COMAH Inspections – What to expect

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HEALTH AND SAFETY AUTHORITY

Regulation 22 deals with Inspections

There are 9 paragraphs to the regulation

1) Central Competent Authority (CCA) shall devise and organise a national system of inspections ….

2) **Inspections** shall be appropriate to the type of establishment and be **planned** and **systematic**
   - a) **prevent** major accidents
   - b) **limit the consequences**
   - c) **Information** has been supplied to the public

3) Inspection **plans** shall be prepared and take account of the following
   - a) General assessment of relevant issues
   - b) Geographical area
   - c) List of establishments
   - d) Domino effects
   - e) Particular external risks
   - f) Procedures for routine & non-routine inspections
   - g) Arrangements for cooperation with other inspection authorities

4) The CCA must regularly draw up **programmes** for routine inspections for all establishments
   - a) Frequency of site visits for different types of establishment
   - b) Frequency not to exceed 1 year for upper tier establishments
     Frequency not to exceed 3 years for lower tier establishments

5) Deals with the systematic appraisal system referred to in 4)

6) Non-Routine Inspections carried out to investigate serious complaints / accidents / near misses and occurrences of non-compliance

7) The CCA shall communicate conclusions of inspection and all necessary actions identified to **operator within 4 months** and ensure actions identified are taken within a further reasonable period.

8) If inspection identifies an important case of non-compliance an **additional** inspection carried out **within 6 months**

9) Inspections shall be co-ordinated and combined with other EU legislative inspections as appropriate

Paragraph 2 and Paragraph 4

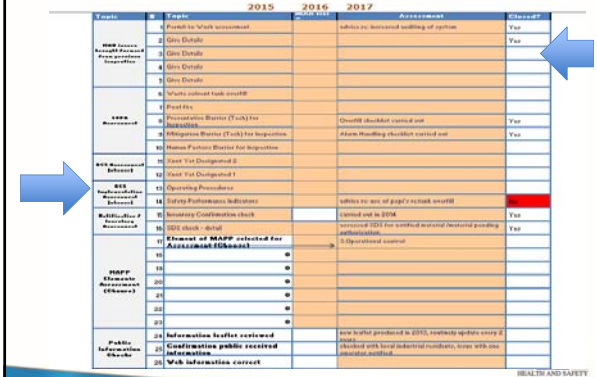
Inspections shall be appropriate to the type of establishment and be **planned** and **systematic**

Take account of Industry Sector
Risk Rating of the site
History of Site Inspection

Inspection Topics

LOPA Assessment	MAPP Elements Assessment	Safety Performance Indicators Assessment
MAH issues brought forward from previous inspection	Public Information Check	Sector/topic checklists
RCS Assessment	Environment & domino Information check	Accidents & DO's follow-up
RCS Implementation Assessment	Safety Report follow-up	Human Factors & SCT Assessment
Notification / Inventory Assessment	Internal Emergency Plan Assessment	Other MAH issues

Inspection Plans

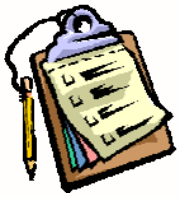


Demonstration of measures to prevent major accidents

2 main approaches

RCS Assessment Proforma

Safety Management System Based
13 Developed
Systematic Assessment of Topic



RCS Assessment System

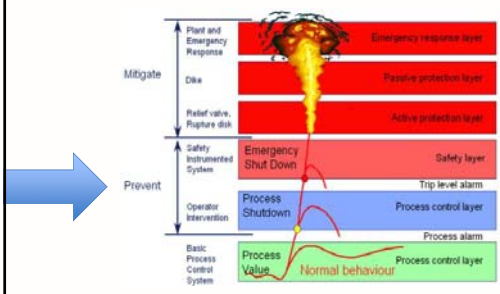
Permit to Work	Operating Procedures
Hazard Identification and Risk Assessment	Selection & Management of Contractors
Examination and Testing of Safety Critical Plant	Plant Commissioning / Plant and Process Design
Emergency Response	Planned Maintenance Procedures
Management of Change	Assessing Auditing
Assessing Competence	Process Safety Performance Indicators
	Accident Investigation

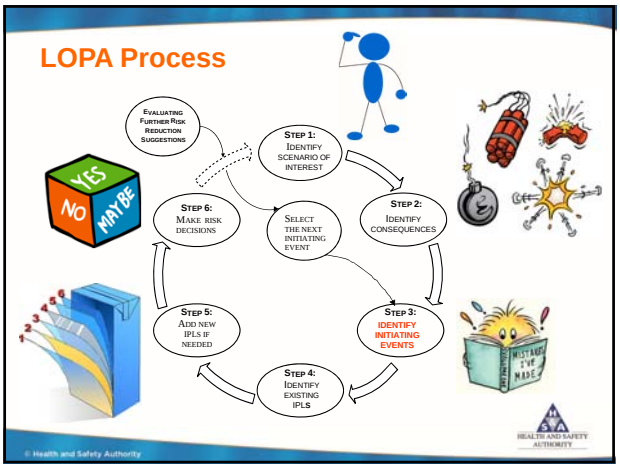
LOPA approach

Layer of Protection Analysis
Risk Based

Focus on Major Accident Scenarios & Initiation Potential

Major Accidents and Layers of Protection




LOPA Process
Evaluating Further Risk Reduction Suggestions
Step 1: Identify scenario of interest
Step 2: Identify consequences
Step 3: Identify initiating events
Step 4: Identify existing IPLs
Step 5: Add new IPLs if needed
Step 6: Make risk decisions
Select the next initiating event
YES
NO
MAYBE
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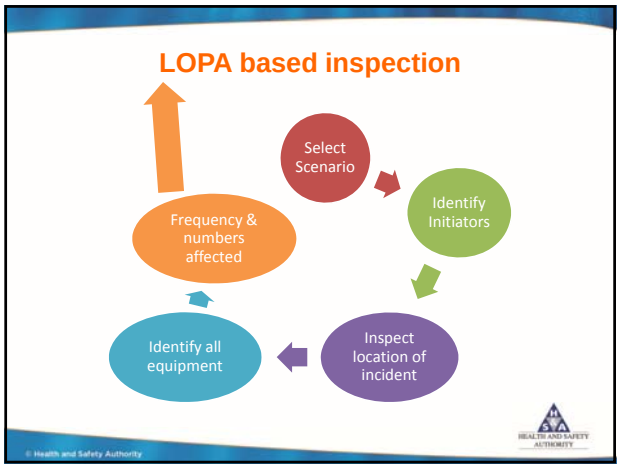
LOPA based inspection
Select Scenario
Identify Initiators
Inspect location of incident
Identify all equipment
Frequency & numbers affected
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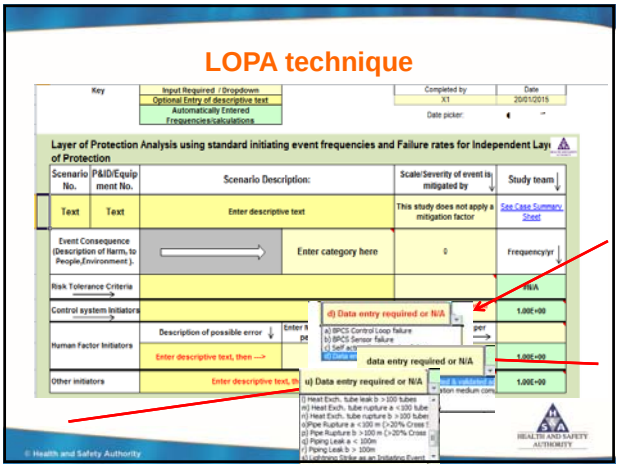
LOPA technique
Layer of Protection Analysis using standard initiating event frequencies and Failure rates for Independent Lay of Protection
Scenario No.
P&ID/Equip ment No.
Scenario Description:
Study team
Event Consequence (Description of Harm, to People,Environment).
Enter category here
Frequency/yr
Risk Tolerance Criteria
Control system Initiators
Human Factor Initiators
Other initiators
d) Data entry required or N/A
data entry required or N/A
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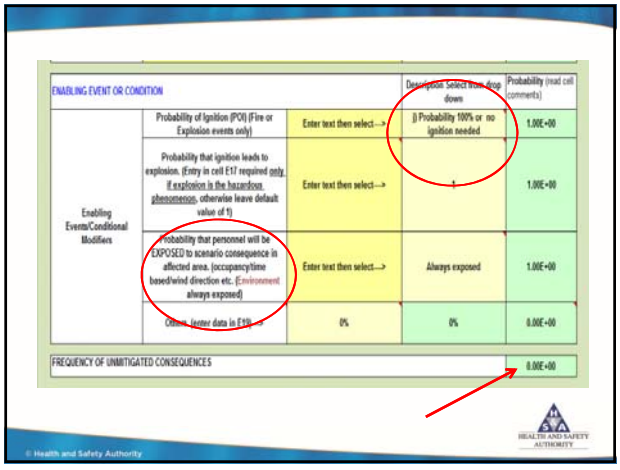
ENABLING EVENT OR CONDITION
Probability (read cell comments)
Probability of Ignition (POI) (Fire or Explosion events only)
Probability that ignition leads to explosion. (Entry in cell E17 required only if explosion is the hazardous phenomenon, otherwise leave default value of 1)
Probability that personnel will be EXPOSED to scenario consequence in affected area. (occupancy/time based/wind direction etc. (Environment always exposed)
Enabling Event/Conditional Modifiers
Enter text then select--->
Always exposed
FREQUENCY OF UNMITIGATED CONSEQUENCES
1.00E+00
0.00E+00
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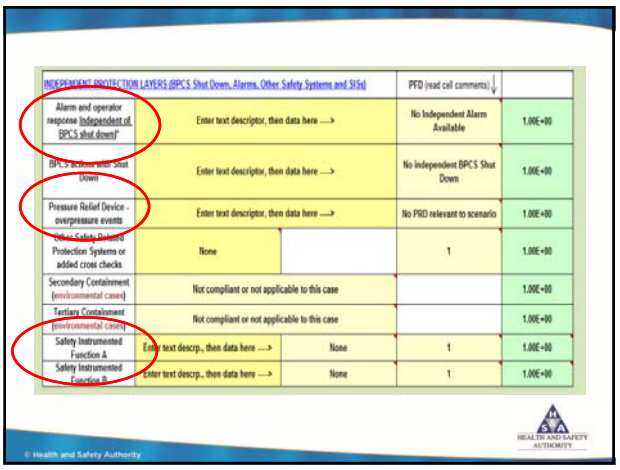
INDEPENDENT PROTECTION LAYERS (BPCS Shut Down, Alarms, Other Safety Systems and SISs)
PFD (read cell comments)
Alarm and operator response Independent of BPCS shut down)"
Enter text descriptor, then data here ---->
No Independent Alarm Available
1.00E+00
BPCS as above with Shut Down
No independent BPCS Shut Down
Pressure Relief Device - overpressure events
No PRD relevant to scenario
Other Safety Related Protection Systems or added cross checks
None
Secondary Containment (environmental cases)
Not compliant or not applicable to this case
Tertiary Containment (environmental cases)
Safety Instrumented Function A
Safety Instrumented Function B
Enter text descrp., then data here ---->
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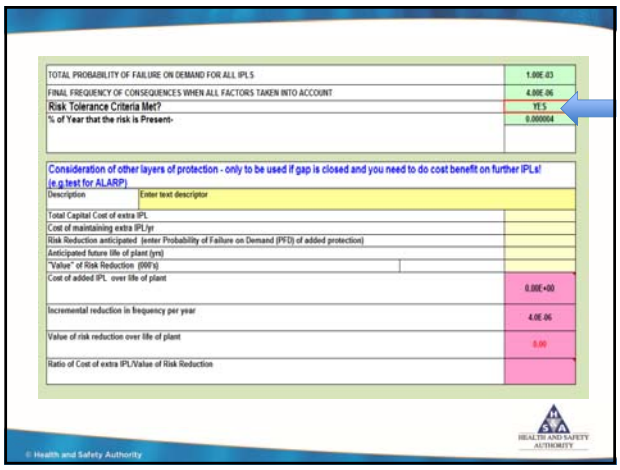
TOTAL PROBABILITY OF FAILURE ON DEMAND FOR ALL IPLS
FINAL FREQUENCY OF CONSEQUENCES WHEN ALL FACTORS TAKEN INTO ACCOUNT
Risk Tolerance Criteria Met?
% of Year that the risk is Present-
Consideration of other layers of protection - only to be used if gap is closed and you need to do cost benefit on further IPLs! (e.g.test for ALARP)
Description
Enter text descriptor
Total Capital Cost of extra IPL
Cost of maintaining extra IPL/yr
Risk Reduction anticipated (enter Probability of Failure on Demand (PFD) of added protection)
Anticipated future life of plant (yrs)
"Value" of Risk Reduction (£K£'s)
Cost of added IPL over life of plant
Incremental reduction in frequency per year
Value of risk reduction over life of plant
Ratio of Cost of extra IPL/Value of Risk Reduction
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Inspection Checklists

Checklists

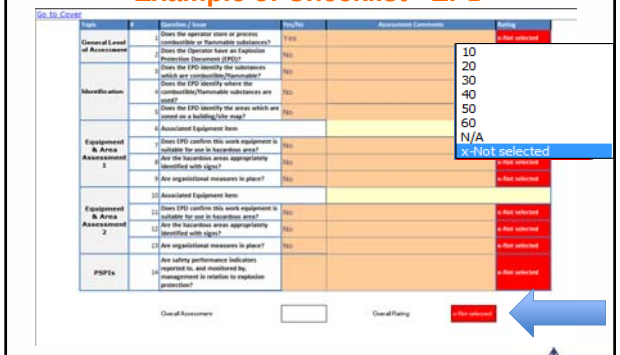
Alarm Handling
Bunds
EPD
ERP
Dust
Fertilizers
Hazard Identification

Human factors
Operating procedures
Overfill of tank
Management of Change
Petroleum stores
Planned Maintenance

Safety Critical tasks
Human Factors

Ref #	MAH
1	#N/A
2	#N/A
3	#N/A
4	#N/A
5	#N/A
6	#N/A
7	#N/A

Example of Checklist - EPD



Dear *"Person in charge of Establishment"*,

Further to the inspection of your establishment under the COMAH Regulations on DD/MM/YYYY, the following actions are required to be taken by you: / the inspection did not identify any action required to be taken by you. *[Delete as appropriate]*

Item #	Measure related to the prevention and mitigation of major accidents and the action required to be taken by you	Required Completion Date

DD/MM/YYYY

Rating system

Standard	Description	Score
Best Practice	Operator proactive in identifying and implementing improvements. **Use of best practice**. All success criteria met. Suggested Enforcement Action: **None**	10
Good Practice	**Exceeds minimum legal requirements** or industry standards. Good practice employed in most aspects. Most success criteria met. Suggested Enforcement Action: **Verbal Advice** (may be recorded on Report of Inspection ROI), no follow up required.	20
Generally Compliant	**Meets minimum legal requirements** or industry standards. **Some success criteria not fully met**. Best (Good?) industry practices not considered or planned. Suggested Enforcement Action: Consider Written Advice **(ROI to specify target date for compliance)**, may require follow up inspection.	30
Some Compliance	**Almost meets minimum legal or industrial standard**. More effect necessary. Several success criteria not fully met. Follow up required. Enforcement Action: **Written Advice (Possible Contravention Notice)**, follow-up inspection may be required.	40
Falls Short of Requirement	**Falls somewhat short of minimum legal requirements** or industry standards. Majority of success criteria not met or not fully met. Suggested Enforcement Action: Consider **Contravention Notice**.	50
Unacceptable	**Severe deficiencies in the system**, well below legal requirements or industry standards. Risk of imminent serious danger to man or the environment. Poor operator attitude to required improvements. Suggested Enforcement Action: **Consider Prohibition Notice**.	60

Ranking of Sites

Population (on or offsite within PIZ) Modifier	S_2
Large population (> 1000)	16
Medium population (> 50 to 1000)	8
Low population (< 50)	4

Societal Risk Modifier (within PIZ)	S_3
High Societal risk	2
Other	1

Intrinsic Safety Hazard → Population Modifier → Societal Risk Modifier → Safety Score

Intrinsic Environmental Hazard → Sensitivity Modifier → Pathway Modifier → Environmental Score

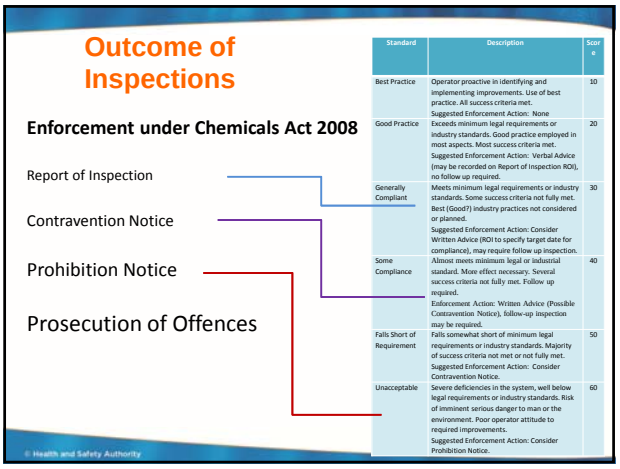
Sensitivity Modifier	E_1
Highly Vulnerable receptor (e.g. SAC)	4
Sensitive receptor (e.g. SSSI)	3
Sensitive receptor (not designated)	2
No sensitivity	1

Pathway Modifier	E_2
Clear pathways both direct & indirect	2
No clear pathways identified	1

Overall Site Risk Ranking

Site Name	Installation Type	Base Safety Score	Population Modifier	Societal Risk Modifier	Total Intrinsic Score	Hazard Band	Inspection Frequency (Years)
Med to large Pharma (API) Finishing Plant	Chemical Drum processing, med hazard	5	8	1	40	B	1 – 2
Chemical Mfr	Bulk Storage / processing toxic chemicals	10	8	1	80	A	2
Pharma API manufacturer	Chemical mfr with bulk storage of toxics	8	4	1	32	B	2 -3
Spirit Distillers	Flammable Liquids storage	4	8	1	32	B	2 - 3

Band	Frequency (every, years)
A_c	1
B_c	1-2 years
C_c	2-3 years
D_c	3 years


Outcome of Inspections
Enforcement under Chemicals Act 2008
Report of Inspection
Contravention Notice
Prohibition Notice
Prosecution of Offences
Standard
Description
Score
Best Practice
Operator proactive in identifying and implementing improvements. Use of best practice. All success criteria met. Suggested Enforcement Action: None
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Good Practice
Exceeds minimum legal requirements or industry standards. Good practice employed in most aspects. Most success criteria met. Suggested Enforcement Action: Verbal Advice (may be recorded on Report of Inspection ROI), no follow up required.
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Meets minimum legal requirements or industry standards. Some success criteria not fully met. Best (Good?) industry practices not considered or planned. Suggested Enforcement Action: Consider Written Advice (ROI to specify target date for compliance), may require follow up inspection.
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Almost meets minimum legal or industrial standard. More effect necessary. Several success criteria not fully met. Follow up required. Enforcement Action: Written Advice (Possible Contravention Notice), follow-up inspection may be required.
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60
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Thank you
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