



Utility Safety, Error Reduction and Human Performance

The Process ■ The Tools



THE
ENGINE ROOM

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The Process

To create rapid, sustainable improvements, it's essential to truly understand a team's critical issues before prioritizing resources and efforts to generate the highest returns. As such, The Engine Room works closely to only focus on the safety program gaps that are identified and the specific tools that support accelerated safety performance.

1 Error Reduction and Human Performance Introduction and Alignment

- Review error reduction and human performance strategies with the senior safety department and operational leaders to introduce the methodology and explore the implications. Agreement and alignment that the opportunity is real and exists.

2 Operational Safety Diagnostic

- Identifies, measures and assesses the root causes of current safety road blocks and opportunities and prioritizes high value target areas.
- Determines the degree to which safety processes and systems conflict with or align with error reduction and human performance principles.
- Provides a concrete unbiased identification of the employees' approach to safety and the safety opportunities present with mitigation strategies to act on.
- Executed quickly 2-3 weeks from start to finish, with little to no disruption to ongoing operations.

Diagnostic Tools

Operational Safety Diagnostic Report, Executive Safety Diagnostic Presentation

3 Organizational Safety Program Alignment and Acceleration

- Area Leadership, Safety and HR advisors review report findings, strategies and prioritization for moving into the safety implementation phase supporting alignment across departmental lines.
- Align the current organizational safety program to include error reduction and human performance implementation strategy, accelerating existing safety program goals.
- Work with safety team to make subtle adjustments to current safety program tools and processes not aligned with error reduction strategies. (Not recreating the wheel – tightening the bolts to accelerate traction and increase the scope of behaviours that prevent errors).

Program Alignment Tools

Inter-departmental Alignment Review, Cascading Safety Matrix

4 Error Reduction and Human Performance Implementation and Sustainment

- Implementation of error reduction training and tools to target working group including introduction to error reduction theory, safety leadership, in field tools and field execution.
- Field roll out and safety leadership acceleration through in-field coaching with the target working group in application strategies and techniques to increase their capability as safety leaders, contribute effectively to error reduction, and avoid the serious pitfalls which increase error rates like not properly assessing risk.
- Focus on frontline implementation and execution of error reduction leadership tools. Hands on, boots on the ground habit creation and anchoring with focus on building robust safety habits and executing day to day work with crews.

Implementation Tools

Safety Leadership Training, Safety Leadership Coaching, Field Observation FOE (Focus of Effort), Safety Leadership Matrix, Safety Business Review, Safety Habit Identification, Safety Due Diligence Report, Safety Activity Quality Audit, Safety Sustainment Plan



The Tools

We believe that by tailoring **Implementation Tools** to the specific needs of the organization and the root cause findings of the **Operational Safety Diagnostic**, we provide razor focus to the specific areas of safety performance that require improvement and the specific safety leadership gaps that may be affecting them.

- Safety Leadership Training
- Safety Leadership Coaching
- Cascading Safety Matrix
- Field Observation FOE (Focus of Effort)
- Safety Habit Identification
- Safety Business Review
- Safety Leadership Matrix
- Safety Activity Quality Audits
- Safety Due Diligence Report
- Safety Sustainment Plans



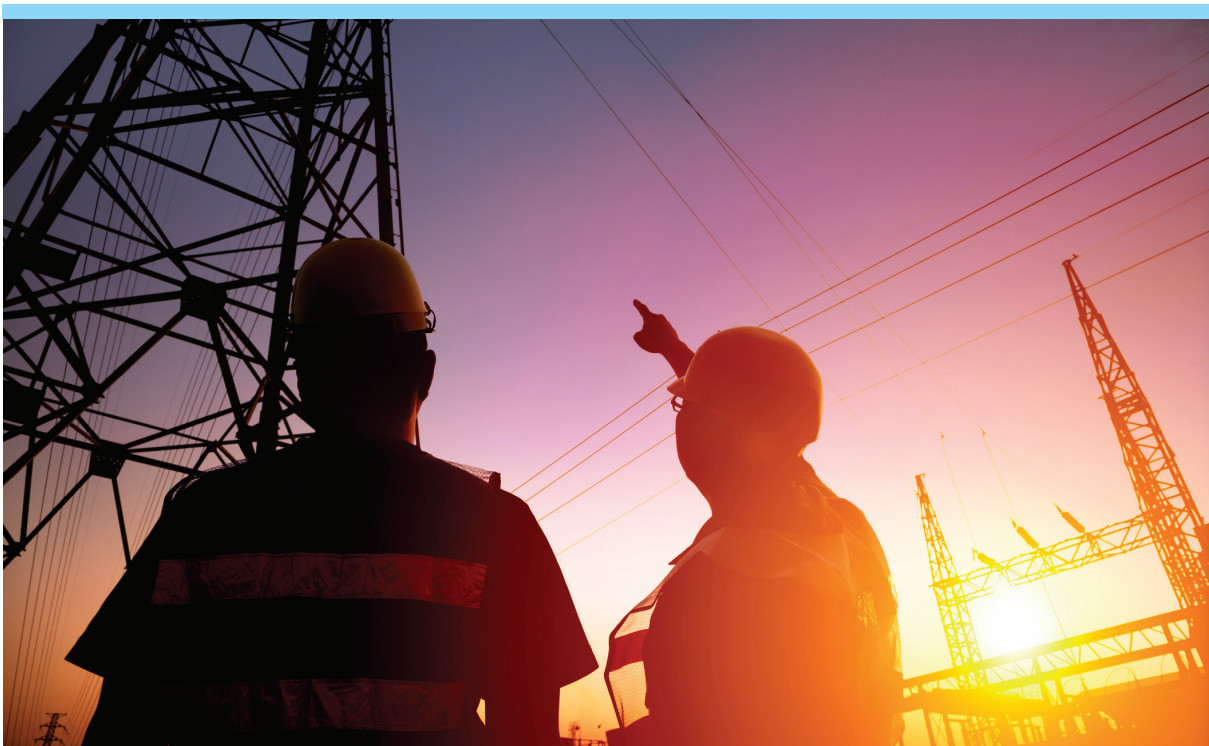
■ Safety Leadership Training

Implementation of error reduction training to the target working groups, which includes an introduction to error reduction theory, safety leadership behaviours and practices, and in-field safety tools and systems. Safety leadership training sessions are specifically designed to only introduce error reduction concepts, and therefore are executed quickly to create more focus on the application and implementation aspects of safety leadership in the field.



■ Safety Leadership Coaching

Field roll-out and safety leadership acceleration through in-field coaching with target leadership groups in application strategies and techniques to increase individual capability as safety leaders, contribute effectively to error reduction, and avoid the serious pitfalls which increase error rates. This is hands-on, boots-on-the-ground habit creation and anchoring, with a focus on building robust safety habits and skill-sets for properly assessing risk and safely executing day-to-day work.

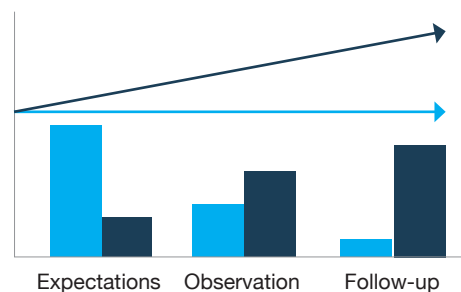


To have influence as a front-line safety leader, these 4 things are essential.

1. The leader must be able to spend time in the field. ☐
2. They must position themselves to observe and have knowledge of what to look for. ☐
3. They must have the courage to speak up and act on their observations. ☐
4. They must have reasonable skill in how they communicate to convey messages in a way that help the person being coached. ☐

Which boxes can your Supervisors and Managers tick?

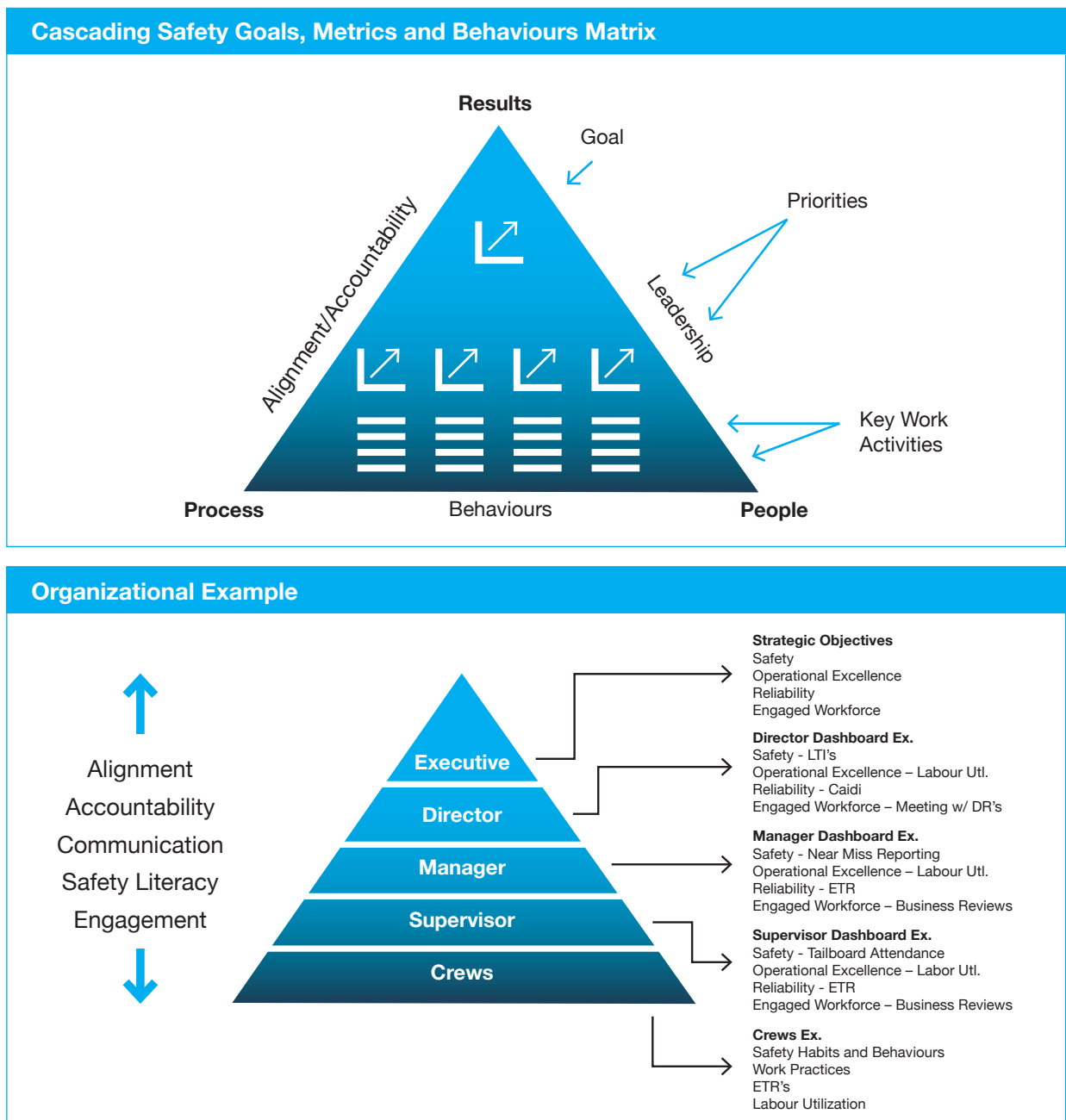
Performance



■ How supervisors are leading for safety
■ What needs to change

■ Cascading Safety Matrix

The cascading safety matrix is an organizational alignment and accountability tool used to create full vertical and horizontal calibration on safety and operational objectives. It is used in collaboration with HR and Safety business partners to ensure error reduction and human performance focus areas are aligned to existing corporate goals, metrics and behaviours; thereby accelerating safety performance.



■ Field Observation FOE (Focus of Effort)

The Field Observation FOE is a frontline supervisor observation tool which guides leaders in properly conducting high quality work-site safety visits. It considers all the error reduction elements leadership need to consider to properly assess risk, including observation of employee work habits, communication, behaviours, job sequencing, job execution, and physical conditions.



XYZ Utility Field Safety Observation - Focus of Effort Guide

Key considerations in conducting high quality Field Level Risk Assessments

1. Are risks associated with work site and setting being considered? Before thinking about the job itself?
 - Outdoor work: Terrain in the region, character of the neighborhood, weather factors
 - Indoor work: considerations related to the plant or building
2. Do participants in the risk assessment have blind spots? Where do people look?
 - Avoid looking at the job site first – Look around
 - Look up – Overhead hazards
 - Look down – Fall hazards, underfoot conditions
 - Look left and right – Risk from being struck by, or striking against protruding objects
3. Are all the potential injury causes being considered? What hazards do people look for?
 - Struck by - (hit by moving object)
 - Struck against a fixed object - (bumping into protruding, overhead objects)
 - Falls - (from elevation to lower level, or same level, slips, trips & falls)
 - Caught in - (pinch point), or under (crushed)
 - Contact with source of energy - (electricity, pressure, heat, cold, radiation, noise)
 - Exposure to toxic agents - (chemical, biological, asbestos)
 - Overexertion or poor ergonomics
 - Hazards/Danger - (human or animal)
4. Have risk barriers/mitigation strategies been developed and implemented? Follow hazard hierarchy?
 1. Eliminate the risk factor entirely
 2. Place temporary barriers
 3. Procedural changes supported by risk assessment
 4. Personal Protective Equipment
5. Are there reliable habits evident around when risks are re-assessed?
 - When the environmental situation changes
 - When the plan changes
 - When a new threshold is crossed while moving from place to place.
 - o Entering or Exiting through a doorway
 - o Going through a gate in a fence
 - o Crossing a curb to enter a property
6. Engage the team;; (2 heads are better than 1)
 - Is the entire crew participating in identifying and assessing hazards?
 - Experienced and new employees perceive hazards differently - all perspectives are valid
7. Test for comprehension and quality
 - Does the entire crew understand the hazard mitigation plan and their role in it?
 - o Crew leads as well as junior crew members and apprentices
 - Is the quality of the risk assessment and the quality of documentation considered separately?
 - o Audit quality of risk assessment and plan. Ask participants; "walk me through the plan".
 - o When understanding is high, answers will be consistent and provided with confidence.
 - o Audit quality of documentation by comparing it to verbal descriptions; Do they match well?

My Tailboard Checklist

Required permits are complete and reviewed

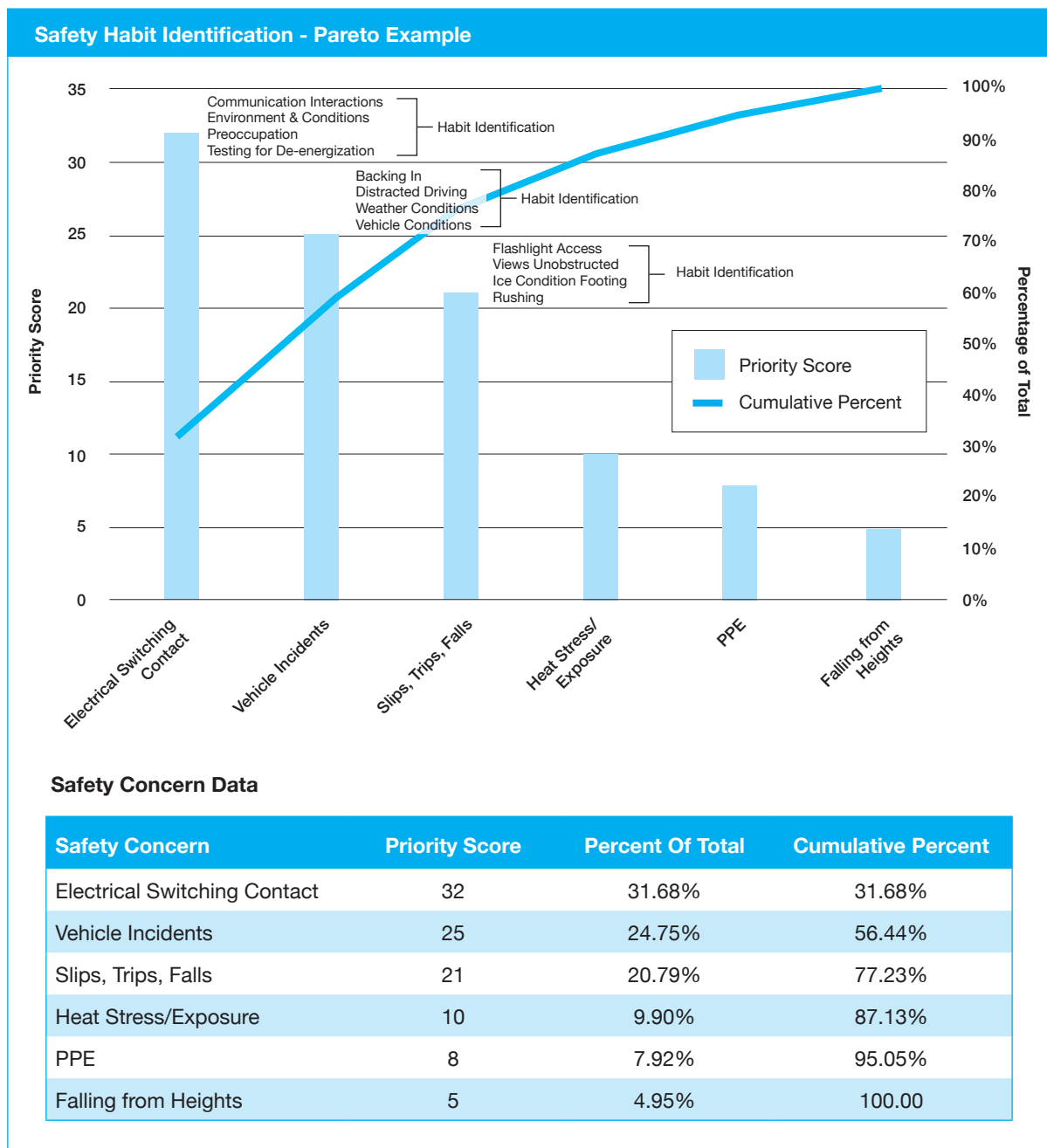
- All electrical circuits involved in the work are identified
- Job site location descriptions are accurate and posted
- Emergency contact information is correct & reviewed
- Full crew is in attendance at tailboard, including flaggers; the group is engaged
- Job is properly described to all in attendance
- Full crew has opportunity to identify relevant hazards and barriers are identified
- Environmental considerations addressed and appropriate PPE is available and being worn
- Crew is trained in and competent in executing procedural requirements
- Opportunities for coaching particularly with apprentices, new hires and 3rd men are utilized
- Good safety behaviors are recognized and areas for improvement are captured and acted upon

Job Site Observations – Error Reduction Habit Observations

1. Immediate reaction of the crew when the supervisor appears.
 - Do employees appear calm and organized?
 - o Red flags – Employees change what they are doing when supervisor arrives
 - Is the crew comfortable continuing work while the supervisor observes?
 - o Red flags – The crew stops work in anticipation of a discussion with the supervisor
2. Habits related to moving around the work site
 - Do employees continually scan around themselves to maintain situational awareness?
 - o I.e. look before stepping out from behind truck
 - Is 3-point contact maintained on stairs
 - Hand out of pockets while walking
 - Ergonomics / Setting up to avoid over-extension
3. Individual Work Habits
 - Do employees keep their work place, tools, materials tidy & organized?
 - Hand placement on tools
 - Clothing / PPE fits properly
4. Crew Dynamics
 - Is the crew anticipating each other's moves? Or do they look like some are not sure of the plan?
 - o Evidence of good communication?
 - Spotters in place and focused when moving trucks / booms?
 - Can you tell who the crew leader is based on how the crew is acting?
5. When the crew is under stress (things not going to plan?)
 - Which crew members stay calm? Who gets flustered or angry?
 - Are risk assessments the same when under stress?
 - Is time taken to implement mitigation strategies?
6. Following Safe Work Procedures
 - Do you observe safe work procedures being followed?
 - o Is there evidence of employees referring to written procedures when they are less certain
 - Are the habits around using workplace checklists observable?
7. Work Stops for a conversation – Looking for work habits in answers to questions
 - Can crew members verbally (confidently) walk you through their plan? Their risk assessment?
 - Do they ask questions when they are uncertain?
 - Appear comfortable bringing up near misses?
 - Accept feedback (positive and constructive).

■ Safety Habit Identification

The Safety Habit Identification practice is a tool that identifies and prioritizes the most common workplace errors through pareto analysis, and aligns workforce and leadership focus on the specific habits that will mitigate the potential for errors in prioritized focus areas. It is a proprietary error reduction continuous-improvement system focused on safety leadership, and can be applied in the boardroom and the field.



■ Safety Business Review

The Safety Business Review is a guided, continuous-improvement meeting tool that brings together frontline supervision with management on a monthly basis to review safety performance, metrics, reporting, behaviours, and best practices, with a focus on frontline execution and application to create sustainable safety performance.



The Safety Business Review

What is a Safety Business Review Meeting?

How does the Safety Business Review Meeting help me in my business?

Why leadership role is so important to success of a Safety Business Review Meeting?

Why should we have a Safety Business Review?

When do you have a Safety Business Review Meeting?

Who should participate in a Safety Business Review?

What do we do in a Safety Business Review?

Driving the Safety Business Review Process.

■ Safety Leadership Matrix

The Safety Leadership Matrix is a tool which considers the behaviours and practices required from managers and supervisors to create a safe work environment. The coaching matrix can be a valuable reporting tool during the term of an Engine Room project to discuss coaching progress and strategies on a weekly and monthly basis.

Error Reduction Safety Behaviours						
	Manager 1	Manager 2	Supervisor 1	Supervisor 2	Foreman 1	Foreman 2
A Strength						
Capable but Not Yet Consistent						
Developing						
An Impediment						
Strategic Safety Direction						
Able to interpret higher level organizational safety vision and strategy						
Has a strategic safety direction for their crew						
Strategic safety direction aligned with organizational safety goals						
Monitors safety results and adjusts safety strategy as required						
Makes operating decisions that puts safety before production						
Communicates strategic safety direction with their crew						
Safety Leadership						
Creates an effective "tone at the top"						
Models high ethical safety standards						
Demonstrates professionalism						
Manages transactional duties to spend sufficient time in field						
Builds daily work routines - aligned with the safety responsibilities						
Consistently clarifies safety priorities						
Applies safety principle based decision making						
Applies coaching approach to leading people						
Able to provide direction (where appropriate)						
Able to be supportive (when appropriate)						
Able to challenge where appropriate						
Applies visible felt leadership						
Safety Process and Tools						
Establishes clear roles and responsibilities						
Is skilled at conducting / supervising key safety processes						
Field Level Risk Assessments						
Safety Checklist Review						
Preparing for, and conducting Safety Meetings						
Line-Out Meetings						
Incident Investigations						
Follows up on commitments arising from safety meetings						
Identifies and communicates operator key work activities						
Evaluates the quality of safety processes done by others						
Has time & priority management skills						
Effective Safety Communication						
Cascades safety communication appropriately						
Able to communicate upward						
Establishes two-way communication with peers						
Tests for safety understanding, seeks to clarify, avoids gossip						
Does not hesitate to communicate difficult messages						
Employee Engagement						
Is involved with their teams on a daily basis						
Has two-way conversations with employees						
Is open to employee's input						
Is willing to allow other's views to influence their own						
Creates regular, planned opportunities for employees input						
Provides employees with feedback on the status of their ideas						
Performance & Execution						
Establishes clear expectations around crew member actions/behaviours						
Takes ownership of crew member training and development						
Positions themselves to observe good and not so good behaviours						
Able to conduct high quality job site safety observations						
Able to identify potential and developing safety issues						
Monitors safety and operational results						
Provides feedback (neutral, positive and constructive)						
Able to coach to develop employees skills						
Creates a culture of accountability						
Appropriately recognizes strong performance						
Appropriately deals with underperformance						

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■ Safety Activity Quality Audits

Safety Activity Quality Audits are continuous improvement tools used to improve the quality of safety activities executed by leaders, both in and out of the field. The audit process considers all aspects of a specific safety activity and rates the activity from 1 to 5 by answering targeted questions and documenting key observations. The auditor is meant to be a fly on the wall, and not change the dynamic of the safety activity, but provide timely and thoughtful feedback.

Working Examples

Safety Meeting Quality Audit	Field Level Risk Assessment Quality Audit
<p>Safety Meeting Quality Audit</p> <p>Date: _____</p> <p>Location: _____</p> <p>Auditor: _____</p> <p>The Auditor should be a fly on the wall and not change the dynamic of the safety meeting. Auditor to rate the Safety Meeting from 1 to 5 by answering each of the following questions, and documenting key observations:</p> <ol style="list-style-type: none"> 1. Was the leader well prepared for the meeting? (clear messages to deliver, created opportunity for input and engagement?) 2. Did the Safety Meeting start well? (on time, good intro, leader managing the room well?) 3. Did the leader (supervisor) take responsibility for creating the safety "tone at the top"? Even if a crew member runs part of the meeting, setting the tone is the leader's responsibility. 4. Were safety messages from the leader to the crews compelling and relevant to their work? 5. Was there good opportunity for the crew to raise safety concerns? 6. Were concerns raised by the crew treated respectfully and appropriately by the leader? 7. Were safety concerns recorded? 8. Was the crew provided feedback on concerns raised previously? 9. Do you think the safety meeting would have helped you "get your head in the game" from a safety perspective before going to work that day? <p>THE ENGINE ROOM</p>	<p>Field Level Risk Assessment Quality Audit</p> <p>Date: _____</p> <p>Location: _____</p> <p>Auditor: _____</p> <p>Type of job situation the FLRA was considering: _____</p> <p>The Auditor should be a fly on the wall and not change the dynamic of the process. Auditor to rate the FLRA from 1 to 5 by answering each of the following questions, and documenting key observations.</p> <ol style="list-style-type: none"> 1. Is doing an FLRA appropriate given the situation at hand? 2. Are all the right people present for the FLRA? 3. Is everyone involved in the job contributing to, and engaged in the FLRA? 4. Are the hazards identified and the mitigation plans being well communicated? 5. Did the group consider possible hazards in a logical manner? 6. Did the group identify all the hazards you saw? Did they see more? 7. Did the group identify appropriate risk mitigation strategies? 8. Were the mitigation strategies / barriers put in place before work began? 9. Was the documentation of the FLRA appropriate? <p>THE ENGINE ROOM</p>

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■ Safety Due Diligence Report

The Safety Due Diligence Report is a reporting practice of inviting a respected party within the organization to generate a safety report suitable for submission to executives. This safety report evaluates the efficacy of error reduction, safety leadership, and safety processes by evaluating the quality and rigour around safety activities in the field. The report combines hard data and informed opinion about the quality of safety activities to provide a balanced view of safety practices and performance.



<p style="text-align: center;">XYZ Hydro Safety Due Diligence Report (Example) - Jan 2017</p> <p>Purpose</p> <p>The objective of this report is to provide senior mine management and the executive with a snapshot audit of the health of safety practices at XYZ Hydro. The report is structured to provide a due diligence description of how well the various process and procedures which collectively make up the XYZ Hydro Safety Management system are functioning.</p> <p>Structure</p> <ul style="list-style-type: none">• The principle is that whenever the auditor is must be able to report their findings without interference from anyone else (whoever does it, needs to be able to tell the executives that the report is a fair reflection of their findings without alteration or pressure to change).• The auditor needs to be able to describe positive findings as well as things not up to standard.• The auditor should stick to facts and use numbers and direct observations whenever possible.• The auditor can provide recommendations, but it is up to management to decide what they are going to do to resolve deficiencies.• The auditor should keep names out of the report. Knowing that somebody needs some coaching does not have to be reported. An auditor reports that 90% of people are doing well. The follow-up coaching to address problems can be done more privately. <p>Safety Results</p> <p>The safety performance at XYZ Hydro this past quarter is showing several positive trends. Key statistics for this past quarter include:</p> <ul style="list-style-type: none">• Last time injuries during the quarter - 0• Near miss reporting - 9• Medical aid incidents during the quarter - 4• Total recordable incident Rate as of Dec 31st - 1.62 <p>Safety Process</p> <p>XYZ Hydro has implemented several processes intended to manage safety and promote improved safety performance. Since the effectiveness of these processes is dependent on their quality, or how well they are conducted, the Safety Department will routinely audit performance and report on their findings as follows:</p>	<p>Recommendations to Management</p> <p>The Safety Department has reviewed conditions audits and citations and believes that there may be some trends that can lead to problems with conditions that should be explored with management, and they are:</p> <ol style="list-style-type: none">1. Leftover parts or waste at the end of major jobs/projects.2. Signage which gets damaged and not replaced. <p>Incident Investigations</p> <p>At XYZ Hydro, incident investigations are a critical part of the safety improvement process. This audit report is not intended to summarize the findings from the various investigation but rather attempts to provide an auditor's view of whether investigations are successfully identifying root causes, avoiding pitfalls such as a rush to judgment and leading to effective corrective actions. Over the last quarter approximately XXX investigations were conducted, of which 100 were observed by the safety department. There were also XXX corrective actions arising from incident investigation of which XXX are being completed within a 30-day target.</p> <p>Specific finding include:</p> <p>Strengths</p> <ul style="list-style-type: none">• This quarter we observed a high level of comfort and skill with exploring the physical and environmental root causes of incidents.• Approximately 90% of incident investigations were led by supervisors/managers with definite skill in conducting investigations• Approximately 20% of investigations are being led by less experienced supervisors/manager who may lack experience but who are open to coaching which resulted in effective investigations.• All investigations were completed within timeline targets. <p>Opportunities</p> <ul style="list-style-type: none">• A minority of investigations (approx. 20%) are being led by supervisors/managers who are resistant to coaching and to focused on superficially completing the investigation or "filling in the form".• Many of those leading investigations have more trouble identifying human factors or gaps in management practices which are contributing root causes. <p>Recommendations for Management</p> <p>The Safety Department recommends that management not change strategy with respect to investigations. Our recommendations are as follows:</p> <ol style="list-style-type: none">1. We recommend that Department Heads continue to focus on quality and accountability by providing feedback to those leading investigations as this is resulting in visible improvements to quality, while keeping the ownership with the operating and maintenance departments.2. We recommend that the Safety Department continue to provide coaching support for investigators.	<p>High Potential Events</p> <p>A key aspect of the safety program at XYZ Hydro is managing events that have high risk potential, regardless of whether the event results in a safety incident. These events are viewed as critical given that employees naturally assess how well the entire XYZ Hydro team handles the situation. During the last quarter, there were 2 high potential events which did not result in injury, including an equipment fire and a switching incident. Auditing how well these events were handled yields the following findings:</p> <p>Strengths</p> <ul style="list-style-type: none">• With the switching incident, the process to monitor movement was very effective.• Supervision was very quick to barricade the affected area.• Communication from management to the employees was effective and all employees asked indicated that they were aware of the situation.• All employees indicated that they appreciated that management had put safety ahead of production. <p>Opportunities</p> <ul style="list-style-type: none">• While not an immediate safety concern, several employees indicated that they were not aware of the long-term plan to resolve the switching incident. <p>Recommendations for Management</p> <ol style="list-style-type: none">1. The Safety Department believes that the way that management is currently managing high potential events is very effective both with respect to the immediate risks as well as sending the right safety message to employees. <p>Emergency Response Deployments</p> <p>Through the last quarter there were XXX "Mayday" events resulting in some level of emergency response. Of these events, XXX percent were in response to non-work related medical conditions with the remainder being in response to....</p> <p>Auditing emergency response involves evaluating how well the team were able to respond to, manage and resolve the emergency. Specific findings include:</p> <p>Strengths</p> <ul style="list-style-type: none">• Recent clarification and training with respect to who should take the on-site lead role to manage emergencies has been very effective with both team members and operations supervisors indicating that roles and responsibilities during emergencies is clear.• Communication between on-site emergency response teams and off-site medical support continues to be very effective. <p>Opportunities</p> <ul style="list-style-type: none">• Several team members have indicated that there should be additional practice conducted on how to lower an incapacitated victim from a bucket truck. <p>Recommendations for Management</p>
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■ Safety Sustainment Plans

All Engine Room projects are intended to leave the client's organization with sustainable processes that continue to deliver value long after the engagement has been completed. To accomplish this objective, the later stages of every project are described as the sustainment phase. During the sustainment phase of the implementation, the Engine Room coaches decrease their level of participation with individuals or in specific focus areas to provide client supervisors, managers and employees the opportunity to practice learned skills or, in effect, to "fly solo" with supportive feedback.

Common output during the sustainment phase include:

- Building individual safety leadership sustainment plans
- Anchoring leadership skills, competencies, and behaviours that were coached
- Tying skills to organizational metrics (such as the Safety Due Diligence Report)
- Management support sustainment practices (Safety Business Review)



Sustaining Supervisor and Manager Performance

Keep Supervisors and Managers actions aligned to the dashboard. At least 60 % of a supervisors day should be directly related to dashboard metrics. Organizations bombard supervisors and managers with many well-intentioned, but irrelevant demands so constant vigilance is required.

Focus on crew shift start and end times. Helping the crews get out of the yard in the morning, and getting to the tailboard meeting, as well helping them when they return at the end of the shift has a direct impact on crew safety and productivity.

Time in field. Supervisors and Managers need to be in the field to ensure the safe execution of work, re-enforcing expectations and making observations to help improve the business.

Update and post Crew Safety Dashboards monthly. This should include data on all strategic safety targets, as well as anything else we want them to know is important.

Conduct Safety Business Reviews regularly. These simple and short meetings regularly re-calibrate everyone to focus on the most important things.

Keep Safety Meetings short and focused. The best safety meetings are short, highly focused, and have a high level of crew involvement.

Safety and Overtime. All supervisors should have a clear plan in place of how they will manage OT with a focus on safety and ensuring a healthy work life balance is implemented.

Manage Extra Projects. Managers need to have a grasp on extra commitments, projects and other commitments that distract supervisors from managing the core business, especially safety.

One on Ones. Effective one on ones save time and are crucial to clarifying expectations, soliciting feedback, rewarding performance, and maximizing engagement.

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