



# ANGLOGOLD ASHANTI

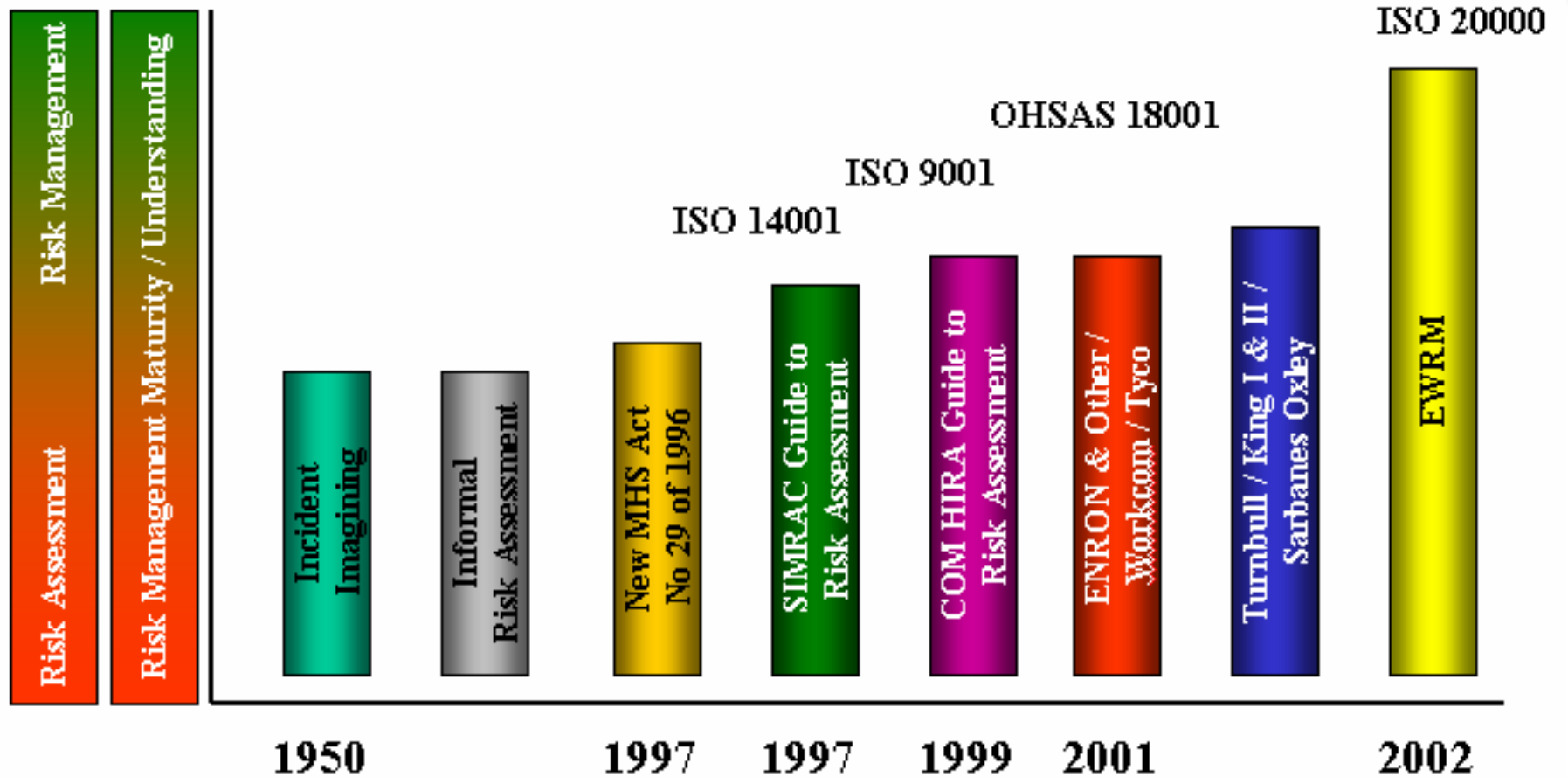
*Process Audit incorporated into OSHAS 18001*

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# Development of OSHAS 18001

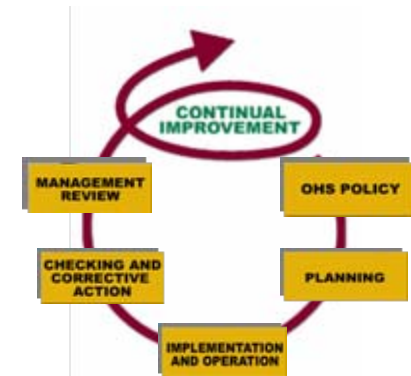
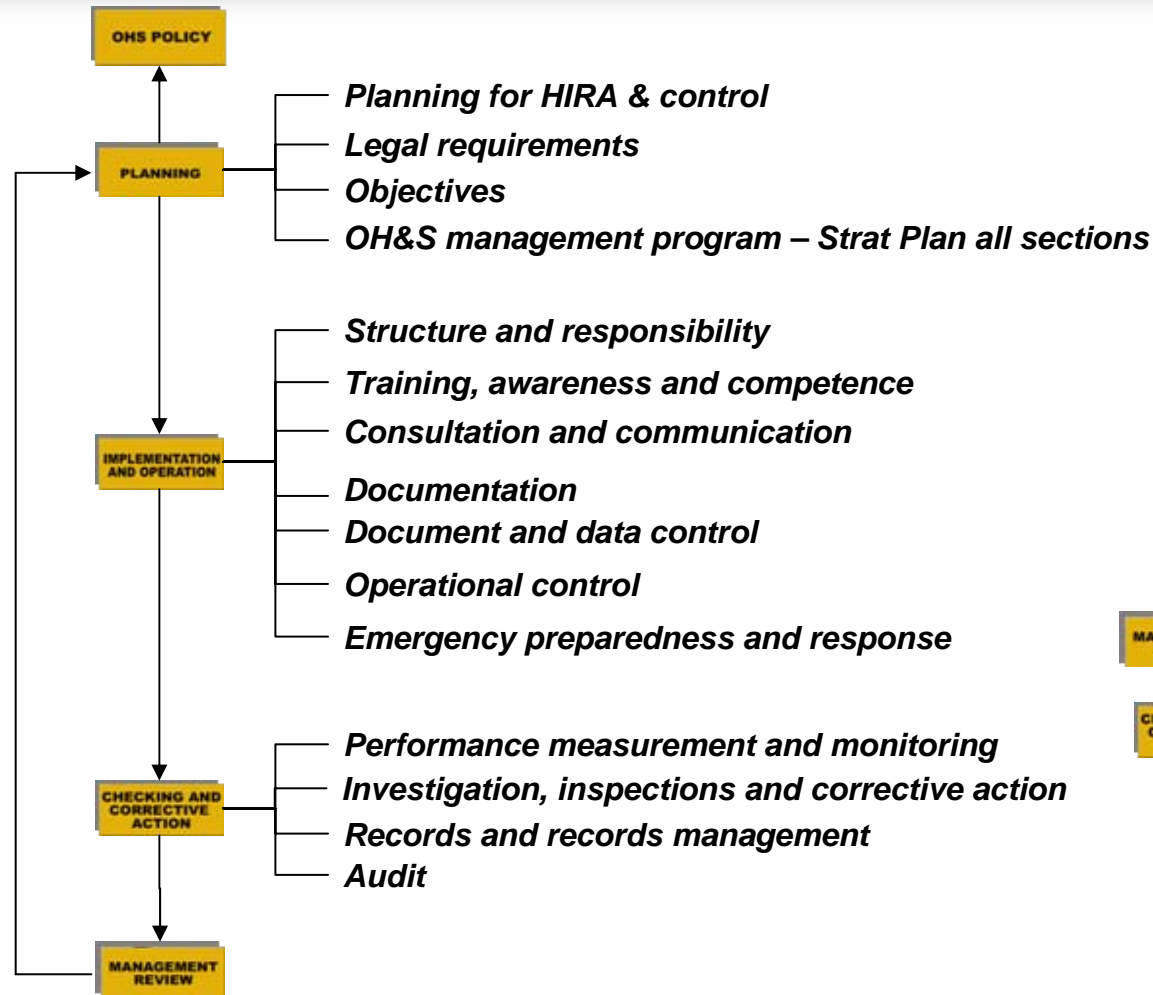


# Objectives of OSHAS 18001

Provide a guideline to implement a Occupational Safety & Health management system in an structured manner to:

- ❖ Reduce the BUSINESS RISKS associated within a company.
- ❖ Reduced accidents and occupational ill health.
- ❖ Reduced stress and greater productivity.
- ❖ Improve in underwriting risk.
- ❖ Produce a clear set of objectives for improvement, with measurable results
- ❖ Continually identifying legal and other requirements.
- ❖ A reduction in the likelihood of paying legal costs and compensation.
- ❖ Enable Managers to implement the principles & concepts to ensure **Continual Improvement**

# OSHAS 18001 Structure



# Peril Risks Identified

High

Likelihood/Chance of Occurrence	7 - 9 (poor controls)	Horizontal Transport	Flammable Gas	Vertical Transport	20	
	4 - 6 (fair controls)	Dust	Intake Fires	Seismicity - Shaft Barrels	19	
	1 - 3 (good controls)	Explosives	Flooding		17	
	<1	Cyanide	Slime Dams		14	
		0 - 5	6 - 30	30 - 90	90 - 150	> 150
		Potential Consequence "R mill"				

High

# OSHAS 18001 incorporated into the Process Audits



<http://www.nsls.bnl.gov/newsroom/publications/manuals/ohsas/#4.3.3>

# Process Areas and Audit Controls

## Common Systems

- ❖ H&S Policy
- ❖ Legal / Admin Centre
- ❖ EWRM System
- ❖ Investigations / Planned Task Observations /
- ❖ Competence Assessments
- ❖ Training
- ❖ Quality Control
- ❖ Hazchem
- ❖ Health & Safety System
- ❖ Technical Records
- ❖ Legal Logbooks
- ❖ Exemptions
- ❖ DME Correspondence
- ❖ Sunday Labour Permissions
- ❖ Accident Investigations
- ❖ Peril Risk Assessments
- ❖ Design Audits
- ❖ Condition Monitoring
- ❖ Appointments
- ❖ Performance Testing { Pumps / Refrigeration }

# Process Areas and Audit Controls

## Vertical Transport

- ❖ Hoisting
- ❖ Shafts Barrel / Shaft Equipment
- ❖ Conveyors
- ❖ Main Ore passes
- ❖ Elevators
- ❖ Winders
- ❖ Shaft Bottom arrangements
- ❖ Loading Systems
- ❖ Shaft Bottom Inclines
- ❖ Legal Logbooks / Documentation

## Horizontal Transport

- ❖ Locos
- ❖ Hoppers
- ❖ Center of Gravity Ore passes
- ❖ Battery bays
- ❖ Track work
- ❖ Incline Shafts { Small material inclines }
- ❖ Box fronts
- ❖ Tips
- ❖ Explosives surface and underground
- ❖ Booster fans
- ❖ Workshops / Repair / Refueling bays
- ❖ Legal Documentation / Logbooks

# Process Areas and Audit Controls

## Services / Utilities

- ❖ Civil and concrete structures
- ❖ Maintenance strategy
- ❖ Compressed air
- ❖ Energy
- ❖ Emergency Power
- ❖ Control and Instrumentation
- ❖ Flooding
- ❖ Fire { Surface }
- ❖ Explosives
- ❖ Main Fans
- ❖ Refrigeration
- ❖ Pumps
- ❖ Electrical Installations == Minisubs, Eskom Subs, Consumer Subs, Reticulation, Gully Rigs.
- ❖ Non Destructive Testing == Winders, Fans Critical Components
- ❖ Fire Detection

# Audit Scoring

SCORE = 1/3 COMMON SYS. CONTROLS + 1/3 SPECIFIC SYS. CONTROLS + 1/3 PHYSICAL

Scoring of system controls:

Existence ===== 10%  
Content ===== 20 %  
Application == 70 %

## Example:

Question: Is there a procedure or system available that governs the activities of the Legal Admin Centre?

## System

If the answer to the question is YES and the procedure is available scoring for this question will be 10 / 10 = 100% in the system category

## Content

In the content section the procedure will be scrutinized to see the relevancy of the content to the work place and if the procedure contains everything according to guidelines etc. This scoring will be for example 10 / 20 = 50 %

## Application

The procedure will then be taken and be tested for application in the work place. This section will be the most significant part of the audit. If the application and conditions are satisfactory the scoring will be for example 30 / 70 = 42.8 %

## Scoring of physical conditions:

Score out of 100%. If no calculated figure, use as guideline : excellent = 90%, good = 70%, ave = 50%, below ave = 30%, poor = 10%.

# Typical Example of Audit Protocol



Control and Instrumentation Audit Protocol

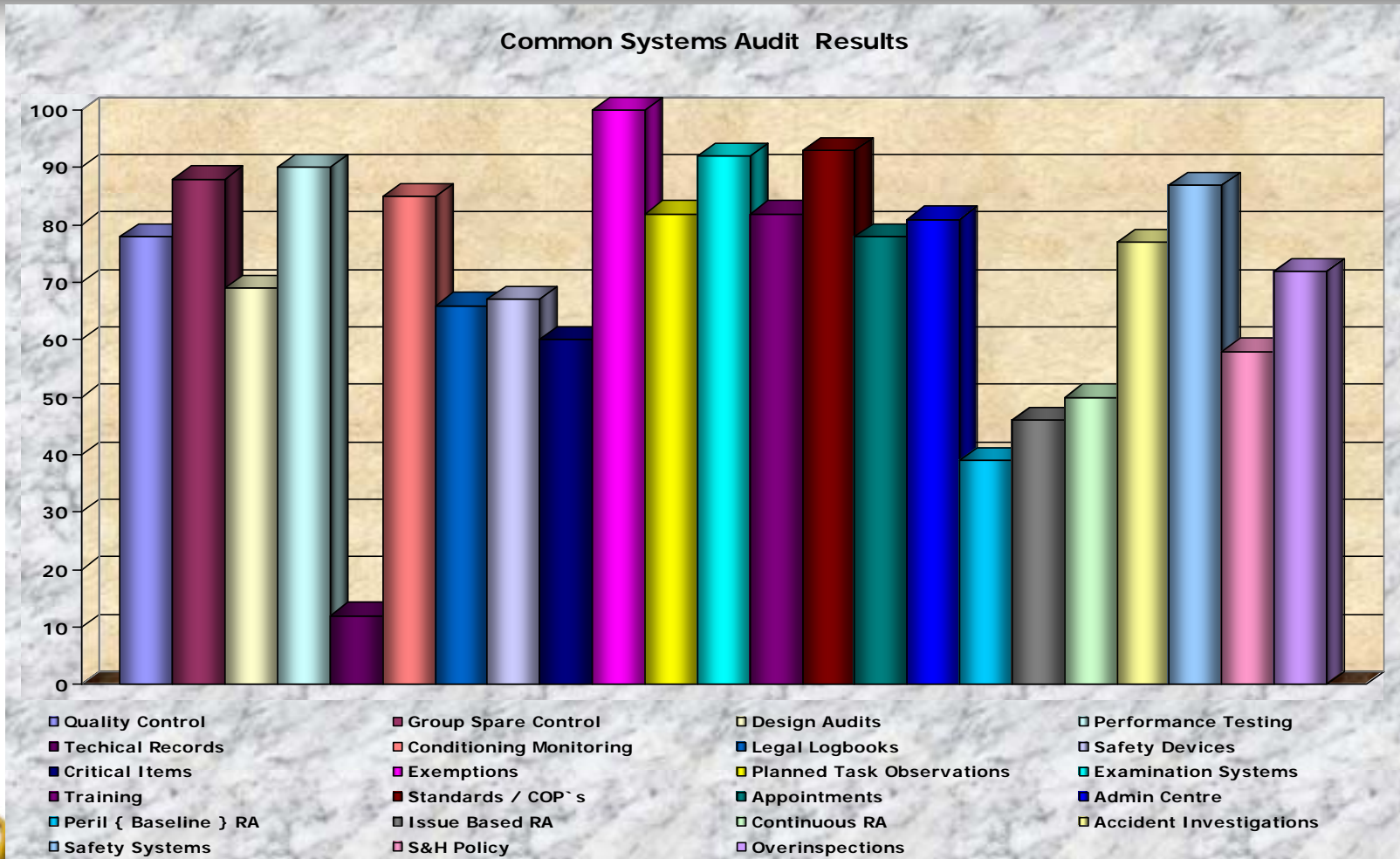


Common System Audit Protocol

# Process Audit Results

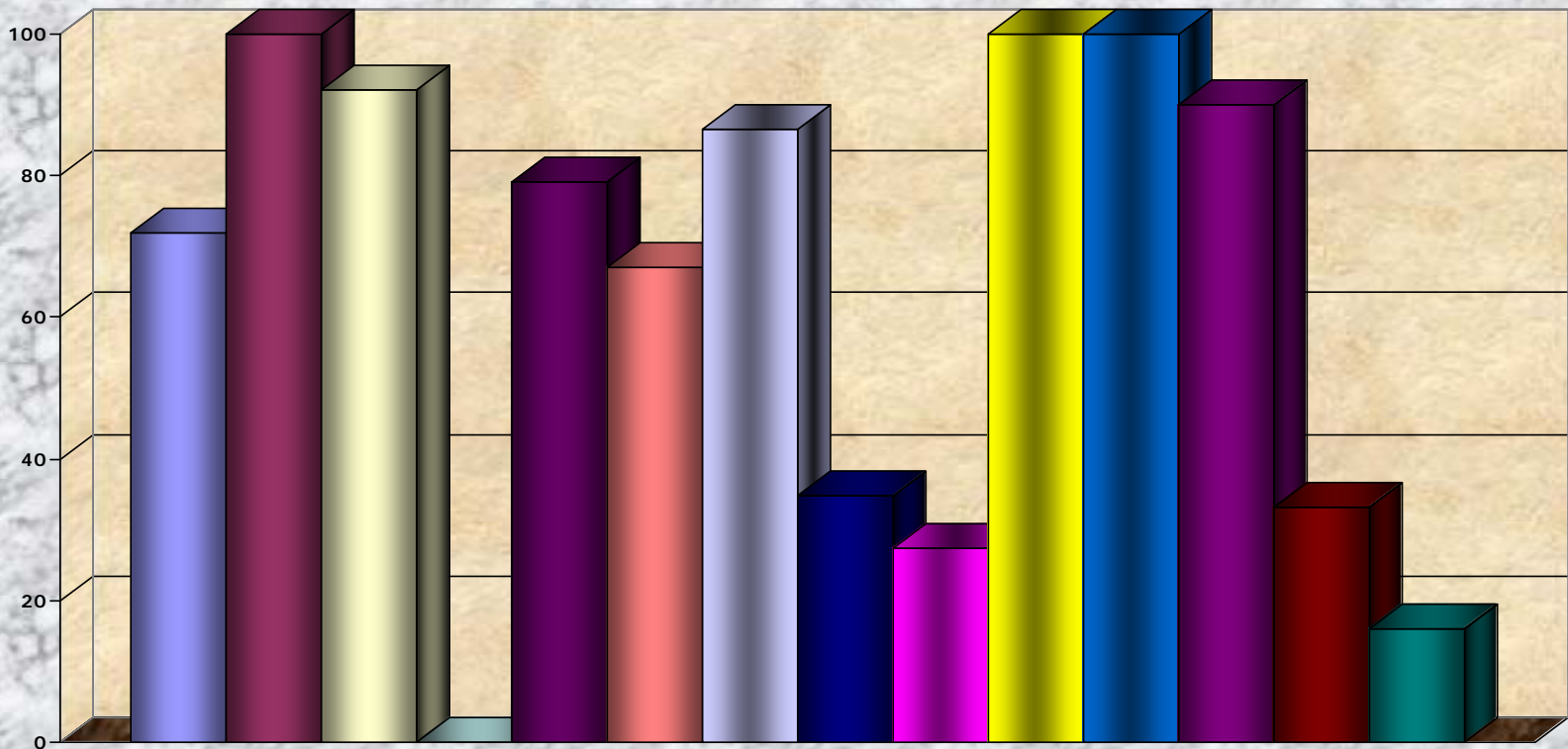
Process Area	Rating %				"A"			"B"			"C"		
	Common Systems	Specific Systems	Field Audit	Final Score	System	Field	Total	System	Field	Total	System	Field	Total
V.T.	76	81	76	77	7	20	27	21	80	101	5	117	122
H.T.	76	78	75	76	9	66	75	34	80	114	30	294	324
Emergency Power	76	79	-	77	-	-	-	-	-	-	-	-	-
Pumping	76	97	91	88	1	2	3	-	8	8	-	9	9
Refrigeration	76	90	97	87	15	2	17	-	1	1	1	8	9
Ore Passes	76												
Maintenance	76	49	-	62	3	-	3	9	-	9	18	-	18
Compressors	76	100	76	84	-	-	-	-	2	2	-	-	-
Main Fans	76	100	100	92	-	-	-	-	-	-	-	-	-
Surf Fires	76	88	75	79	5	-	5	4	-	4	3	-	3
Flooding	76	96	-	86	-	-	-	-	-	-	-	-	-
CIC	76	92	95	87	-	-	-	-	1	1	-	-	-
Electrical	76	88	97	87	-	-	-	-	-	-	-	-	-
NDT	76	65	-	70	-	-	-	4	-	4	-	-	-
Compressed Air	76	29	-	52	-	-	-	-	5	5	-	-	-
Structural Design	76	30	-	53	-	-	-	-	-	-	-	-	-
Construction Box fronts	76	90	-	83	-	-	-	-	-	-	-	-	-
Construction once Off	76	75	-	75	-	-	-	-	-	-	-	-	-
Fire Detection	76	95	92	87	4	-	4	-	-	-	-	-	-
Tracks	76	72	70	72									
Final Score	76	75	74	73	49	96	145	83	190	271	133	512	645

# Common Systems



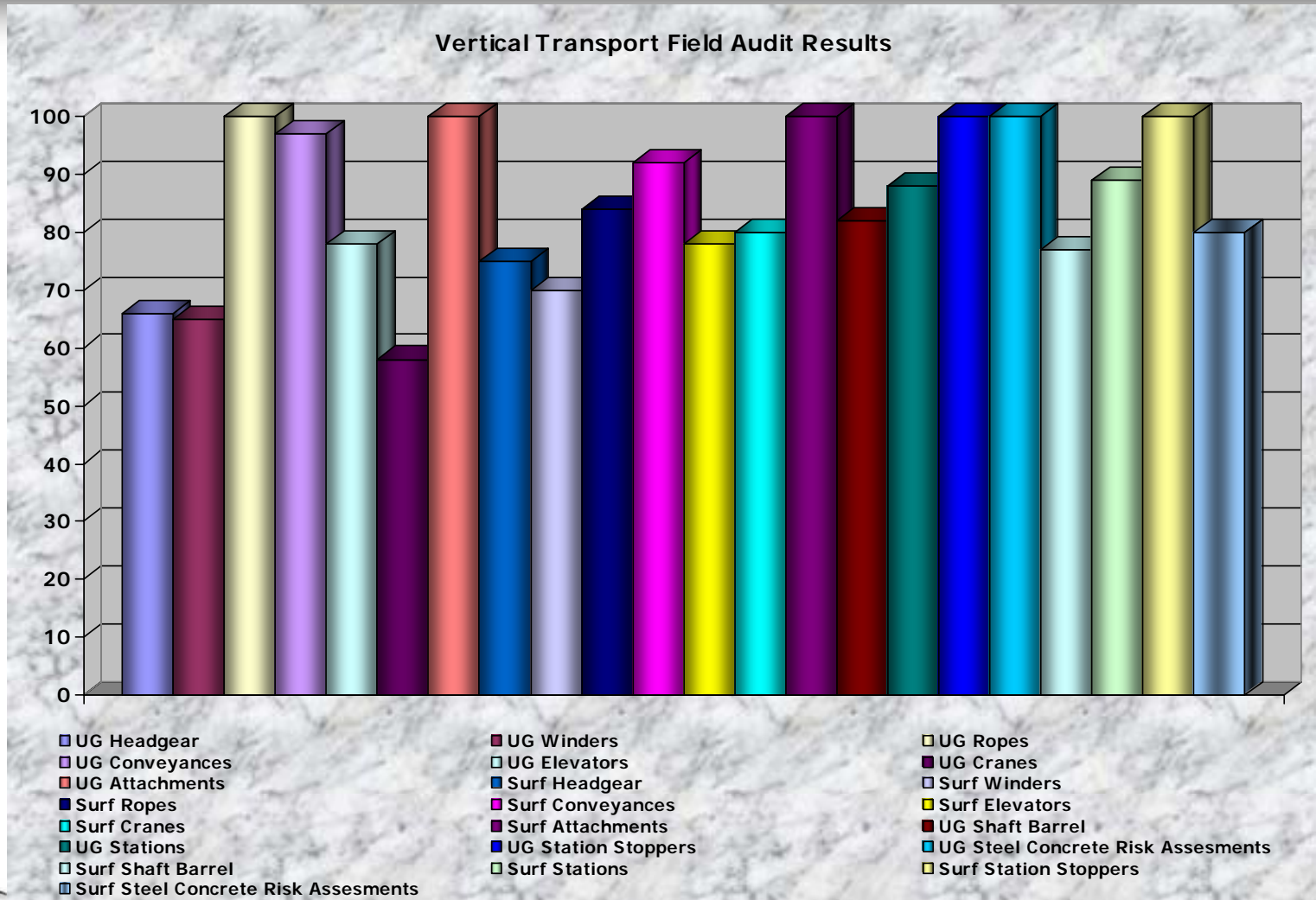
# Vertical Transport System Findings

Vertical Transport Systems Audit Results



- Rope Records
- Conveyance Records
- Drivers Logbook
- Legal Inspection
- Bell Recorder Systems
- Sheave Wheel Records
- Shaft Examination Records
- Emergency Drills
- Shaft Examination
- Elevator Record Book
- Detaching Hook Records
- Attachment Records
- Tachograph
- Station Stopping Risk Assessment

# Vertical Transport Field Audit



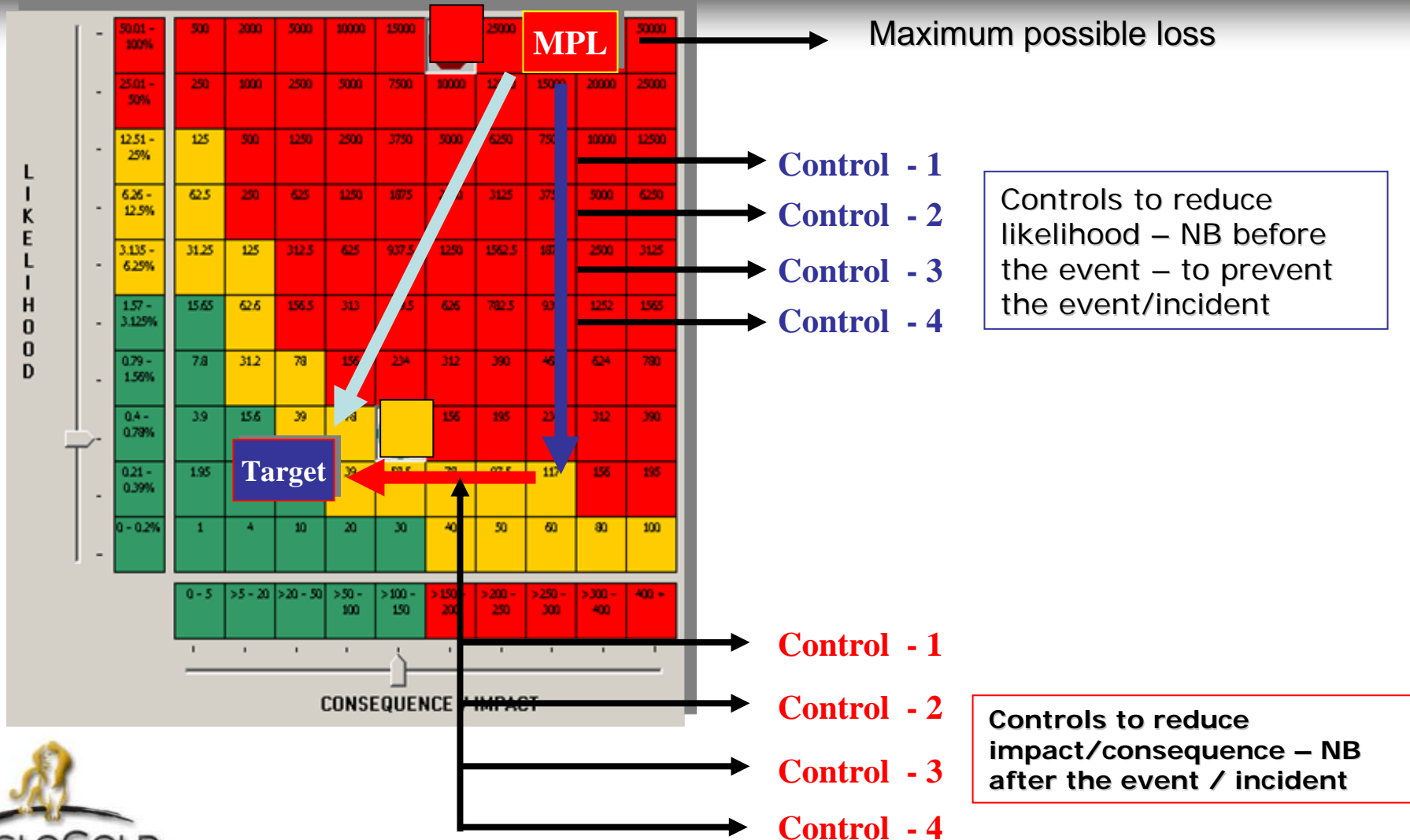
# OSHAS 18001 Results

	Description	Common Systems	V.T.	H.T.	Elect	CIC	Ore passes	Pumps	Refrig	Maint
OHS Policy		95								
Planning	Planning for Hira & Control	55	100	-	-	100	-	-	-	-
	Legal Requirements	82	61		88			91		-
	Objectives		-	-	-	-	-	-	-	-
	Management Program - Strat Plan	88	-	-	-	-	-	-	-	77
Implementation and Operation	Structure and Responsibility		-	-	-	100	-	-	-	60
	Training and Awareness	85	100	85	89	-	-	-	97	-
	Consultation and Communication		-	-	-	-	-	-	-	-
	Documentation	90	68	-	-	87	-	-	-	-
	Documentation and Data control	64	-	51	88	91	-	100	70	48
	Operational Control	-	76	79	97	95	-	92	93	-
	Emergency Preparedness	-	73	-	-	-	-	-	-	-
Checking and Corrective Action	Performance Management	96	-	-	-	-	-	-	90	35
	Investigations, Inspections	72		-	-	-	-	-	100	32
	Records and Record Management	-	60	-	-	-	-	-	-	-
Management Review	Audit									

# OSHAS 18001 Results

	Description	Common Systems	Surf Fire	NDT	Flood	Comp	Emerg Power	Air Systems	Main Fans
OHS Policy		95							
Planning	Planning for Hira & Control	55	-	-	-	-	-	-	-
	Legal Requirements	82	-	-	-	100	-	-	100
	Objectives		-	-	-	-	-	-	-
	Management Program - Strat Plan	88	-	100	-	100	-	-	-
Implementation and Operation	Structure and Responsibility		-	-	-	100	-	-	100
	Training and Awareness	85	-	-	-	-	-	15	-
	Consultation and Communication		-	-	-	-	-	-	-
	Documentation	90	90	-	97	-	-	65	-
	Documentation and Data control	64		100	-	100	-	-	100
	Operational Control	-	75	-	-	76	79	-	100
	Emergency Preparedness	-	-	-	-	-	-	-	-
Checking and Corrective Action	Performance Management	96	-	-	-	100	-	-	-
	Investigations, Inspections	72	-	65	-	-	-	0	-
	Records and Record Management	-	-	-	-	-	-	50	-
Management Review	Audit								

# Conclusion



Maximum possible loss

- Control - 1
- Control - 2
- Control - 3
- Control - 4

Controls to reduce likelihood – NB before the event – to prevent the event/incident

- Control - 1
- Control - 2
- Control - 3
- Control - 4

Controls to reduce impact/consequence – NB after the event / incident

# Questions

How can we make a difference to improve our Business Risks

The only way we can improve is by doing something and keep track of what we are doing !

I am in trouble again

These audit results is not good

