

# Fostering Positive Process Safety Culture

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- Producing innovative and high value agricultural, pharmaceutical & specialty chemicals on exclusive basis
- Minority stake by Belchim Management and Mitsubishi Corporation, Japan
- 3 sites at Vishakhapatnam, Gujarat and Goa in India



1969



1998



2000



2016



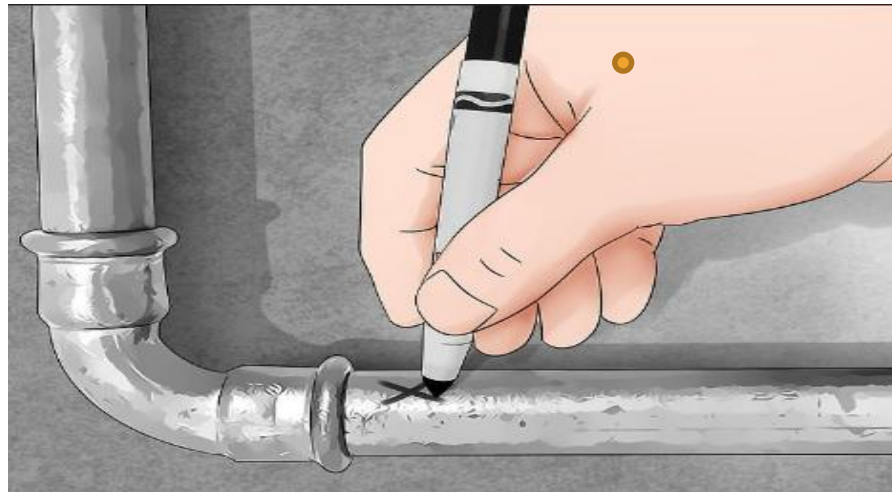


# Process Safety Culture – Deccan Perspective



Process Safety –  
Containing the  
process material

Process Safety Culture:  
Everything driven to  
ensure this objective is  
met



# Our Decade Long Journey...

2011

2012

2013

2016

2017- 2019

## Why

- Stakeholders expectations
- Imperative to Growth

## What

- Clear Objectives
- Built systems

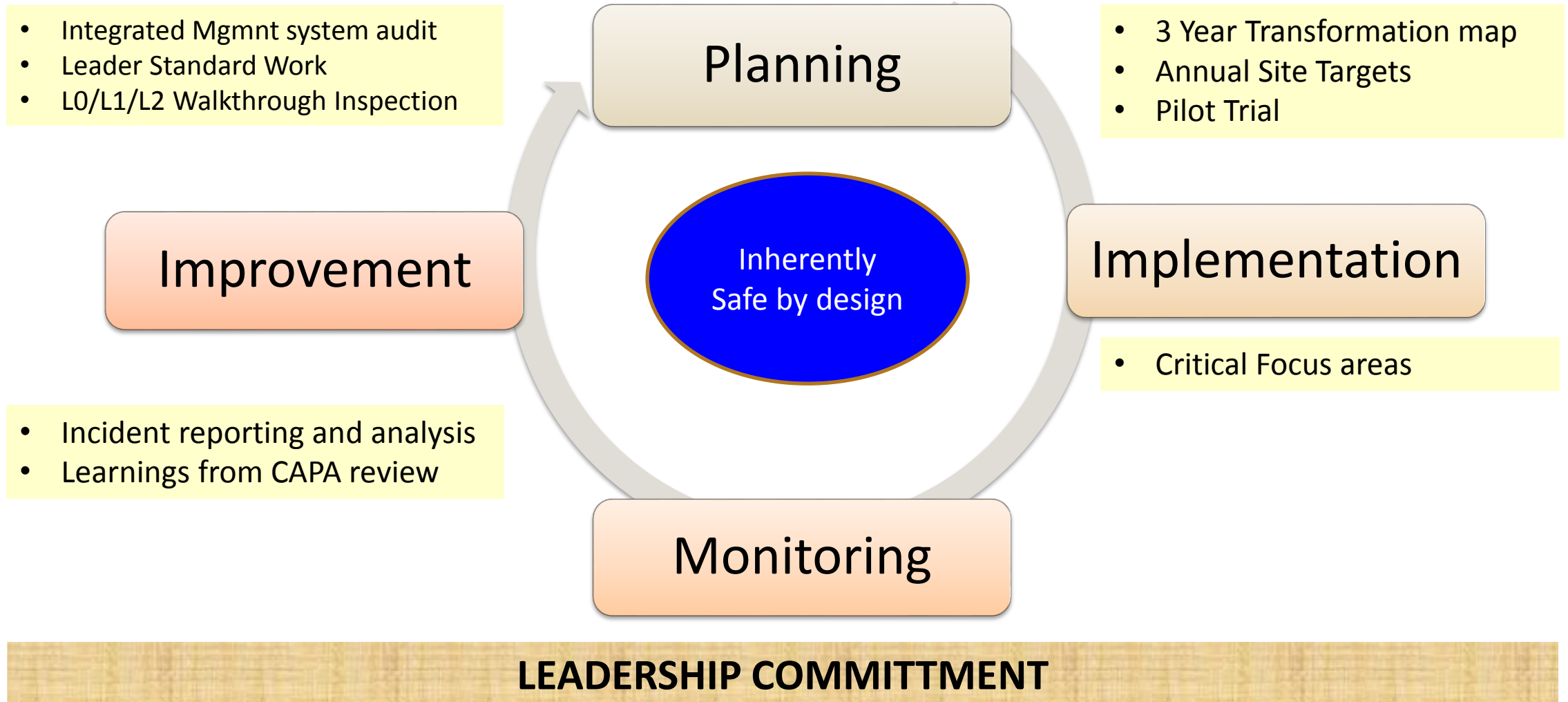
## How

- Leadership Commitment
- Employee Engagement

## Challenges

- Pace of change
- Change of mindset

# Framework to Build Process Safety Culture



# 1. Planning



## TMAP

- People Capability
- Infrastructure
- Response
- Engineering
- Risk Mngmnt
- HSE Improvement



## Site Targets

- 40% weightage to HSE
- Department Tgts
- Sectional Tgts
- Linked to Performance Appraisal

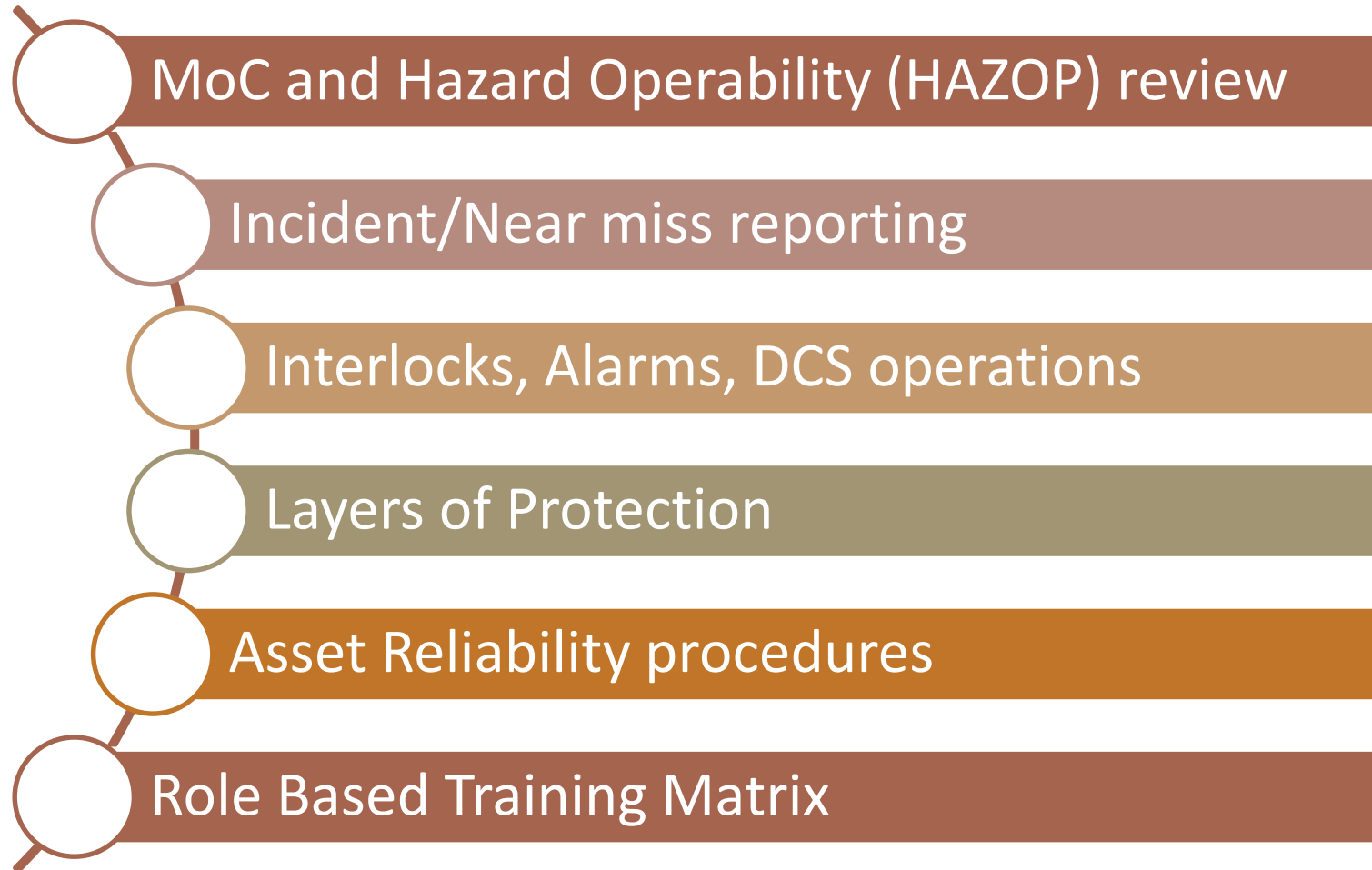


# 1. Planning : Pilot Project

- Gap assessment – Organisation Code of Practice
- Process Walkthrough to understand chronic unease
- **Shop floor Involvement**
- Focus on inherently safe design



## 2. Implementation : Focus areas



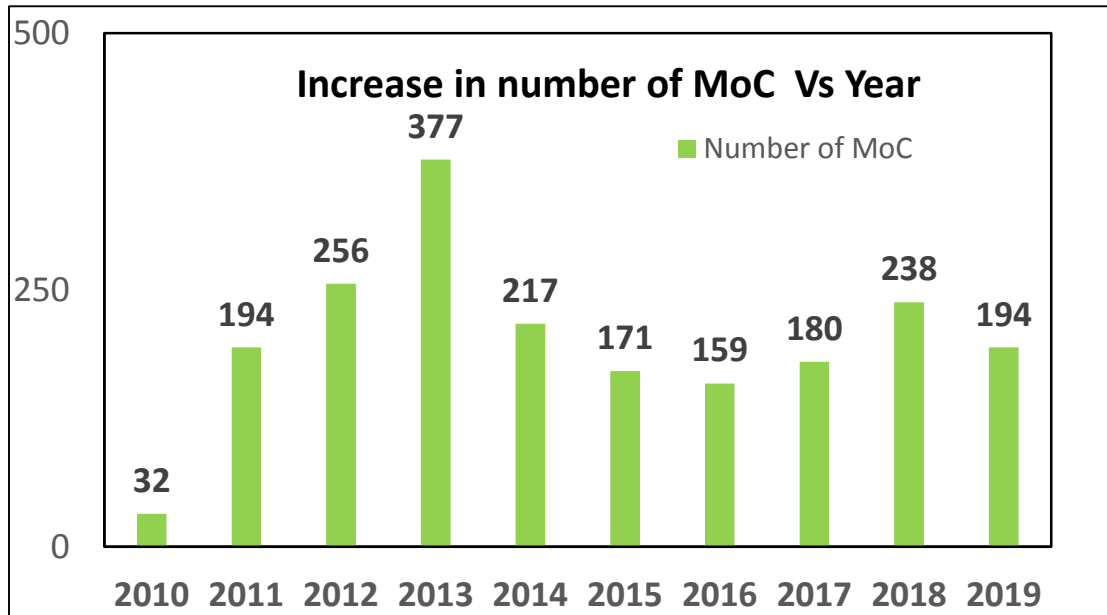
**LINKED TO ANNUAL TARGETS**



# Process Safety Risk Assessors Organogram

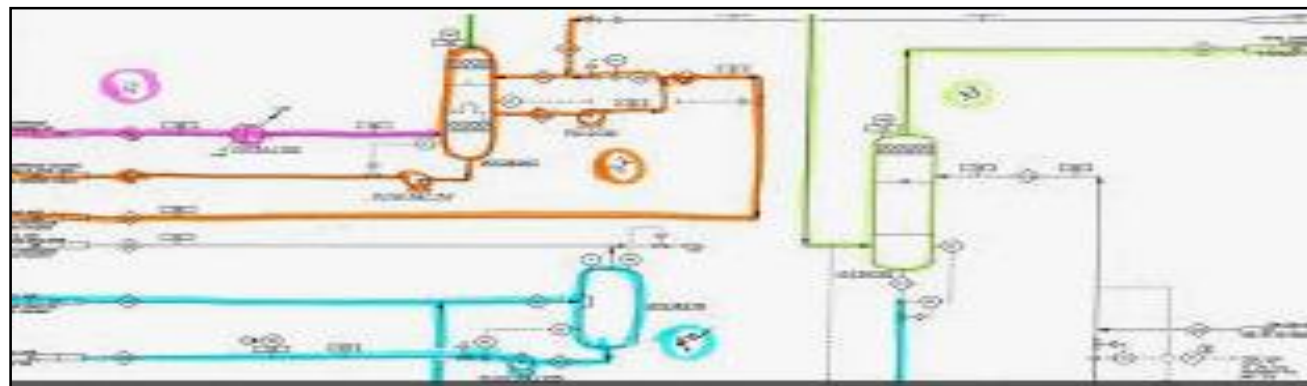
<b>Lead PRA @SMW,Goa</b> <b>Geetali Thakur</b>				
<b>Functional Area</b>	<b>Area 1</b>	<b>Area 2</b>	<b>Area 3</b>	
<b>PRA Practitioner</b>	<b>Geetali Thakur</b> 	<b>Sidhesh Prabhudesai</b> 	<b>Prasad</b> 	
<b>Trainee PRAs</b>	<b>Kaustubh Garde</b> 	<b>Pushparaj Pokhalekar</b> 	<b>Chetan Prabhu</b> 	
	<b>Rahul</b> 	<b>Somnath Dhavare</b> 	<b>Sandeep Kamble</b> 	

## 2. Implementation : MoC and HAZOP



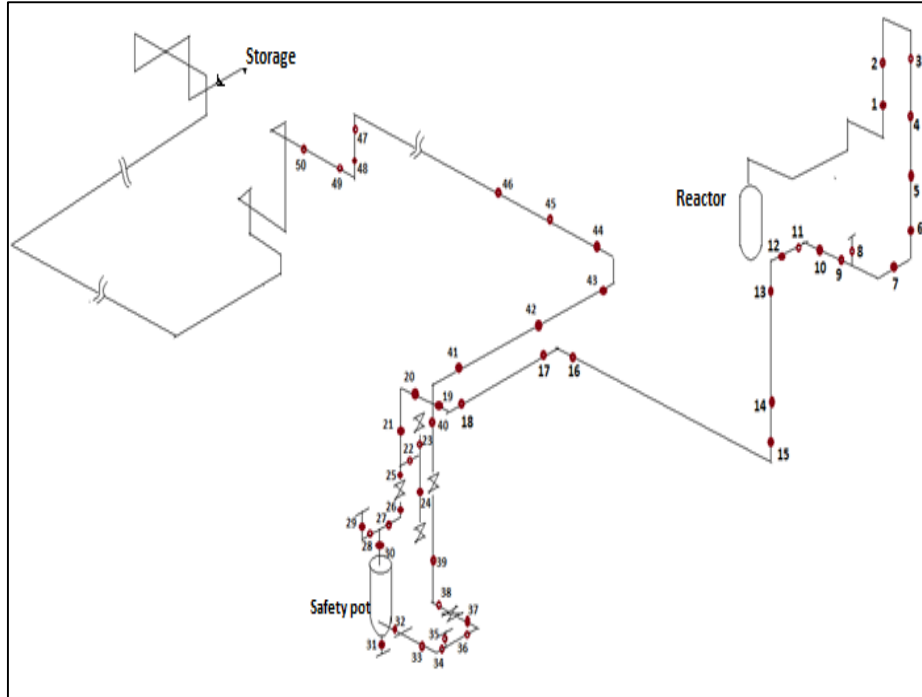
deccan					
Level 3 Assessment form					
Y2018_2860					
MOC Title: Replacement of an existing Bubbler Pot with a Mini-Scrubber outside the S					
ACTIVITIES	CHANGES IN QUANTITY	CHANGES IN PHYSICAL CONDITION			CHANGES
	HIGH FLOW/ LOW FLOW/ NO FLOW/REVERSE FLOW	HIGH/ LOW PRESSURE /TEMPERATURE	HIGH/ LOW MIXING	STATIC BUILD-UP	HIGH/LOW CONCENTRATION
Activity 1:	Replacement of Bubbler Pot with Mini-Scrubber				
	NA	NA	NA	NA	NA
Activity 2:	Addition of Inlet Gases from the Lab				
	Yes	Yes	NA	NA	NA
Activity 3:	Addition of NaOH / Water into the Scrubber				
	NA	NA	NA	NA	NA
Activity 4:	Removal of Outlet gases from the Scrubber				
	NA	NA	NA	NA	NA
Activity 5:	Removal of Wastage from the Scrubber				
	NA	NA	NA	NA	NA

- Level 2 MoC – Site Head, HSE Head
- Monthly MoC Committee meeting chaired by Site Head.



**LINKED TO ANNUAL TARGETS**

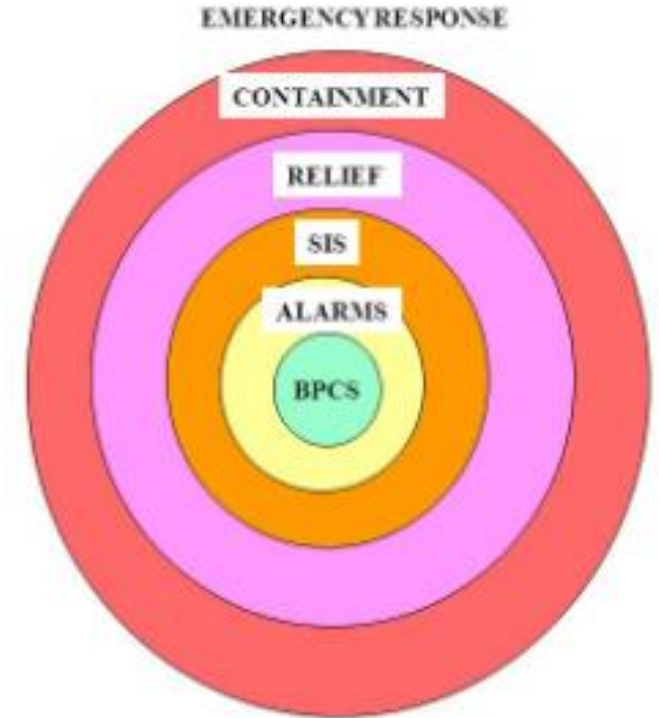
# 2. Implementation : DCS Operations/Asset Integrity



**STAGE 3 MATERIAL HANDLING - DISTILLATION**

TEMP C	TEMP C	TEMP C	TEMP C	TEMP C
220	220	220	220	220
210	210	210	210	210
200	200	200	200	200
190	190	190	190	190
180	180	180	180	180
170	170	170	170	170
160	160	160	160	160
150	150	150	150	150
145	145	145	145	145
140	140	140	140	140
135	135	135	135	135
130	130	130	130	130
125	125	125	125	125
120	120	120	120	120
115	115	115	115	115
110	110	110	110	110
105	105	105	105	105
100	100	100	100	100
95	95	95	95	95
90	90	90	90	90
85	85	85	85	85
80	80	80	80	80
75	75	75	75	75
70	70	70	70	70
65	65	65	65	65
60	60	60	60	60
55	55	55	55	55
50	50	50	50	50
45	45	45	45	45
40	40	40	40	40
35	35	35	35	35
30	30	30	30	30
25	25	25	25	25
20	20	20	20	20
15	15	15	15	15
10	10	10	10	10
5	5	5	5	5
0	0	0	0	0
-5	-5	-5	-5	-5
-10	-10	-10	-10	-10

**Dehydrated** | **batch distilled** | **Continuous** | **Distilled** | **Distilled**



Reduction in DCS alarms.

Technical Engineering Standards

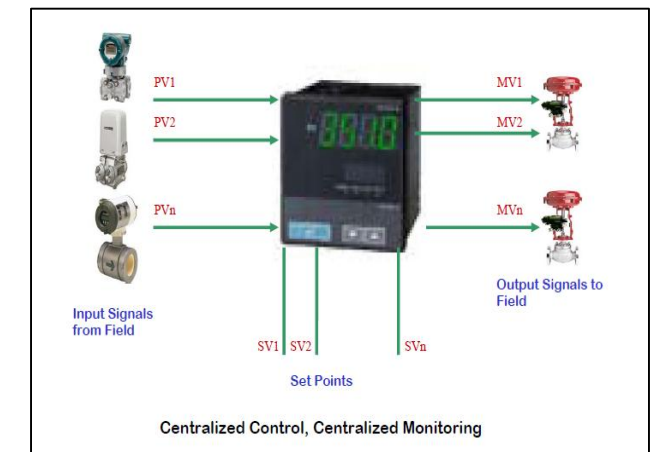
Layer of Protection

LINKED TO ANNUAL TARGETS



# 2. Implementation : Role Based Training Matrix

Role Based Training Matrix (RBTM)													
Calendar year ending:													
Department :													
<a href="#">Click here for Color Coding</a>		G. Bhende / NT Prasad / Geetali / SSEMS						G. Bhende / NT Prasad / Geetali / SSEMS					
		Monthly on 1st /15th (new joinees induction)						Monthly on 1st /15th (new joinees induction)					
		HSE Induction						Risk Assessment					
		Jan to Dec						Jan to Dec					
Sr. No.	Role	HSE @ SMW- Module 1						HSE @ SMW- Module 2					
		Freq.	Dur.	p/a	Valid	EVD	LTD	Freq.	Dur.	p/a	Valid	EVD	LTD
		MM/No	Hr	Hrs	Hrs			MM/No	Hr	Hrs	Hrs		
1	Manager Utilities	360	1	0.0	1.0	30.03.89	30.03.17	360	1	0.0	1.0	30.03.89	17.08.17
2	Er. SAP & Data Mgmt. and IP	360	1	0.0	1.0	30.03.89	18.08.17	360	1	0.0	1.0	30.03.89	18.08.17
3	Executive Maintenance - Electrical	360	1	0.0	1.0	30.03.89	28.09.17	360	1	0.0	1.0	30.03.89	28.09.17
4	Executive Maintenance - Electrical	360	1	0.0	1.0	30.03.89	18.11.17	360	1	0.0	1.0	30.03.89	17.08.17
5	Executive Maintenance - Electrical	360	1	0.0	1.0	30.03.89	23.03.17	360	1	0.0	1.0	30.03.89	28.04.17
6	Executive Maintenance - Electrical	360	1	0.0	1.0	30.03.89	30.03.17	360	1	0.0	1.0	30.03.89	28.04.17
7	Executive Maintenance - Electrical	360	1	0.0	1.0	30.03.89	23.03.17	360	1	0.0	1.0	30.03.89	18.04.17
8	Electrical Engineer - PTC, TMX2	360	1	0.0	1.0	30.03.89	30.03.17	360	1	0.0	1.0	30.03.89	17.05.17
9	H.T. Electrical Engineer	360	1	0.0	1.0	30.03.89	30.03.17	360	1	0.0	1.0	30.03.89	17.05.17
10	Shift Team Lead - Utilities	360	1	0.0	1.0	30.03.89	24.04.17	360	1	0.0	1.0	30.03.89	01.06.17
11	Project Manager	360	1	0.0	1.0	30.03.89	31.03.17	360	1	0.0	1.0	30.03.89	22.08.17
12	Lead Er-Infra & Workshop	360	1	0.0	1.0	30.03.89	17.07.17	360	1	0.0	1.0	30.03.89	22.08.17
13	Executive Operations - Utilities	360	1	0.0	1.0	30.03.89	17.07.17	360	1	0.0	1.0	30.03.89	01.06.17
14	Shift Team Lead - Utilities	360	1	0.0	1.0	30.03.89	24.03.17	360	1	0.0	1.0	30.03.89	22.08.17
15	Shift Team Lead - Utilities	360	1	0.0	1.0	30.03.89	30.03.17	360	1	0.0	1.0	30.03.89	23.08.17

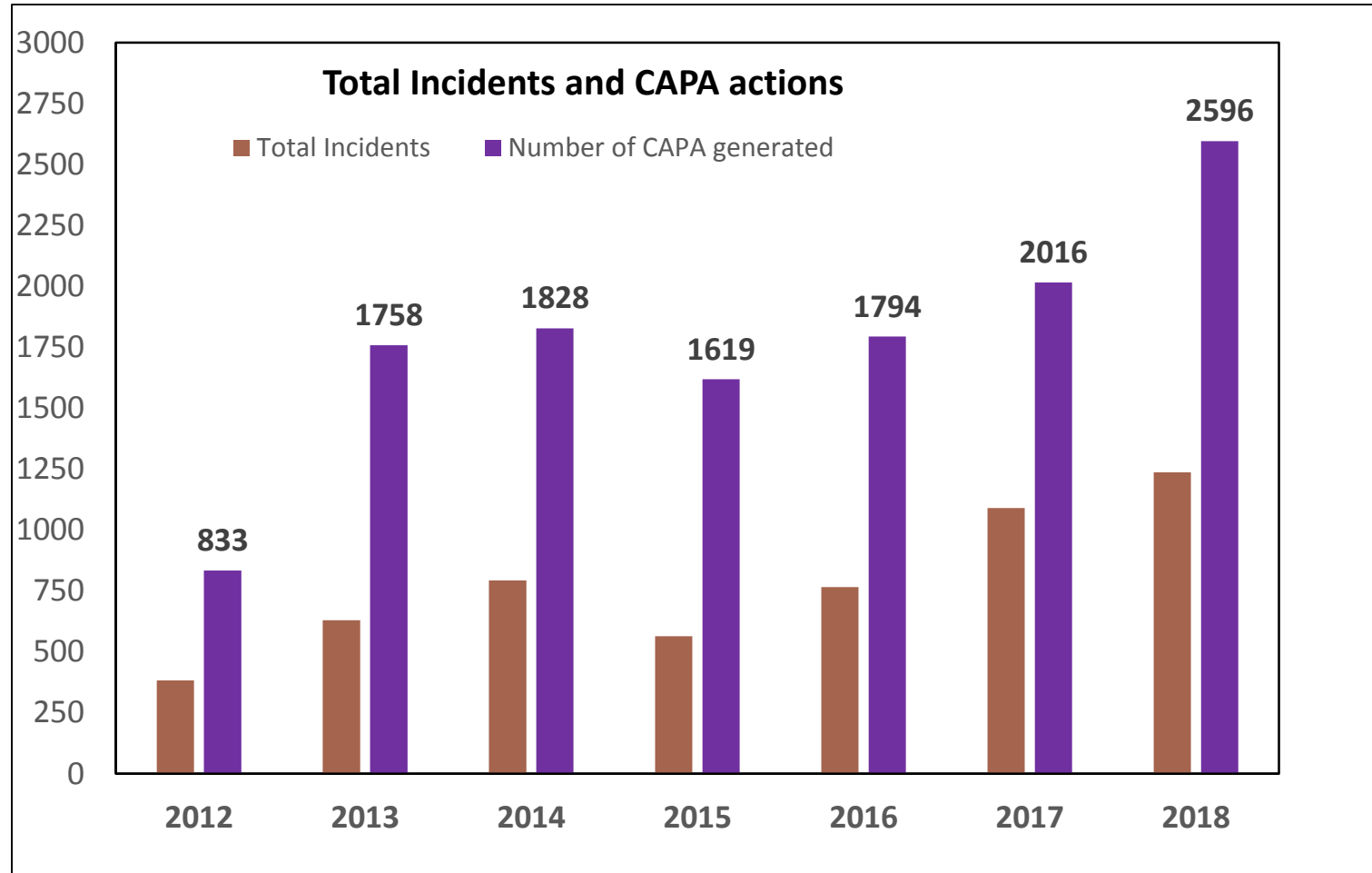


**LINKED TO ANNUAL TARGETS**

# 3. Monitoring : Incident Investigations

## Important Lead Indicators:

- *Incident to be closed within specified timeline*
- *% CAPA actions on time*
- *% of Safety critical device failure during maintenance*



**No reporting - considered as sin!**

## 4. Improvement

- Internal audit
- Leader Standard Work – **Mandatory Plant round at all levels of leadership**
- HSE Walkthrough Inspection

Sr.No	Walkthrough Level	Attendees	Periodicity
1	L2	Shift Lead, Group Lead and Operations team	Weekly
2	L1	HoD, Plant Manager, Operations Engineer, Operations Manager and Maintenance Manager	Quarterly
3	L0	<b>Site Head, Head-HSE, Site Engineering Manager &amp; Head Mfg, Plant Manager, Operations Engineer, Operations Manager and Maintenance Manager</b>	Annually

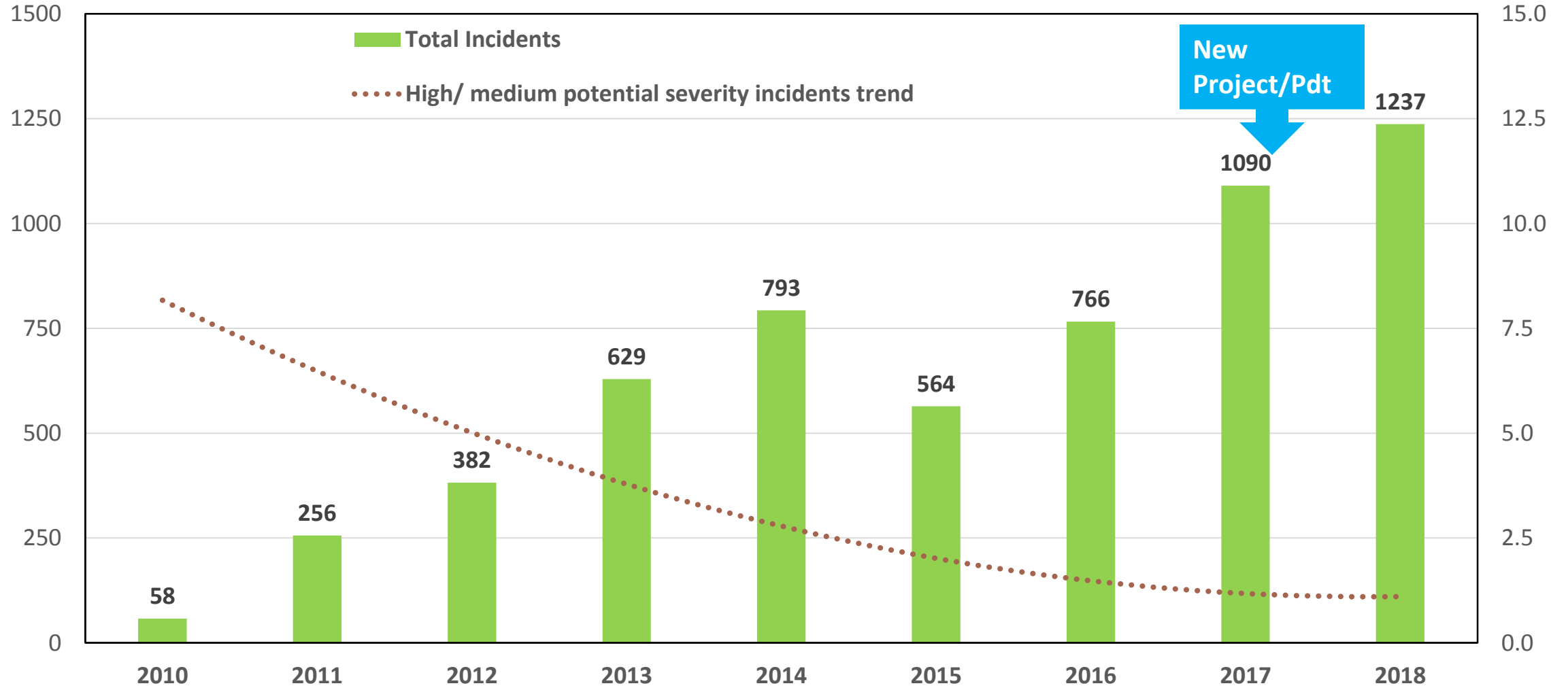


# Shop floor Case Studies – My experience

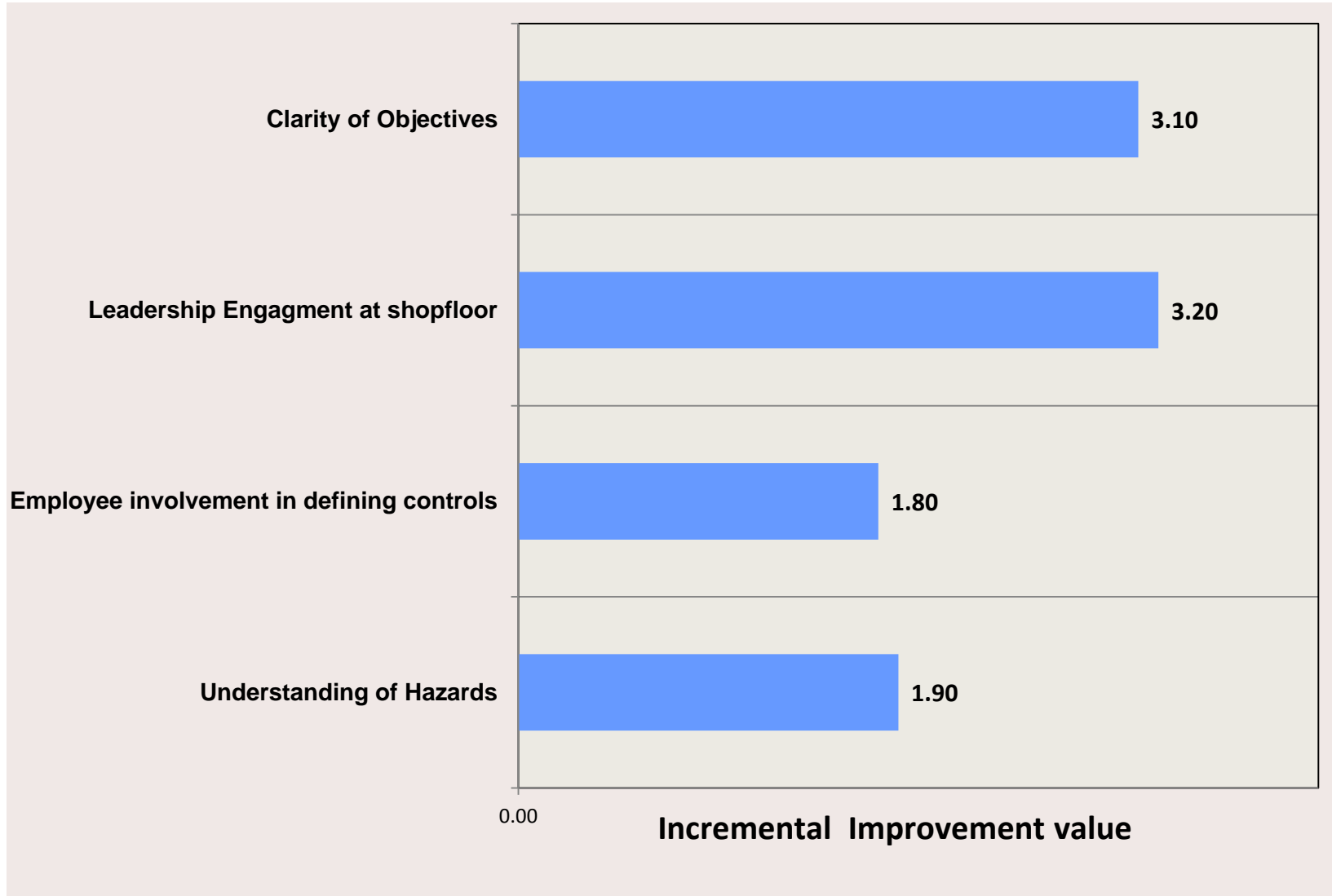
S.No	Subject	Need to Improve PSM Culture	Positive PSM culture
01	Frequent plugging issues	Meeting called on drafting Work Instructions including one on de-plugging the Reactor bottom valve.	Eliminate plugging through In situ cleaning
02	Deposits/Crust in waste storage tanks	Way of life	In situ cleaning of tanks
03	Odour nuisance	Way of life	Near misses raised Repeat Near misses noted to take actions
04	Issues with instruments/equipment	Production focus	STOP and ACT
05	Incident reporting	Major incidents reported	Incidents/Near misses reported like: Suspected mechanical seal leak! Equipment performance noted low during PM

*Disclaimer: This is from various Organisations and not from the Goa site in discussion*

# Outcome: 20 fold increase in Near Miss/Incident reporting!

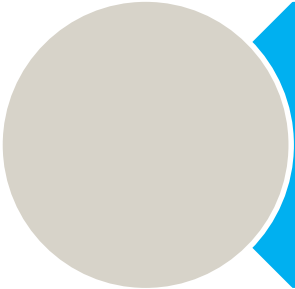


# Outcome : Increased Shop floor satisfaction up by 2.5 times!





# The decade long efforts bore fruit!



Inherently Safe plant allowing increasing production with enhanced reliability



Sustained Process Safety Culture for over a decade in spite of change in ownership and leadership



Happy Employees and Happy Community

# Final take away

Visibility of Leaders on Shopfloor

Resources to be aligned with systems

Clarity of Objectives

Incentivise PSM goals

The Journey Continues...

Thank You from  
Santa Monica Works, Goa

**Geetali Thakur**

Head – HSE

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