

Work Clearance Management

Working with Work Permits

Enhancement Package 5 for SAP ERP 6.0

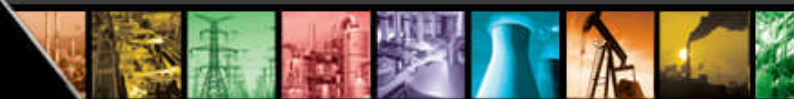


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WCM Focus Group, April 2010

Tampa, Florida

SAP-CENTRIC EAM
Inspiring Individuals – Empowering Enterprises



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■ Enhancement Package 5 for SAP ERP 6.0

Not just any old enhancement package - we want to present the new functions that can help you fundamentally improve your processes.

This presentation will give you an overview of the new process "Working with Work Permits" initiated by the oil and gas industry.

Looking forward to finding out the latest news from development?

New Process

Work Permit Management



- By using work permits, you can make sure that safety measures for carrying out certain work are complied with, and safety barriers are not taken out of service unless compensating measures are put in place.
- The work permit is an **operational safety barrier** to **protect against undesired incidents**.
- A work permit is a written document that **authorizes** specified persons **to carry out specified work at a specified time**.
- It **describes** both the **work** to be carried out and the **requirements**, that must be fulfilled.
- Work permits are **categorized in different levels**, depending on risk considerations and the need for coordination.
- A work permit can be created for a WCM-relevant order or for one or more operations.

Example: The Oil & Gas Industry Distinguishes Between Two Levels of Work Permits



■ Work Permits of Level 1

Work permits of level 1 are used for work that involves high risks and hazards. This work requires a comprehensive safety and approval process. It includes hot work, work in an area with special entry restrictions, and so on.

Level 1 work permits are usually valid for only one working shift. An extension of the work permit is only possible under certain conditions (for example, 4 hours). Afterwards, the work permit can no longer be extended. If the work is not yet completed at this point in time, a new work permit must be applied for.

■ Work Permits of Level 2

Work permits of level 2 are used for all work with lower risks/hazards. This work must also be completed within a predefined time period, although the time period is defined more generously (for example, 14 days).



By using work permits, the following points can be fulfilled:

- They provide guidelines as to which work requires a work permit.
- They ensure that the permission to carry out specific work is given in agreement with the persons responsible for the technical asset.
- They describe in detail the requirements to be fulfilled, including the risks that may arise from hazardous substances, electricity, and other energy forms.
- All persons have access to the all required information in the system.
- Coordination of simultaneous activities is possible.
- When the work permit is returned after completion of the work, this ensures the following:
 - The technical asset affected by the work is in a safe condition.
 - The technical asset can be commissioned again.
 - Cleaning and clearing up have taken place on site.

Prerequisites



- Work permit management **presupposes** the **enhanced model**.
- If you work with work permits, you must **not activate WCM for the operation**.
- If you work with work permits, you must **not activate valuation**.
- In Customizing for Work Clearance Management, you have defined the settings

Process Description

Repair to a Feedwater Pump System (1/4)



- The **maintenance planner** creates a maintenance order for a repair to a feedwater pump system.



- For the above maintenance order, the **responsible skilled worker** creates a level 1 work permit, which is to be valid for the next day. In the work permit, this skilled worker describes the work to be performed and the required safety measures (“requirements”). In our example process, a lockout/tagout is required (among other things), for which a WCD template is available as a copy model.



Note: All skilled workers are given training on working with work permits.

Process Description

Repair to a Feedwater Pump System (2/4)



- In the afternoon, a coordination meeting is held in which all work permits for the next day are checked, added to if necessary, and approved by the **person responsible**.



- At the end of the meeting, all approved work permits are printed out and placed ready for collection for the next day.



Note: The work permit cannot be activated until lockout/tagout has been performed and confirmed in the system.

Process Description

Repair to a Feedwater Pump System (3/4)



- In the morning (of the next day) the printed work permits are collected by the **skilled workers responsible**.



- Together with the **person responsible for the technical system** all required safety measures are carried out, i.e. in particular, lockout/tagout is set.



- The **person responsible for the technical system** phones the control room to confirm the execution of all safety measures and requests activation of the work permit.



Note: The responsible skilled worker can only start repairs on site with an active work permit.

Process Description

Repair to a Feedwater Pump System(4/4)



- As soon as the work permit has been activated in the control room, the **responsible skilled worker** can start with the repair work.



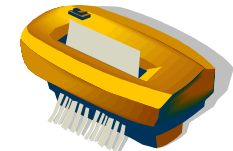
- Once the repair has been completed successfully, the **responsible skilled worker** returns the work permit.



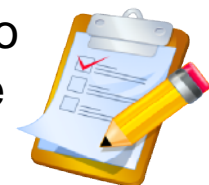
Note: A work permit can be extended if necessary (e.g. by 4 hours).



- All returned work permits are closed in the system.



- The system automatically recognizes that lockout/tagout is no longer required. As a result, lockout/tagout on the site can be removed.



Detailed Process Description

Create Maintenance Order



(1)

Order PM01 %000000000001 Repair Feedwater Pump System 2

Sys.Status WCM CRTD MANC NTUP

HeaderData Operations Components Costs Partner Objects Additional D

Person responsible

PlannerGrp 100 / 1200 Mr Sundvoll (6751)

Mn.wk.ctr MECHANIK / 1200 Mechanical maintainer

Notifctn 11012349

Costs EUR

PMActType 103 Repair

SystCond.

Address ENBW

Dates

Bsc start 01.04.2010 Priority 2-High

Basic fin. 08.04.2010 Revision

Reference object

Func. Loc. 80LAC30 Feedwater Pump System 2

Equipment

(2)

Order 845711 saved with notification 11012349

- The maintenance worker creates a maintenance order for the repair to a feedwater pump system (transaction IW31).

Detailed Process Description

Create Level 1 Work Permit



List Editing - Change Orders with Work Permits

Planning Plant 1200

Selection

☒ Orders
☐ Work Permits

Layout /WCM

Selection

Work Permit

☒ WP - Level 1
☐ WP - Level 2

☒ ☐

Display PM orders: Selection of Orders

Settlement Receivers PRT CET

Order status

☒ Outstandin ☒ In process ☐ Completed ☐ Historical

Order selection

Order 845711

Order Type

Functional Location

- For the above maintenance order, the responsible skilled worker creates a level 1 work permit that is to be valid for the next day.
- A level 1 work permit is typically intended for critical work and should therefore only be valid for one shift (i.e. 8 hours).

Detailed Process Description

Plan Level 1 Work Permit



Create WP - Level 1: Initial Screen

Data Transfer

- ☒ Short text
- ☒ Reference object
- ☒ Maintenance Planner Group
- ☒ Priority
- ☒ Work center
- ☒ Basic Date
- ☒ Scheduled
- ☒ Ref. object incl. installed equipment

(4)

Operational V&B Lists | **Tech. Tools** | **Preparation**

Identification

Application:

Validity

Status: CRTE

Valid from: 03.04.2010 08:00:00 Valid to: 03.04.2010 16:00:00

Asset Data | **Responsibilities** | **Work Description** | **Requirements**

Work (Level 1)

- ☐ Open Sea
- ☐ Hazardous Substances
- ☐ Radioactive Material
- ☐ Explosives
- ☒ Other Activities

Further Work (Level 1)

- ☐ Hot Work A
- ☒ Hot Work B
- ☐ Entry Confined Space
- ☒ Pressure Testing
- ☐ Lifting Operations

Work Order

Order: Repair Feedwater Pump System 2

Status:

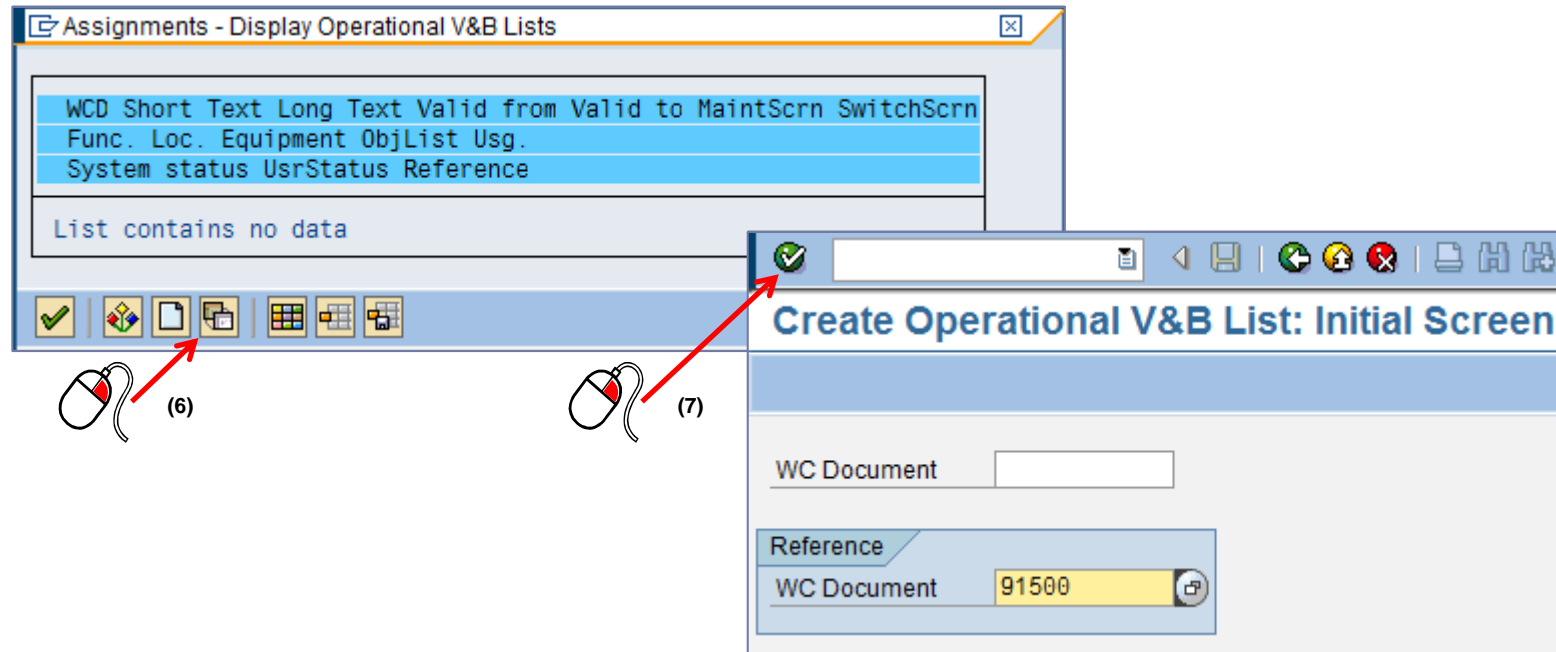
Work Description

(5)

- In the work permit, the skilled worker describes the work to be performed and the safety measures required here. In the example process, lockout/tagout is required.
- In Customizing, it is possible to specify that an additional approval is required for lockout/tagout.

Detailed Process Description

Create Operational V&B List



- A V&B List template is used as a copy model for lockout/tagout.

Detailed Process Description

Create Operational V&B List



(8)

(9)

Create Operational V&B List: Header

Create WP - Level 1

Operational V&B Lists

Tech. Tools

Preparation

Identification

Application

Repair Feedwater Pump System 2

WC Document

Isolation of Feedwater Pump System 2

Validity

Status

CRTE

Valid from

31.03.2010 00:00:00

Valid to

25.04.2010 00:00:00

Asset Data

Responsibilities

Description

Tag/Line Data

Functional loc.

80LAC30

Feedwater Pump System 2

- V&B List templates serve as the copy model for Operational V&B Lists. As a result, complex Operational V&B lists do not have to be created from scratch every time for complex system structures.

Detailed Process Description

Check and Approve Work Permits



The screenshot displays the SAP Work Permit software interface. The main window is titled "List Editing - Change Orders with Work Permits". It features a menu bar with "Work Permit", "Edit", "Goto", "Extras", "Settings", "System", and "Help". Below the menu is a toolbar with various icons. The main area contains a table with columns: "Order", "Applicatn Typ", "Short Text", and "Valid from". A red arrow labeled (1) points to the "Work Permits" button in the toolbar. Below the table, a red arrow labeled (2) points to the "Issue" button in the bottom toolbar.

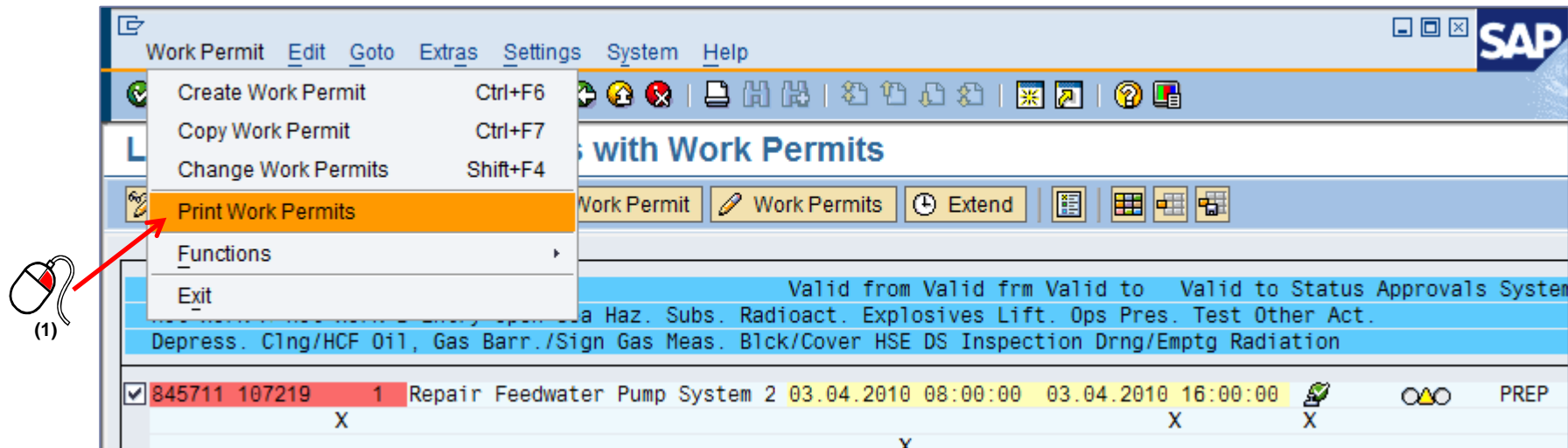
Order	Applicatn Typ	Short Text	Valid from
Hot Work A	Hot Work B	Entry Open Sea Haz. Subs. Radioact. Expl	
Depress. Clnng/HCF Oil, Gas Barr./Sign	Gas Meas. Blck/Cover HSE		
845711	107219	1	Repair Feedwater Pump System 2 03.04.2010

Permit	Short Text	LT	PI	Approv. by	Ent. by
WP_SJA	Confirm SJA Excecution				
WP_OPR_SUP	Operation Supervisor				
WP_SEN_APP	Senior Approver				
WP_APPRVD	Pre-Approved				
WP_TAGGED	Confirm Tagging				
WP_ACTIVE	Active				

- In the afternoon, a coordination meeting is held in which all work permits for the next day are checked, added to if necessary, and approved by the person responsible.

Detailed Process Description

Print Out Work Permits



- At the end of the meeting, all approved work permits are printed out and placed ready for collection for the next day.
- The responsible skilled worker **cannot** start repair work on site until an active work permit is available.

Detailed Process Description

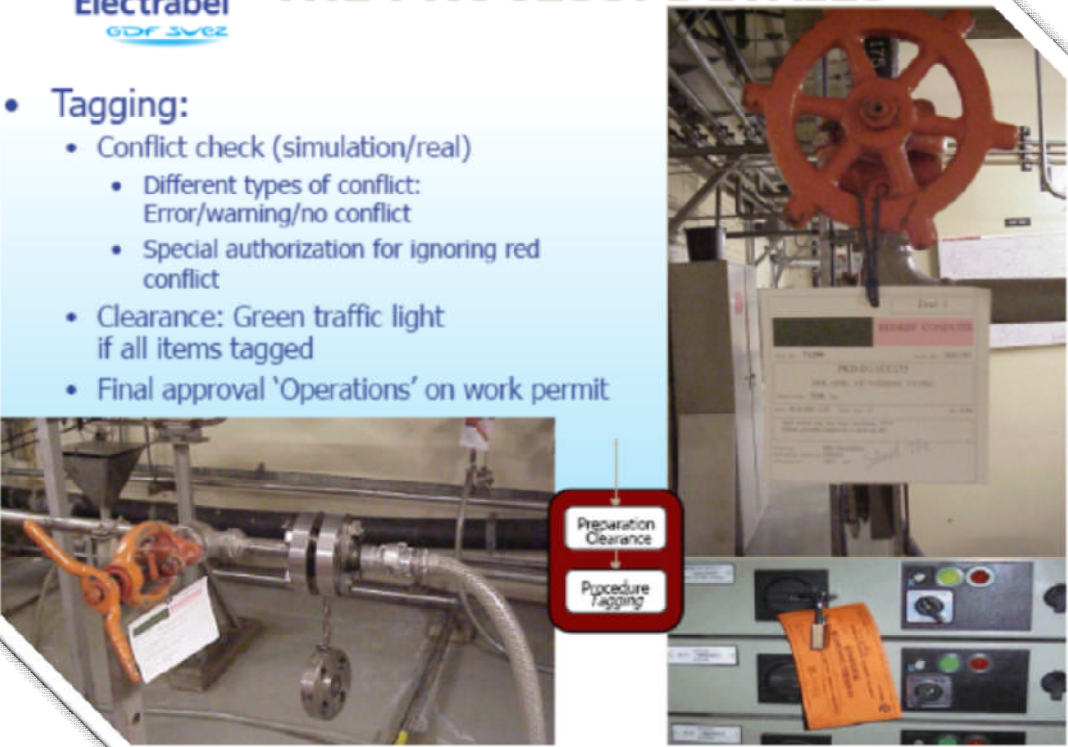
Carry out Safety Measures on Site



Electrabel
GDF SUEZ

THE PROCESS: DETAILS

- Tagging:
 - Conflict check (simulation/real)
 - Different types of conflict:
Error/warning/no conflict
 - Special authorization for ignoring red conflict
 - Clearance: Green traffic light if all items tagged
 - Final approval 'Operations' on work permit



Preparation
Clearance
Procedure
Tagging

- In the morning (of the next day) the printed work permits are collected by the skilled workers responsible.
- Together with the person responsible for the technical system, all safety measures are executed, i.e. in particular, lockout/tagout is set.

Detailed Process Description

Activate Work Permit



The screenshot shows the SAP Work Permit interface. The main menu includes 'Work Permit', 'Edit', 'Goto', 'Extras', 'Settings', 'System', and 'Help'. The 'Work Permit' menu is open, showing options: 'Create Work Permit' (Ctrl+F6), 'Copy Work Permit' (Ctrl+F7), 'Change Work Permits' (Shift+F4), 'Print Work Permits', 'Functions', and 'Exit'. A mouse cursor (1) points to 'Change Work Permits'. The 'Approvals - WP - Level 1' window is open, displaying a table of work permits. The table has columns: Permit, Short Text, LT, PI, Approv. by, and Ent. by. The table contains several rows, including 'WP_SJA' (Confirm SJA Execution), 'WP_OPR_SUP' (Operation Supervisor), 'WP_SEN_APP' (Senior Approver), 'WP_APPRVD' (Pre-Approved), 'WP_TAGGED' (Confirm Tagging), and 'WP_ACTIVE' (Active). The 'WP_ACTIVE' row is highlighted. At the bottom of the window, there are buttons for 'Issue' and 'Revoke'. A mouse cursor (2) points to the 'Issue' button.

Permit	Short Text	LT	PI	Approv. by	Ent. by
WP_SJA	Confirm SJA Execution		✓		C511468
WP_OPR_SUP	Operation Supervisor		✓		C511468
WP_SEN_APP	Senior Approver		✓		C511468
WP_APPRVD	Pre-Approved		✓		C511468
WP_TAGGED	Confirm Tagging		✓		C511468
WP_ACTIVE	Active				

- Once all safety measures (include lockout/tagout) have been carried out, the person responsible for the technical system phones to request work permit activation.

Detailed Process Description

Carry out Repair

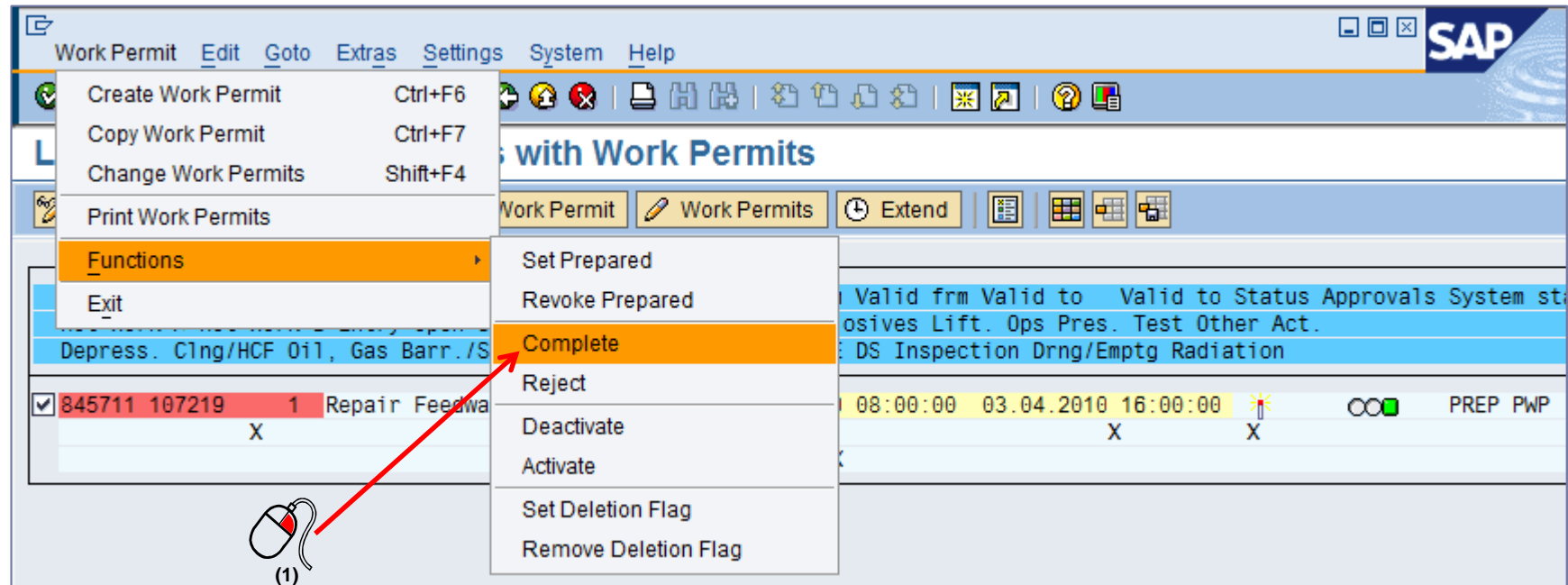
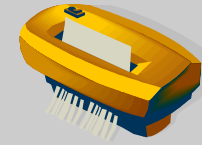


List Editing - Change Orders with Work Permits										
Order	Applicatn	Typ	Short Text	Valid from	Valid frm	Valid to	Valid to	Status	Approvals	System st
Hot Work A	Hot Work B	Entry	Open Sea	Haz.	Subs.	Radioact.	Explosives	Lift.	Ops Pres.	Test Other Act.
Depress.	Clng/HCF	Oil,	Gas Barr./Sign	Gas Meas.	Blck/Cover	HSE DS	Inspection	Drng/Emptg	Radiation	
<input checked="" type="checkbox"/>	845711	107219	1	Repair Feedwater Pump System 2	03.04.2010	08:00:00	03.04.2010	16:00:00		PREP PWP
			X					X	X	
							X			

- As soon as the work permit has been activated in the control room, the skilled worker responsible can start on the repair work.
- After successful completion of the repair work, the skilled worker responsible returns the work permit.



Detailed Process Description

Close Work Permits



- All returned work permits are closed in the system.


Questions and Answers



PM-WCM is a component of SAP ERP

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	WCM Objects	20	58	18 Mar 2010 10:29 lucio martino, Italy (ID 526) →
	Lockout/Tagout	16	52	22 Feb 2010 01:55 Michael Lesk, Germany (ID 98) →
	Mode-Dependent Tagging/Lineup	6	11	25 Mar 2010 06:32 augustine Spivak, United States (ID 256) →
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