Total’s Golden rules
Golden rule No. 12: Simultaneous operations or co-activities
This presentation resumes in part the document that won an award at the 2011 World Day for Safety at work, written by:

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Simultaneous operations or co-activities

Foreword

- Failure to respect Golden rule no. 12 represents almost 5% of serious or potentially serious workplace accidents in the Group (analysis of the last 22 months). Analyzing the accidents is not always easy because the extent to which co-activities have contributed is difficult to determine. For instance, co-activity will not necessarily emerge as one of the causes of a transit-related accident in a cluttered work area. For this reason, the actual figure is probably higher than 5%.

- By examining cases where we are certain that co-activity was one of the factors contributing to an accident, we have brought to light the following four main failures:
  - An obvious lack of information and/or communication
  - Poor preparation of the works
  - An insufficiently in-depth preliminary risk assessment
  - Failure to conduct a preliminary risk assessment due to underestimation of the risks and potential impacts of the co-activity
Simultaneous operations or co-activities

Foreword

- In most accident cases, the operating staff were unaware of what the victim was doing.

- When they were aware of it, they had underestimated the impact of their actions on the safety of the victim, or had not allowed for the possibility of an unexpected event that would lead to a major deterioration in the safety conditions for the people involved.

These points will be covered in more detail in the rest of this presentation.
Simultaneous operations – Definition

Simultaneous Operations (SIMOPS) or co-activities are situations where two or more jobs are being performed simultaneously in the same work area.

Several Golden rules may apply at the same time (e.g. lifting, work at height) when SIMOPS are performed. Workers tend to focus only on the risks directly involved in the individual operations, without paying enough attention to how these might interact. Yet it is precisely these interactions that need to be taken into consideration.

Many accidents are caused by unforeseen events or failure to anticipate risks.

When preparing works, it is vital to situate the operation in the overall picture and not address each activity by itself. This is the only way to be sure that all risks the workers are exposed to have been taken into consideration.
Simultaneous operations – Definition

However, it is wrong to think that co-activity applies only to large-scale operations involving many people. Frequent, everyday tasks that are part of our routine work are also performed concurrently and are therefore co-activities.

Questions

Operators are working in a packaging workshop where a fork-lift truck is also transporting materials.

Some technicians are cleaning with a high-pressure jet. Others, nearby, are performing electrical work.

Are these examples of co-activity?

Why?

What risks do they pose?

How can they be prevented?
Simultaneous operations – High-risk situations

Simultaneous operations are high-risk situations because:

- The person performing one job can unintentionally create hazards for operators working on another job.
- Two operations which are “safe” when carried out separately can create a hazard when they take place at the same time (for example hot works alongside a job involving a flammable substance).
- The risks generated by simultaneous operations add up to more than the sum of the risks of each operation performed separately.
- The more teams are involved, the harder it is to communicate.
- Teams of operators employed by different contractors do not all have the same safety culture.
- Supervisors must constantly be on the lookout to make sure multiple simultaneous operations proceed as they should and in compliance with the safety rules. Some supervisors consider this constant and sustained attention incompatible with quality supervision work.
Example of SIMOPs

- Numerous machines and vehicles using the site traffic routes.
- Two people (or four, or eight) working in a laboratory.
- Equipment maintenance work in a production unit.
- Loading / unloading of several trucks at the same loading / unloading bay.
- Several teams from different professions operating in the same area at the same time.
- A cleaning team or a group of visitors moving through an area while a routine activity is in progress.

A habitual task becomes a simultaneous operation when combined with other people or tasks.

*Can you think of any more examples?*
You probably have in mind some examples of accidents or near-misses that fall under Golden rule no. 12, ones that happened when two or three people (perhaps from the same entity) were working simultaneously in the same area or on the same job.

What is your analysis of these accidents (their causes, and how they might have been avoided)?
PLANNING

- Inspections
- HAZOP/ Risk assessment
- Coordination / Communication
- Supervision
- Documentation
- Definition of roles
How can we manage the risks generated by co-activity? (1/2)

- By applying the fundamental tools for managing simultaneous operations (or co-activities):
  - Conduct a risk assessment, with supporting documentation and the participation of key personnel:
    - Plan of the zone and of access and traffic routes
    - Schedule
    - Detailed description of the work to be done
    - etc.
  - Conclude the risk assessment with a site visit to the installations concerned.
  - Integrate the conclusions of the risk assessment when preparing for the operations.
  - Define the role each person involved in the operations is to play and when.
How can we manage the risks generated by co-activity? (2/2)

- Appoint someone in charge of safety. This person must have the appropriate authority to fulfill his/her duties.
- Obtain formal authorization to proceed with the operations.
- Regularly hold specific job coordination meetings to a predetermined schedule, communicated to each participant in advance.
- Provide the specific, essential information.
- Ensure effective supervision by experienced personnel.
- Carry out regular, frequent inspections of the site.
Planning

The key points to include in the plan are as follows:

- Inspection – Do not perform any simultaneous operation without a prior inspection.
- Risk assessment
  - A risk assessment must always be performed, regardless of the complexity of the work to be done.
- Documentation – records
- Definition of roles – understanding of responsibility
  - All persons concerned must know their role.
- Supervision – chain of command
  - The supervisors must be vested with the appropriate authority.
- Communication – efficient transmission of information.

Specific job coordination meetings must be held regularly.

- "Measure twice and cut once."
  - What resources are necessary?
  - What documentation is necessary?
  - Who will be affected by the simultaneous operation?

Good planning is essential for successful simultaneous operations.
Inspections

Why are inspections important?
- To identify the real or potential hazards and determine their causes.
- To manage safety, particularly in checking that the basic rules are being followed.
- To ensure that the specific rules defined are right for the smooth running of the work.
- To check that nothing new has cropped up that entails a revision of the schedule, the resources used or the workforce in place.

What types of inspection may be performed?
- Pre-kick-off inspection
- Scheduled inspections
- Periodic checks (audits)
- Work completion inspection

Inspections are a proactive way to pinpoint the dangers before they cause an accident.

Do not perform any simultaneous operations or co-activities without a prior inspection conducted with the manager of each of the entities involved.

Reference: http://www.lihoutech.com
Documentation is essential to safety at every stage of simultaneous operations. It formally records the risk assessments conducted and the prevention measures decided.

- **Pre-kick-off inspection:**
  - Description and limits of the work zone
  - PPE to be worn
  - Equipment and tools (etc.) to be used
  - Company rules on safety

- **Risk assessment:**
  - Change management forms
  - Risk assessments
  - Work permits
  - Inspection forms
  - Pre-job safety reviews
During the work:
- Check-lists
- Schedule
- Directives
- Work acceptance form
- etc.

On completion of the work:
- Work completion inspection form
- Pre-start-up safety review
- etc.
Supervision

The coordinator, foreman, leader, project manager and/or supervisor must be vested with sufficient authority to maintain order.

Effective supervision relies on:

- **Planning**
  - Identify the objective or goal.
  - Identify the necessary resources (equipment, workforce, etc.).

- **Organizing resources**
  - Gather the equipment and the workers.
  - Assign the tasks.

- **Leadership**
  - Motivate and direct the people performing the work.
    Work with the aim of achieving the objective or goal.

- **Controlling and / or coordinating**
  - Implement policies and procedures.
  - Continuously evaluate the situation via supervision and feedback from the workers.
  - Manage and check modifications to the program.

Reference: [http://www.managementhelp.org](http://www.managementhelp.org)
How might you contribute to the hazard aspect of a co-activity?
Japan 2003: Two different jobs were being performed inside two tanks 9 m apart. Tank A had contained a mixture of water and gasoline, and the operators were removing liquid left at the bottom using a suction hose and a pump extraction truck. The personnel were wearing airline respirators. Hot works were under way in tank B. The explosive gas detector reading did not indicate any hazard in the area around tank B. An operator opened the manhole in the roof of tank A, and the escaping gasoline vapors drifted towards tank B.

The explosive gas detector instantly signaled the presence of flammable vapors, so the operators inside tank B immediately halted work and climbed out of the tank into a cloud of gas 1 m high. The gases caught fire, fatally burning three of the tank B workers. The flame front advanced towards tank A and burned through the air feed lines, causing the deaths by suffocation of the three operators in tank A.

A total of 6 people were therefore killed because their tasks were incompatible. Yet the accident would have been averted by a prior risk assessment (identification of possible ignition sources, potential interactions between the simultaneous tasks, wind direction and so on) and good planning of the jobs.
Feedback

- **Nigeria 2011**: an assistant driller was cleaning the draw-works compartment when the winch motor was switched on. The emergency stop engaged for the cleaning job had been disabled to run a maintenance operation but was not re-engaged when cleaning resumed. When the motor was powered up, the ventilators started, which alerted the assistant. Handover was incomplete, there was no work permit and a total lack of information between the various actors. This event, fortunately not serious, could have resulted in the assistant driller being killed.

- **France 2011**: after an access tower (scaffold) was moved using a crane, a personnel member climbed up to undo the slings. Before he had come completely down again, the order to raise the hook was given and a sling got caught up in a bar of the scaffold, destabilizing the structure. The crane operator brought the situation under control and prevented an accident. The person detaching the slings was still inside the access tower with no possibility of evacuating. There were also people present on the ground nearby.
Feedback

- **Gabon 2010:** during installation of an onshore drilling rig, the HSE manager was fatally injured by the movement of a 5” pipe on the ground. A parcel delivery truck drove over the pipe, which had been placed on the ground until it could be buried. The victim had just stepped over the tube and was walking alongside the truck. One of the trailer axles mounted the tube, causing it to roll about ten meters at the same speed as the truck. The tube knocked the victim down, then rolled over him causing fatal injuries.