Safety Culture Indicators Research Project: A Regulatory Perspective

Prepared by

North American Regulators Working Group on Safety Culture (NARWGSC)

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1. Background

The analysis of both historical and more recent major hazard accidents has revealed that organizational culture, specifically the values, attitudes, beliefs, and behaviours related to safety and risk[1], may positively or negatively influence safety and environmental protection outcomes.

In May 2013, a special meeting of North American oil and gas regulators was convened to discuss improving safety and environmental outcomes by leveraging safety culture. Representatives from the National Energy Board (NEB), Canada Newfoundland Labrador Offshore Petroleum Board (C-NLOPB), Canada Nova Scotia Offshore Petroleum Board (CNSOPB), United States' Bureau of Safety and Environmental Enforcement (BSEE), and the United States' Pipeline and Hazardous Materials Safety Administration (PHMSA) identified several opportunities to move a concerted safety culture effort forward, including:

o   Building a shared understanding of the term *safety culture* among regulators and regulated companies alike
o   Articulating clear regulatory expectations as they relate to safety culture
o   Collaborating on the development of reference and resource material for industry in order to provide clarity and consistency in terminology and safety culture dimensions and attributes, where possible.

In 2014, the Alberta Energy Regulator (AER) and the British Columbia Oil and Gas Commission (BCOGC) joined the working group. This group, known as the North American Regulators Working Group on Safety Culture (NARWGSC), has focused on exploring ways that regulators might support the improvement of safety culture across industry through research, learning, and sharing.

2. The Safety Culture Indicators Research Project

Early on, the NARWGSC recognized the need for a tool that could be used to gather and share valuable insights about how culture influences safety and environmental protection outcomes. The Safety Culture Indicators Research Project was initiated to meet this need; its objective was to identify a suite of indicators that could be used to facilitate greater awareness and understanding of cultural threats and defenses in the oil and gas industry.

The project engaged operational staff at each of the NARWGSC agencies in order to identify the nature and scope of safety culture signals observed during interactions with regulated entities. The tool was developed for potential use by regulators; however, the NARWGSC members committed to share the results with stakeholders and other interested parties in an effort to support a culture of learning across the sector.

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[1] Mearns, K., Flin, R., Gordon, R. & Fleming, M. (1998). *Measuring safety culture in the offshore oil industry.* Work and Stress, 12(3), 238-254. "Safety" includes safety of workers and the public, process safety, operational safety, facility integrity, security and environmental protection.

3. Project participants

All project participants were regulatory staff from member agencies of the NARWGSC. Regulatory personnel that had experience conducting inspections, investigations, audits or high-level meetings with company leadership were invited to participate in the study. Effort was made to include staff from all regulatory disciplines (e.g. safety, integrity (engineering), emergency management, security, and environmental protection).

4. Project methodology

One-on-one interviews (in person or by telephone) were conducted with participants. These interviews were confidential. The information collected and submitted for analysis was de-identified; the only data collected about the specific interviewee was the functional activity that best described the nature of their regulatory duties (e.g. inspection, investigation, audit, conducting of company meetings). No other personal identification information was recorded. Company names mentioned in the course of the interview were also removed prior to submission for analysis.

During the interviews, a representative[2] from the NARWGSC asked the participant a series of questions related to safety culture signals observed during prior regulatory activities. Questions were also asked about each participant's knowledge of safety culture. Please see Appendix A for the complete list of interview questions.

Fifty interviews were conducted. The qualitative data collected during the interviews were examined, separated, and coded based upon topic area. The coded data were then analyzed further to identify emerging themes. These themes were correlated with various safety culture frameworks (e.g. the NEB, CNSOPB and C-NLOPB's Statement on Safety Culture[3] framework, the framework proposed by the International Atomic Energy Agency[4], and the framework proposed by the Institute of Nuclear Power Operations[5]) in order to complete a cursory validity check.

Each indicator was classified for presentation purposes based upon its relevance to four Safety Culture dimensions *Safety Leadership Commitment; Vigilance; Empowerment and*

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[2] In most instances, the interviewer and interviewee were from the same regulatory agency.

[3] Advancing Safety Culture in the Oil and Gas Industry: Statement on Safety Culture. https://www.neb-one.gc.ca/sftnvrnmnt/sft/sftycltr/sftycltrsttmnt-eng.html

[4] IAEA No. 75-INSAG-4 Safety Culture. http://www-pub.iaea.org/MTCD/publications/PDF/Pub882_web.pdf

[5] INPO Doc12-012 Traits of a Healthy Safety Culture. http://pbadupws.nrc.gov/docs/ML1303/ML13031A707.pdf

Accountability; and *Resiliency.* These dimensions are consistent with the positive dimensions found in the aforementioned Statement on Safety Culture.

Finally, each indicator was structured within a Safety Culture maturity model, which allowed for the depiction of the dynamics associated with Safety Culture and the natural process that tends to occur in companies committed to Safety Culture improvement - cultural maturity is realized over time.

5. Outcomes: The Suite of Indicators

The complete suite of indicators developed as a result of this research project may be found in Appendix B.

The indicators have been crafted so that they may be universally applied to any organization regardless of size, activity or facility type. Further, the suite has been designed such that they can be used comprehensively or selectively to fit the unique needs of an organization.

The indicators do not measure Safety Culture directly; instead they point to organizational signals of strength or weakness that may provide an indication of the relative health of the culture.

It is important to emphasize that the indicators are not a final product intended to represent a list of prescriptive regulatory requirements, an audit protocol or a detailed action-oriented plan for achieving safety culture within a company. Instead, they provide additional reference material and guidance about the attributes of a Safety Culture at various stages of development.

The Indicators Are…	They are not…
• Part of a broader safety culture toolkit that may help others to understand and identify cultural strengths and weaknesses	• An audit protocol
• A tool that could be used to identify data points for collection and analysis by culture experts	• A prescriptive list of regulatory requirements
	• A compliance or inspection checklist
	• A tool used for regulatory enforcement
• A detailed and more concrete description of the safety culture dimensions found in the Statement on Safety Culture (released June 2014)	• Required to be adopted by industry

6. Next steps

The NARWGSC intends to continue its efforts to advance safety culture and it will consult with industry members and culture experts on how these indicators may be further developed and used to facilitate continual improvement in this important area.

Contact information

- Email: safetyculture@neb-one.gc.ca

- Claudine Bradley
  National Energy Board
  517 Tenth Avenue SW
  Calgary, Alberta
  T2R 0A8

  - Fax: 403-292-5503 or 1-877-288-8803 (toll free)

Appendix A: Safety Culture Indicators Research Project Interview Questions

1. Can you tell me about a time when you were conducting a(n) _____(inspection, investigation, audit, company meeting) when you were left with a concern(s) about that company's commitment to safety (or safety culture)?
2. What did you see/hear/observe that resulted in a belief that there was an indication of a poor safety commitment/safety culture?
3. Tell me about a time when you were conducting a(n) _____(inspection, investigation, audit, company meeting) when you were left with sense of comfort about that company's commitment to safety (or safety culture)?
4. What did you see/hear/observe that resulted in a belief that there was an indication of a positive safety commitment or culture?
5. Think of a company that you perceive to have strong safety commitment and performance: what is it about that company that leads you to that conclusion?
6. Think of a company that you perceive to have poor safety commitment and performance: what is it about that company that leads you to that conclusion?
7. In your own words, describe what safety culture means to you.
8. To what degree do you think you can gain a grasp of a company's safety culture during oversight activities?

Appendix B

	Committed Safety Leadership		
	Safety is an organizational value demonstrated by a leadership commitment and expressed by providing adequate resources, systems, and rewards to serve this end. Senior leaders recognize that commercial goals and safety can come into conflict and take measures to identify and resolve such conflicts in a transparent and effective manner. The strategic business importance of safety is reflected in the company's strategy, business plans and processes. Committed Safety Leadership Attributes: • Direct participation of leaders in the safety system • Leader inquiry, knowledge and understanding of threats • Leaders taking action to address hazards and deficiencies in the system • Leaders valuing safety efforts and expertise		
	Indicators of Significant Weakness	**Indicators of Some Weakness**	**Indicators of Strength**
1.	Leaders are not knowledgeable about the regulations, their own procedures and current worksite safety activities, issues and challenges (i.e. causes of recent incidents, results of previous audits, etc.). Their description of safety status/performance does not match with documented issues or with inspector's assessment of worksite.	Leaders are somewhat knowledgeable about the regulations, their own procedures and current safety activities, issues and challenges (i.e. causes of recent incidents, results of previous audits, etc.). There is awareness of general trends or themes but little detailed knowledge demonstrated during interactions.	Leaders are knowledgeable about the regulations, their own procedures and current safety activities, issues and challenges, such as causes of recent incidents, results of previous audits and ongoing or new safety programs.
2.	Leaders are not involved at all in incident investigations/reviews and all safety issues are delegated to safety professionals.	Leaders are involved in some incident investigations/reviews or are brought in to assist in the resolution of safety issues on an ad hoc basis.	Leaders are routinely involved in incident investigations/reviews and in resolving safety issues.
3.	Leaders do not allocate specific time to safety (including engaging directly with frontline staff about safety concerns and solutions).	Some leaders dedicate a limited amount of time to safety (including speaking to the frontline about safety concerns and solutions).	All leaders routinely dedicate significant time to safety, which includes talking to frontline staff about safety concerns and potential solutions.
4.	Leaders do not adhere to safety rules and procedures.	Leaders sometimes comply with safety rules and procedures, but occasionally do not adhere to them for the sake of expediency, convenience, etc.	Leaders comply with all safety rules and procedures.
5.	There is no accountable officer designated.	An accountable officer has been designated, however this individual does not have the level	There is an accountable officer (AO) designated. This delegation is appropriate based upon the

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		of authority and control for the organization's human and financial resources necessary to hold the position OR the appointed AO fails to demonstrate understanding of and commitment to the role.	organizational structure (i.e. the correct person is delegated with the authority and control for human and financial resources). The AO demonstrates understanding of and commitment to the role and responsibilities. There is evidence of the AO taking action to resolve issues.
6.	The AO is inaccessible to key safety personnel.	The process of contacting the AO limits direct access by staff.	Mechanisms are in place and key safety personnel are able to demonstrate that there is unfettered access to the AO to inform and advocate for appropriate resourcing to address safety issues.
7.	The AO is unaware of safety issues (including efforts to manage/mitigate concerns).	AO demonstrates some knowledge of current safety issues.	AO demonstrates knowledge of current safety issues including efforts to manage/mitigate concerns.
8.	Leaders do not attend system safety training.	There is variability across the organization. Some leaders choose to attend system safety training alongside other staff while others do not or only participate in abbreviated training for leaders.	All leaders (including AO) attend system safety training alongside other staff.
9.	Leaders express and/or demonstrate an over-confidence in the safety system. They fail to inquire about what is going wrong in specific parts of the organization (i.e. seek out evidence of system weaknesses that require attention and/or resolution).	Some leaders inquire about and seek to know what is going wrong in specific parts of the organization (i.e. system weaknesses that require attention and/or resolution).	All leaders actively inquire and seek to know what is going wrong (rather than right) across the organization (i.e. system weaknesses that require attention and/or resolution).
10.	Leaders are not involved and cannot demonstrate or articulate how they and their staff contribute to the achievement of safety goals, objectives, and targets.	Some department leaders are able to demonstrate or articulate how their department's activities contribute to safety goals, objectives, and targets.	Leaders of all departments (including HR, Finance, and Procurement) can demonstrate or articulate an understanding of their personal, team, and departmental role in achieving safety goals, objectives, and targets.
11.	Safety performance meetings with leaders occur very infrequently or not at all, prohibiting the reporting of performance trends or issues requiring timely resolution.	Safety performance meetings with leaders occur at a minimum semi-annually. These meeting present performance data and track completion of corrective actions.	Quarterly safety meetings are held with all leaders (including the AO) to discuss safety performance to date, incident trends, audit and inspection findings and resultant complete or overdue corrective and preventive actions, and review and possible redeployment of resources to meet organizational safety needs.
12.	Executive meetings do not include safety	Some executive safety meetings, which include	All executive meetings include safety briefings

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	briefings and discussions regarding current performance, issues of concern (threats), and resourcing adequacy.	safety briefings and discussions regarding current performance, issues of concern (threats), and resourcing adequacy are conducted on an ad hoc basis, typically following an incident or significant near-miss.	and discussions about current performance, issues of concern (threats), and resourcing adequacy.
13.	Board meetings do not include safety briefings and discussions regarding current performance, issues of concern (threats), and resourcing adequacy as part of the organization's governance process.	Safety briefings and discussions regarding current performance, issues of concern (threats), and resourcing adequacy are conducted with Board Members on an ad hoc basis, typically following an incident or significant near-miss.	All board meetings include safety briefings and discussions regarding current performance, issues of concern (threats), and resourcing adequacy.
14.	Safety expertise does not appear to be highly valued within the organization. Safety professionals do not hold higher management positions within the organization.	Some safety professionals hold higher management positions within the organization.	Safety expertise is highly valued within the organization and safety professionals hold higher management positions.
15.	Leaders of operational departments fail to engage safety personnel with specialized skills related to hazard identification and risk analysis when developing business cases, making process or procedural changes or other operational decisions.	On occasion, certain leaders of operational departments engage safety personnel with specialized skills related to hazard identification and risk analysis when developing business cases, making process or procedural changes or other operational decisions in order to support the identification of new, increasing or changing risk.	Leaders of operational departments actively engage safety personnel with specialized skills related to hazard identification and risk analysis when developing business cases, making process or procedural changes or other operational decisions in order to support the identification of new, increasing or changing risk.

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	Vigilance		
	Vigilance refers to organizational preoccupation with failure and the willingness and ability to draw the right conclusions from all available information. The organization implements appropriate changes to address the lessons learned. It includes the continual collection and analysis of relevant data in order to identify hazards (human, technical, organizational and environmental factors) and manage related risk. The organization actively disseminates safety information in order to improve overall awareness and understanding of risks to safety. People are encouraged and willing to report safety concerns (unsafe conditions, errors, near-misses, incidents) without fear of blame or punishment. Employees trust that the information they submit will be acted upon to support increased awareness, understanding, and management of threats to safety. Errors and unsafe acts will not be punished when these events are unintended; however, it is clear that those who act recklessly or take deliberate and unjustifiable risks will still be subject to disciplinary action. Vigilance Attributes: • Knowing what is going on, through a proactive surveillance process • Understanding safety information through analysis and interpretation • Everyone proactively reporting errors, near-misses, and incidents • Sharing information and interpretation to create collective understanding of current status of safety and anticipated future challenges • Taking action on learning		

	Indicators of Significant Weakness	Indicators of Some Weakness	Indicators of Strength
1.	Incident investigations are only conducted when required by regulation. Near misses and minor incidents are not investigated.	All recordable incidents are investigated and high potential near misses are investigated.	All incidents, near misses and other safety events are investigated, including contractor incidents.
2.	Investigations are not completed in a timely manner. Results of investigations are so delayed they are of limited value.	There is significant variability in the speed with which investigations are completed.	All investigations are completed in a timely fashion (relative to risk posed).
3.	Investigations only focus on the direct causes of the incident with no consideration of human and organizational factors.	Some investigations consider human and organizational factors.	All investigations consider the complete range of potential causes including human and organizational factors.
4.	Investigations are conducted by staff that does not have the required training or experience to be considered competent at conducting investigations.	Some investigations are conducted by staff that does not have the required training or experience to be considered competent at conducting investigations.	All investigations are conducted by staff that have the required training or experience to be considered competent at conducting investigations.
5.	No meaningful action is taken to resolve issues identified during investigations or to prevent a reoccurrence of incidents.	Limited actions are taken to resolve issues identified during investigations or to prevent a reoccurrence of incidents.	All issues identified by investigations are resolved in a timely manner across the organization. The effective implementation of

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			improvement actions is tracked.
6.	Investigations focus on identifying the individuals responsible rather than learning about system failings.	Investigations focus on the immediate conditions that contributed to the incident.	Investigations focus on identifying the system failures.
7.	Investigation findings are viewed as unique events that are not likely to occur again and not relevant to other parts of the organization.	Some investigation findings are generalized to the entire organization.	All investigation findings are generalized to the entire organization.
8.	Investigation findings are not communicated within the organization.	There is limited or variable communication of investigation findings.	Investigation findings are communicated across the organization and with other relevant stakeholders (contractors, broader industry and regulator).
9.	No trending of incidents and near-misses is conducted.	There is limited trending of incidents and near-misses.	Incidents and near-misses are trended on a regular basis in order to identify themes and trends that require redress based on similarities of type and repeat occurrences.
10.	There is a reliance on incident and lost time injury rates as overall indicators of system safety.	The company has a small suite of safety performance indicators, which capture data related to more than just incident and lost time injury rates as a measure of system safety.	The company has a suite of performance indicators, which capture data related to process safety, environmental performance, emergency management, security, and occupational health and safety.
11.	Performance against safety objectives, targets and goals are not monitored for potential organizational correction as necessary.	Performance against safety objectives, targets, and goals is tracked and some trending is conducted in order to inform the organization of areas of improvement.	Performance related to indicators is tracked, trended and organizational adjustments are made when targets, goals, and objectives are not met.
12.	Incident, near-miss, hazard and error reporting rates are declining.	Incident, near-miss, hazard and error reporting rates are static.	Incident, near-miss, hazard, and error reporting rates (quantity) are increasing.
13.	Incident, near-miss, hazard, and error reports submitted are of poor descriptive quality.	There is variability in the descriptive quality of incident, near-miss, hazard, and error reporting.	Incident, near-miss, hazard, and error reporting quality is good or improving as people recognize that more descriptive and meaningful data supports improved system safety.
14.	There is no non-punitive reporting policy in place and employees are fearful of repercussions should they report incidents, near-misses, hazards or errors.	There is a non-punitive reporting policy in place; however employees are unaware of it and/or remain apprehensive about possible repercussions should they report incidents, near-misses, hazards or errors.	Employees are aware of the organization's non-punitive reporting policy and feel comfortable reporting incidents, hazards, near-misses, and errors. There is no fear of reprisal.
15.	There is no communication back to those	There is limited communication to those who	Individuals who report incidents, hazards, near-

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	who submit incident, near-miss, hazard or error reports acknowledging receipt of the report, results of the related review or investigation and mitigation actions taken.	submit incident, near-miss, hazard or error reports acknowledging receipt of the report, results of the related review or investigation and mitigation actions taken.	misses, and errors receive feedback on related reviews or investigations and actions taken.
16.	Hazards and mitigations are not communicated to those who may be exposed in advance of starting an activity or operation that puts them in harm's way.	Limited hazards and mitigations are communicated to those who may be exposed in advance of starting an activity or operation that puts them in harm's way.	Hazards and mitigations are communicated to anyone who may be exposed in advance of starting an activity or operation that puts them in harm's way.
17.	Hazard identification efforts fail to identify or address human and organizational factors that may impact system safety.	Some human and organizational factors that may impact system safety are identified or addressed in hazard identification efforts. Some mitigation measures may be implemented.	Human and organizational factors that may impact system safety are identified or addressed in hazard identification efforts. Mitigation measures are implemented to manage related risk.
18.	Management reviews are not conducted annually.	Management reviews are conducted infrequently and/or without senior leadership's direct involvement.	Management reviews are completed annually with senior leadership's direct involvement.
19.	There is no formal audit plan, which covers all functional areas of the organization.	A formal and comprehensive audit plan exists, but is not consistently resourced or executed to plan.	Formalized audits are planned and conducted in all functional areas of the organization in order to identify non-compliances, non-conformances, and other potential hazards related to safety and environmental protection.
20.	Risk management processes and procedures are not documented. Those performing the work are not adequately trained or competent to perform the work.	Risk management processes and procedures are poorly documented. As a result, they are inconsistently applied.	Risk management processes and procedures are documented and consistently employed by trained and competent personnel.
21.	Risk assessments are conducted without follow up to assure implementation and effectiveness.	Risk assessments are conducted with little follow up to assure implementation and effectiveness.	Risk assessments are conducted, and mitigation measures are developed, implemented and assessed for effectiveness.
22.	Non-compliances/non-conformances are not documented, tracked, or trended (regardless of their source).	Non-compliances/non-conformances are poorly documented and tracked; limited trending is performed.	Non-compliances/non-conformances (identified by the regulator, third party auditors or by other internal means) are documented, tracked, and trended.
23.	Non-compliances/non-conformances are viewed as unique events that are not likely to occur again and not relevant to other parts of the organization.	Some non-compliances/non-conformances are generalized to the entire organization.	All non-compliances/non-conformances are generalized to the entire organization. Systemic failures, which may have caused or contributed to them, are identified.
24.	No meaningful actions are taken to resolve safety issues identified or to prevent a	Limited actions are taken to resolve safety issues identified or to prevent a reoccurrence of a non-	All non-compliances/non-conformances and other safety issues identified are resolved in a

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	reoccurrence of a non-compliance/non-conformance.	compliances/non-conformance.	timely manner across the organization. The effective implementation of improvement actions is tracked.
25.	Appropriate non-compliances/non-conformances and related corrective and preventive actions are not communicated within the organization.	There is limited or variable communication of appropriate non-compliances/conformances and related corrective and preventive actions.	Appropriate non-compliances/non-conformances and related corrective and preventive actions are communicated across the organization.
26.	There are no means for collecting, analyzing and acting upon information about potential hazards from external sources (regulators, local responders, contractors, communities, etc.).	There are some mechanisms for collecting, analyzing and acting upon information about potential hazards from external sources (regulators, local responders, contractors, communities, etc.).	Information from a wide range of sources (regulators, communities, local responders, contractors, etc.) is collected, analyzed, and acted upon in support of hazard identification and system safety.
27.	The company takes a defensive or hostile posture when receiving negative feedback from others (regulators, local responders, communities, etc.) on safety and environmental protection issues/performance.	The company is disinterested in feedback from others (regulators, local responders, communities, etc.) on safety and environmental protection issues/performance. It will take action only if issues are viewed as critical.	The company is receptive to feedback (positive and negative) from others (regulators, local responders, communities, etc.) on safety and environmental protection issues/performance.
28.	The company does not actively engage in the sharing of safety related information and intelligence with others (regulators, communities, local responders, other companies, other industries, etc.).	The company shares limited safety related information and intelligence with others (regulators, communities, local responders, other companies, other industries, etc.).	The company actively shares safety related information and intelligence with others (regulators, communities, local responders, other companies, other industries, etc.) through conferences, working groups, benchmarking exercises, etc.
29.	The company does not engage with other high hazard industries (e.g. nuclear, chemical, and aviation) in order to learn from their experiences.	The company infrequently engages with other high hazard industries (e.g. nuclear, chemical, and aviation) in order to learn from their experiences.	The company seeks opportunities to learn from other high hazard industries such as nuclear, chemical, and aviation.
30.	There is no external communication (through industry working groups, etc.) of incidents and near-misses, their causal and contributing factors, and corrective and preventative actions.	There is late (untimely) or limited external communication (through industry working groups, etc.) of incidents and near-misses, their causal and contributing factors, and corrective and preventative actions.	Incidents and near-miss scenarios are shared externally (through industry working groups, etc.) along with results of investigations, including the causal and contributing factors and actions taken to prevent recurrence.
31.	Incentive programs promote the withholding of information (reporting of incidents, near-misses, errors) and prevent organizational learning from these events.	Incentive programs do not encourage suppression of incident reporting but they also do not promote organizational learning.	Incentive programs are developed in such a way that they promote organizational learning processes and behaviours.
32.	As a matter of practice, the company waits	The company infrequently engages the regulator	The company routinely engages the regulator to

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	for the regulator to clarify regulatory expectations rather than clarifying these expectations proactively.	to clarify regulatory expectations in an effort to meet the minimum regulatory requirements.	clarify regulatory expectations in order to ensure that its actions are both compliant and effective (i.e. actions meet the letter and spirit of the regulatory requirements).
33.	During interactions with the regulator, direct engagement with field level staff is restricted (e.g. staff are not permitted to ask or answer questions or participate in kick-off or closing meetings). Workers seek out the regulator privately to raise concerns.	During interactions with the regulator, direct engagement with field level staff is limited.	There is unrestricted access to and communication with field level staff during regulatory oversight activities.
34.	Regulatory whistle blower mechanisms are frequently employed by personnel in order to resolve safety concerns after internal attempts fail or because of fear of reprisal by management.	Regulatory whistle blower lines are rarely used and reflect localized or individual issues rather than systematic failures.	Regulatory whistle blower mechanisms are never used, as internal mechanisms are perceived as safe and effective.

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Empowerment and Accountability		
Management benefits from the expertise of frontline workers in order to achieve better solutions to meet safety challenges. Employees feel that they can stop any activity when they notice a potential hazard in order to mitigate, eliminate, or report it even when that may have an impact on production or costs. Accountabilities and responsibilities for safety are clearly established and documented at all levels of the organization. Ownership for safety outcomes is present at all levels and functional areas of the organization. Empowerment and Accountability Attributes: • Employee participation in safety management activities • Organization-wide safety ownership and communication • Willingness to do what is right in regards to safety • Breaking down of organizational silos		

	Indicators of Significant Weakness	Indicators of Some Weakness	Indicators of Strength
1.	Teams, business units, etc. work in silos with little to no interactions with other parts of the organization when making decisions or taking future actions that may impact safety (short and long term).	Some teams share information about their activities and seek feedback from other parts of the organization in order to understand the possible safety impact (short and long term) of decisions and future actions.	Teams willingly share information about their activities and seek feedback from other parts of the organization in order to understand the possible safety impact (short and long term) of decisions and future actions.
2.	When asked, staff express a lack of understanding of safety related expectations and responsibilities.	When asked, staff express an inconsistent understanding of safety related expectations and responsibilities.	When asked, there is consistent understanding of safety related responsibilities and expectations expressed by staff across multiple locations.
3.	There is a notable difference between staff responses to questions during interviews or meetings when management is present. Employees present a positive picture of safety when in the presence of managers and only raise concerns when managers are not present.	Employees are somewhat more positive about safety in the presence of managers in comparison to when they are absent.	When interviewing or meeting with staff, consistent responses are given regardless of whether management is present.
4.	Site and safety orientations across locations are consistently poor.	There is variability in the quality of site and safety orientations across locations.	Regardless of location, site and safety orientations are consistently delivered to a high standard.
5.	Personnel report feeling reticent to stop work as the first line of defense against an incident.	There is significant variability in personnel's sense of empowerment as it relates to stopping work or suspending operations (e.g. by site,	Personnel (regardless of position) report feeling empowered to stop work and/or suspend operations as the first line of defense against an

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		regions, etc.) as the first line of defense against an incident.	incident.
6.	If operations are suspended, there is pressure to bring operations back on line or resume work regardless of whether a cause or explanation has been identified, confirmed based upon the evidence available, and remedies put in place per recommendations of individuals with the greatest expertise.	There is significant variability in pressure to bring operations back on line or resume work after a suspension of operations (e.g. by site, regions, etc.) when the situation has not yet been fully understood and remedied. There is limited reliance on recommendations of individuals with the greatest expertise.	If operations are suspended, there is no pressure to bring operations back on line or resume work until the situation has been understood (i.e. a cause or explanation has been identified and confirmed based on the evidence available) and remedied per recommendations of individuals with the greatest expertise.
7.	Personnel report feeling uncomfortable reporting concerns to supervisors, managers, senior leaders and/or investigators. They are afraid that doing so may result in some form of reprisal.	There is significant variability in personnel's described comfort to report concerns without fear of reprisal (e.g. by site, regions, etc.)	Most personnel report feeling comfortable reporting concerns to supervisors, managers, senior leaders and/or investigators without fear of reprisal.
8.	There is no evidence that Joint Occupational Health and Safety worker representatives are integral voices within the safety system. They are excluded from regulatory safety meetings, such as inspection kick-off discussions.	There is variability in the role that Joint Occupational Health and Safety worker representatives play within the safety system (e.g. by site, regions, etc.).	Joint Occupational Health and Safety worker representatives are viewed as important parts of the safety system, e.g. they are invited to and attend kick-off inspection or audit meetings.
9.	There is no evidence that Joint Occupational Health and Safety worker representatives participate in incident/near-miss investigations.	There is variability the role that Joint Occupational Health and Safety worker representatives play during incident/near-miss investigations.	Joint Occupational Health and Safety worker representatives participate in incident/near-miss investigations.
10.	Personnel do not step in when they observe unsafe behaviours; there is no safety accountability to others on the team or in the organization. Personnel do not keep a look out for unknown hazards or fail to report them when they are observed.	There is significant variability in the degree to which personnel hold each other accountable for safe behaviours and remain vigilant to unknown hazards, and whether hazards are reported when they are observed.	Personnel hold each other accountable for safe behaviours and remain vigilant to unknown hazards, and whether hazards are reported when they are observed.
11.	Violations of the rules are ignored or even encouraged to get the job done (on budget, in time, etc.)	There is variability in how violations of the rules are handled by leaders.	Violations are investigated to determine causal and contributing factors and action is taken to prevent recurrence.
12.	Most personnel are unable to clearly articulate their own roles and responsibilities for safety and that way in which they manage their own personal safety.	Some personnel can articulate their roles and responsibilities for safety and how they manage their own personal safety.	Most personnel can articulate their roles and responsibilities for safety and how they manage their own personal safety.

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Resiliency		
Resiliency is the capability to respond effectively to changing demands in order to manage potential or emerging risk. There are organizational mechanisms in place to manage complex activities, and to constantly meet the fluctuating demands of a high hazard industry. There is a reluctance to simplify problems and situations in order to arrive at a solution. The organization allows decisions to be made by frontline employees and allows authority to migrate to the employees with the most expertise, regardless of their level in the company. The organization is committed to developing capabilities to detect, contain, and rebound from errors that may occur. Resiliency Attributes: • Recognizing the introduction of new or changing threats in the operating environment • Ensuring employees (at all levels) have adequate knowledge and skill related to error management • The organization having the capacity, diversity and redundancy to manage risk • The organization responding to unanticipated or changing conditions in a timely and effective manner • High quality procedures, policy, and guidance		

	Indicators of Significant Weakness	Indicators of Some Weakness	Indicators of Strength
1.	Personnel do not attend system safety training.	There is variability across the organization. Some personnel attend system safety training.	All personnel attend system safety training alongside other staff.
2.	Most personnel are unable to identify and describe process safety hazards, which they are exposed to during their work. As a result, they are unaware of the related risks and required risk management interventions.	Some personnel are able to identify and describe process safety hazards, which they are exposed to during their work. They understand the unique hazards and risk associated with their work and their facility.	Most personnel are able to identify and describe process safety hazards, which they are exposed to during their work. They understand the unique hazards and risk associated with their work and their facility.
3.	Decision making powers are removed from local management and centralized towards the top of the organization; this applies to decisions needed in the interest of safety.	There is variability in the degree to which local management is empowered to make decisions in the interest of safety.	Local management is empowered to make decisions in the interest of safety without seeking approval from senior leaders.
4.	Decisions are made by those with seniority rather than the person with the greatest knowledge or skill.	Decisions are made by those with seniority with input from those with greatest knowledge or skill.	Decisions are made by those with greatest knowledge or skill irrespective of level of seniority.
5.	There is little sense of professionalism or operational excellence. There is a tolerance of inadequate systems, equipment, resources, and outcomes.	There is significant variability in the sense of professionalism and operational excellence expressed by personnel as demonstrated by the tolerance for inadequate systems, equipment, resources, and outcomes.	Personnel apply high and exacting standards to their work. They are unwilling to accept inadequate systems, equipment, resources, and outcomes, as well as poor conditions, or substandard results.

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6.	Personnel are assigned duties, which they are not trained, experienced, competent, or certified to perform. Inexperienced personnel are assigned duties without adequate oversight and supervision.	There is variability in degree to which personnel are trained, experienced, competent or certified to perform duties assigned (e.g. by site, region, activity, contractor, etc.).	All personnel are trained, experienced, competent or certified to perform all duties to which they are assigned.
7.	There are inadequate human resources allocated to meet inspection, audits, and review targets and plans.	Certain oversight activities (inspections, audits, or reviews) are resourced effectively to meet targets and plans, while others are not (i.e. disparities may exist by activity type or region).	There are adequate human resources allocated to meet inspections, audits, and review targets and plans. Oversight activities are carried out as scheduled.
8.	Poor relations or tensions exist between management and field level staff.	There is variability in the state of labour relations across the organization (e.g. by site, region, etc.).	There are positive labour relations characterized by things such as mutual respect, open communication, employee participation on Joint OSH committees, worker involvement in incident investigations, etc.
9.	Policies, procedures, and expectations are ambiguous or absent in company documentation.	Policies, procedures, and expectations are inconsistently documented. There is variability in the quality of written policies, procedures, and expectations.	Policies, procedures, and expectations are clear, up-to-date, and consistent in and across company documentation.
10.	Procedures are outdated or not practical for the operating environment.	Some procedures are outdated or not practical for the operating environment; however, these issues have been identified via internal review and the amendment process is underway with appropriate timelines relative to risk.	Documented procedures are current and practical for the operating environment. If changes or improvements are identified, procedures are revised and communicated to those affected in a timely fashion.
11.	Documentation and manual updates, critical procedural reviews, operational and management system amendments, etc. are given a low priority and timelines are protracted beyond a reasonable level.	Documentation and manual updates, critical procedural reviews, operational and management system amendments, etc. are given a high priority; however, there is a failure to meet identified timelines.	Documentation and manual updates, critical procedural reviews, operational and management system amendments, etc. are given a high priority and activities are completed in a timely fashion.
12.	There are poor safety standards across multiple sites.	There is variability in safety standards across multiple sites.	Consistently high safety standards are demonstrated across multiple sites.
13.	The company consistently fails to meet regulatory requirements until formal regulatory enforcement action is taken against the company (via administrative monetary penalty, legal order, etc.)	The company consistently fails to meet regulatory requirements and standards until the regulator makes a field-level notification of a non-compliance.	The company consistently meets regulatory requirements and exceeds regulatory standards in many instances (e.g. introduces changes prior to regulations going into effect).
14.	There are inadequate resources to resolve important safety issues once identified.	There is variability in the resourcing of activities intended to resolve safety issues once identified.	Personnel are able to provide multiple examples of proactively receiving adequate resources to

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			resolve safety issues once identified.
15.	There is a poor level of knowledge about company policy and procedures demonstrated by personnel.	There is significant variability in the level of knowledge about organizational policy and procedures demonstrated by personnel.	Personnel demonstrate knowledge of organizational policies and procedures.
16.	The company fails to follow through on regulatory commitments (e.g. approval conditions) or is unresponsive to regulator requests.	The company is late following through on regulatory commitments and does not respond to regulatory requests in a timely fashion.	The company is committed to and meets all regulatory commitments, including approval conditions.
17.	There is no hazard inventory developed and/or documented prior to start of operations.	Some hazards have been identified prior to the start of operations, but these may be poorly or inconsistently documented.	All hazards are identified prior to the start of operations.
18.	Hazards are not identified and mitigation measures are not developed or implemented prior to start of operations (project or activity specific).	Some hazards are identified and some mitigation measures are developed or implemented prior to start of operations (project or activity specific).	Hazards are identified and mitigation measures are developed and implemented prior to the start of an operation (project or activity specific).
19.	The hazard inventory is not updated as conditions change and/or new hazards are identified during the life of the activity or operation.	Some, but not all newly identified hazards are added to the hazard inventory during the life of the activity or operation.	The hazard inventory is updated as conditions change and/or new hazards are identified during the life of the activity or operation.
20.	Corrective and preventive action plans are not developed or are of poor quality, failing to adequately address identified deficiencies.	Corrective and preventive actions plans are developed; however there is no means for tracking progress, completion, or effectiveness.	Corrective and preventive action plans are developed and tracked for implementation and effectiveness.
21.	Following the identification of deficiencies, timelines are assigned to activities without consideration for level of risk posed.	Following the identification of deficiencies, timelines are assigned to activities based upon multiple factors with some consideration for the level of risk posed.	Risk assessments are conducted for identified deficiencies in order to determine appropriate response timelines.
22.	Management reviews fail to actively identify organizational deficiencies and opportunities for improvement. There is evidence that no substantive improvement actions are taken following annual management reviews.	There is evidence of some improvement efforts following management reviews; however these efforts tend to represent marginal system enhancement.	Management reviews are rigorous and focus on seeking opportunities for improvement. There is evidence of substantive improvement actions being taken following the completion of management reviews (i.e. reviews target organizational deficiencies and improvement rather than simply validating current practices).
23.	There are consistent and recurring non-compliances over a period of years.	There are several recurring non-compliances over a period of years.	The company learns from past events and as a result, there are few to no recurring non-compliances.

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24.	There is poor upkeep of facilities across regions or sites.	There is no consistency in the upkeep of facilities across various regions or from site to site	All facilities are maintained to a consistently high standard (regardless of region or specific site).
25.	Condition of equipment is consistently poor across sites.	At some sites, the condition of equipment is poor.	Equipment is consistently well maintained.
26.	There are poor, limited, or no records of operations and maintenance activities (e.g. there are record keeping lapses, inaccuracies, etc.).	There is variability in the accuracy and completeness of operations and maintenance records.	Operations and maintenance records are of a high standard (i.e. they are accurate, complete, and comprehensive).
27.	Environmental issues (minor spills and releases that affect the environment) are viewed as housekeeping issues rather than failures of environmental protection measures.	At some sites, environmental issues (minor spills and releases that affect the environment) are viewed as housekeeping issues rather than failures of environmental protection measures.	Environmental issues (minor spills and releases that affect the environment) are viewed as failures of environmental protection measures as opposed to simple housekeeping issues. As a result, these issues are investigated to understand how deficiencies may be addressed to prevent recurrence.
28.	Oversight and monitoring of contractors is absent or very poor. There are absent or ineffective bridging documents and little to no surveillance of contractor activities.	Oversight and monitoring of contractors is poor. There is a primary reliance on the bridging documents with limited surveillance for implementation and effectiveness.	There is robust oversight and monitoring of contractor performance, including direct surveillance and auditing of adherence to obligations as noted in all bridging documents.
29.	Contractor procurement and selection process is based upon the lowest bid/price with no consideration of past safety performance.	Contractor procurement processes use limited safety indicators of past performance, but go beyond lost time injury rates.	Contractor procurement processes effectively vet potential third parties based upon overall safety performance (safety management system effectiveness and leading and lagging indicators).