respectively) (Rule Title: “Amend re: SB 1582 (2021) and other clarifications”)

Exhibit 5

Evidence on the Use and Efficacy of Internal Whistleblowing Systems

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February 2020

We thank Andy Call, Justin Hopkins, Christian Leuz, Delphine Samuels (discussant), Nate Sharp, Jaron Wilde (discussant), two anonymous reviewers, and workshop participants at the University of Wisconsin, the 2019 FARS Midyear Meeting, the 2019 Utah Winter Accounting Conference, and the 2019 Journal of Accounting Research conference for providing helpful comments and suggestions. We also thank NAVEX Global for providing data on internal whistleblowing reports and the Corporate Research Project of Good Jobs First for providing data on government fines.

Evidence on the Use and Efficacy of Internal Whistleblowing Systems

February 2020

ABSTRACT

Using a proprietary dataset from a provider of internal whistleblowing (WB) systems, we analyze nearly two million internal WB reports submitted to over one thousand publicly traded U.S. firms. We provide descriptive statistics, over time and across report types, on the amount and summary details of information provided, how extensively management reviews reports, the amount of time until reviews were completed, and the outcome of these reviews. Further, we examine the characteristics of firms with more actively used systems (i.e., a higher volume of reports, more information provided in reports, and reports that are more frequently reviewed by management). Finally, we show that internal WB report volume is associated with fewer and lower amounts of government fines and material lawsuits.

JEL codes: G38; G34; M54; M42; M41

Keywords: whistleblowing; employee hotlines; corporate governance; Sarbanes-Oxley Act

1. Introduction

Internal whistleblowers (WB), employees who report potential problems within their firm to management, are widely viewed as an important resource in identifying and bringing to light wrongdoing within firms. Although internal WB systems (also known as internal reporting systems) have been required for public companies in the U.S. since the 2002 Sarbanes-Oxley Act (SOX), the use and efficacy of these systems is not widely known due to a lack of available data. For example, have public companies implemented internal WB systems only “on paper” to meet SOX requirements, or are they frequently used by employees and other stakeholders? What are the characteristics of reports filed? Do they pertain only to accounting issues as required by SOX, or do firms collect reports on a wider range of potential issues? Which types of companies have more actively used systems (i.e., which companies receive more reports, receive more detailed reports, and access reports more frequently)? And are the systems effective? Using proprietary data from the world’s largest provider of internal WB systems, NAVEX Global, we examine nearly two million internal WB reports filed with over one thousand publicly traded U.S. firms to provide the first empirical examination in the academic literature on the characteristics of internal reports and the firm characteristics and outcomes associated with the use of internal WB systems.¹

By providing employees a secure, anonymous means to report issues, an internal WB system enables management to identify problems difficult to discover via traditional reporting and monitoring.² Although employees could approach their supervisors directly with concerns,

¹ NAVEX Global granted us limited and secure access to data managed under its EthicsPoint® Incident Management system, a hotline system it provides to clients. Due to the sensitive and private nature of these reports, we had access to only limited data on each report—we did not have access to any free-response text entered by the reporter or any personally identifying information about either the reporter or individuals involved in the report.

² To be precise, many firms set up their internal WB systems to allow stakeholders beyond just employees to submit reports. Because the vast majority (92%) of reporters who identify their association with the firm are employees, we refer to use of WB systems by employees while acknowledging that some reports are made by non-employees.

some might choose not to report without the option to remain anonymous (e.g., if the supervisor is part of the concern, if the employee doesn't wish to be personally associated with any fallout from the report, or if the employee fears retaliation). In addition, internal WB systems allow a direct line of communication, which may not otherwise exist, from employees to management. As issues are identified, either through information provided in reports or through conversations that are spurred by reports, management is able to resolve them before they become more costly (e.g., before they become more severe and/or become known outside the firm). However, it is also possible that firms install a WB system as required by SOX simply to be in compliance without actively promoting or using it. Management may fear that the internal WB system will harm corporate culture by allowing anonymous reports that replace in-person discussions with managers. Internal WB systems might also permit employees, possibly underperforming employees about to be terminated and seeking legal protections as WB, to make frivolous complaints that distract from more important tasks. In addition, management may view the internal WB system as a potential liability, a digital paper trail that could be subpoenaed in litigation. Thus, the extent to which these systems are used in practice likely varies across firms.

Our study has three primary objectives. First, we provide descriptive evidence on reports made to publicly traded U.S. firms, including the types of activities reported, characteristics of reporting individuals (i.e., the reporter's connection to the company and choice to remain anonymous), the amount of information provided, details of reported activities (i.e., how the individual became aware of the alleged activity, whether management was allegedly aware and/or involved in the reported activity, and the amount of time the reported activity had been occurring), how frequently management accessed reports, the amount of time until reviews were completed, and the outcome of these reviews. Although similar statistics can be found in industry

reports (e.g., NAVEX 2019), our study is the first to present statistics for a sample of U.S. public companies and the first to employ regression analyses that document associations while controlling for related variables. Second, we examine which types of firms receive more reports, receive more detailed reports, and review reports more frequently. Third, we examine the association between internal report volume and subsequent outcomes, i.e., government fines and litigation. We do so to test whether the association is positive, possibly because a higher report volume indicates the company has more problems, or negative, possibly because internal reports allow the company to identify and address concerns before they result in fines or litigation.

The descriptive evidence indicates that most reports relate to human resource (HR) issues such as discrimination, sexual or other forms of harassment, and violations of HR policies (54.9% of reports). Business integrity concerns (i.e., illegal or unethical business practices such as conflicts of interest, falsification of company records, bribery, etc.) comprise 15.7% of all reports, followed by reports regarding the misuse of corporate assets (11.8% of reports), workplace safety concerns (8.1% of reports), and accounting and financial concerns (0.7% of reports). The remaining 8.7% of reports are not classified by NAVEX. Although internal WB systems for accounting-related concerns were required by the Sarbanes-Oxley Act, accounting reports comprise only a small portion of the total report volume. Further, the relative frequency of accounting reports declined following the Dodd-Frank Act in 2010, which provided monetary incentives for external WB. The relative frequency of human resource incidents peaked in 2017, around the time of the widespread recognition of the #MeToo movement. We confirm these associations in regression analyses, though we do not attempt to provide evidence of a causal link.

Our descriptive evidence yields a number of insights into the nature of reports and management responses. For example, the average report is accessed by management 9.1 times before being closed in 43.9 days. Reports are accessed more frequently and take longer to close when they relate to accounting issues, allege retaliation by management, contain more information about the alleged activity, allege management involvement in the inappropriate activity, and relate to activities that have been occurring for a longer period of time. In addition, reporters, when they disclose their relationship to the firm, are in most cases employees of the firm. Over 28% elect to remain anonymous. Anonymous reports contain more information about the alleged activity, are more frequently reviewed by management, and take longer to close. However, management is less likely to conclude that the claims in anonymous reports are substantiated. Management is more likely to conclude that claims are substantiated when an accounting issue is reported, when more information is provided in the report, when the reporter is an employee of the company, when the report doesn't allege management involvement, and when the reported activity has been occurring over a longer period of time.

Second, we examine reporting data at the firm level to understand how the use of internal WB systems varies cross sectionally. We find that use varies substantially across firms and industries. For example, both rapidly growing firms and firms with more employees receive fewer reports per employee, and these reports contain less information and are accessed less frequently by management. More profitable companies receive fewer reports per employee, but the reports contain more information and are accessed more frequently. Companies that promote internal reporting and emphasize compliance receive more reports per employee, and companies with a focus on internal controls (i.e., those remedying internal controls in the year following the revelation of a material weakness) exhibit a substantial increase in report volume.

Re: Comments on Proposed Rule Amendments to Chapters 13 and 14 (regarding Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG), respectively) (Rule Title: “Amend re: SB 1582 (2021) and other clarifications”)

Exhibit 6

Using Near-Miss Reporting to Prevent Future Accidents

It's important to fully exploit every accident-prevention strategy at your company's disposal. Unfortunately, some construction employers have no near-miss reporting system in place, or neglect to put the necessary energy into convincing employees to faithfully report near-miss occurrences (or to follow-up with training, when near-misses are reported).

A near-miss, narrowly defined, is an occurrence that could have produced an injury (or property damage or other loss) but did not. If reported to management and investigated, often a near-miss will lead to changes in procedures, greater training emphasis, or stricter enforcement of company safety rules, and prevent a recurrence that could result in serious injury or other harm. In investigations of fatalities or other cases involving serious bodily harm, it is frequently found that the occurrence was preceded by prior incidents in which safety rules were ignored, and a near-miss occurred, but through dumb luck, usually, with no injuries.

Since effective harm prevention, although involving the rank and file, requires leadership usually from the top down, if you are an owner, officer, safety manager or field supervisor in a construction enterprise, you want every near-miss to be reported. The point must not be to identify and punish offenders — persons reporting near-misses should be allowed to do so anonymously. Instead, the point is to identify the weak spots in your procedures, or equipment, or training, or supervision, so that today's near-miss doesn't become tomorrow's fatality, mass casualty event, or life-changing injury.

Of course, every report of a near-miss should bring about an appropriate level of investigation, and an analysis of what you can do to improve safety systems, better control hazards, reduce risks and reduce risk-taking among employees.

Company-wide, in addition to a top-down commitment from ownership and management, effective safety policy requires the company to hire, train and retain sober, safety-conscious workers, but especially field supervisors who know all of the applicable rules, don't cut corners, and won't overlook violations when seen to occur. Frankly, it is challenging indeed to train every construction worker in the full range of standards that apply to their jobs. Conscientious, thoroughly trained field supervisors are probably your best bet to minimize both OSHA citations and injuries to employees.

In addition, of course, time and money must be devoted to training and the provision of adequate and well-maintained equipment.

At the individual level, once a construction worker has developed the necessary adult attitude about risk-taking, safety is in large measure a matter of paying attention. Once the individual moves beyond seeing safety (beyond the necessity of avoiding the most obvious and serious risks to life and limb) as primarily a matter of avoiding getting called out by management, he or she can develop the habit of casting vigilant eyes on the workplace environment (and their own and co-workers' conduct).

If your company implements a well-designed program of reporting not only obvious near-misses (e.g., an unsecured object falling from a scaffold, but by good fortune not striking anyone) but hazards or conduct that are nonetheless accidents waiting to happen if continued or repeated, that will be a great benefit. It's been shown that most serious or calamitous events at jobsites are usually preceded by near-misses or situations that, if noted, could have served as warning. Generally, without encouragement, whether workers will report things that haven't produced a frightening, although harmless incident, is largely a function of whether the situation was observed by others, such that failing to report it would be conspicuous.

Workers, lacking encouragement, are not avid to report as "near misses" things they may deem to be less than potentially life-threatening hazards, in part because it can be time-consuming, but also because the perception is often that reporting will get the reporter, or one or more other employees, in trouble.

It's important, therefore, to give assurances that prevention, and not punishment, is the objective in urging the reporting of all "near misses" (broadly defined) and not just those that came really close to producing real harm. You might stress, also, that not only are employees answerable to the company, but the company is responsible to employees (as well as to OSHA) and employees are answerable to one another, too.

Workers, studies have found, are more inclined to speak with management about near misses than about incidents actually resulting in injuries. Employers should provide incentives to report near misses (although quotas are usually counter-productive) and allow occurrences to be reported anonymously. Discretion is called for in determining the level of investigation and documentation required. Reporting is something employees don't want to spend a lot of time doing, and reporting could be deterred by an inquisition not commensurate with the situation. Selected near miss reports should become the subjects of periodic near-miss training sessions.

Examples of what should be seen as near-miss situations are where equipment remains in use despite damage or excessive wear, or there exist hazards such as holes in the floor, crumbling stairs, or nonconforming scaffolds, or whenever employees take risks, such as disconnecting one's harness to retrieve a dropped tool on a roof, entering an unshored trench "for just a few minutes." or operating equipment while impaired. Especially given that jobsites often involve vehicles, multiple employers, heavy equipment, temporary structures, a dizzying variety of activities (many of them inherently dangerous), and abrupt changes in the environment as the job progresses, it's unrealistic to think that detecting and correcting hazards can be effective, without the participation of everyone onsite.

At training sessions, employees should be invited to bring up additional near misses they know of or have seen, and if a hazard in a particular work area or operation has been mentioned, to imagine what else might go wrong in that environment.

If you gain employees' cooperation, the benefits of individual workers having paid attention can be spread company-wide, reducing significantly the possibility that the recurrence or continuation of hazards seen, but not reported, will result in serious physical harm. Near miss reporting, and the use of information obtained for training, is a proven method of reducing both near misses and actual incidents.

Geoffrey S. Pope is Of Counsel to the construction law firm of Welby, Brady & Greenblatt, LLP, with its main office in White Plains. The articles in this series do not constitute legal advice, and are intended for general guidance only.

Re: Comments on Proposed Rule Amendments to Chapters 13 and 14 (regarding Compressed Natural Gas (CNG) and Liquefied Natural Gas (LNG), respectively) (Rule Title: “Amend re: SB 1582 (2021) and other clarifications”)

Exhibit 7



Railroad Commission of Texas

Report on Customer Service

May 18, 2022

WAYNE CHRISTIAN, CHAIRMAN

CHRISTI CRADDICK, COMMISSIONER

JIM WRIGHT, COMMISSIONER

Table of Contents

Report on Customer Service	3
Introduction	3
Inventory of External Customers	3
Information Gathering Methods.....	5
Toll Free Number	6
Railroad Commission Website	6
Information Services	7
Customer Service Principles.....	7
Public Assistance Email Account.....	7
Executive Assistance Email Account	8
Area Specific Contacts.....	8
Data	8
Analysis	9
Performance Measures.....	10
Outcome Measure	10
Efficiency Measure.....	11
Explanatory Measures	11
Conclusion.....	11

Report on Customer Service

Introduction

The Railroad Commission of Texas was established in 1891 under a constitutional and legislative mandate to prevent discrimination in railroad charges while establishing reasonable tariffs. In 1917, pipelines were declared common carriers and the Commission was given jurisdiction over them. By 1932 the Commission assumed jurisdiction over oil and natural gas exploration and production. The Railroad Commission marked its 130th anniversary in April 2021 making it the oldest regulatory agency in the state and one of the oldest of its kind in the nation. Three commissioners elected statewide by Texas voters serve six-year staggered terms. One commissioner is elected every two years.

The Railroad Commission has four regulatory divisions. The Critical Infrastructure Division oversees enforcement and adherence to weatherization rules, as well as critical infrastructure asset registration by companies within the natural gas supply chain. The Oil and Gas Division oversees the Texas oil and gas industry, specifically exploration and production activity. The Oversight and Safety Division has jurisdiction over natural gas utilities, pipeline safety and alternative energy safety oversight of the liquefied petroleum gas (propane), liquefied natural gas (LNG), and compressed natural gas (CNG) industries. The Surface Mining and Reclamation Division oversees the surface mining of coal and uranium in Texas, as well as the Abandoned Mine Land Reclamation program.

As articulated in its mission statement, the Railroad Commission serves the people of Texas through stewardship of natural resources and the environment, concern for personal and community safety and support for enhanced development and economic vitality for the benefit of Texas. An integral part of the Railroad Commission's commitment is its focus on providing the best possible service to the citizens of Texas.

Consistent with that mission and commitment, the Railroad Commission of Texas submits this Report on Customer Service.

Inventory of External Customers

Table 1: Identification of Customers by Strategy

Customer Groups by Strategy	Customer Sub-groups	Brief Description of Services Provided
1.1.1 Energy Resource Development Protect correlative rights and prevent waste while maximizing opportunities for the development of lignite, oil and gas resources through well site permitting, production allowables, production rule reviews, and exception processing.	Oil and Gas Producers	Permitting—based on spacing and density rules. Review on monthly basis production allowables on oil and gas wells.

Customer Groups by Strategy	Customer Sub-groups	Brief Description of Services Provided
<p>2.1.1 Pipeline Safety Ensure the safe operation of pipelines through permitting, field inspections, accident investigations and emergency response.</p>	<p>Pipeline Operators</p>	<p>Conduct pipeline safety inspections and identify violations; take necessary enforcement actions; conduct accident investigations; administer pipeline permits issued and renewed.</p>
<p>2.1.2 Pipeline Damage Prevention Support education and partnership initiatives to increase the overall awareness and effectiveness of damage prevention.</p>	<p>General Public and Landowners</p>	<p>Educate public about Texas “one-call” centers and increase awareness of third-party damage incidents.</p>
<p>2.2.1 Regulate Alternative Energy Sources Regulate Alternative Energy Sources: Protect the health, safety and welfare of the general public by ensuring the safe storage and transportation of LP- gas, Compressed Natural Gas, and Liquefied Natural Gas as alternative energy sources through safety education, accident investigation, inspection and enforcement of safety regulations.</p>	<p>LPG/CNG/LNG Operators</p>	<p>Perform safety inspections and identify violations; administer qualifying examinations, licenses, certifications, and registrations.</p>
<p>3.1.1 Oil and Gas Monitoring and Inspections Assure that Oil and Gas permitted activities comply with applicable state and federal regulations through field inspections, witnessing tests, monitoring reports, processing applications and enforcement actions.</p>	<p>Oil and Gas Producers, Waste Management, Landowners</p>	<p>Conduct inspections and identify violations; and take necessary enforcement actions.</p>
<p>3.1.2 Surface Mining Monitoring and Inspections Assure that Surface Mining permitted activities comply with applicable state and federal regulations through field inspections, witnessing tests, monitoring reports, processing applications and enforcement actions.</p>	<p>Surface Mining Operators, Landowners</p>	<p>Conduct inspections and identify violations; and take necessary enforcement actions.</p>

Customer Groups by Strategy	Customer Sub-groups	Brief Description of Services Provided
<p>3.2.1 Oil and Gas Well Plugging and Remediation Protect public health and the environment by identifying, assessing, and prioritizing sites that require the use of state managed funds for well plugging and remediation.</p>	<p>General Public, Landowners</p>	<p>Orphaned wells managed/plugged, and abandoned pollution sites investigated, assessed, or cleaned up with the use of state funds.</p>
<p>3.2.2 Surface Mining Reclamation Protect public health and the environment by identifying, assessing and prioritizing mine lands that require the use of state funds for reclamation and provide assistance for operator- initiated corrective actions.</p>	<p>General Public, Landowners</p>	<p>Abandoned surface mine sites on which reclamation has been initiated.</p>
<p>3.3.1 Gas Utility Compliance Oversee natural gas utility rate structures that promote safe, efficient, and reliable supply at a reasonable cost and audit regulated gas utilities to ensure compliance with rate structure and submission of Gas Utility Taxes.</p>	<p>Gas Utilities Consumers</p>	<p>Provide economic regulation over intrastate natural gas utilities. Operate and maintain the state's natural gas electronic tariff system. Audit utilities to ensure properly authorized rates are being computed and billed to residential or commercial users.</p>
<p>3.4.1 Critical Infrastructure Weather Preparedness Ensure that designated facilities incorporate weatherization and reliability standards and practices through communication, inspections, processing applications, and monitoring reports.</p>	<p>Natural Gas Producers, Natural Gas Facility Operators, Natural Gas Pipeline Operators, Natural Gas Underground Storage Facilities, General Public/Consumers</p>	<p>Enforce and manage weatherization rules. Perform site visits and track winter preparation. Provide training on importance of winter preparedness.</p>
<p>4.1.1 Public Information and Services Collect, maintain, and preserve oil and gas data submitted to the Commission; provide efficient public access to this information; provide regulated industries the ability to conduct their business with the Commission electronically.</p>	<p>Oil and Gas Operators, General Public/Consumers</p>	<p>Electronic filing, production information, and website access to information.</p>

Information Gathering Methods

The Railroad Commission of Texas is committed to delivering the highest level of customer service. How the agency responds to those who conduct business with the Railroad Commission reflects not only on the agency, but on the state as well. Employees at the Railroad Commission strive daily to provide the

level of service Texans expect and deserve, and the agency has several mechanisms in place to achieve this goal.

To capture feedback from the agency's external customers, the Railroad Commission features a link on its website homepage to an online Customer Service Survey. The survey may be submitted anonymously, or the constituent may include contact information for follow up action by the Railroad Commission. Staff monitors responses on a continuing basis to ensure quick resolution of any issues reported via the survey.

The Customer Service Survey is available year-round on the Railroad Commission website. Also, a link to the survey is included when responding to inquiries received via Public Assistance email account, Publicassist@rrc.texas.gov. In addition, employees include a link to the survey in their email signature.

In 2020 and 2021, the Railroad Commission received 377 responses to its Customer Service Survey. The survey responses are highlighted in this report.

Additionally, the Railroad Commission regularly receives public input in several other ways, to increase information gathering, and to ensure staff resources are utilized to their greatest` effect in delivering the high level of service that RRC customers demand.

Toll Free Number

The Railroad Commission maintains a toll-free number (1-877-288-5740) that anyone may use to obtain information about agency programs and services. A recording directs callers to the appropriate Railroad Commission contact for their needs.

The Commission has another toll-free number dedicated to reporting of emergency situations twenty-four hours a day, seven days a week. A dedicated emergency reporting number is easier and more expedient for the public when they report emergency situations. Constituents have the option to call 1-844-773-0305 toll free, or 512-463-6788.

Railroad Commission Website

The Railroad Commission regulates an industry that is constantly evolving and one of the most technologically advanced in the world. In January 2021 the RRC launched a new website with user-friendly enhancements, including a new layout that is easy to navigate and more task oriented than the previous version.

Over the past two years, the Railroad Commission initiated several new online filings and research tools, allowing the agency to better serve Texans and the industries we regulate, including:

- numerous online application filings,
- new online research queries,
- new interactive data visualizations,
- new GIS Map Viewer features,
- Case Administration Service Electronic System (CASES),
- Pipeline Inspection Permitting & Evaluation System (PIPES), and
- RRC Access Management Process (RAMP) or single sign on.

These improvements are in addition to previously existing resources:

- data, statistics, forms, and maps,
- regulatory information,
- educational opportunities,
- publications and news releases,
- information on environmental services and safety,
- information on executive orders, rules, and proposals for decisions,
- Geographic Information System (GIS) Public Map Viewer,
- Pipeline Online permitting System (POPS),
- RRC Online Inspection Lookup (RRC OIL),
- online filing, reporting and query systems,
- automated fee collection, and
- information via the Public Assistance email account (Publicassist@rrc.texas.gov).

The Railroad Commission has long recognized the value of its information and continually works to improve access to its data repositories and services. In 2019, the Commission embarked on its largest information technology project in agency history to build a Risk Based Data Management System to replace its 50-year-old mainframe system. The new system will house all Oil and Gas Division functions in one system and allows external users online filings, tracking and record viewing capabilities.

Information Services

The Information Technology Services Division, through its Central Records and Public Sales units, provides public access to Railroad Commission oil and gas data collected over the past 90 years as well as information on all aspects of the Railroad Commission's regulatory functions. The section also fulfills requests for publications and data in electronic format. The public may call or visit Monday through Friday from 8 am to 5 pm. Requests for information may be emailed to ims@rrc.texas.gov.

Customer Service Principles

The Railroad Commission developed Customer Service Principles to help employees provide a high level of customer service in their day-to-day work activities. The principles are detailed for telephone and email customer service from the public, information technology issues, legislative inquiries, and media inquiries. Phone calls and emails are to be responded to no later than the close of the next business day, ensuring the prompt resolution of any issues that may arise. Staff are trained on the principles and the information is available on the staff intranet website.

Public Assistance Email Account

The Contact Us section of the Railroad Commission's website includes a Contact Form for the public to submit questions and complaints. The Contact Form submissions are forwarded to the Public Assistance email account and each inquiry is logged and assigned to the appropriate staff for processing. As outlined in the Commission's Customer Service Principles, Public Assistance emails must receive a response from staff no later than the following business day. A spreadsheet is used to track each inquiry and the eventual resolution.

In Calendar Years 2020 and 2021, the RRC responded to 4,300 Public Assistance inquiries, an average of 12 responses per day.

Executive Assistance Email Account

In addition to inquiries received via the Public Assistance email account, many constituents reach out directly to the three elected Commissioners that lead the Railroad Commission. As with the Public Assistance email account, all such emails, letters and phone calls are logged and processed to ensure quality customer service.

In Calendar Years 2020 and 2021, the RRC responded to 354 Executive Assistance inquiries, an average of three responses per week.

Area Specific Contacts

The Contact Us area of the Railroad Commission website includes contact information for topic-specific questions and complaints including:

- Alternative Fuels,
- Critical Infrastructure,
- Gas Services,
- Government Relations,
- Human Resources,
- Oil and Gas,
- Open Records, and
- Pipeline Safety.

Furthermore, the Commission interacts with the public and stakeholders daily in its District and Regional offices throughout Texas.

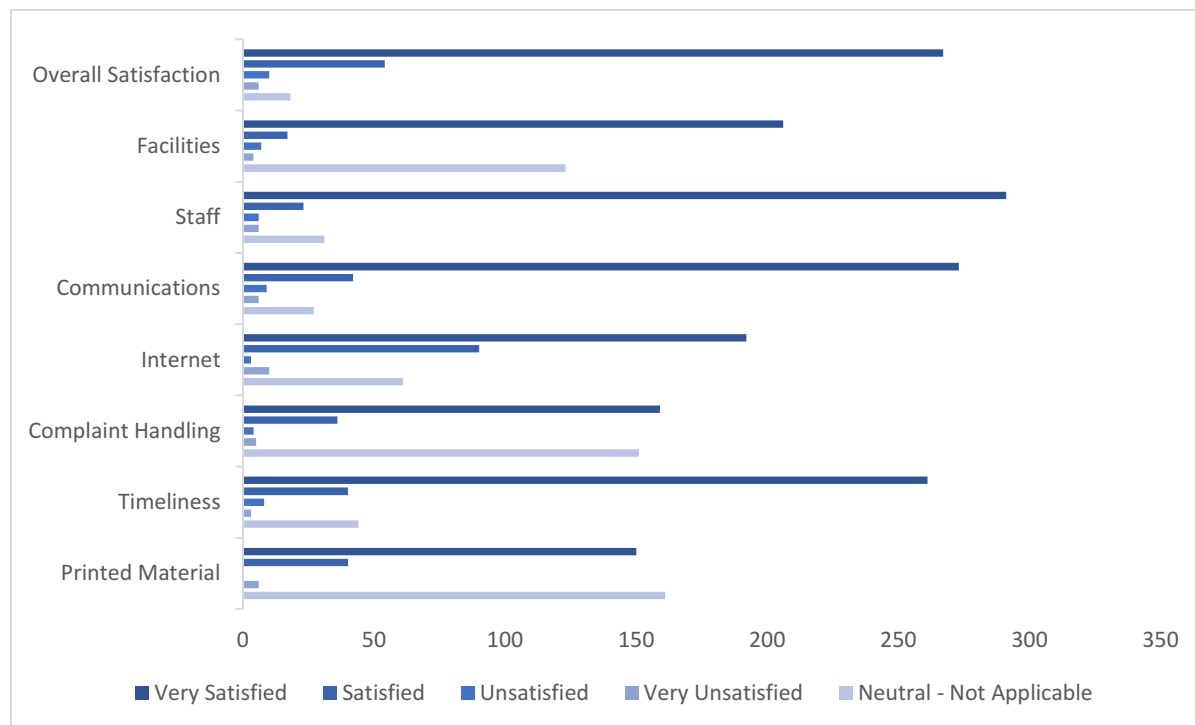
Data

This section of the report contains the following:

1. Link to the Compact with Texans: <https://www.rrc.texas.gov/site-policies/>
2. Graph representing Customer Service Survey responses (Figure 1)

Customer Service Survey responses reporting a complaint are resolved by forwarding the response to the appropriate division director and their staff for follow up and resolution.

Figure 1: 2020 and 2021 Customer Service Summary of Responses



Analysis

The link to the Customer Service Survey on the Railroad Commission’s website is accessible to the public year-round making it possible to capture feedback and quickly respond to comments or complaints. A link to the survey also appears in employees’ email signature for easy access when they are communicating with the public.

The number of survey responses has increased since the 2020 Report on Customer Service. The Commission continues to investigate methods of engagement to increase participation in the Customer Service Survey as it provides valuable feedback that results in agency improvements. Some options for survey outreach, include incorporating the survey into existing seminars and conferences evaluations and the examinations/certifications process. Ultimately, the goal is to include a larger population of customers in the survey process.

The findings of the 2022 Customer Survey Report show over half of respondents say they are “Satisfied” or “Very Satisfied” with the Commission’s overall customer service. The highest scores were received in the categories of *Overall Satisfaction*, *Communications*, and *Staff*. They are followed closely by *Timeliness*, which was much improved since 2020. Results also indicate improvement is needed in the areas of *Printed Materials* and *Complaint Handling*.

Looking ahead, the Commission will examine steps to increase both constituent participation and the percentage of “Very Satisfied” responses to the survey.

The industries regulated by the Railroad Commission continue to evolve placing greater demands on Commission staff resources. Continued improvements to agency technology have resulted in increased access to data, streamlined online filing processes and faster processing of forms and reports. Even so,

improvements can be made in the areas printed materials and complaint handling related to Commission processes by examining practices to ensure they fully support communications and responsive to stakeholders.

Performance Measures

Outcome Measure

- *Number of Customers Served:* Quantifying the number of customers served by the Railroad Commission is difficult. The following is a description of the regulated industry and the public served by the Commission.

Oil and Gas Exploration and Production

The Texas oil and natural gas industry consists of a wide spectrum of businesses, ranging from sole proprietorships to fully integrated multinational corporations. Activities range from well drillers, to well pluggers, to waste haulers. All aspects of the oil and natural gas production cycle from beginning to end are part of the regulatory responsibility of the Railroad Commission. As of February 2022, Texas producers operated approximately 162,109 active producing oil wells and over 84, 801 active producing gas wells. In 2021, Texas wells produced approximately 1.4 billion barrels of crude oil and 10.3 trillion cubic feet of gas.

Pipeline Transportation

To gather, transport and deliver Texas' oil and natural gas resources, an extensive network of pipeline is required. The Railroad Commission has responsibility to ensure these systems are designed, constructed, operated, and maintained safely, and rates for natural gas service are just and reasonable. There are more than 483,000 miles of pipeline in Texas including more than 432,000 miles of intrastate pipeline under the Commission's pipeline safety jurisdiction. The remaining 51,000 miles of pipeline fall under the pipeline safety jurisdiction of the Pipeline and Hazardous Materials Safety Administration (PHMSA). Pipelines in Texas are categorized as natural gas distribution lines, hazardous liquid and natural gas gathering and transmission lines, interstate lines and exempt lines. The Railroad Commission has direct safety responsibility over the first three categories. These regulatory responsibilities are extended to operators of intrastate gathering, transmission, distribution, and master metered systems.

Natural Gas Utilities

There are approximately 10,000 active tariffs on file with the Railroad Commission that reflect rates charged for natural gas utility transmission and distribution services. There are 223 investor-owned and 84 municipally owned natural gas utilities in Texas serving over 4.7 million rate regulated customers. The Gas Services department also administers an index-based price ceiling affecting approximately 74 propane distribution retail systems.

Alternative Energy Companies

This industry includes LP-gas (commonly called propane), compressed natural gas (CNG) and liquefied natural gas (LNG). Each year the Railroad Commission certifies about 16,000 individuals working in the industry, administers about 6,500 examinations, issues approximately 7,300 dealer licenses, investigates accidents and safety-related complaints, and conducts approximately 19,000 safety inspections.

The retail propane business is the largest sector within this industry. It consists primarily of small independent companies that provide fuel for space heating, cooking, and water-heating appliances in rural residences and commercial buildings; for portable applications such as outdoor grills, torches, and

agricultural equipment; and engine fuel for both off-road vehicles such as forklifts and on-road vehicles such as school buses and light trucks.

Coal and Uranium Mining

Currently there are 27 coal-mining permits administered by the Surface Mining and Reclamation Division. These mining permits, held by nine companies, cover approximately 319,000 acres in 18 counties. Of the 27 coal-mining permits administered, 18 mining operations no longer produce coal and are undergoing final land reclamation.

Efficiency Measure

- *Cost per Customer surveyed:* Staff determined the most cost-effective approach to surveying customers would be electronically through the Railroad Commission website.

Explanatory Measures

- *Number of Customers identified:* As described under Output Measure, Number of Customers served, it is difficult to quantify an exact number as the Railroad Commission has regulatory authority over many industries which in turn serve many Texans.
- *Number of Customer groups identified:* Eleven primary customer groups were identified. Please refer to Section 2, "Inventory of External Customers" for details.

Conclusion

In serving the people of Texas, the Railroad Commission of Texas remains committed to providing quality customer service. The results of the 2022 Customer Service Survey indicate that the employees of the Railroad Commission are succeeding in that effort. It also provides useful insight into the areas where improvements can be made, and the Commission will continue to improve and strive for excellence in service delivery.