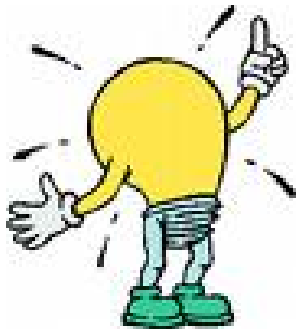
Order Processing Without Valuation (Standard Process)

WCM GmbH

October 2008



Motivation

Asset intensive industries not only have high requirements to hold their plants and maintenance processes running, but also security for maintenance personnel is of vital importance.

SAP component “Work Clearance Management” supports this process and supports therefore as well security and health of your personnel.

We now describe the standard process of an application for an maintenance order with an integrated lockout/tagout.



Process Description (1)

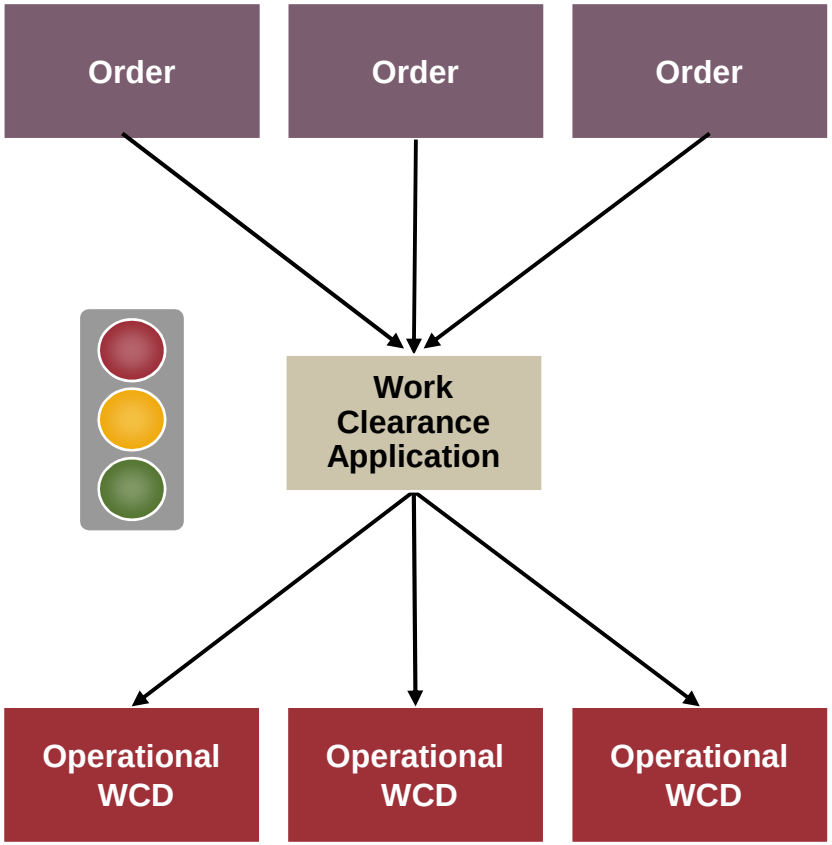
- The feed water pump needs to be repaired. Therefore the pump needs to be isolated (tagged). The necessity of lockout/tagout is stored with the respective technical object.
- The maintenance planner plans an order.
- Thanks to the concerned object the system identifies that a lockout/tagout is necessary.
- The safety planner plans the necessary isolation using a WCD template, existing as master.
- The operational lists and the possibly necessary tags are printed.
- On site tagging is carried out and confirmed on the work clearance document.
- Data are documented in the SAP system.
- The maintenance planner gets the information that all isolations are confirmed.
- Maintenance is able to enter the safe area to carry out the repair.

Process Description (2)

- After successful repair the order is finished by the maintenance planner (work completed).
- This means that the safety planner gets information that the isolation can be removed (untagging).
- After the confirmation of the untagging the WCM objects are finished and can be archived.
- Thus, the order technically and commercially is completed.

Model

We use the standard model for this process



Roles

These user roles are involved in this process:

- Maintenance planner
- Safety planner
- Safety engineer
- Operation
- Maintenance

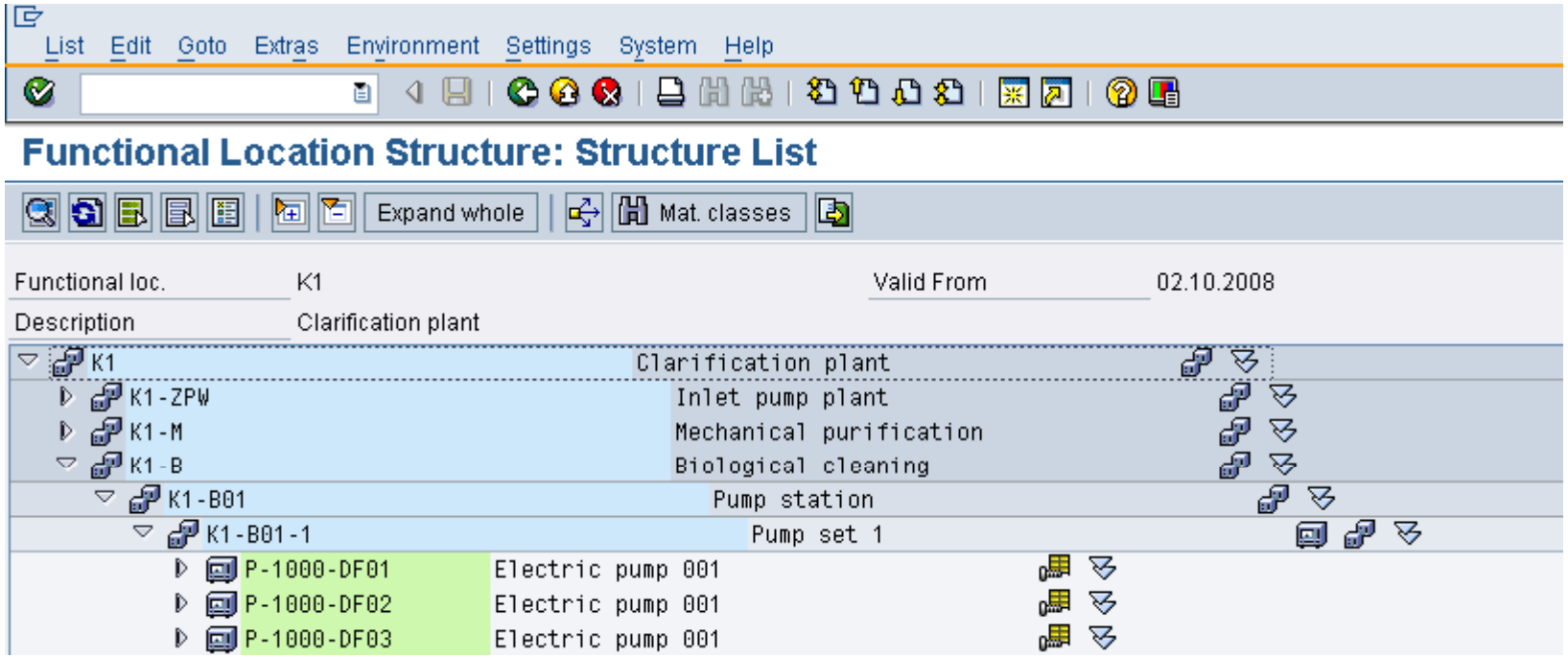








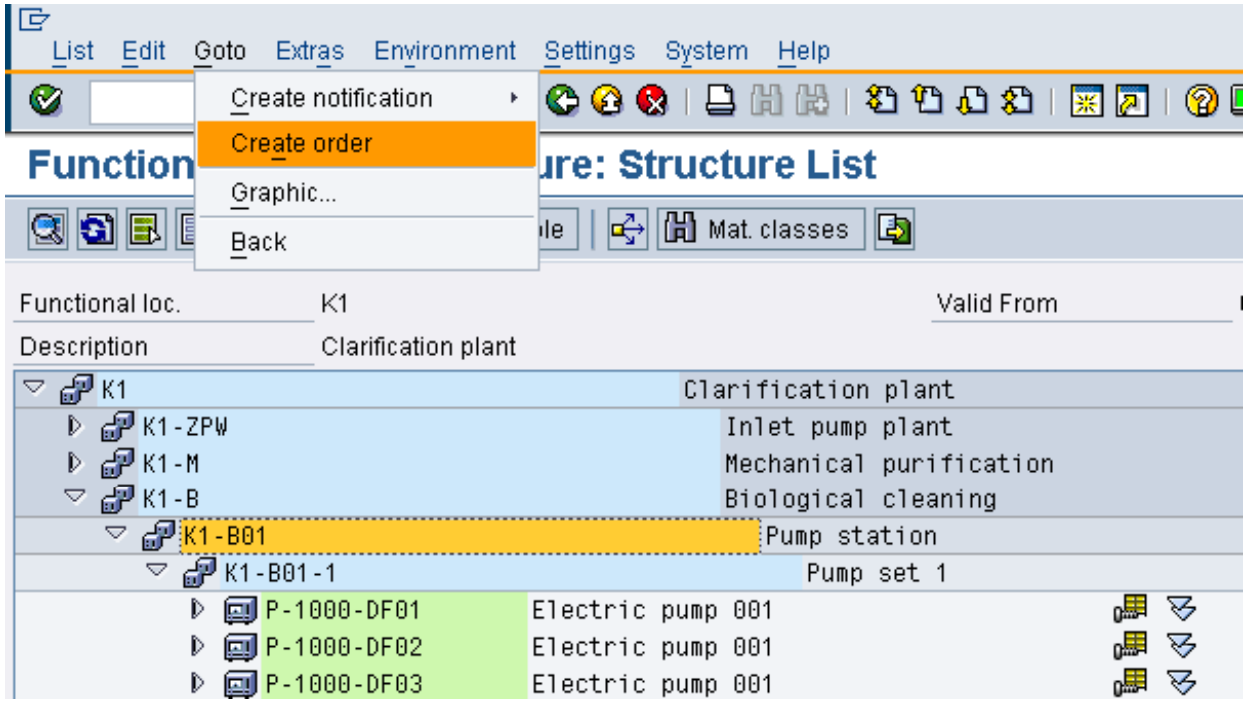
Detailed Process
Structure List of Functional Locations



The structure list of Functional Locations shows the overview of the plant structure e.g. of the purification plant „K1“.

Detailed Process
Structure List of Functional Locations

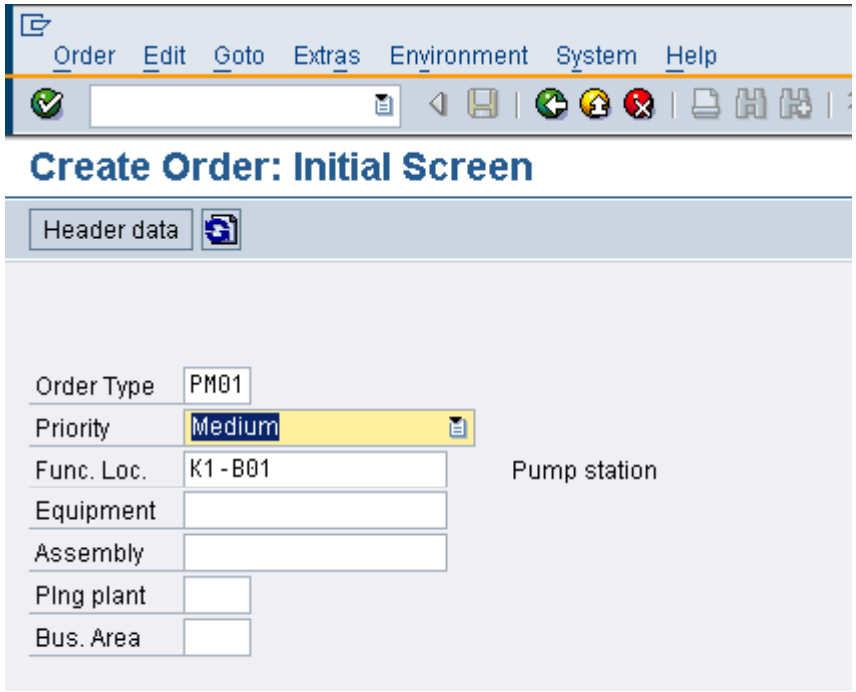




For the pump station „K1-B01” an order is created.

Detailed Process
Create an Order

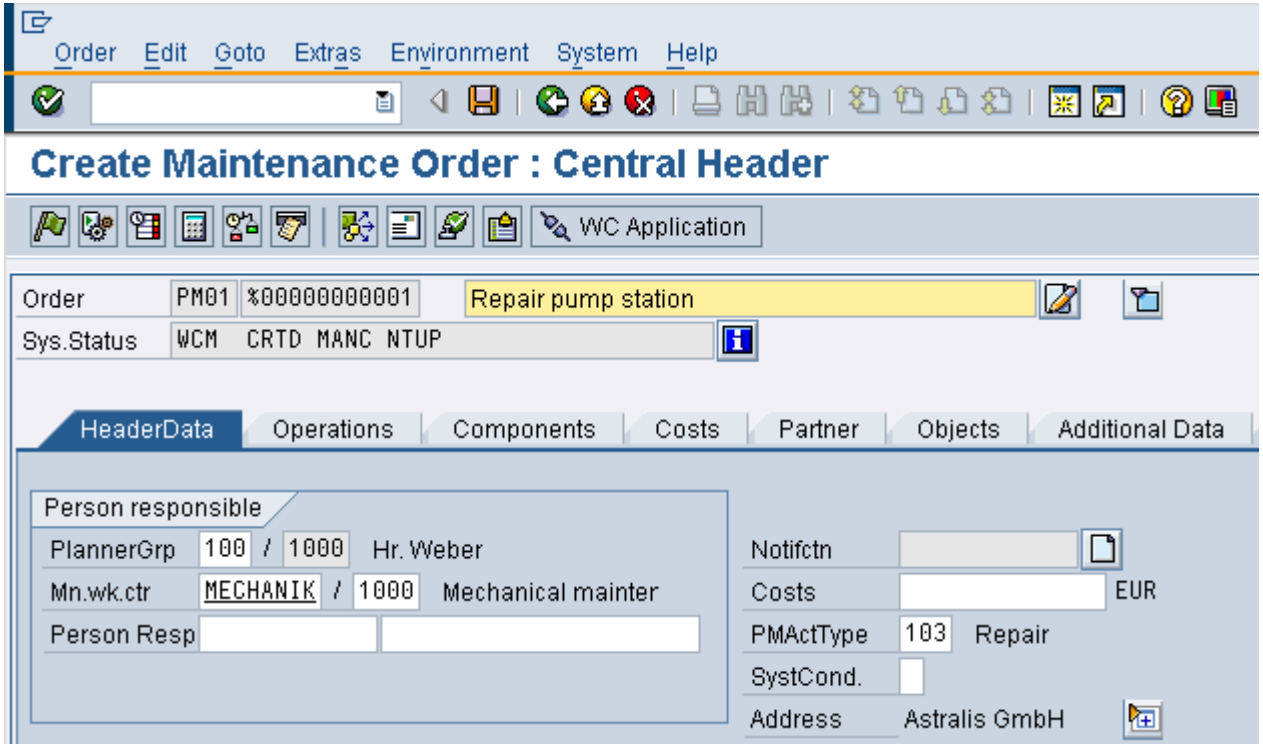




The maintenance planner records the necessary information in the system.

Detailed Process
Order – Central Header

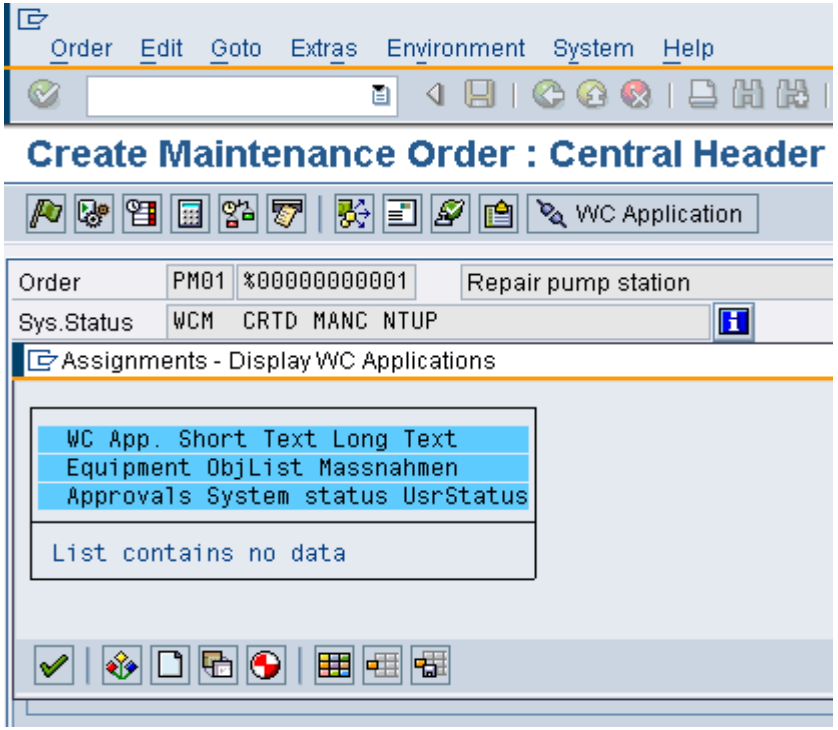




A permit (WCM) is assigned to the functional location. This permit requires lockout/tagout.

Detailed Process
Create a Work Clearance Application

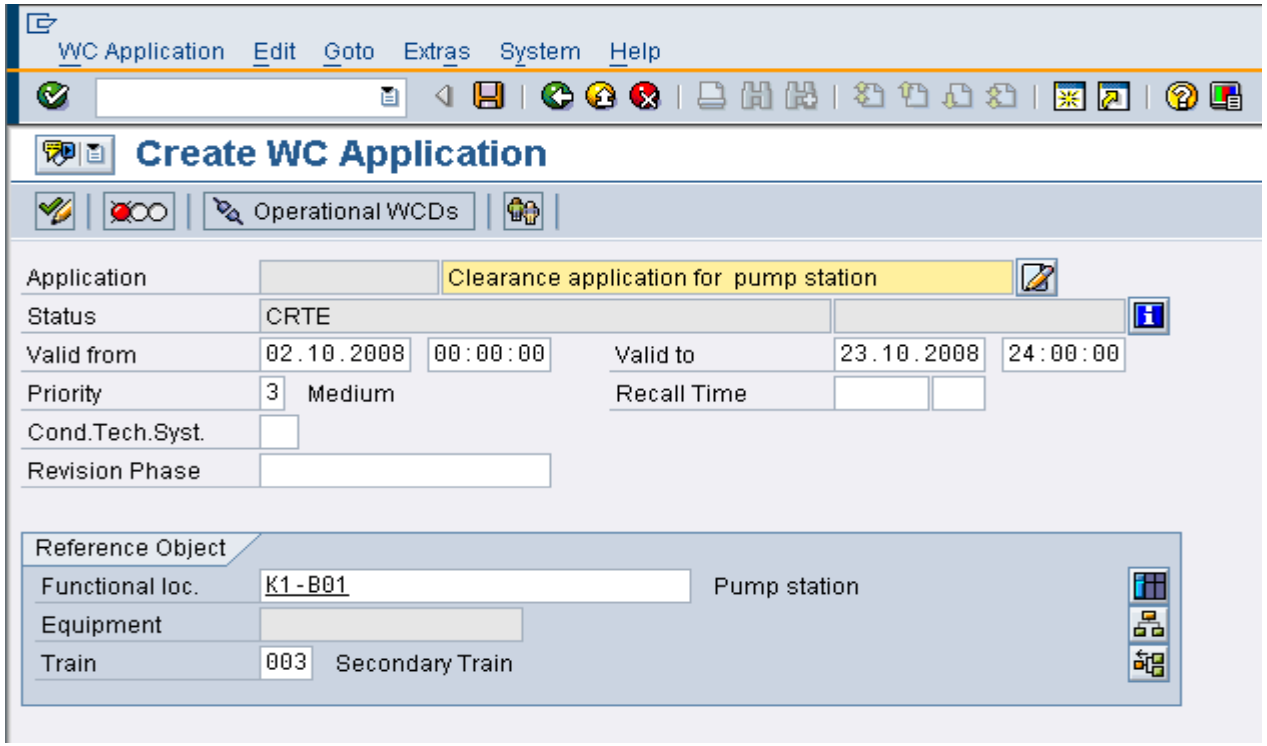




The safety planner assigns a work clearance application to the order.
With the icon  a new work clearance application is created.

Detailed Process
Create a Work Clearance Application

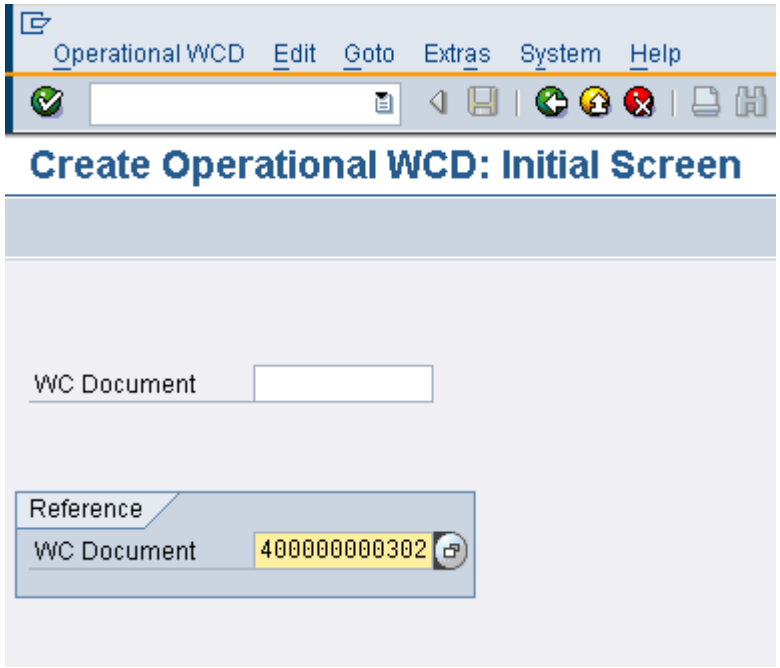




The relevant data are copied out of the order into the WC application.
The security planner checks or completes the data. The icon Operative FSLs shows that there has not yet been assigned an Operational WCD.

Detailed Process
Create Operational WCD with Master

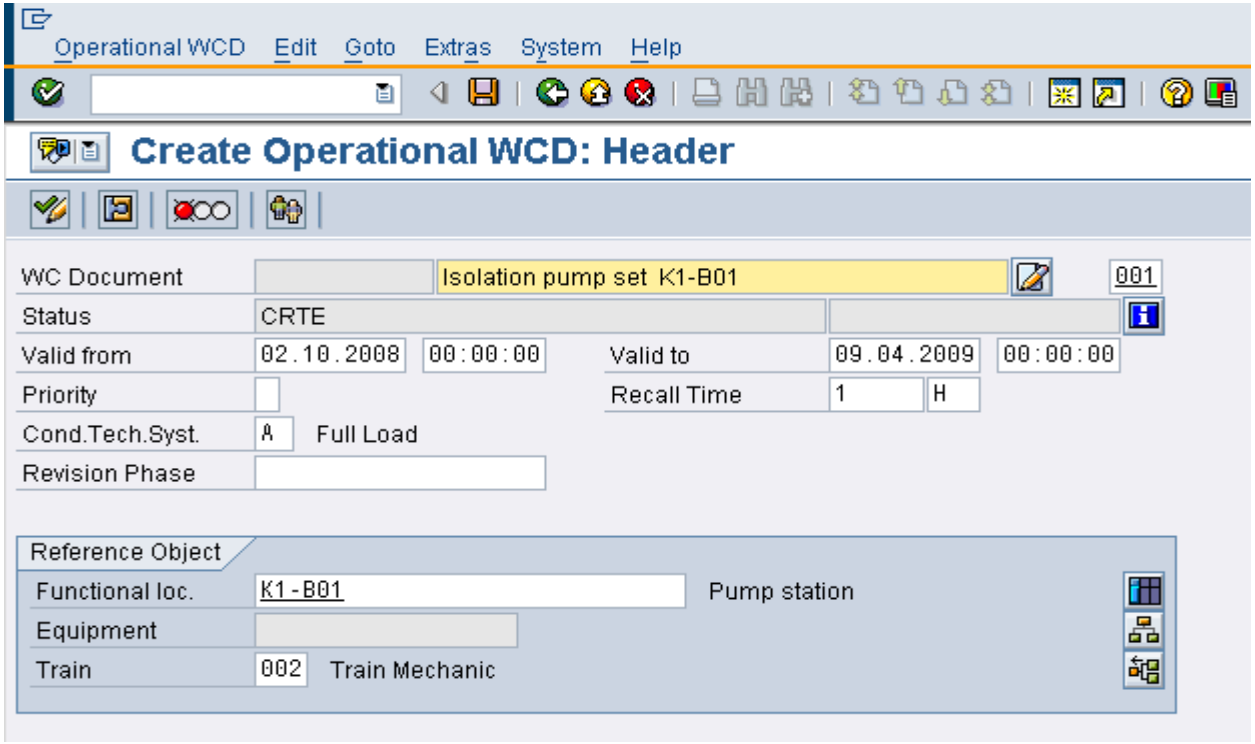




The safety planner chooses an already existing WCD template as master.
This WCD template includes already all necessary information for the lockout/tagout.

Detailed Process
Operational WCD – Header





The data of the Operational WCD have been copied from the WCD template.

Detailed Process
Operational WCD - Items



Operational WCD Edit Goto Extras Switch System Help

Create Operational WCD: Maintenance Screen

New Lines

WC Document | Isolation pump set K1-B01 | 1 / 1

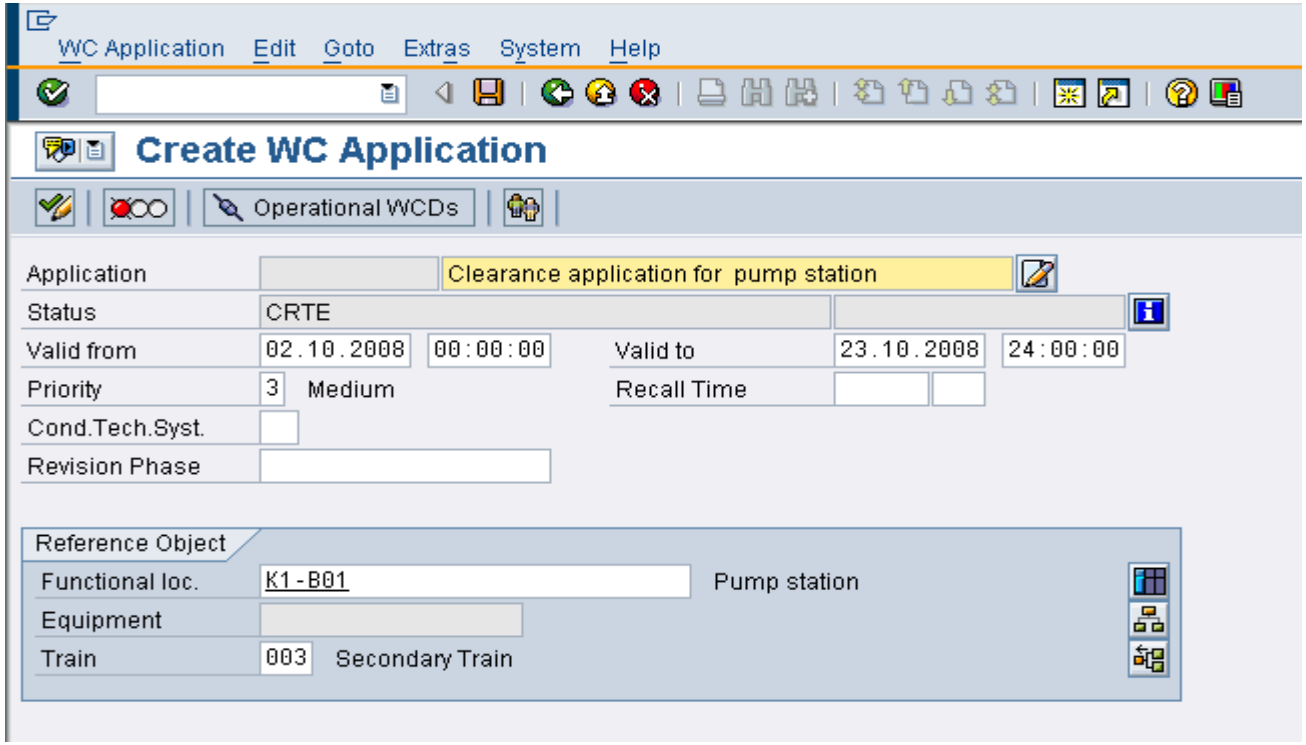
Status | CRTE

		Technical Object / Short Text / Location	OG Tag. Cond. / Comments / Switching Location	TT	TS	BIT	Ph	TR	PF	Untag.Cond. / LT DL	UT / Tag	US / Lock
☐	10 F	K1-B01-1	E US	A	10		☐	☐		AN	A	10
		Pump set 1										
		1	K1-B01-1 SO3									
☐	20 F	K1-B01-1A	M ZU	A	20	S	☑	☑	XXXX	AUF	A	40
		Valve 1										
		1	K1-B01-1A SO3/4									
☐	30 F	K1-B01-1B	M ZU	A	40		☐	☐		AUF	A	20
		Valve 2										
		1	K1-B01-1B SO3/2									
☐	40 E	P-1000-DF01	E AUS	A	30	K	☑	☑	XXXX	AN	A	30
		Electric pump 001										
		1	P-1000-DF01 SO-P001									

The item overview of the Operational WCD contains the list of switching objects and information about the switching, the sequence, the location, information if physical blocking is necessary and also information about the untagging.

Detailed Process
Secure Work Clearance Application

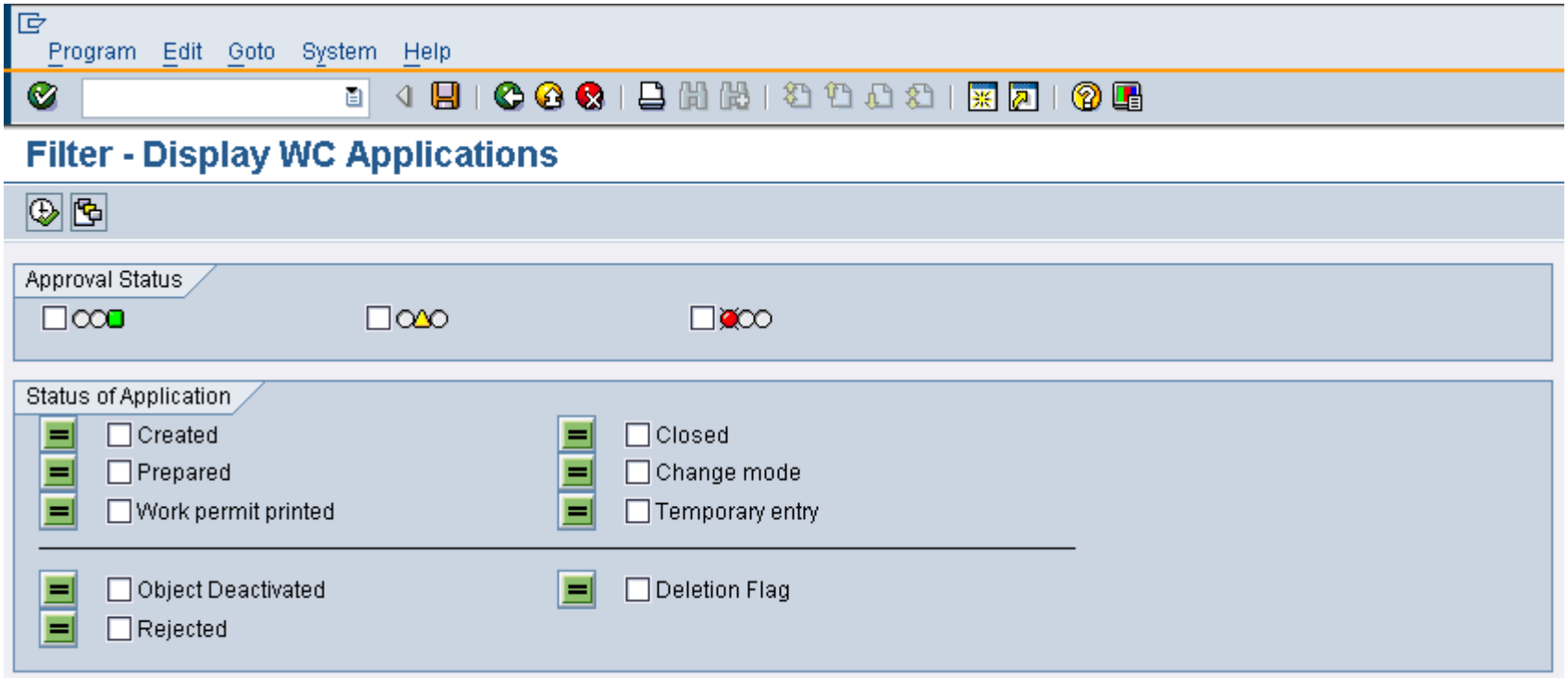




The Operational WCD has been saved. Also the work clearance application has been saved. Both WCM objects are now linked to the order.

Detailed Process
Multilevel List Editing – Initial Screen

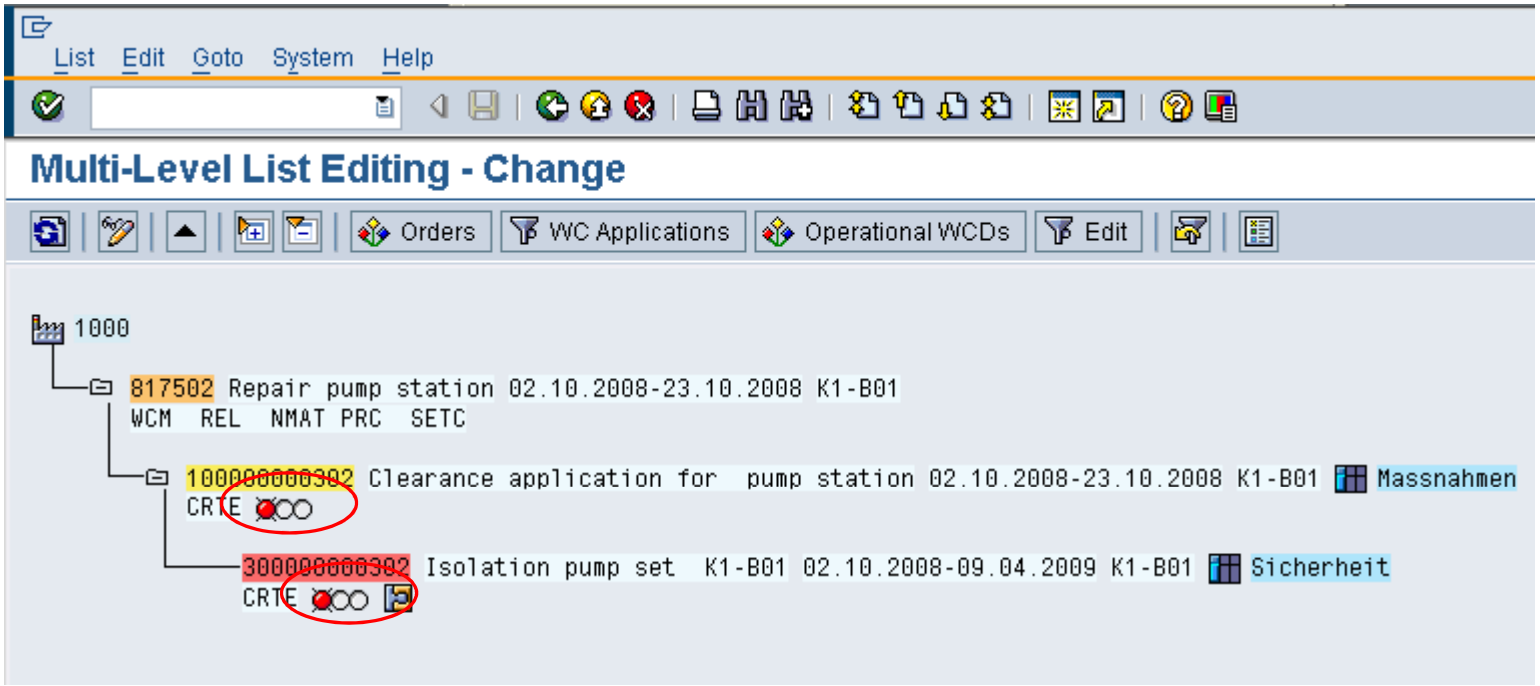




The multilevel list display gives an ideal overview of the orders and the linked WCM objects.

Detailed Process
Multilevel List Editing – Output File

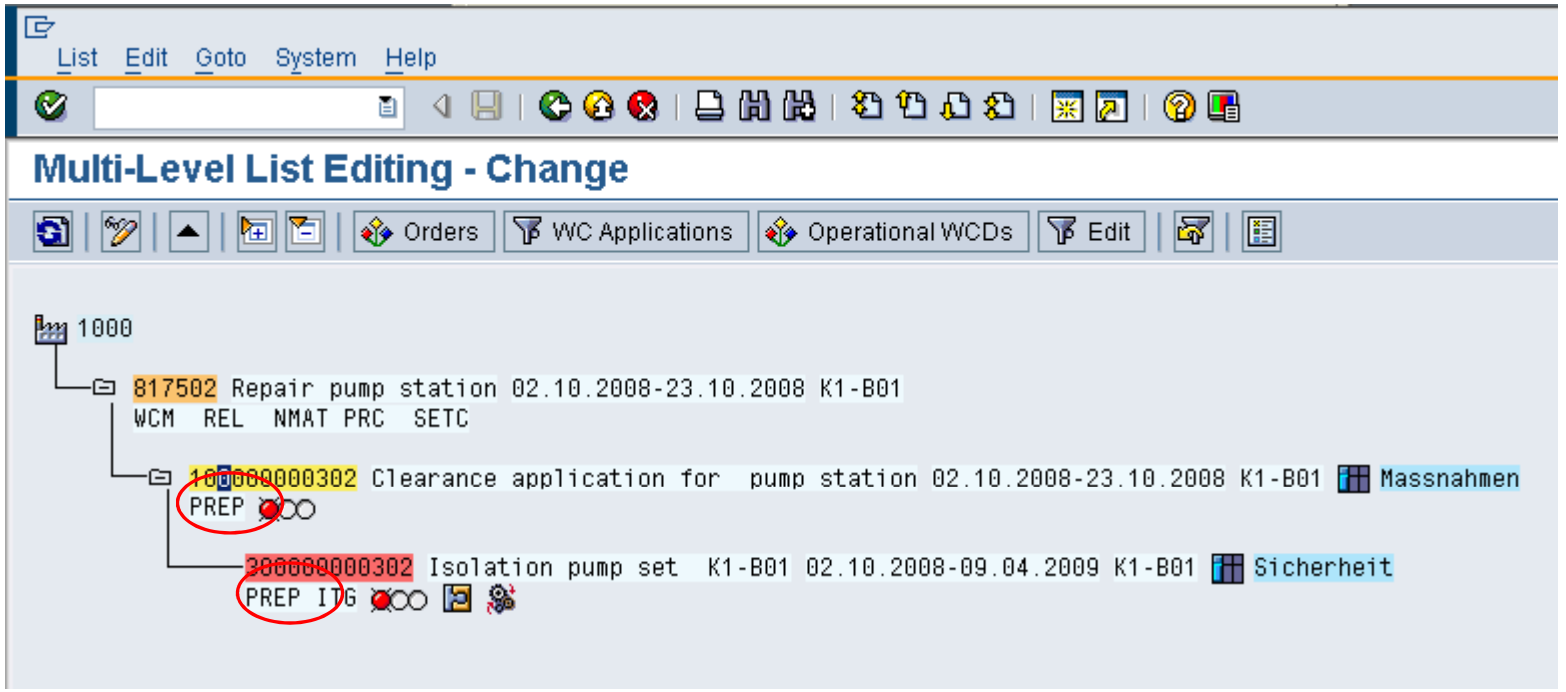




The multilevel list shows the order, the work clearance application and the Operational WCD. Taking this list as a base, it is possible to navigate to every object.
The red lights show, that an approval has not yet been granted.

Detailed Process
Multi-Level List Editing

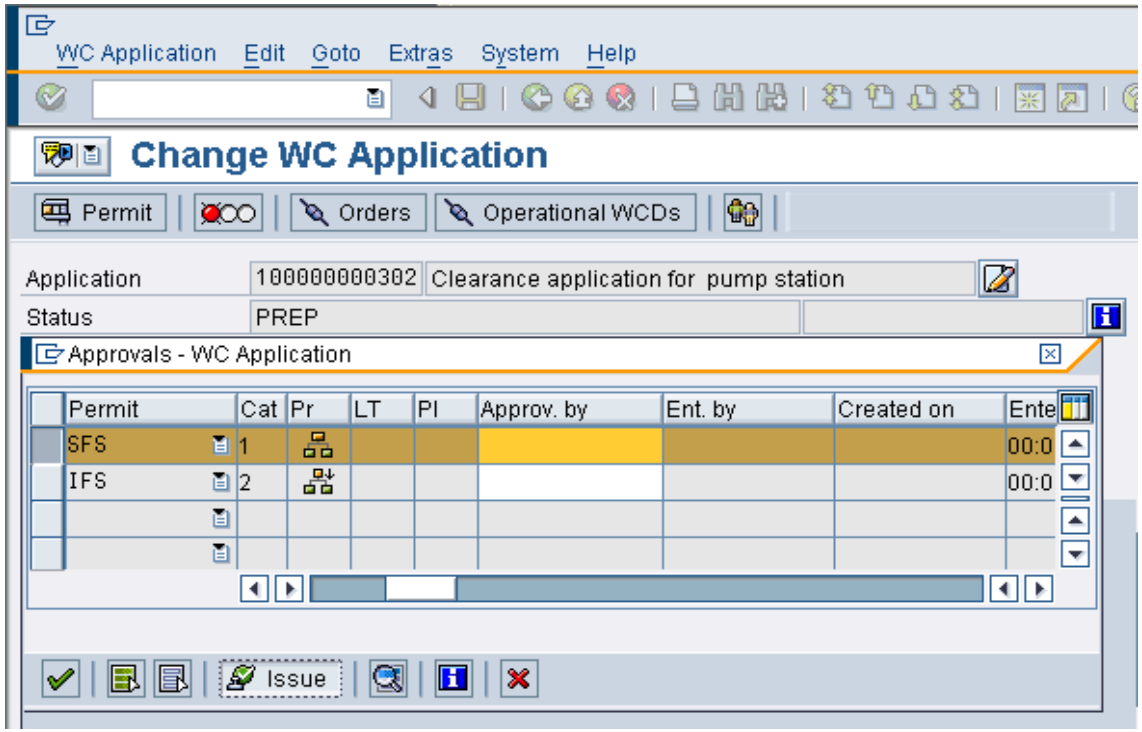




The safety engineer checks the data and sets the status „prepared“ (PREP).
The status „prepared“ means that no further changes in the WCM object is possible.

Detailed Process
Permit for Lockout/Tagout

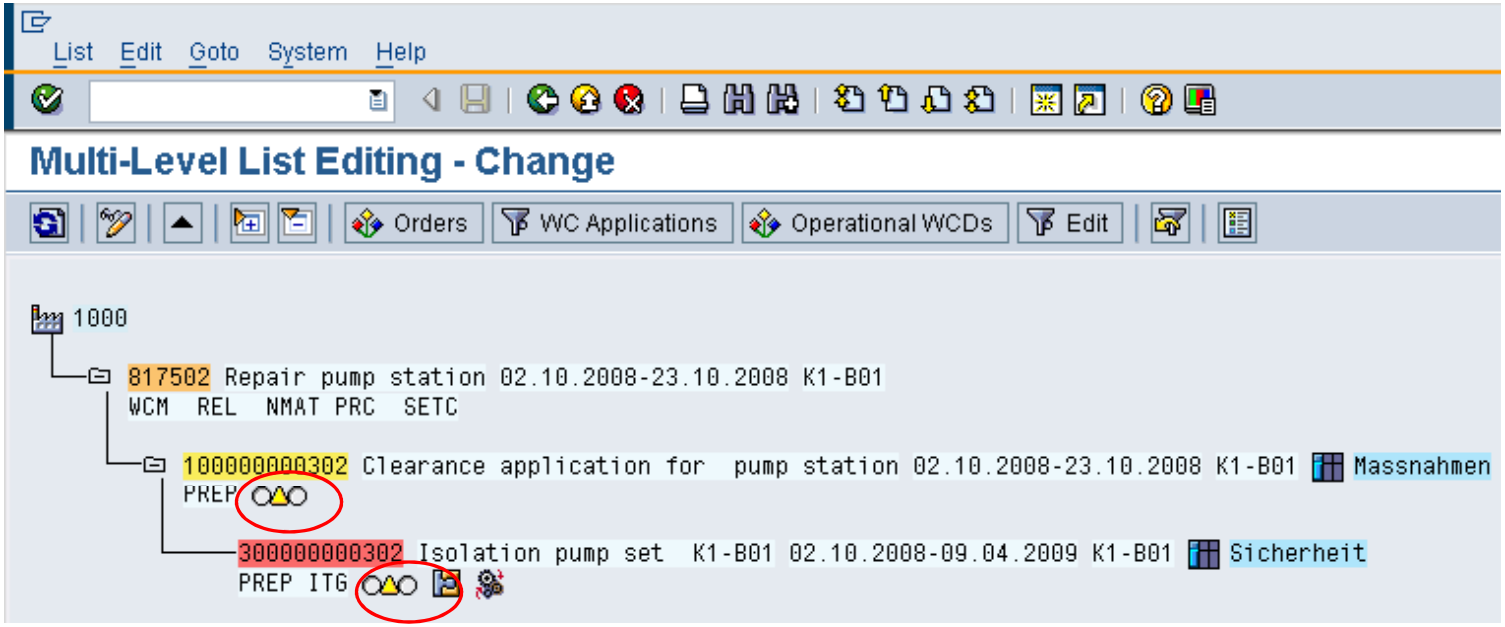




The safety engineer grants the permit starting the lockout/tagout. This permit is granted on the work clearance application and is automatically forwarded to all allocated Operational WCDs.

Detailed Process
Multilevel List Editing

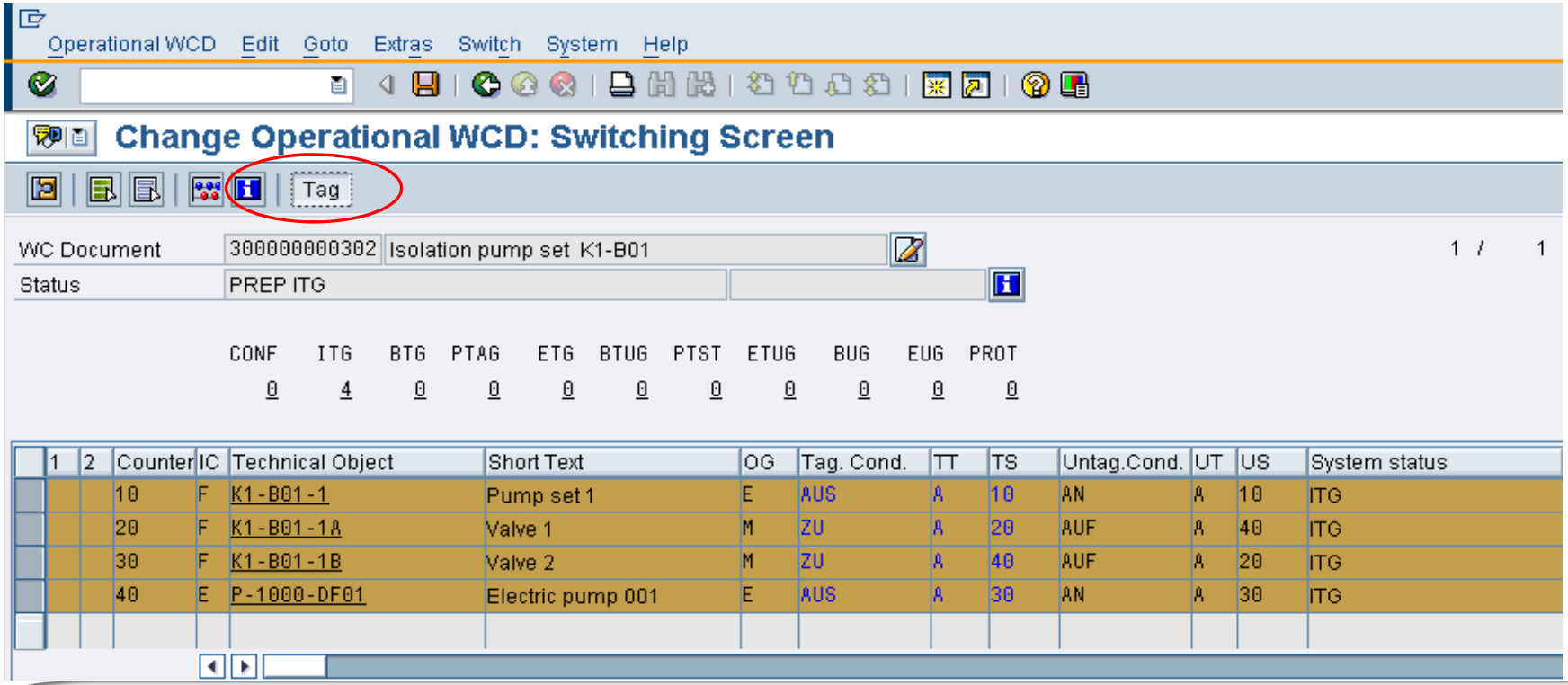




Granting the permit, the color of the lights is „yellow“. This means that the permits have been granted partially. The tagging can now start. When pushing the icon
the switching screen of the Operational WCD appears.

Detailed Process
Tag

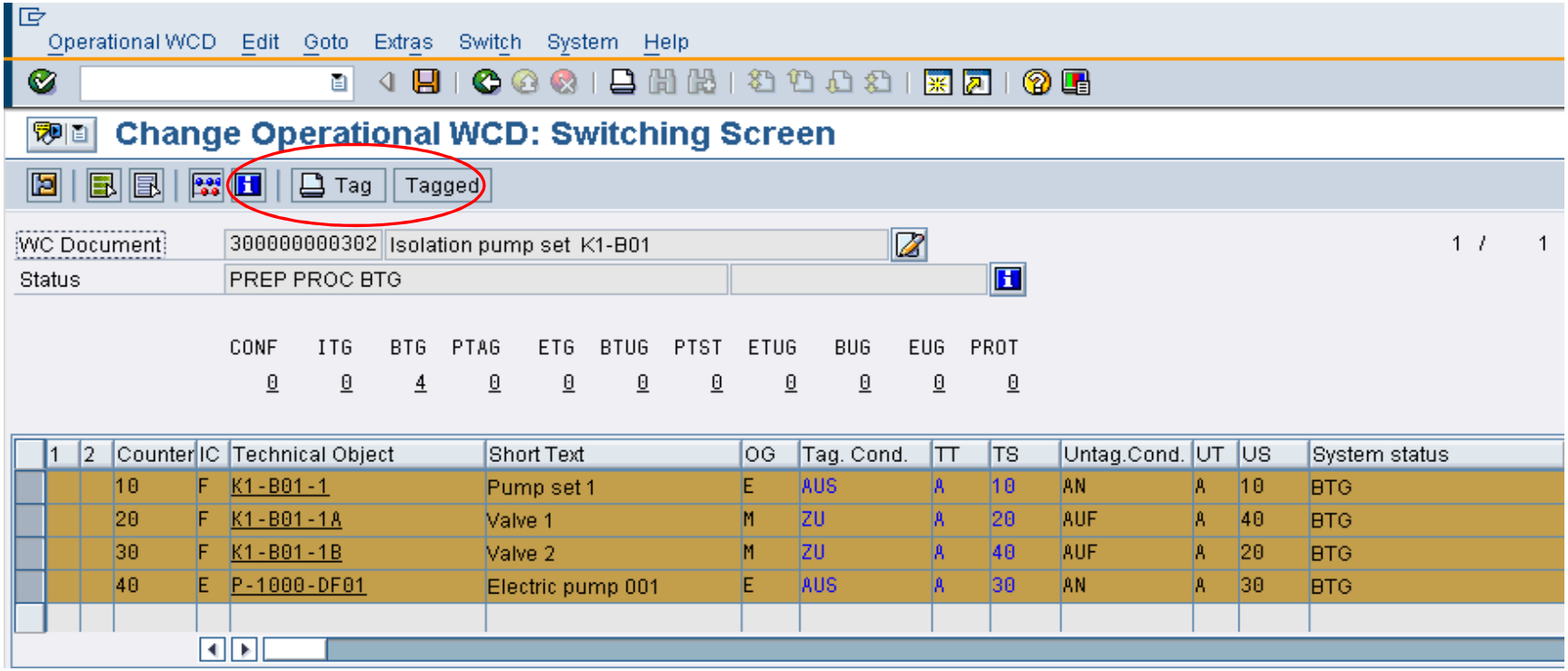




This example shows the switching screen as a table. All switching items are still in the initial status “ITG”. The switching items are chosen and pushing the button “Tag“…

Detailed Process
Printing of Tag





… the tagging starts. Conflict records are created avoiding that the same technical object of another Work Clearance Document can be switched to another status.
Now the tagging list and the tags are printed.

Detailed Process
Carrying out switchings



Operational WCD Edit Goto Extras Switch System Help

Change Operational WCD: Switching Screen

Tagged

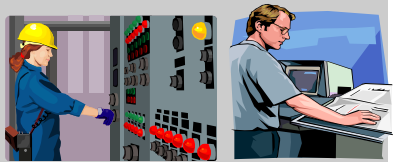
WC Document	300000000302 Isolation pump set K1-B01
Status	PREP PROC

CONF	ITG	BTG	PTAG	ETG	BTUG	PTST	ETUG	BUG	EUG	PROT
0	0	2	2	0	0	0	0	0	0	0

1	2	Counter	IC	Technical Object	Short Text	OG	Tag. Cond.	TT	TS	Untag.Cond.	UT	US
		10	F	K1-B01-1	Pump set 1	E	AUS	A	10	AN	A	10
		20	F	K1-B01-1A	Valve 1	M	ZU	A	20	AUF	A	40
		30	F	K1-B01-1B	Valve 2	M	ZU	A	40	AUF	A	20
		40	E	P-1000-DF01	Electric pump 001	E	AUS	A	30	AN	A	30

Operation goes now with the tag on site and carries out the isolation. Different isolations can be carried out by different employees: Electricians may carry out the electric isolations, fitters the mechanical ones.

Detailed Process
Tagged



Operational WCD Edit Goto Extras Switch System Help

Change Operational WCD: Switching Screen

Untag | Untag Temporarily

WC Document 300000000302 Isolation pump set K1-B01 1 / 1

Status PREP PROC ETG

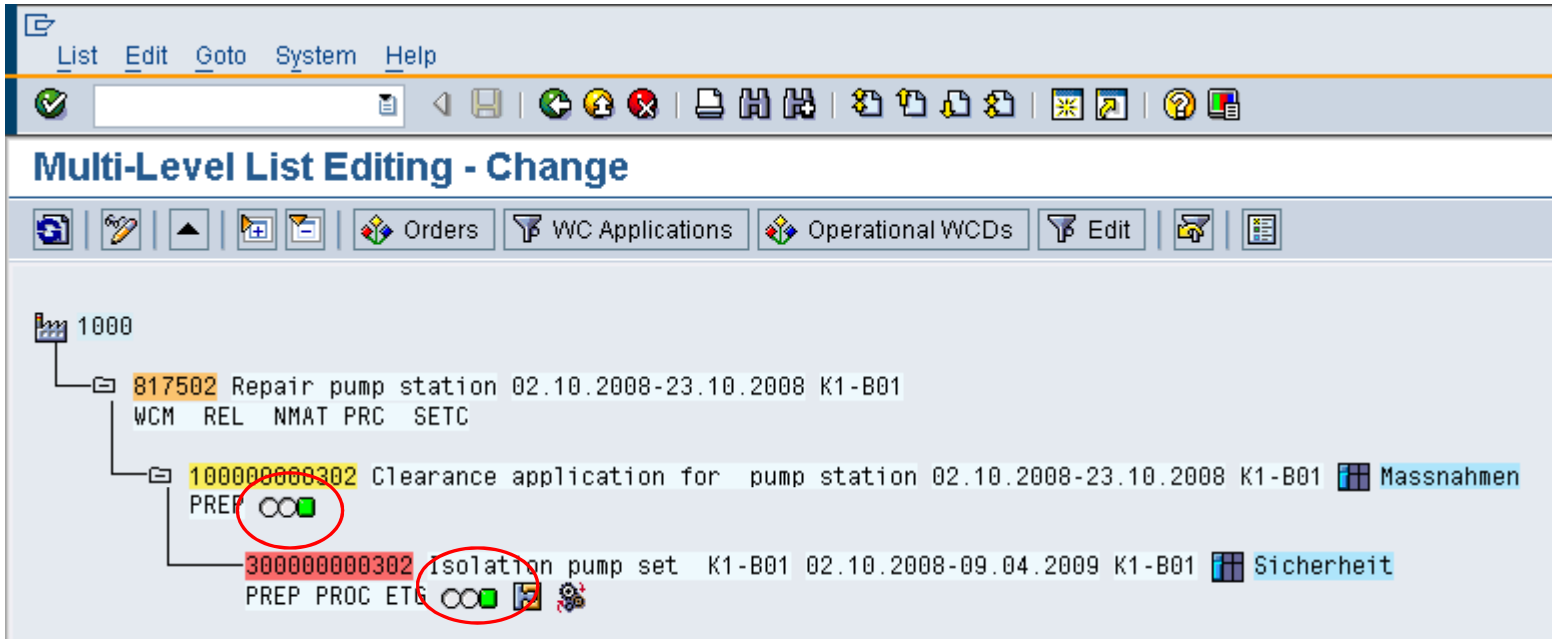
CONF	ITG	BTG	PTAG	ETG	BTUG	PTST	ETUG	BUG	EUG	PROT
0	0	0	0	4	0	0	0	0	0	0

1	2	Counter	IC	Technical Object	Short Text	OG	Tag. Cond.	TT	TS	Untag.Cond.	UT	US	System status
		10	F	K1-B01-1	Pump set 1	E	AUS	A	10	AN	A	10	ETG
		20	F	K1-B01-1A	Valve 1	M	ZU	A	20	AUF	A	40	ETG
		30	F	K1-B01-1B	Valve 2	M	ZU	A	40	AUF	A	20	ETG
		40	E	P-1000-DF01	Electric pump 001	E	AUS	A	30	AN	A	30	ETG

Approvals were issued/revoked automatically

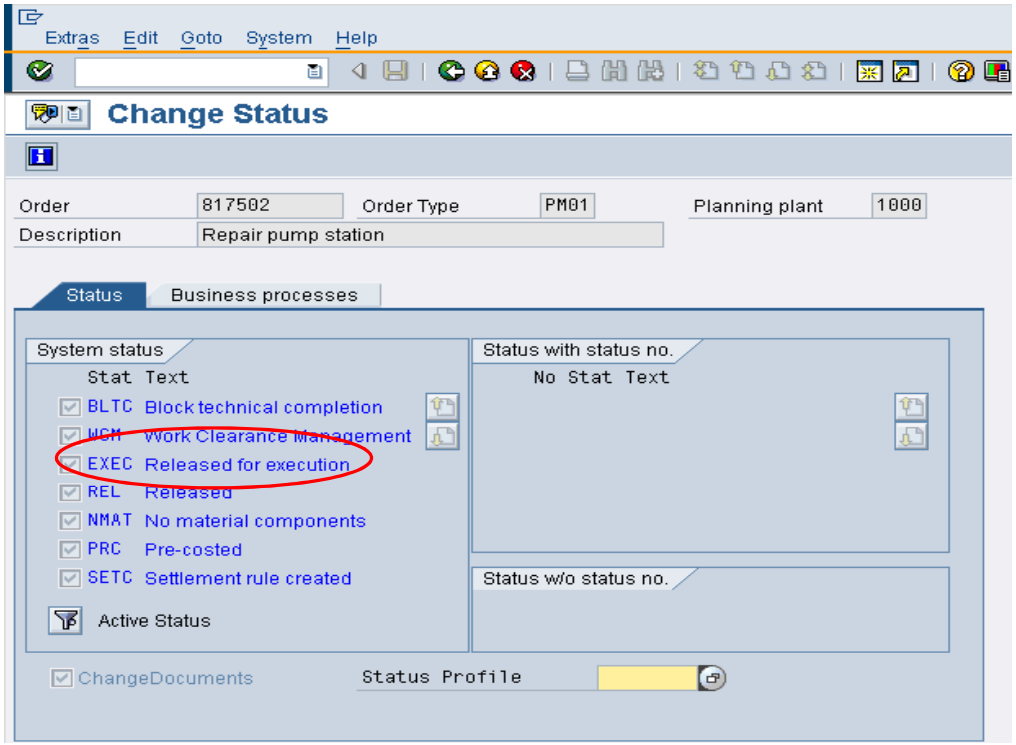
Operation confirms the carrying out of the lockout/tagout by signing the tagging list. The isolations which have been carried out are confirmed in the system.
Now, the pump set is tagged and maintenance can start repairing.

Detailed Process
Multilevel List Editing



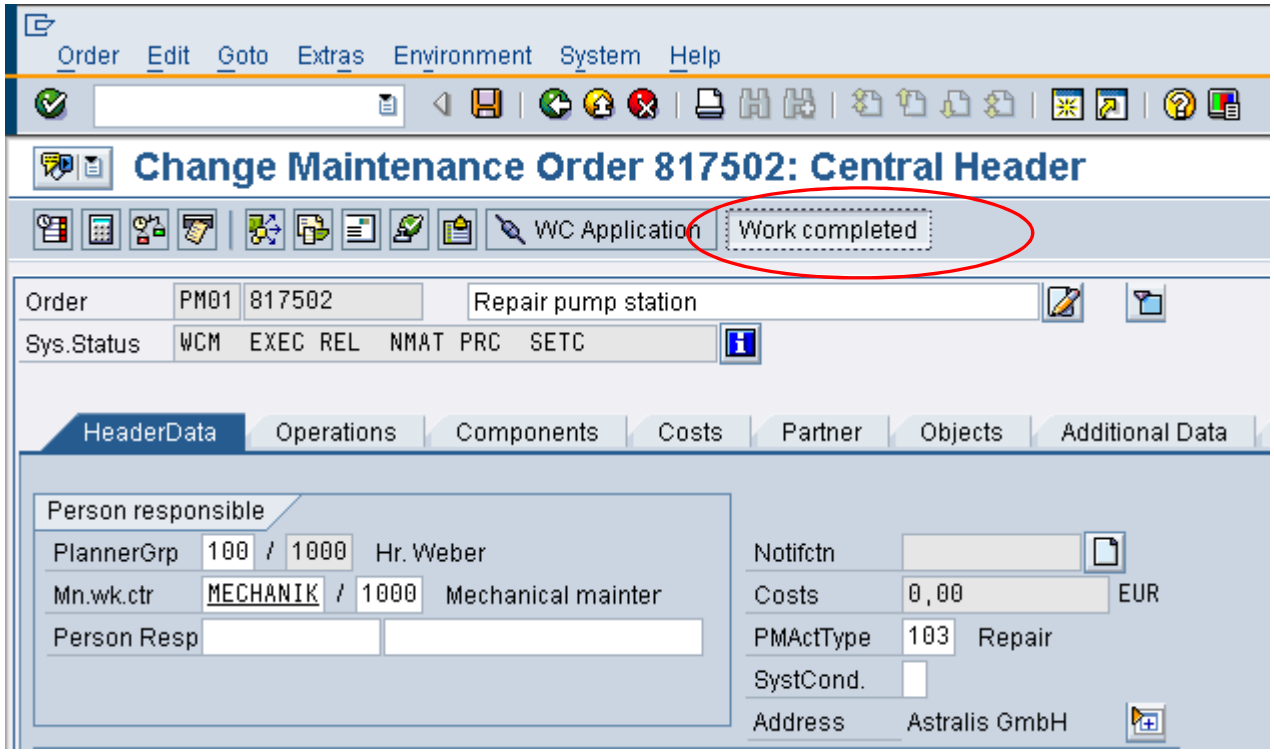
On the multilevel list display green lights are shown.

Detailed Process
Status of Order



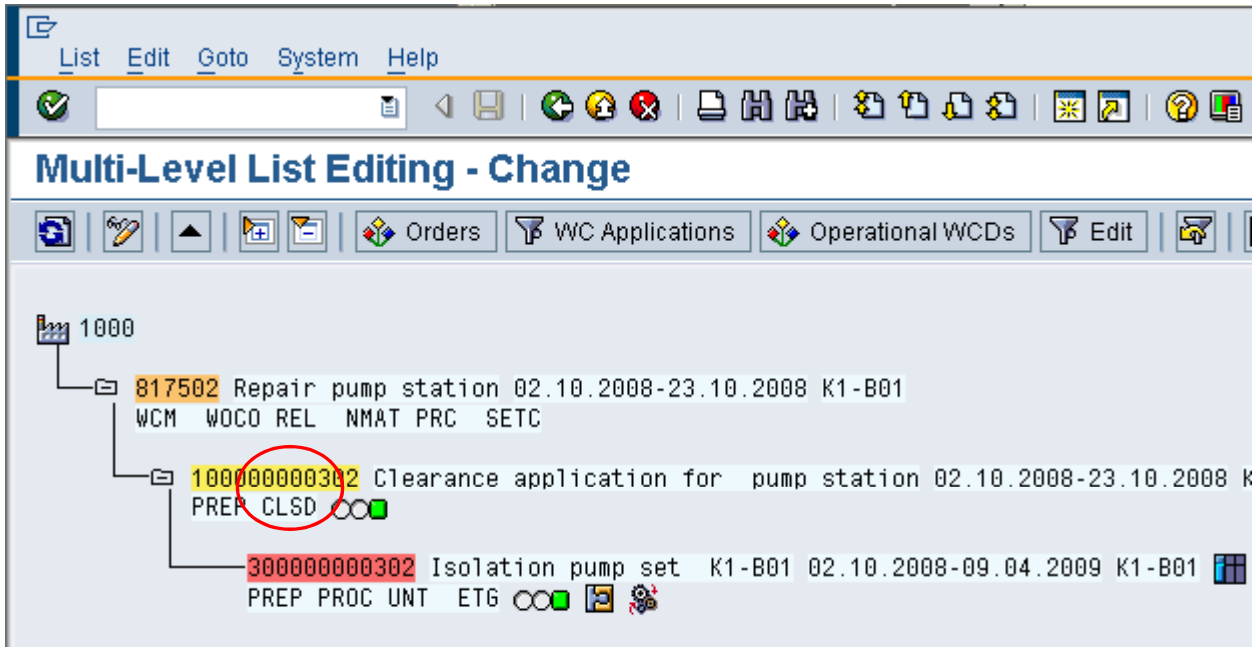
If in all allocated work clearance documents the lockout/tagout have been confirmed, maintenance gets the status “Released for execution“ (EXEC).

Detailed Process
Central Header



Maintenance carries out repair and reports the work back. As soon as all work has been finished and maintenance leaves the safe area, it is confirmed by "Work completed".

Detailed Process
Multilevel List Editing



As soon as work of the order is confirmed „Work completed“, also the work clearance application is finished. If necessary, tests can be carried out checking if the repair has been successful. Isolation objects can temporarily be untagged.

Detailed Process
Untagging



Operational WCD Edit Goto Extras Switch System Help

Change Operational WCD: Switching Screen

Untag | Untag Temporarily

WC Document 300000000302 Isolation pump set K1-B01 1 /

Status PREP PROC UNT ETG

CONF	ITG	BTG	PTAG	ETG	BTUG	PTST	ETUG	BUG	EUG	PROT
0	0	0	0	4	0	0	0	0	0	0

1	2	Counter	IC	Technical Object	Short Text	O	Tag. Cond.	TT	TS	Untag.Cond.	UT	US	System status
		10	F	K1-B01-1	Pump set 1	E	AUS	A	10	AN	A	10	ETG
		20	F	K1-B01-1A	Valve 1	M	ZU	A	20	AUF	A	40	ETG
		30	F	K1-B01-1B	Valve 2	M	ZU	A	40	AUF	A	20	ETG
		40	E	P-1000-DF01	Electric pump 001	E	AUS	A	30	AN	A	30	ETG

Operation starts now untagging. These isolations are printed in an untagging list.

Detailed Process
Untagging



Operational WCD Edit Goto Extras Switch System Help

Change Operational WCD: Switching Screen

Untagged

WC Document 300000000302 Isolation pump set K1-B01 1 /

Status PREP PROC UNT BUG

CONF	ITG	BTG	PTAG	ETG	BTUG	PTST	ETUG	BUG	EUG	PROT
0	0	0	0	0	0	0	0	4	0	0

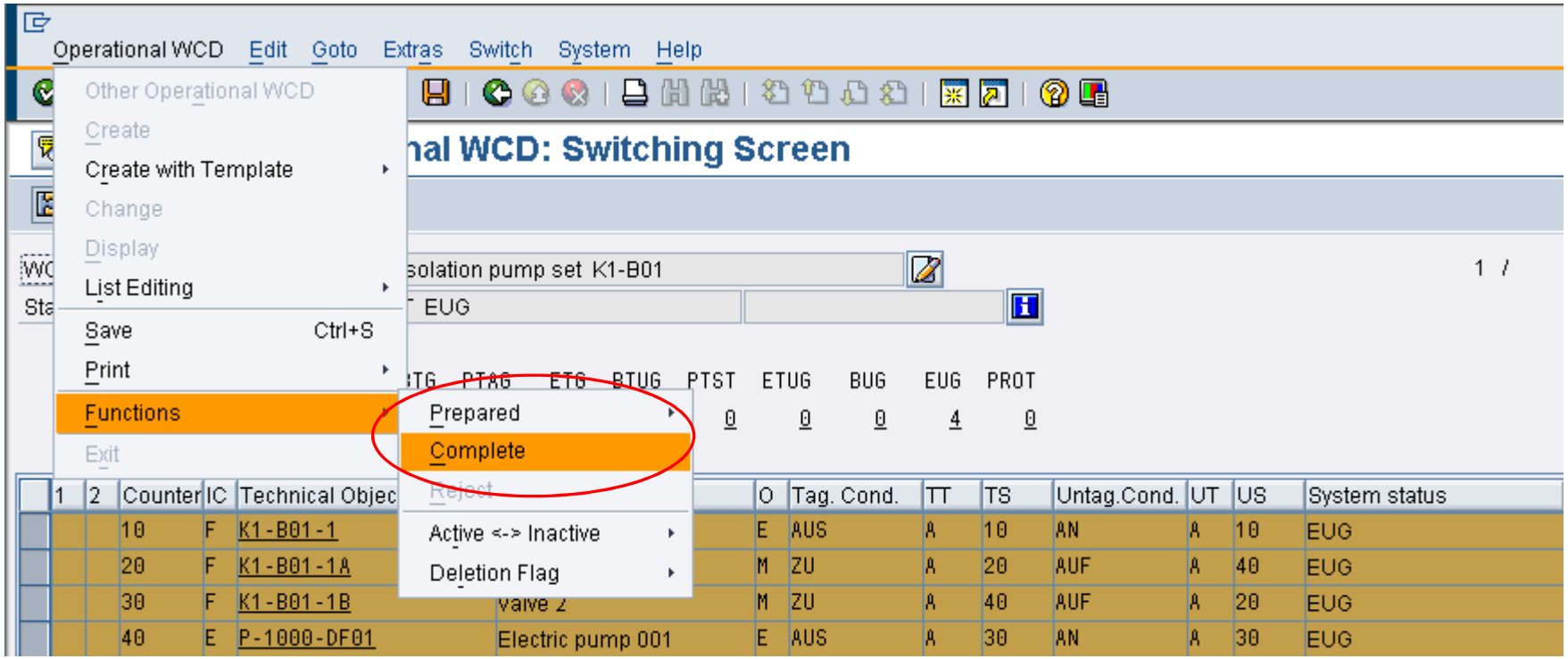
1	2	Counter	IC	Technical Object	Short Text	O	Tag. Cond.	TT	TS	Untag.Cond.	UT	US	System status
		10	F	K1-B01-1	Pump set 1	E	AUS	A	10	AN	A	10	BUG
		20	F	K1-B01-1A	Valve 1	M	ZU	A	20	AUF	A	40	BUG
		30	F	K1-B01-1B	Valve 2	M	ZU	A	40	AUF	A	20	BUG
		40	E	P-1000-DF01	Electric pump 001	E	AUS	A	30	AN	A	30	BUG

The technical objects in the untagging list are untagged.
Untagging is confirmed in the system.

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Detailed Process
Finish Operational WCD

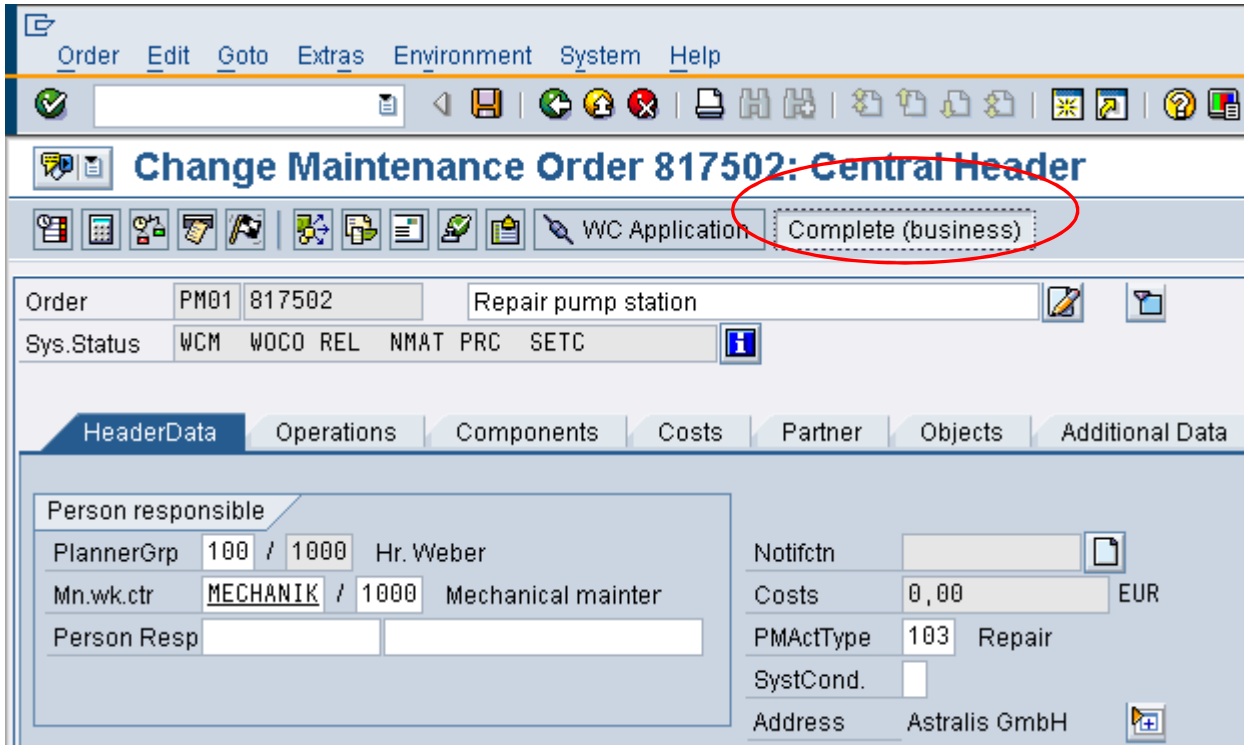




As soon as all untagging is confirmed, the Operational WCD can be completed.

Detailed Process
Finish an Order





In order to complete business, the maintenance order will be completed technically and commercially.
Order and WCM objects are completed.

Questions and Answers



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