



Break-Out Session 1

Recognising ageing sites and ageing site risk factors

Group 5

1. Discuss typical signs of an ageing site, and how these can be identified



Factor	Signs of Poor Ageing Management	Signs of Good Ageing Management	Inspection questions and tips
Equipment (mechanical, electrical, maintenance back-logs)	<ul style="list-style-type: none"> - external corrosion - wrong /poor stickers / markings - to many unimportant markers – confusing! 	<ul style="list-style-type: none"> - Critical and safety markings - No corrosion sign - next inspection date for a piece of equipment in the maintenance back log 	<ul style="list-style-type: none"> - Visual inspection - Not always a fresh painting is a sign of good aging management
Process control systems, process software, instrumentation, alarm systems,	-		<ul style="list-style-type: none"> - is the software connected to the internet - how often do you update the software - do you train or retrain your personnel - the software it is designed for the installation from the beginning or was developed separated - do you test regularly the link between alarms, software and safety barriers - the presence of old and new control and alarm systems – a sign of possible problem of compatibility

1. Discuss typical signs of an ageing site, and how these can be identified



Factor	Signs of Poor Ageing Management	Signs of Good Ageing Management	Inspection questions and tips
Infrastructure, electrical, IT infrastructure, universal power supply (UPS)			There are emergency power back up?
Documentation (update of P&I'Ds and other safety critical documentation)	lack of inventory list / documentation		Pick up onsite / in advance a piece of equipment and ask for documentation

1. Discuss typical signs of an ageing site, and how these can be identified



Factor	Signs of Poor Ageing Management	Signs of Good Ageing Management	Inspection questions and tips
Procedures, (update of procedures, for older installations and equipment, etc.)	- Lack of Maintenance policy		- Procedures for acceptance criteria for employees, contractors, equipment
People (competence), training content and structure		- A good log and documentation of people training connected with the operation system	- What is the working experience of the people, which operate the old equipment? - There are programs for training of the new people / contractors?

2. Discuss factors that could make ageing occur at a faster pace than normal or undermine effective risk management of ageing



Factor	Explain why and give examples	Inspection questions and tips
Change of process conditions without proper MOC	Changes of products within a tank – could lead to corrosion Change of the catalyst – could lead to fatigues...	<ul style="list-style-type: none"> - Records of substances contained in the tank - Look at the original design, configuration and the substance of the tank
Weather conditions, environmental conditions	Extreme weather condition – cold / humidity / salinity /wind / hail / flooding	<ul style="list-style-type: none"> - Look for the design of the equipment regarding the weather condition
Temporary shutdown of the entire plant or units	Electricity plant is original designed to operate continue for couple of year and now is temporary shutdown every month	<ul style="list-style-type: none"> - No. / trend of temporary shutdown - Are you aware of the impact of the shutdown on the all parts of the plant?

3. What skills does an inspector need (training and competency) to be able to review ageing plant issues?



- To be able to recognize the weakness of the systems
- Experience / courses in auditing process
- Inspection experience in the field
- Knowledge about failure mechanisms

**And...a very good
nervous ...central
system!**



European
Commission

That's all folks!



Joint
Research
Centre