HUMAN PERFORMANCE TOOLS

Human Performance

Error-likely situations

When the use of worker practices is all the more warranted (a non-exhaustive list):

- Time pressure, urgency, fatigue, night work.
- A demanding work environnent: noise, hot environnement.
- Multi-unit room.
- Too much (or too little) self-confidence.
- A frequent and/or routine activity.
- Lack of experience in the activity (novice worker).
- Poorly defined worker roles and functions.
- A change in the work schedule or conditions.
- Recent changes in the procedure.
- An activity with high stakes or high risks.
- An irreversible action within the work activity.
- A long and laborious activity.
- More than one performer (e.g. coaching an apprentice).
- Frequent interruptions and loss of vigilance.

HUMAN PERFORMANCE TOOLS

- Pre-Job Briefing
- Stop and Think
- Three-Way communication
- Self-checking
- Peer check
- Post-Job Review

THE PRE-JOB BRIEFING

WHY?

- To prepare for the task individually and collectively.
- To anticipate and manage potential problems and their solutions.

WHEN?

- After task preview and immediately **before starting the activity** (even if it is routine).
- Following an **extended interruption** to an activity (e.g. completing a connected task) or a change of worker (e.g. handover).

HOW?

Based on the 5 key points,

- By asking the workers to explain what they have understood about their activity,
- By promoting a **dialogue** between the various workers and a supervisor (line manager, work coordinator, etc.), who knows the activity,

By mentally walking through de different **phases of the activity,** including the associated risks and mitigation measures,

By stating the **critical steps** of the activity (action without subsequent monitoring and with no possibility ok going back),

By stipulating any specifying **verification** points,

By imagining the worst situations and **associated mitigation measures** (alternative scenario, Human Performance Tools, person to be contacted in case of doubt or unforeseen circumstances),

By outlining **the means of communication** and synchronization between the various performers (specified roles and responsibilities),

By taking **OPEX** into account.

THE 5 KEY POINTS TO BE ADDRESSED:

- What is the expected outcome?
- What are the main risks?
- What are the error-prone situations?
- What are the mitigation measures?
- Is there any OPEX?

THE STOP AND THINK

WHY?

- To avoid being drawn into action too quickly.
- To guarantee the worker's personal safety.

WHEN?

- Immediately **BEFORE** any work on equipment or in a room at risk.
- If the ongoing activity is **INTERRUPTED**.
- When **UNEXPECTED CONDITIONS** emerge during the activity.

HOW?

When reaching the equipment concerned, the worker must:

- Examine the working environment and detect any potential risks (a 360° chek including floor and ceiling),
- Check one last time that he is on the right unit, the right train, the right equipment and that he has the right procedure.

If the activity is interrupted, the worker must:

- Flag exactly when the activity is interrupted,
- Fully check the identification of the equipment again (unit, train, equipment, etc.),
- Re-start the activity at the exact step it was interrupted.

When the activity is not proceeding as planned, the worker must:

- Stop any action as soon as possible,
- Analyse the new situation and associated risks,
- Alert and take advice from line management and/or experienced colleagues,
- Resume the activity only when all queries have been cleared and the conditions for resuming work have been shared.

THREE-WAY COMMUNICATION

WHY?

To guarantee that information is orally transmitted in a **clear, complete and focused manner**.

To ensure that the transmitted message is received.

To improve the worker's ability to recall information.

WHEN?

When transmitting an order for an action concerning equipment at risk.

For any exchange of important information (e.g. request for action on equipment, transmission of data).

HOW?

By using three-way communication.

The steps of the **three-way communication protocol** are:

- **Transmission of the message**: the sender transmits the message in a clear, complete and focused manner.
- **Repetition of the message**: the receiver repeats the same message back to the sender in its entirety.
- **Confirmation**: the sender simply confirms that the receiver has understood the message by “that is correct”. Otherwise, the sender transmits the message again.

1 | **Transmission of the message**

2 | **Repetition of the message by the receiver**

3 | **Confirmation by the sender**

SELF-CHECKING

WHY?

To ensure the scheduled action will be performed on the appropriate equipment **BEFORE** starting the action.

WHEN?

BEFORE each new action, throughout the execution of an activity on the installation.

HOW?

The worker identifies the action to be taken, places his finger on the procedure and reads the title of the action out loud.

Then, just before performing the action, the worker identifies the equipment he must work on by pointing with his finger and reading the label out loud.

Everything is read item by item and not as a whole.

PEER CHECKING

WHY?

To ensure a control over the execution of basic actions at risks **BEFORE** they are carried out (independent and different from self-checking or technical verification).

WHEN?

When actions or sequences of actions can lead to serious consequences if they are performed incorrectly and there is no possibility of going back (the action is irreversible).

HOW?

By having the work or action checked by an independent colleague who makes sure you are going to act correctly **BEFORE** you act.

- The performer indicates, by speaking and by demonstrating the intended action, what he intends to do and what the action consists of.
- The worker performing the peer-check verifies and confirms the action (identified equipment and position).
- The performer completes the action.

THE POST-JOB REVIEW

WHY?

- To retain and capitalize on feedback (on the activity and on the conditions for its completion).
- To identify and treat anomalies and problems encountered in the work environment (conditions and organization).
- To identify possible ways of improving working conditions.

WHEN?

- Immediately **AFTER** the work activity.

HOW?

- Using the Post-Job Review Guide.
- The Post-Job Review must be delivered by the workers to a person in charge (a line manager, work coordinator...), who must be physically present as often as possible.
- The comments from the post-job review must be recorded in the tools used for tracking, so that they can be exploited immediately or at a later date (the interest of having a low level events database).

POST-JOB REVIEW GUIDE

Some questions help to organise the post-job review:

- How did the activity go?
- Was the task completed as planned?
- Were there any anomalies in your documents, were they sufficiently clear?
- Were the resources, tools and information sufficient?
- Did the Pre-Job Briefing identify all the risks of error in the activity?
- Were there any scheduling or time issues to complete the work?
- Did you need any help and was that help provided?
- Are there any pitfalls in the activity that could lead to human error the next time it is performed?
- What can be improved next time?

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