



Elements of a Successful Safety and Health Program

By: Stewart Hogan



OSHAs Recommended Practices for Safety and Health Programs

Management Leadership

Worker Participation

Hazard Identification and Assessment

Hazard Prevention and Control

Education and Training

Program Evaluation and Improvement

Communication and Coordination

5 E's of safety

- education,
- encouragement,
- engineering,
- enforcement, and
- evaluation

The Asahi Way

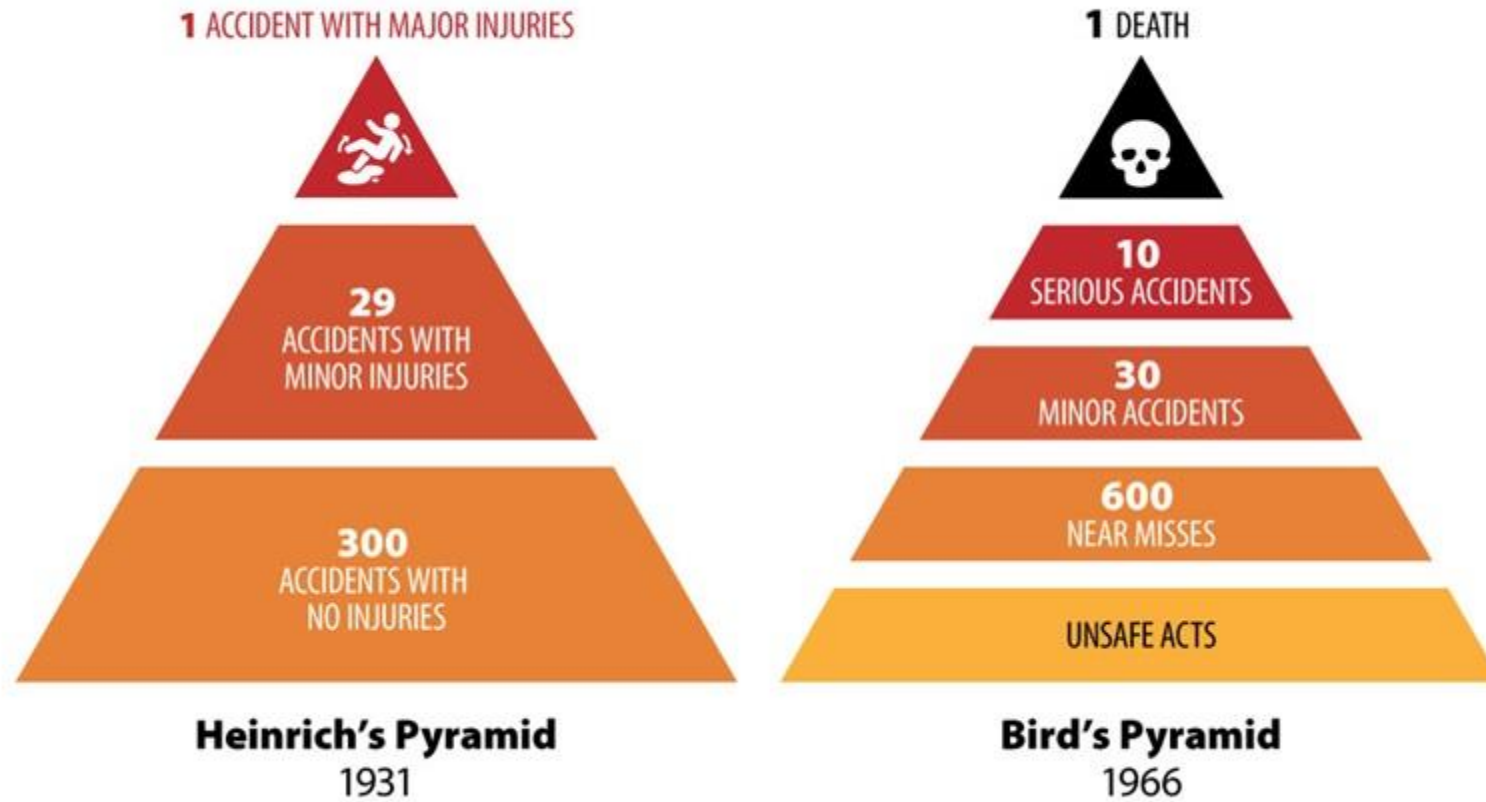


Our Employee Principles

- Innovate and embrace challenges
- Put safety first
- Maintain high quality
- Promptly report (especially bad news)
- Build trust and connection

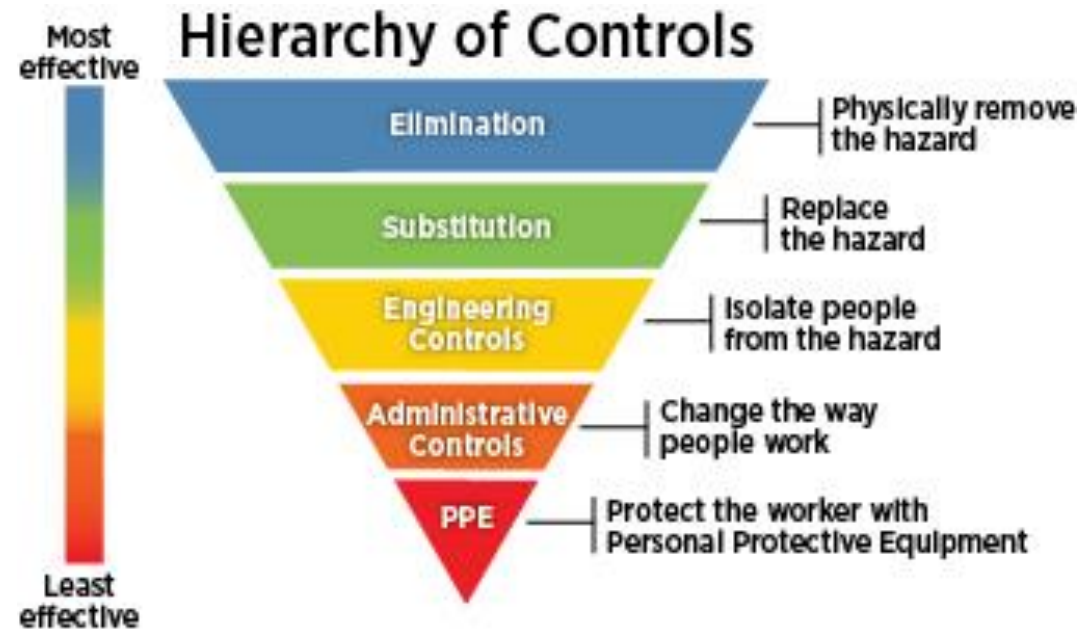
The Asahi Holdings Group Code of Conduct

- #1 We comply with all laws and regulations
- #2 We respect the dictates of social norms and our own conscience
- #3 We treat everyone equally, regardless of age, gender, nationality, race, religion, or other characteristics
- #4 We refrain from conducting any political or religious activities in the workplace
- #5 We treat customers with sincerity
- #6 We practice fair competition and optimal decision-making when selecting business partners
- #7 We respect the confidential information obtained through our work and avoid disclosing it externally
- #8 We refrain from providing or receiving meals or gifts in pursuit of personal benefit
- #9 We act for the greater good, not for personal or affiliated parties' gain
- #10 We focus on the actual sites, actual things, and actual facts



Specific hazards

- Heavy Materials (mine Dore) and Machinery
- Molten Metal
- Chlorine
- Acids/corrosives
- NO_x, SO_x
- Confined space entry.
- Toxic elements As, Cd, Pb, Se



Source: NIOSH

EH&S Initiatives

- Daily management safety walks at each site with focus topic provided.
- Monthly Joint employee and management safety inspections and committee meetings.
- Timely follow up and correction of findings from the above.
- ISO 14001 Registration/Certification
- OSHA Process Safety Management including
 - Employee participation
 - Process hazard analysis
 - Operating procedures
 - Training
 - Management of Change (MOC) and pre-start up safety review

Consequences										
Catastrophic (5)	Environment	Very serious / extensive pollution or loss of amenity	5H	5G	5F	5E	5D	5C	5B	5A
	Health	Exposure to workplace health hazards rated as high and there is a high incidence of occupational illness cases with one or more fatality								
	Safety	Multiple onsite fatalities. Any offsite fatalities								
	Authorities	Fines affecting profitability or significant custodial sentences								
	Reaction	International / outcry threatens business								
Major (4)	Financial	Replacement cost / loss > \$15M USD	4H	4G	4F	4E	4D	4C	4B	4A
	Environment	Major loss of very harmful substance								
	Health	Exposure to workplace health hazards rated as high and there is a high incidence of occupational illness cases with some resulting in permanent disability								
	Safety	Fatality of life threatening injury								
	Authorities	Sever fines (>\$30K) or custodial sentences								
Severe (3)	Reaction	Headline National & continuing local attention	3H	3G	3F	3E	3D	3C	3B	3A
	Financial	Replacement cost / loss of \$1.5M to \$15M								
	Environment	Release of hazardous materials that impact the environment								
	Health	Exposure to workplace health hazards rated as high and / or there is a high incidence of occupational illness cases								
	Safety	Injury requiring immediate medical intervention and hospitalization								
Serious (2)	Authorities	Prosecution with potential for fines up to \$30K	2H	2G	2F	2E	2D	2C	2B	2A
	Reaction	Significant public concern and some national press attention								
	Financial	Replacement cost / loss of \$150K to \$1.5M								
	Environment	Significant substance lost / definite visible / odor effects								
	Health	Exposure to workplace health hazards rated as significant and / or there is a high incidence of occupational illness cases								
Significant (1)	Safety	Injury requiring medical intervention (not life threatening)	1H	1G	1F	1E	1D	1C	1B	1A
	Authorities	Notifiable to regulator with possibility of minor notice of violation								
	Reaction	Some local attention with local press coverage								
	Financial	Replacement cost / loss of \$15K to \$150K								
	Environment	Emissions or discharges above internal limits								
Site Issue (0)	Health	Exposure to workplace health hazards rated as significant and / or occupational illness cases may have occurred	0H	0G	0F	0E	0D	0C	0B	0A
	Safety	Injury requiring first aid but not medical intervention								
	Authorities	Not applicable								
	Reaction	Site issue only								
	Financial	Replacement cost / loss \$1.5K to \$15K								
Site Issue (0)	Environment	No environmental damage or pollution	0H	0G	0F	0E	0D	0C	0B	0A
	Health	Exposure to workplace health hazards rated as low and no cases of occupational illness have occurred								
	Safety	No injury								
	Authorities	White Card / near miss / EHS Learning Event								
	Reaction	Site issue only								
		Replacement cost / loss up to \$1.5K								
		Event Frequency (Yr-1)	10-7 (H)	10-6 (G)	5-10 (F)	4-10 (E)	3-10 (D)	2-10 (C)	1-10 (B)	1 (A)
			Extremely Unlikely	Very Unlikely		Unlikely		Possible	Probable	Regular
			Theoretically possible but extremely remote chance of occurrence.	Foreseeable event but very remote chance of occurrence during the lifetime of the plant/facility/process. Requires multiple failures.		Incidents known in industry. Unlikely events not expected during the lifetime of the plant/facility/process. Probably requires two systems to fail.		Possible during the lifetime of the plant/facility/process. Root cause likely to have occurred.	Event or near miss that has occurred during the plant/facility/process lifetime.	Event occurs regularly in the plant/facility/process.

	Category A	Very serious intolerable risk. Terminate activities immediately
	Category B	Intolerable: Terminate the activity or address the risks immediately
	Category C	Tolerable if ALARP. Take further action to reduce risks As Low AS Reasonably Practical
	Category D	Broadly acceptable: Manage continuously to maintain existing control measures

Hazard Identification and Assessment

Description	Node	No	Parameter	Guide Word	Deviation	Causes	Consequences	Inherent Risk			Safeguards	Current Risk		
								S	L	RR		S	L	RR
Temporary Tanks	1	1	Flow	Misdirected	Flow to wrong destination (outside tanks instead of cementers)	Valve mishandeling	Overflow Outside Tanks	3	B	3B	1. Manual Valves to outside tanks is to be locked closed and only to be opened with non-routine task. Supervisor and engineering locks 2. Containment around Tanks can hold 12,500 gallons when accounting for the displacement of the tanks (2,990 gallons)	3	D	3D
		2	Flow	Misdirected	Flow to wrong destination (cementers instead of outside tanks)	Valve mishandeling	Overflow cementers	1	B	1B	1. Manual Valve to cementers through pool line is to be locked closed during pumping to tanks. Supervisor and engineering locks	1	C	1C
		3	Flow	Misdirected	Flow to wrong destination (359B, 381 to outside tanks)	Valve mishandeling	Reaction, NOX release outside	3	B	3B	1. Check valve in line to prevent flow of 359B/381 to temporary storage tanks. 2. Close and lock valves from 359B/381 to the cementer tanks to prevent accidental flow. Only to be removed with a non-routine task form. Supervisor and engineering locks	3	D	3D
		4	Flow	Misdirected	Flow out of the air blow out line	Valve mishandeling	Spill of 102A solution onto the floor	1	B	1B	1. Non-routine task is to close valve and disconnect line when finished 2. Check valve to prevent backflow	1	D	1D
		5	Flow	Misdirected	Flow out of the tank discharge and into the pool	Valve mishandeling	102A solution in the pool containment	1	B	1B	1. Check valve to prevent backflow into pool 2. Manual Valve on discharge from outside tanks is to be locked closed and only to be opened with non-routine task. Supervisor and engineering locks 3. Non-routine task procedure will be to close valve on the suction line from the pool 4. Pool containment is 12,000+ gallons which is larger than 1 tank	1	F	1F
		6	Flow	Reverse	Reverse flow from pool to 102A	Valve mishandeling	Overflow 102A; contaminate 102A	1	B	1B	1. Manual Valve to outside tanks and to cementers through pool line are to be locked closed and only to be opened with non-routine task. 2. Check valve on line to prevent backflow	1	D	1D
		7	Temperature	Low	Freezing of solution in pipe/hoses outside	Cold outside temperature	Leaking of solution onto ground; Leaking of solution into containment	3	B	3B	1. Clear lines with air every time after use.; run diaphragm pump dry 2. Encase hoses with CPVC shrouds to ensure any leaks that occur run into the containments and not on the surrounding ground.	3	E	3D
		8	Level	High	Flow to full tank	Not checking tank level	10,000 gallons of high value 102A solution on the ground; Reportable incident	3	B	3B	1. Containment around Tanks can hold 12,500 gallons when accounting for the displacement of the tanks (2,990 gallons) 2. No flowing to the tanks without non-routine task; valves locked closed with supervisor and engineering lock 3. 1 Person watching the on top of tank with radio and 1 person standing inside at manual valve with radio	3	E	3E
Dead End Lines	2	8	Flow	Misdirected	Flow out the end of a line that is being worked on	Open valve	HCl, NaOH, 102A solution, cementer solution, steam released into room/onto ground inside	3	C	3C	1. Valves on the ends of all lines that are part of the LOTO 2. Cap/blind/plug all dead end lines until new pipe tie in	3	E	3E

Education and Training

- New Hire Orientation (documented checklist)
- Regular computer-based training with exams (MasterControl®)
- Daily safety shares and toolbox talks
- Monthly safety meetings
 - CSB videos www.csb.org
 - Jeopardy!
 - Family Feud
 - Pictionary

Education and Training

Cardinal Safety Rules

1. I will always follow Lock Out/Tag Out and Line Break procedures. (isolate and de-energize equipment)
2. I will use Fall Restraint & Fall Arrest when a fall hazard exists (above 4 feet)
3. I will not enter a Confined Space or restricted area unless authorized.
4. I will not operate equipment without proper training and established safety devices or safeguards (i.e. ventilation hoods, mixer shafts, grinders, and saws).
5. I will handle molten metals, corrosives or other chemicals according to Work Instructions. I will never walk away from a manually opened valve. I will immediately respond appropriately to all alarms.
6. I will always wear personal protective equipment required for the job.
7. I will operate lifts according to safety training guidelines. Only trained personnel may operate lifts (fork, boom, drum and scissor lifts).
8. I will not participate in horseplay or disorderly conduct that endangers or injures employees, or causes damage to company property.
9. I will not falsify records or neglect inspections of equipment (chlorine system, hoists, slings, grinders, and pollution control equip.).
10. I will obtain a permit for any hot work outside the weld shop.
11. I will dispose or handle chemicals or hazardous materials properly.
12. I will immediately report all accidents, injuries, and illnesses.



Introduction



Materials



Exam



Overview



Sign Off



Introduction

Source of Training	Retraining: Can be system scheduled retraining, or initiated by your supervisor.
Training For Course	Hazard Communication
Description	Hazard Communication
Initial Training Instructions	1) Read the linked document. 2) Pass the exam. 3) Sign off.
Location	Online
Trainer	Brandt Bateman (BBATEMAN)
Competency	None

Hazard Prevention and Control

Incidents and near misses

5 WHY and Root Cause Analysis

Operations, Engineering and EHS signoff on the short- and long-term corrective actions

CCC = Concern Containment Countermeasure



OBJECTIVE

Lean uses many tools to give sustainability, in our information centers we use concern, containment and countermeasure strips. Here we will look at:

1. What is a Concern?
2. What is a Containment?
3. What is a Countermeasure?
4. Using PDCA to track progress

Defining Concern, Containment and Countermeasure

1. Concern

A concern may be a safety issue, something unplanned which is stopping or slowing production, something unplanned that has the potential to stop or slow production, something that is detrimental to quality or cost. It may be a reason we have not achieved our KPIs. Record the concern in a way that will lead to a fruitful investigation. For example, Acid spillage in Bay 3 – nut burst, PM not scheduled on nut, rather than just Acid spillage in Bay 3. We also record what impact the concern has, this could be safety, production, quality, environment or a mixture. The example below shows that the acid spillage impacts both safety and environment.

Date	Area	Concern	Impact
8-Jan	240	FD fan boiler 1 - Tripped on thermal overload	Prod`n
8-Jan	Rodding Line	Acid spillage in Bay 3 - nut burst, PM not done on nut	Safety & Environment

Good safety concern
Some analysis of why the concern happened. Team leader has gone to site to view concern & checked TPM standard

2. Containment

A good containment is a temporary solution that we can do swiftly, maintaining the production flow and protecting the customer from any deviation to the agreed standard. Always record who put the containment in place, put down the actual name of the person and not the department / team.

Concern	Impact	Containment	Who Contained
FD fan boiler 1 - Tripped on thermal overload	Prod`n	Temporary fan installed	J.Hunt
Acid spillage in Bay 3 - nut burst, PM not done on nut	Safety & Environment	Sand applied and area cordoned off, clean up truck booked for 4pm. Production switched to Bay 4	J.Bloggs

Good containment
Hazard contained, Production protected

3. Countermeasure

Finding a good countermeasure involves

- Go look see (genchi genbutsu)
- 5 why investigation (to find root cause)
- Comparing the part or process with its stand



A good countermeasure is a permanent solution that through standardization will prevent the problem from reoccurring. This for example could be through

- Design change to increase the specification of a failed part
- Mistake proof the job (Jidoka / Poka yoke)
- Application or change of a stability tool – std work, 5S, TPM, which is trained-in, then audited regularly

Assigning a target date and a responsible person to each countermeasure is important.

If you do not have a countermeasure yet, leave the box blank, this will highlight the fact we do not have a countermeasure. Do not put in words like investigating, looking into or reviewing just to fill the box. Once activities are complete, track the c/measure for 10 cycles to ensure concern does not return. If concern returns, find another c/measure.

Countermeasure	Target Date	Resp	Status	1	2	3	4	5
Investigations found that a Cooling fan with 20% more capacity was req'd. This is on order and will be installed on the next shutdown.	31-Jan	Tom Jones						
Checked all like nuts - 2 danger ones found & replaced, schedule TPM activity on nuts	31-Jan	Tom Jones						

We use three different coloured strips, Red for safety concerns, White for any other concerns and Yellow for repeat concerns.

A good countermeasure. Build into TPM.

4. PDCA

PDCA is a visual system used to track the progress of the concern

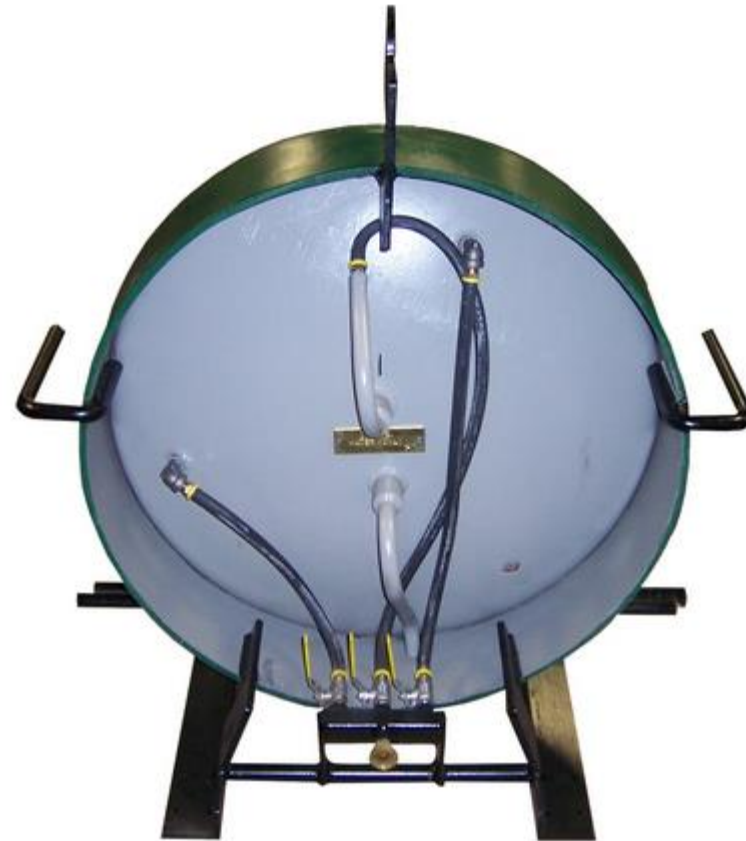
- Item is new with no action yet taken
- We have a plan (reviews investigations etc. not included)
- Activity is taking place to correct
- All activities are complete, waiting result
- Actions were successful and item closed

Summary

In short, we have defined

1. A good concern as an accurate description of the actual concern
2. A good containment as a swift temporary solution
3. A good countermeasure as a permanent solution that prevents recurrence, for example a design change, a poka yoke or including a stability tool, e.g. std work, 5S, TPM.
4. PDCA visually tracks the progress of the CCC

Chlorine Tank Trainer



Permanently installed and integrated into PLC/HMI for gas detection

Chlorine gas detectors, alarms set at 1 ppm and automatically stop flow or leak.

NO₂ gas detectors with action level and evacuate alarms

SO₂ gas detectors near certain process with alarms

O₂ detectors near certain process with alarms

CO detectors near certain process with alarms

Management Leadership

Leadership interactions RUT LLC Website www.rutapps.com

The screenshot displays the RUT LLC website. At the top left is the RUT LLC logo, featuring a silhouette of a deer head. To its right is the tagline "SAFETY - EFFICIENCY - COST REDUCTION". Below the logo are three navigation links: "About Us", "Stop & Think", and "Contact Us".

On the left side of the page, there is a blue vertical box containing the text "EXPERIENCED, PRACTICAL, LEADERS" in orange, followed by a list of bullet points:

- Safety Culture Transformation
- Efficiency in Compliance
- Simple Effective Tools
- Executive Portal Design
- Business Process Improvement

The main content area shows a dashboard interface for a mobile app. The dashboard has a header with the RUT logo and navigation links: "DASHBOARD", "PORTAL SCREENS", "ADMIN PANEL", "HELP", and "LOGOUT". The dashboard features six tiles with icons and labels:

- Daily Risk Assessment (calendar icon)
- Leadership Interactions (group of people icon)
- Weekly MSHA Training (hard hat icon)
- Weekly OSHA Training (target icon)
- Safety Improvements (warning triangle icon)
- Workplace Examination (checklist icon)

Below the dashboard tiles, there is a text box stating: "User friendly interface for both the desktop portal and the mobile apps".

Worker Participation

Learning Events

- Everyone completes at least one per month
- Observe and take action to reduce hazards

Learning Events

Asahi EH&S Learning Event	
Where ?	
Date?	
What happened?	
Immediate actions taken:	
Are any additional actions required to prevent this from happening again? Yes / No	
Details:	
Name	Department



Date?	The date the event was observed
What happened?	Brief description detailing the event
	People, equipment, and all details surrounding the actual event witnessed
Immediate actions taken:	
	This would be YOUR actions. Not just "told supervisor" or "wrote a work order", what did you do that eliminated the hazard
Are any additional actions required to prevent this from happening again? Yes / No	
	Details: For example work order installing additional equipment or guarding, creating or updating documents
Name	Department
	Your name and department
Supervisor Initials:	Your supervisors indication that actions have been completed

Incentives for Learning Events

- Bonus annually for participation at one per month.
- Winners will be selected monthly at the EHS committee meeting for the most impactful learning events.
- Winners posted on the company bulletin board and lunchroom screens.
- Winners will receive a recognition letter along with an Asahi Refining branded silver Thank You round.

