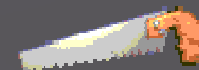
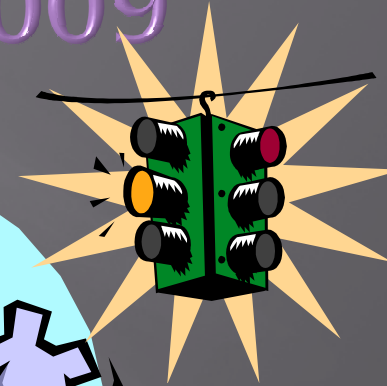


OGI®

Work Clearance Management

WCM EAM 2009



Company Profile

- **OGE Energy Corp.** (NYSE: OGE), with headquarters in Oklahoma City, is the parent company of Oklahoma Gas and Electric Company (OG&E), a regulated electric utility, and Enogex LLC, a midstream natural gas pipeline business. OGE Energy and its subsidiaries have about 3,400 employees.
- **OG&E** serves more than 770,000 retail customers in Oklahoma and western Arkansas, and a number of wholesale customers throughout the region. OG&E, with about 6,800 megawatts of capacity, generates electricity from natural gas, western coal, and wind. OG&E's electric transmission and distribution systems span 30,000 square miles.
- **Enogex** operates a pipeline system engaged in natural gas gathering, processing, transportation, storage and marketing. The system includes about 8,200 miles of pipe, seven processing plants, and 24 billion cubic feet of storage capacity.

Service Area

Electric Utility and Natural Gas Pipeline



- | | | |
|---------------------|-------------------------|--------------------------|
| ■ OG&E service area | ✱ Wind power facilities | ● Natural gas processing |
| ~ Enogex pipeline | ■ Power plant | ▲ Natural gas storage |

Why Change to WCM?

- ▣ Business decision.
- ▣ Legacy system (CLER) was becoming expensive to support & had limited functionality. Reducing the number of independent software programs being maintained by the IT group was also a goal by corporate managers.

Implementation Team Goals

- ▣ Transfer as much information from legacy system to WCM as possible.
- ▣ Provide the user with the same amount of functionality as the legacy system (minimum requirement).
- ▣ Minimize the amount of training needed for successful implementation.
- ▣ Provide weekly communication on project.
- ▣ Enlist stakeholders at each plant to assist in decision making.

Original Implementation

- ✓ Attended WCM class in Philadelphia--November 2001
- ✓ WCM project began January 2002
- ✓ Standard model – configuration took two months
- ✓ Plants were brought online one at a time
(approximately two weeks after the in-house training)
- ✓ Last plant went online on August 29th, 2002
- ✓ Five major power plants installed WCM
(approximately 80 users trained)
- ✓ About 500 members in OG+E 's power supply use PM
- ✓ The training was pure SAP
- ✓ We did not implement the equipment test procedure

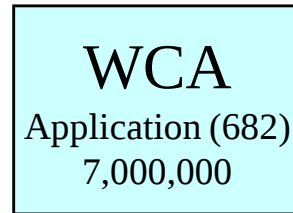
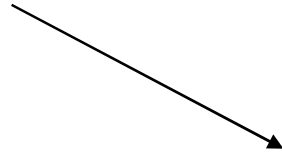
OI continued

- ✓ Used a (one-to-one assignment) of WCA's and OWCD's.
- ✓ 90% of WCD templates were in WCM before going live
- ✓ We did not integrate with PM (orders)
- ✓ We did use the conflict checking

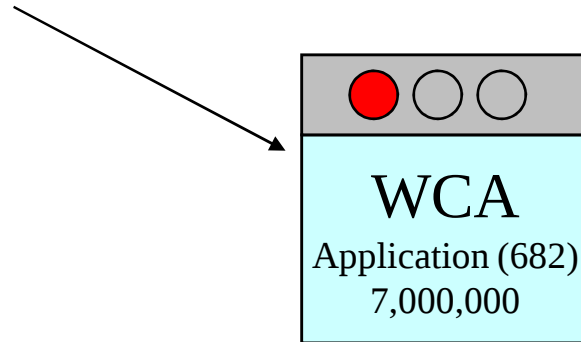
WCM Core Process 2002

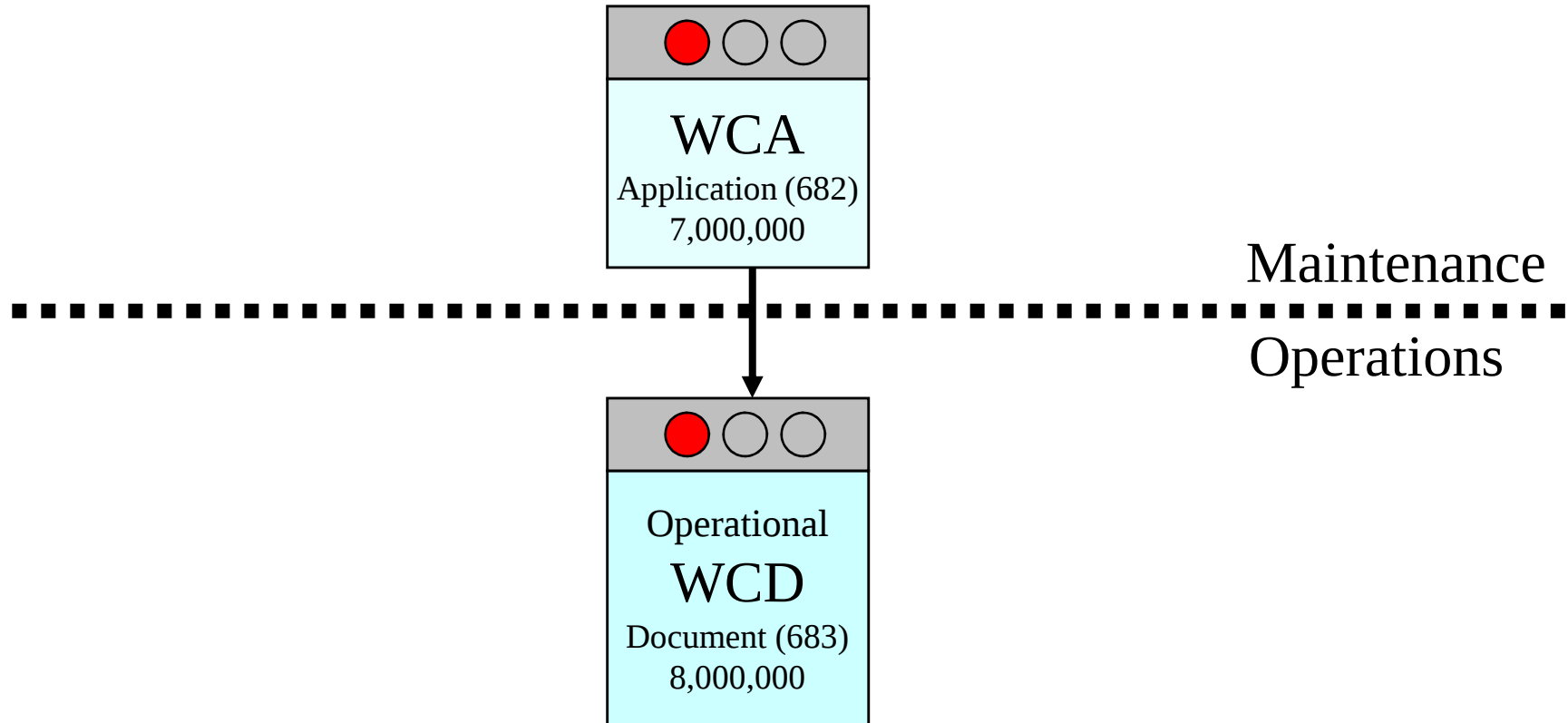
- ▣ Maintenance Requests Equipment Clearance.

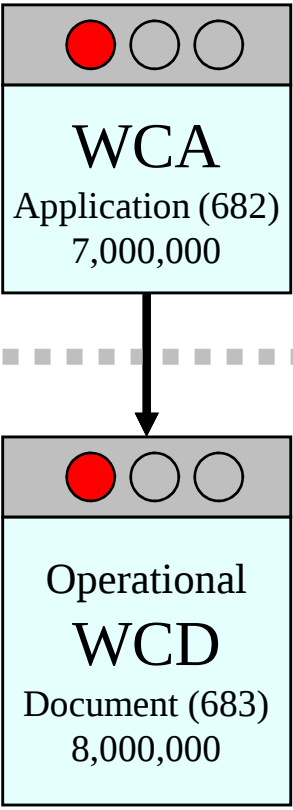
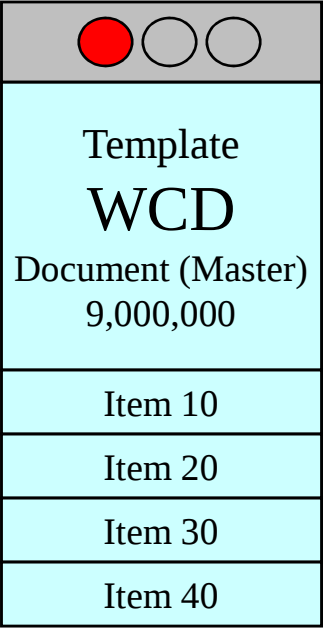
Maintenance Requests
Equipment Clearance.



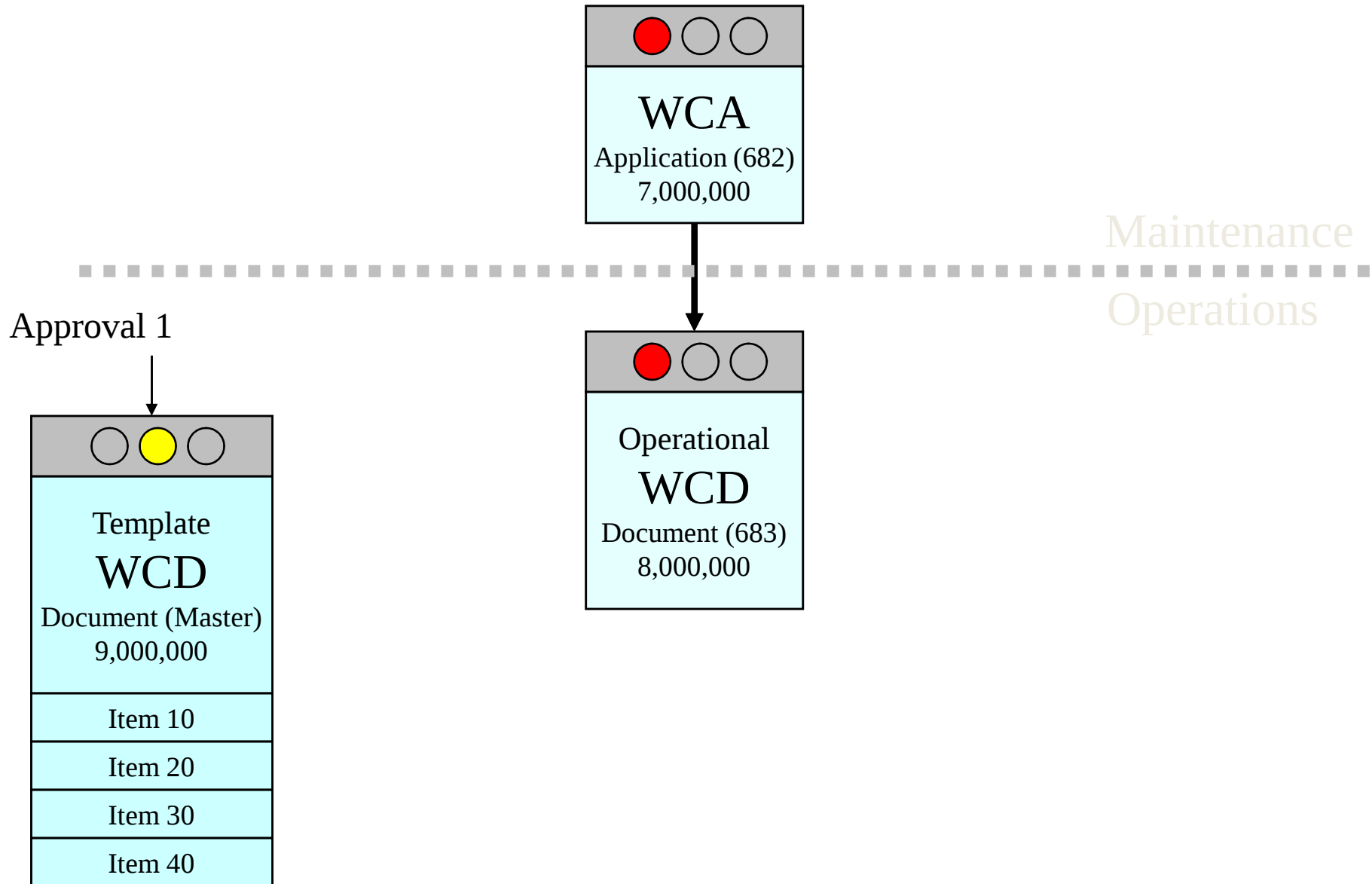
Maintenance Requests
Equipment Clearance.

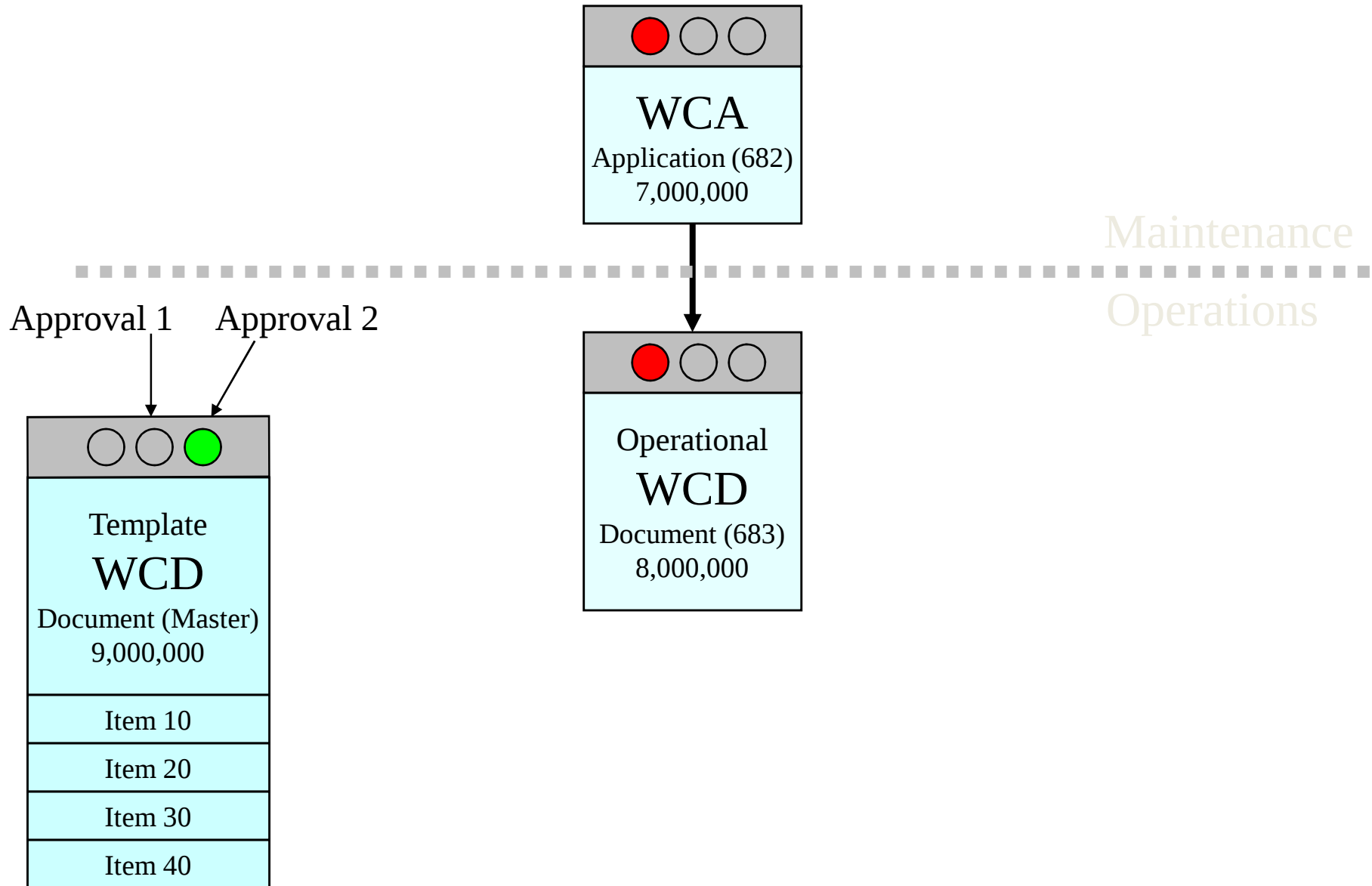


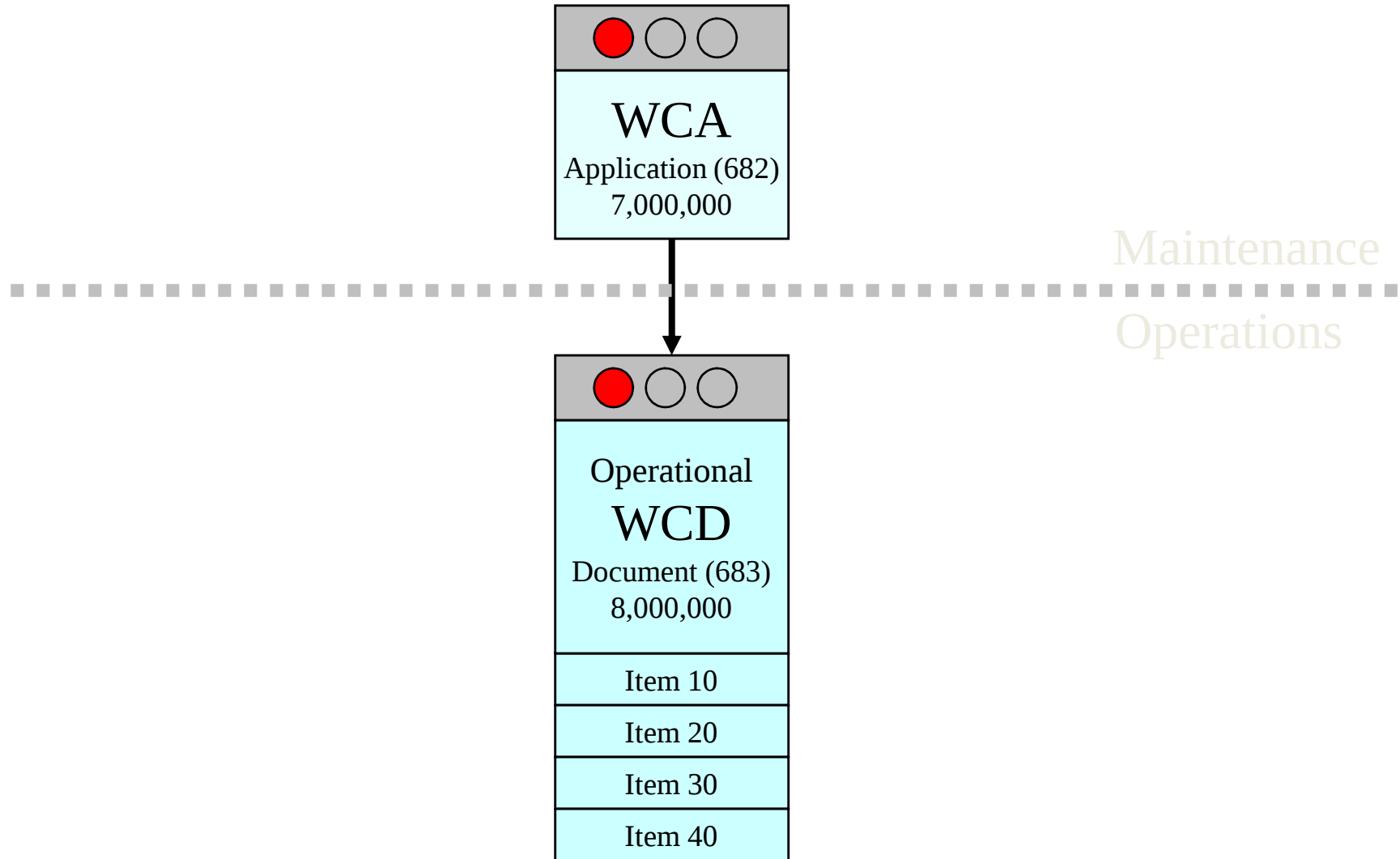


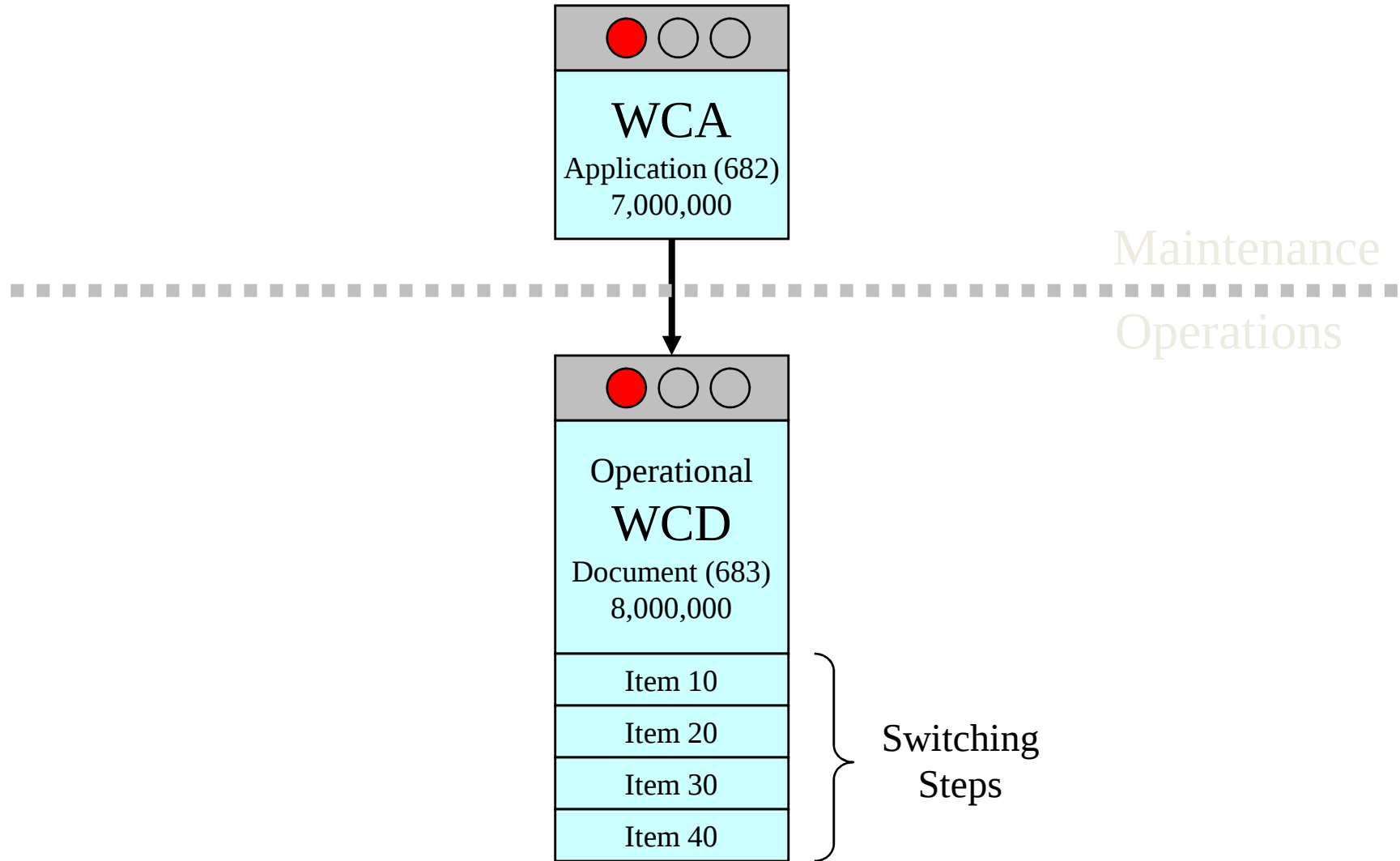


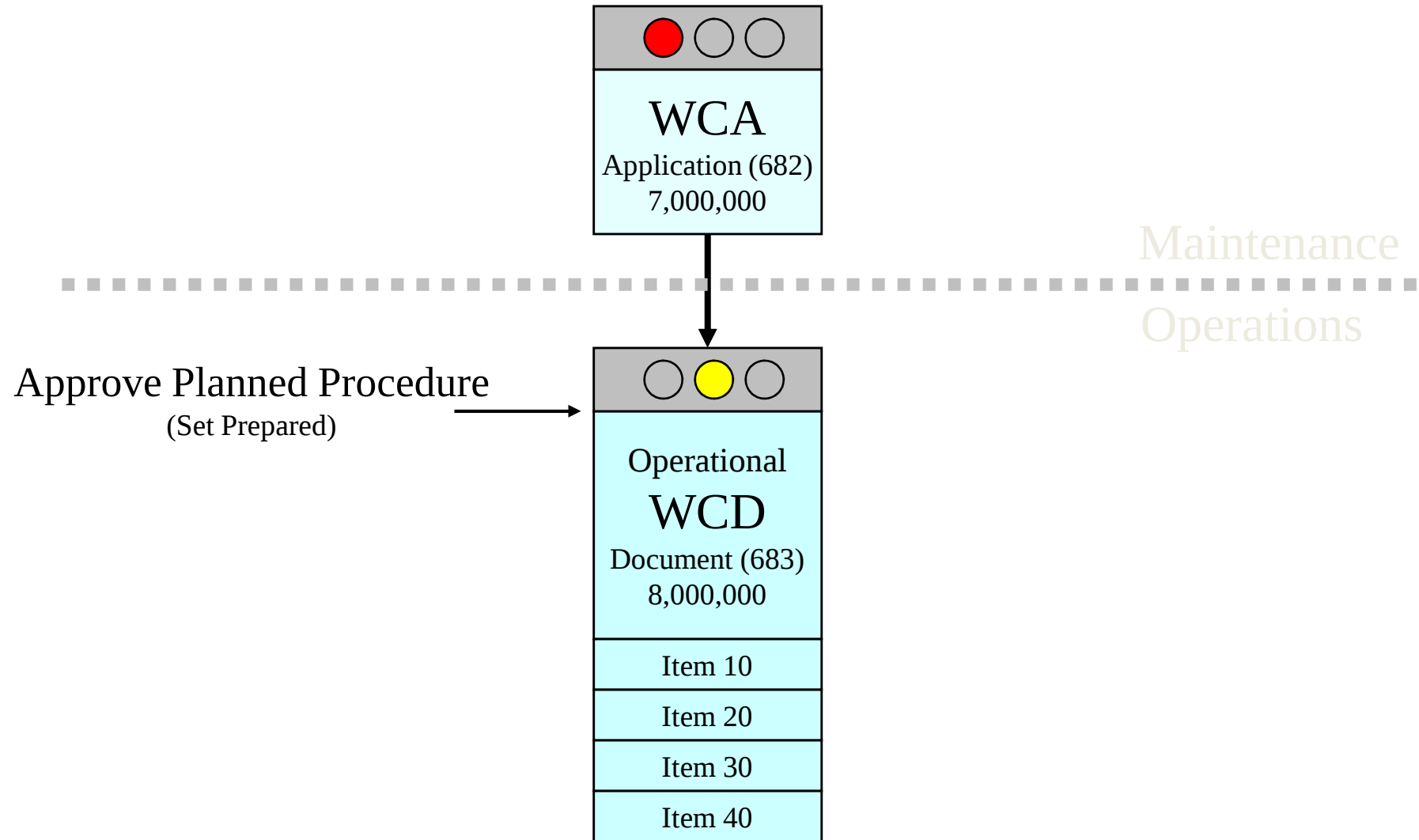
Maintenance
Operations

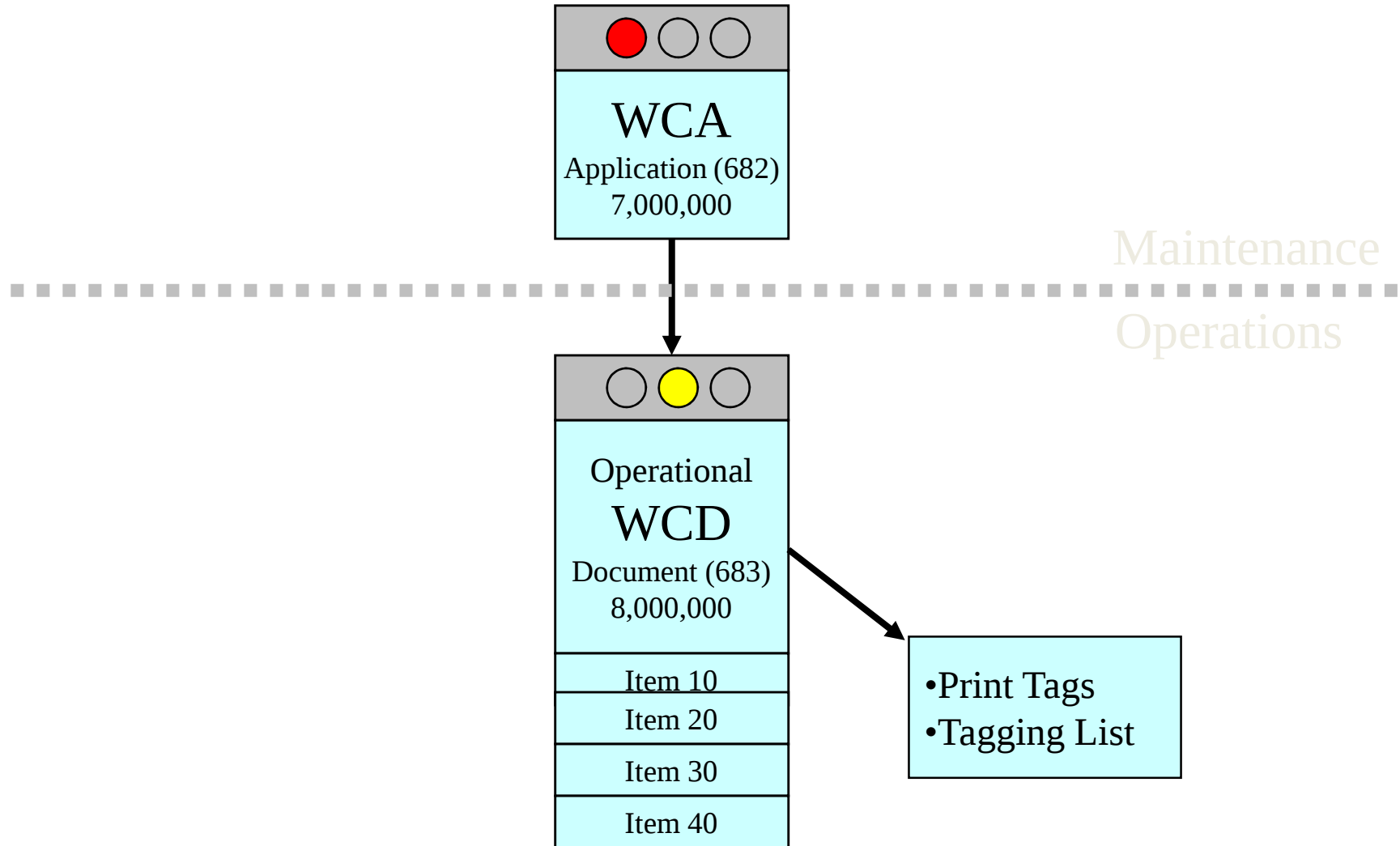




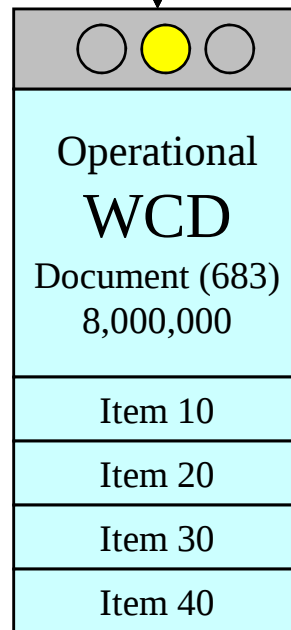
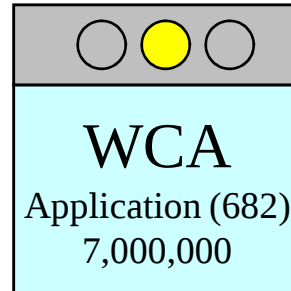




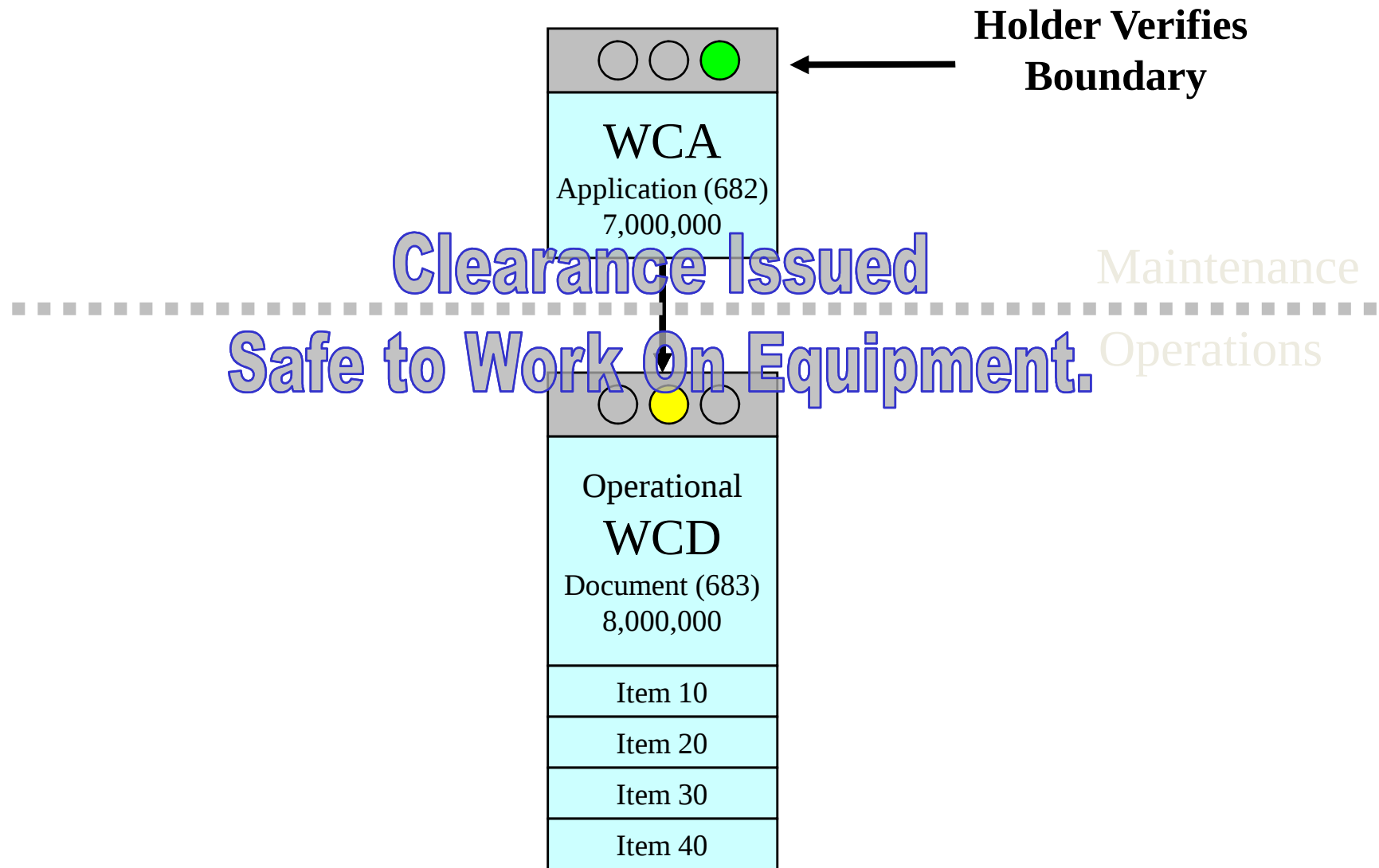




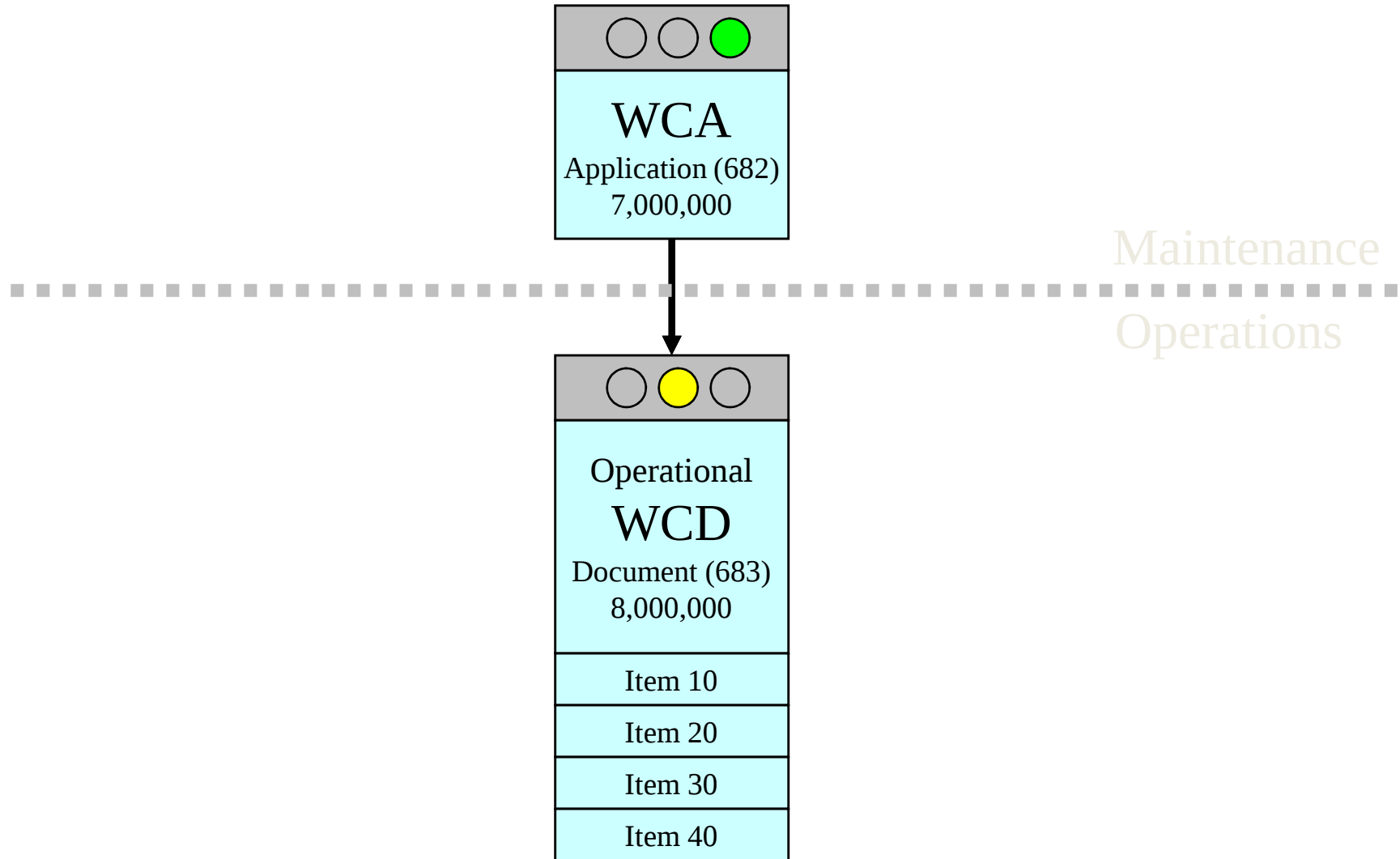
Tags Hung
Boundary Established
(Set Prepared)



Maintenance
Operations

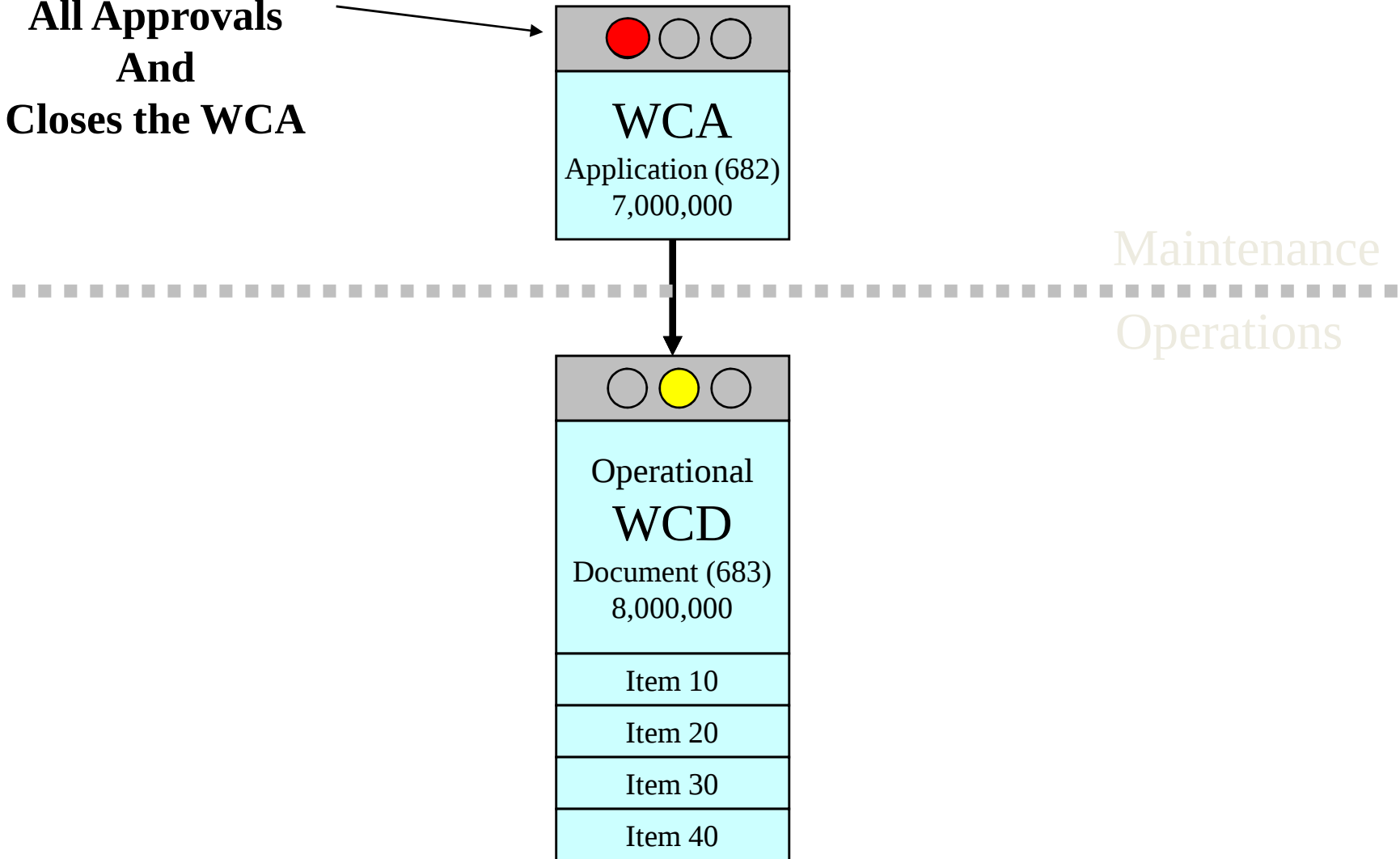


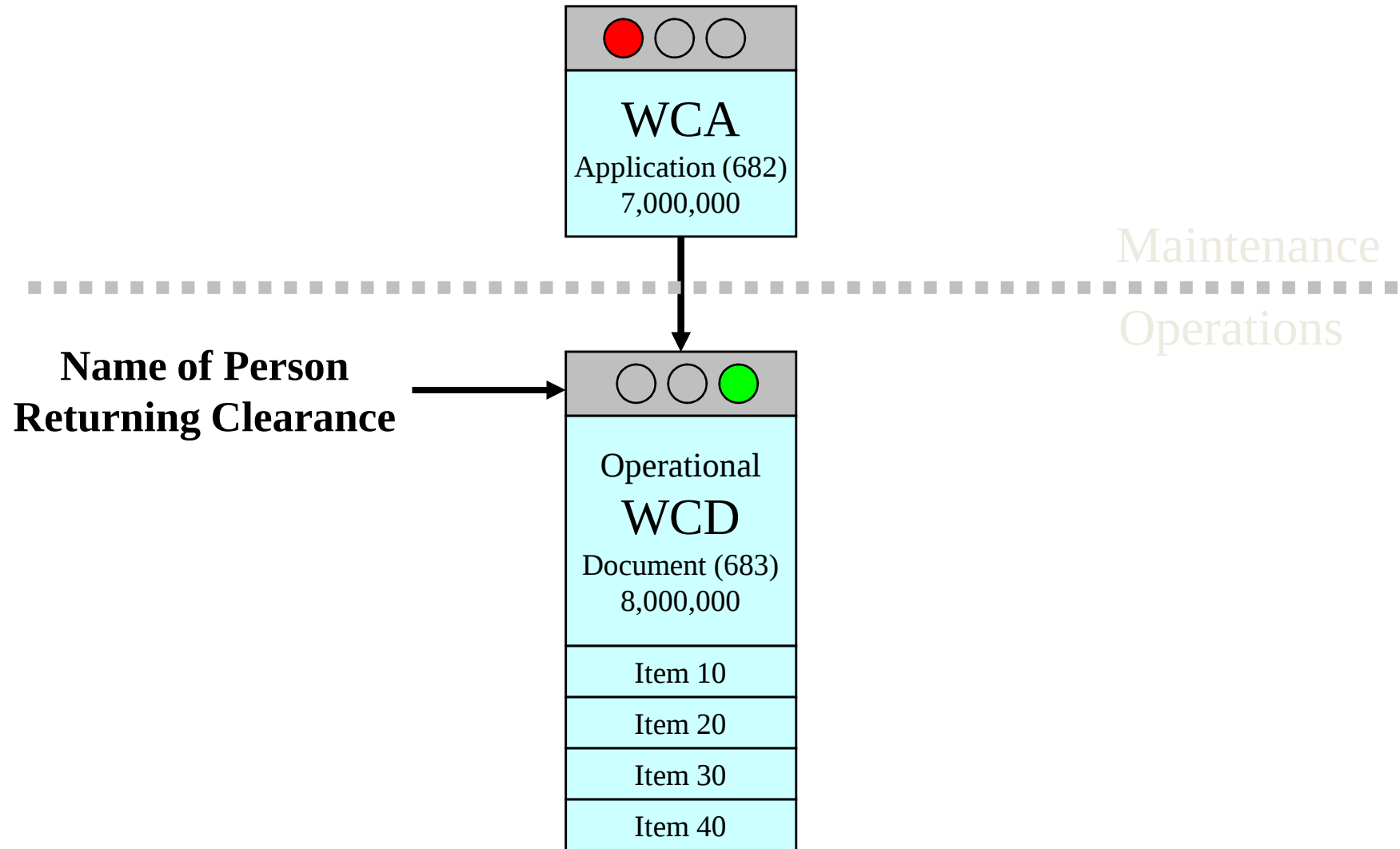
Holder Returns Clearance

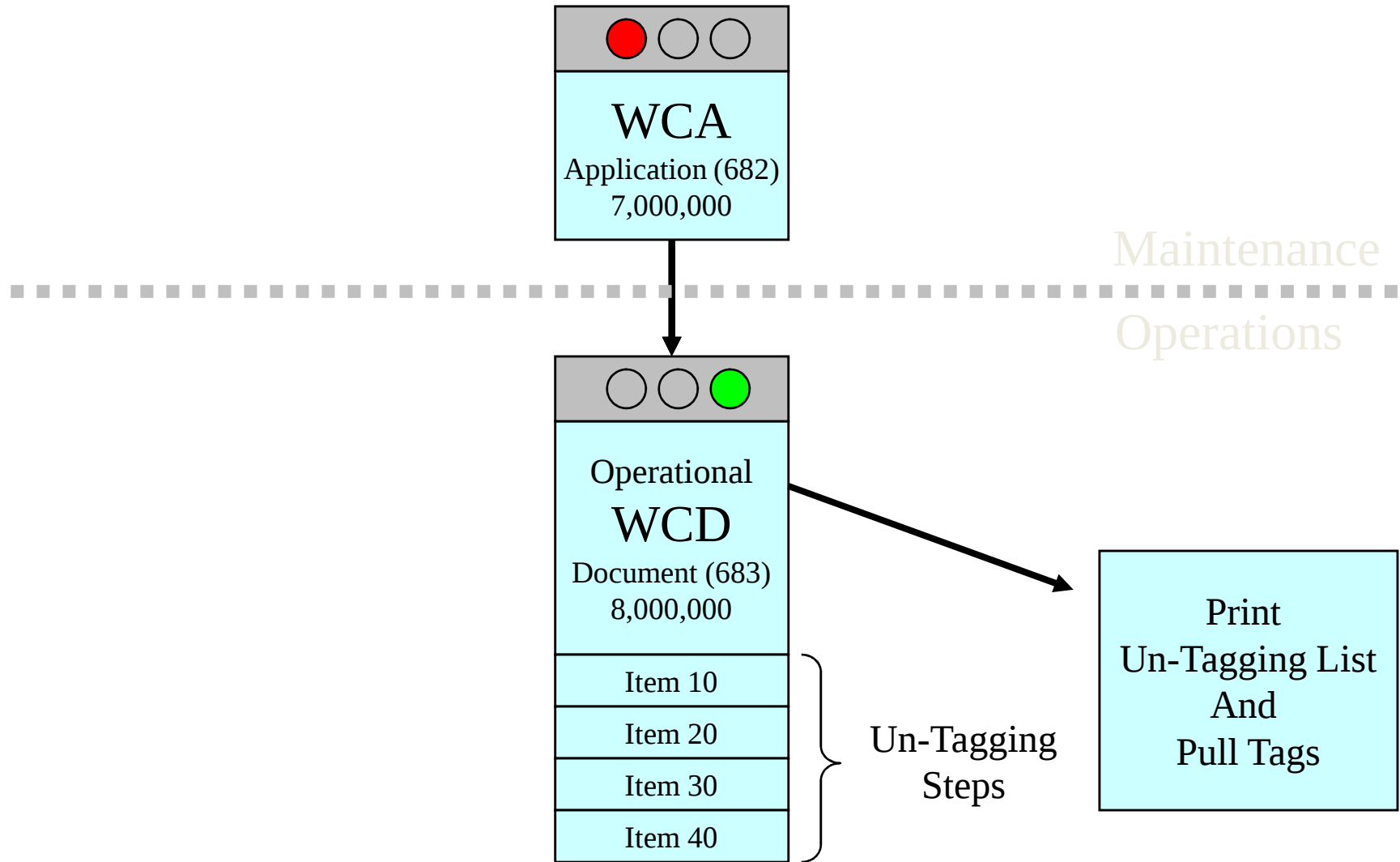


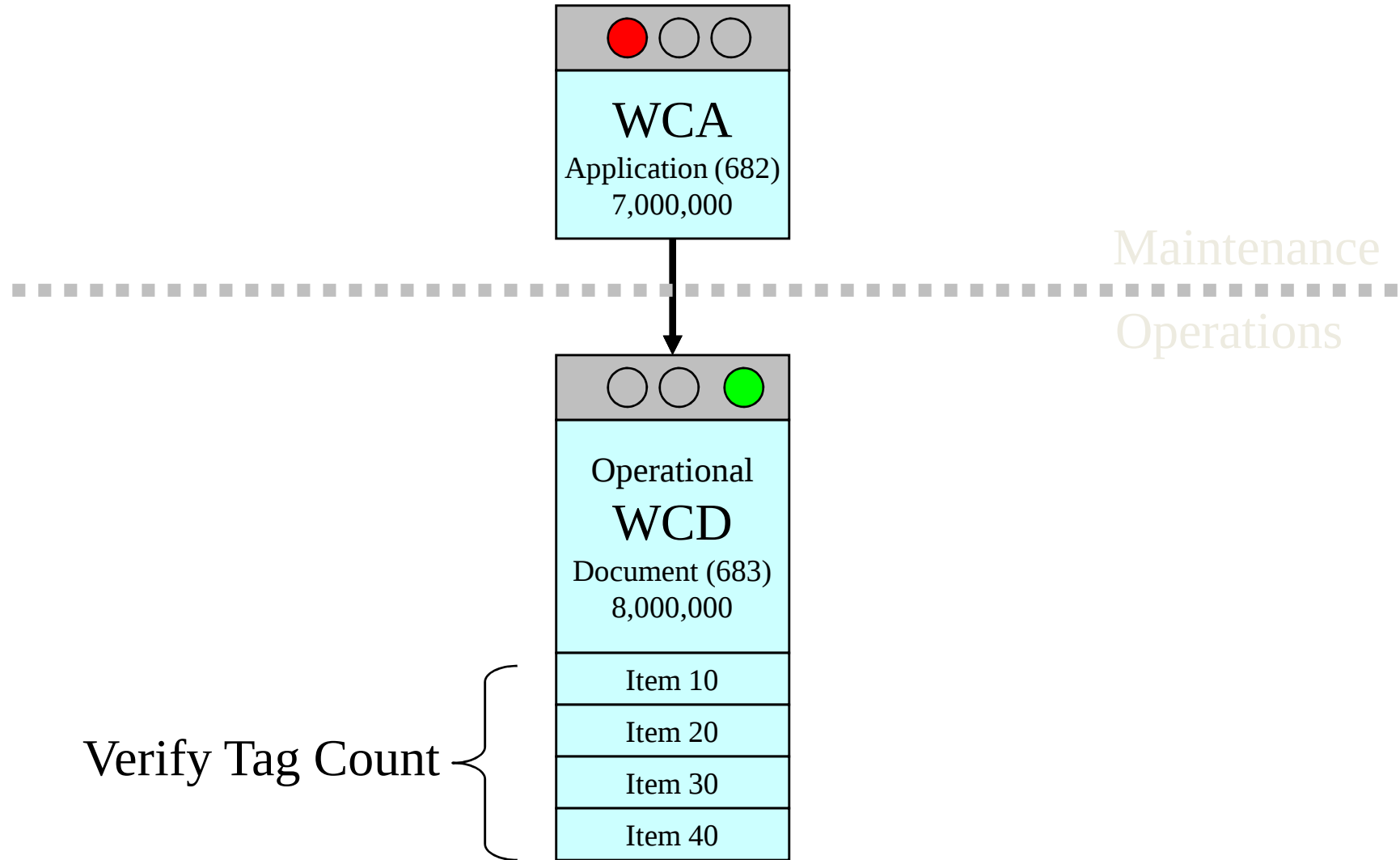
Holder Returns Clearance

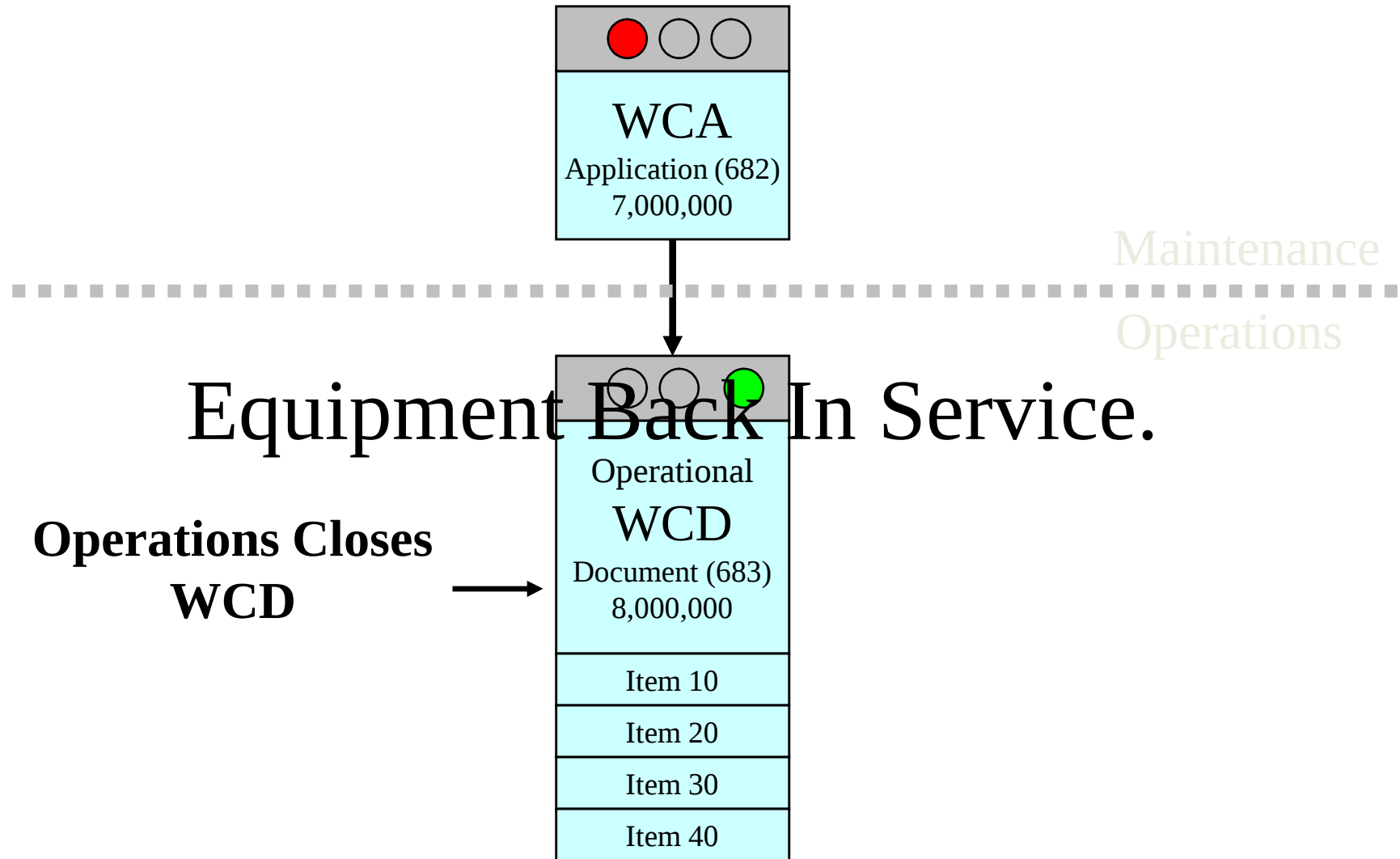
**Operations Removes
All Approvals
And
Closes the WCA**











Milestones

- ▣ Time line for transferring legacy data and training completed on time & on schedule
- ▣ Correctness of information transferred from legacy system was very high (low errors)
- ▣ Training well received--based on training class evaluations
- ▣ All plants are now using the same clearance process
- ▣ Project implementation was completed ahead of schedule

Opportunities

- After initial training, one of the concerns identified by the users was knowing where they were in the process--getting lost--especially if they were distracted (phone , alarms, or radio).
- Another concern that was identified was the sheer number of choices that the user must make. In the legacy system, a user could create a clearance document with twenty clicks of the mouse compared to almost 100 in WCM.

Opportunities (continued)

- ▣ Users would like to be able to print templates.
- ▣ Users would like to be able to choose if a comment is to appear on the tagging or on the untagging list .

A Solution is Needed

Synactive
GuiXT

GuiXT

- Six months after implementation (early 2003), we utilized GuiXT software to:
 - Reduce the number of mouse clicks for a normal clearance from almost 100 to around 20.
 - Construct a clearance model that reduces the WCM process down to six simple task bars.
 - Create a menu page for all WCM users that provides access to a lot of functionality in PM.
 - Provide a process to print templates that are in development for field check purposes.

Additional Functionality

- ▣ Integrated with PM orders
 - Trained Maintenance foremen & planners
- ▣ Installed an equipment testing procedure using WCM and GuiXT
- ▣ Multiple WCA'S (Multiple Clearance Holders / One Set of Tags)
- ▣ Upgraded SAP to ERP 2005
- ▣ Installed a solution for the group clearance process which was driven by a company policy change in the way clearances are administered at all power plants (2006)

New WCM Opportunities

- ▣ OGE purchased McLain Power Plant (900mw combined cycle plant--installed WCM 2004)
- ▣ OGE built Centennial Wind Farm (170mw)
 - May install WCM for wind farm maintenance
- ▣ OGE purchased Redbud Power Plant (1100 mw combined cycle plant--51% interest)
 - May install WCM during 2009
- ▣ OGE recently agreed to build Sprit Wind Farm for the University of Oklahoma (100mw)

Group Clearances

- ▣ Standard Number: 1910.147(f)(3)

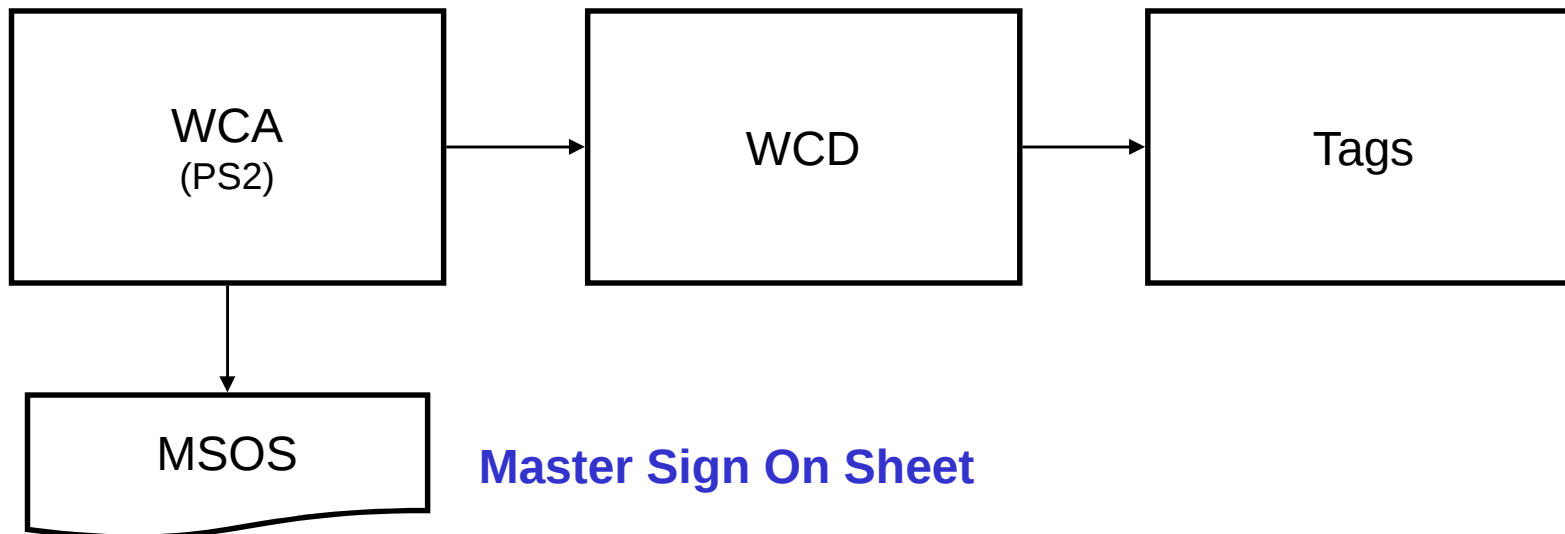
- ▣ Excerpt

- ▣ If the employer elects to assign a *primary authorized employee* to verify effective energy isolation, each *authorized employee* participating in the group LO/TO must be informed of their right to verify the effectiveness of the lockout measures and each *authorized employee* must be allowed to personally verify that hazardous energy sources have been effectively isolated, if they so choose. An *authorized employee*, who opts to verify the effectiveness of the isolation measures, must perform this verification **after** affixing his or her personal lockout or tagout device and **before** performing servicing/maintenance activities.

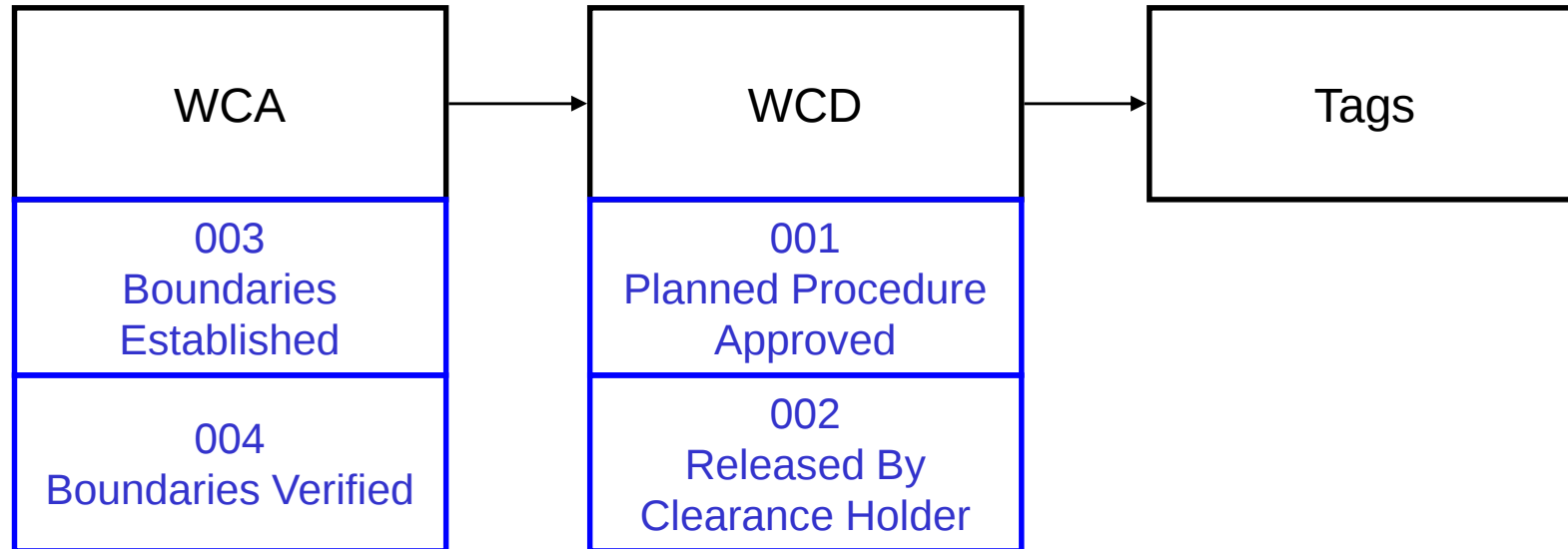
Standard Clearance



Group Clearance



Standard Clearance

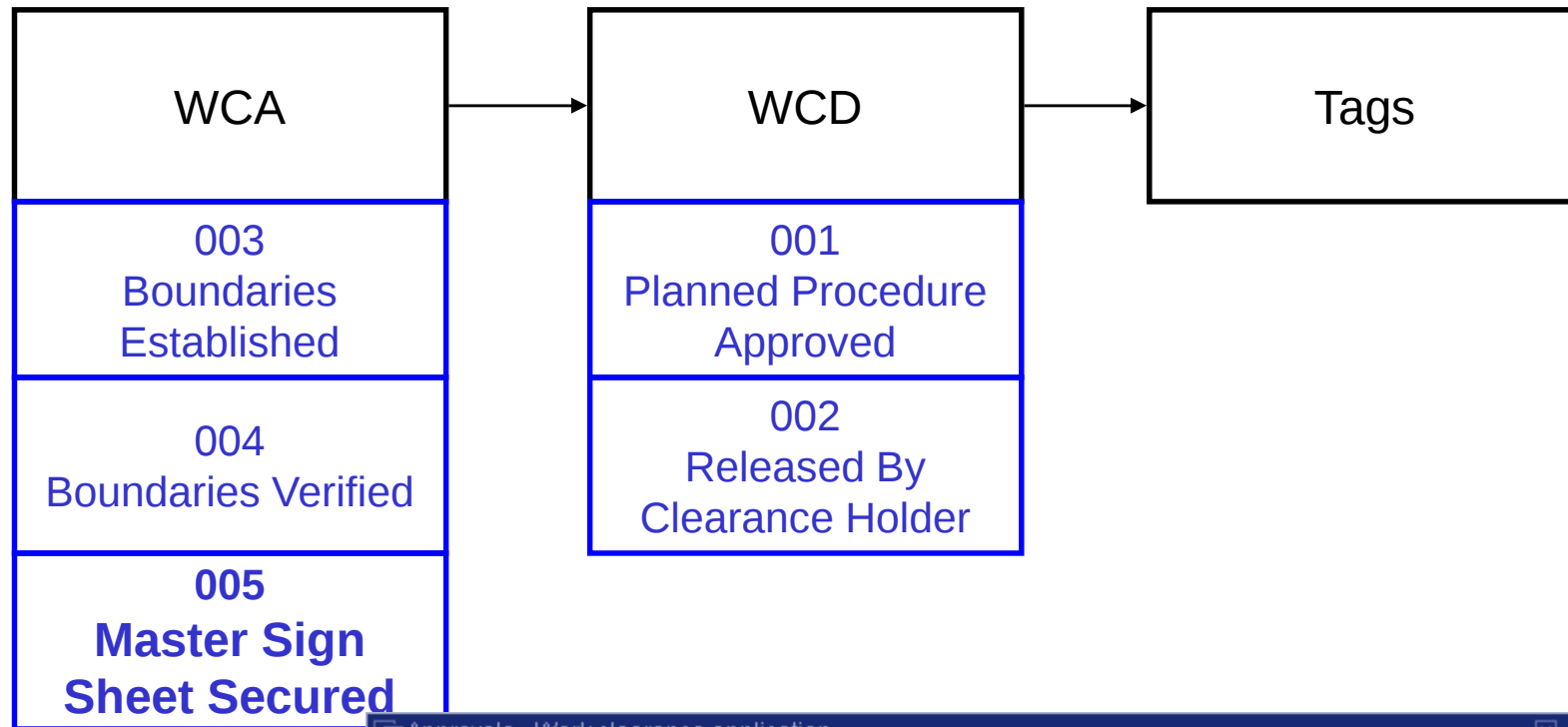


Approvals

Approvals - Work clearance application							
Permit	Short text	Cat	Pr	L	PI	Approv. by	Ent. by
WCM_MC_003	Boundries Established.	B		☐			
WCM_MC_004	Boundries Verified						

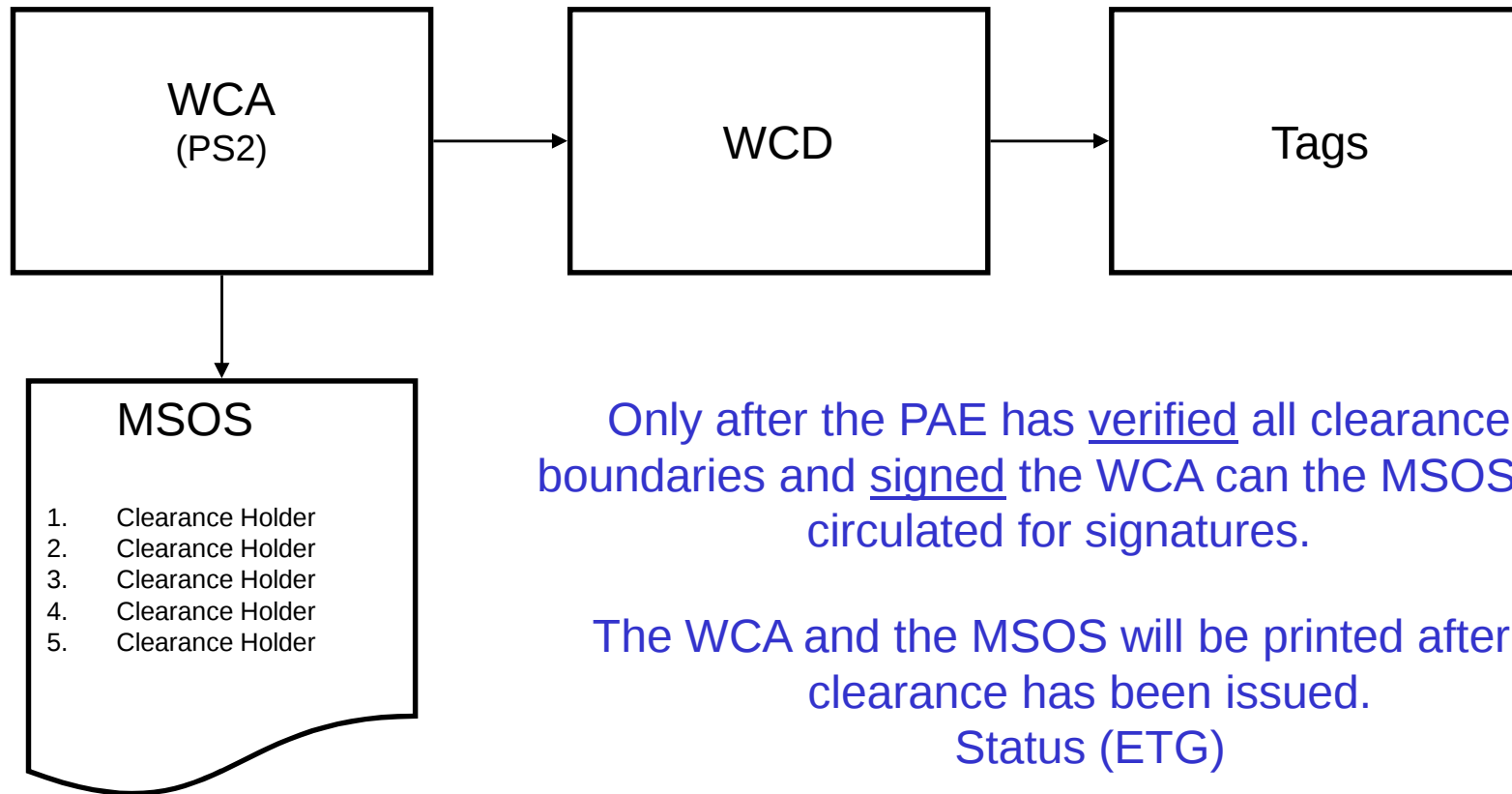
Approvals - Operational Work Clearance Document							
Permit	Short text	Cat	Pr	L	PI	Approv. by	Ent. by
WCM_MC_001	Planned Proceedure Approved	B		☐			
WCM_MC_002	Released by Clearance Holder	B		☐			

Group Clearance



Approvals - Work clearance application								
	Permit	Short text	Cat	Pr	L	PI	Approv. by	Ent. by
	WCM_MC_003	Boundries Established.	B		☐			
	WCM_MC_004	Boundries Verified	B		☐			
	WCM_MC_005	Master Sign Sheet Secured	A		☐			

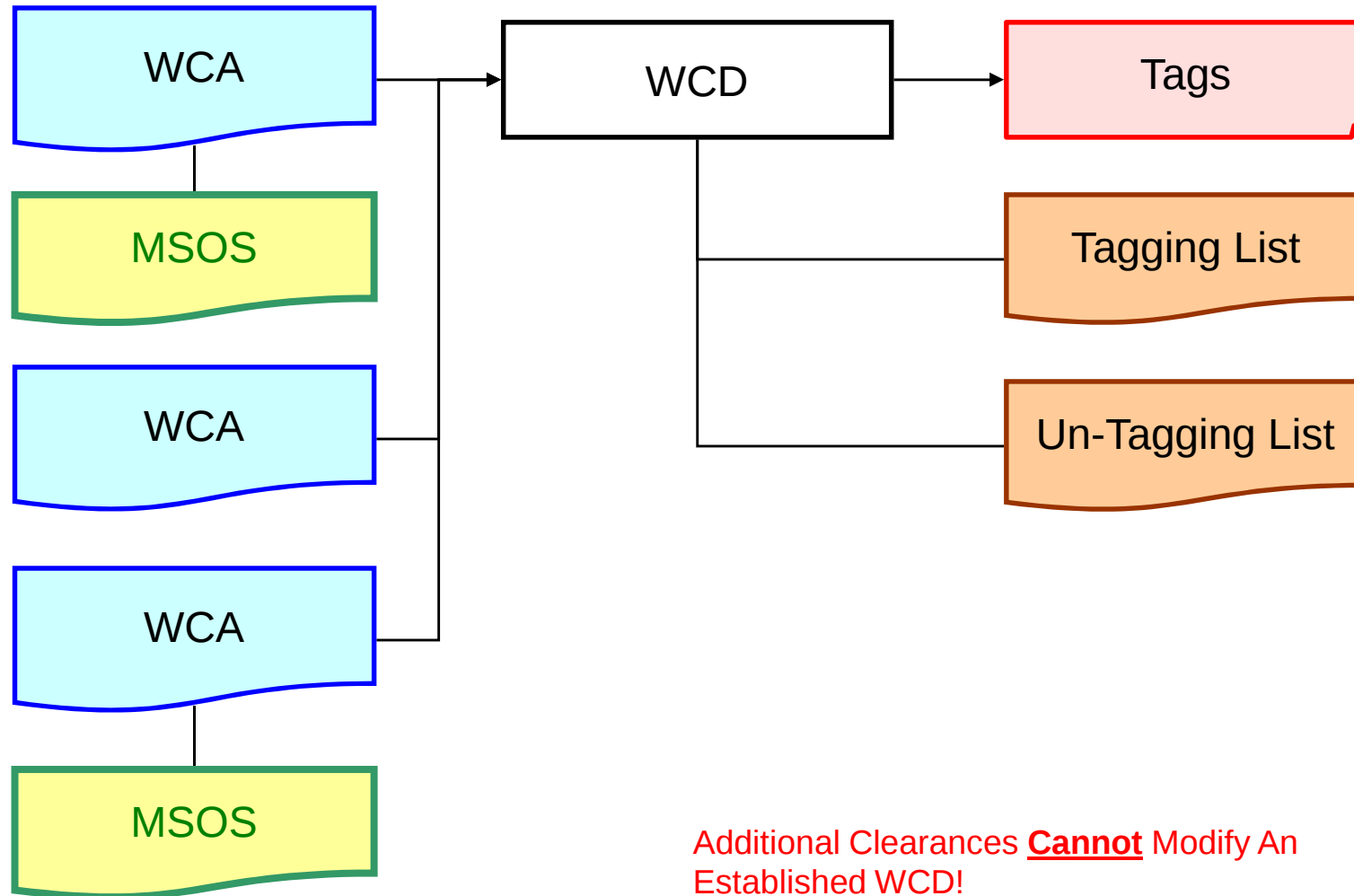
Group Clearance



Only after the PAE has verified all clearance boundaries and signed the WCA can the MSOS be circulated for signatures.

The WCA and the MSOS will be printed after the clearance has been issued.
Status (ETG)

Multiple WCA's (Multiple Clearance Holders / One Set of Tags)



Changes for Group Clearances

- New WCA type (PS2)
- Additional approval on the WCA (MSOS Secured)
- Cover sheet and MSOS printed from the WCA
 - WCA = Cover sheet
 - WCA is printed after the clearance is issued.

 Param's test New Session SAP Menu

A large industrial facility, likely a power plant or refinery, with multiple tall smokestacks and complex piping, situated behind a body of water. The facility has a light-colored, multi-story main building with several windows. Behind this building are several tall, dark smokestacks and large, cylindrical storage tanks. The entire complex is surrounded by a network of pipes and structural steel. In the foreground, there is a calm body of water, possibly a river or a large pond, with a grassy bank on the right side. The sky is overcast and grey.

--- Log Off ---

GoTo Clearance Processing Screen

Instructions

Product Costing

Windows



Work Clearance Management Create WCA

GoTo Clearance Processing Screen

Required Information

Description TESTING BLEVINTL 001

Requester Work Center ☒ / HLP1

Requesters Employee Number ☒

Functional Location ☒

Description Long Text

Requested Dates:

Scheduled Start 01/19/2008 Time 0700

Scheduled Finish 01/20/2008 Time 1730

Offset +

WCD Creation:

- ☐ Do Not Create WCD At This Time
☒ Create Using WCA Header Information (Creates a WCD Without Items)
☐ Create Using Reference Number

Reference Number Can Be Either A WCD Number Or A Template Number

Group Clearance

☒ Yes ☐ No



Optional

Priority

- ☐ Emergency
☐ Urgent
☒ Normal
☐ Preventative

Scope

- ☒ Complete
☐ Electrical
☐ Mechanical

Other

☐ Check If This is a Confined Space

Recall Time in Hours

Motor Rotation

Continue

WCA

Work
Clearance
Application



Work Clearance Management Create WCA

GoTo Clearance Processing Screen

Required Information

Description TESTING BLEVINTL 001

Requester Work Center ESPLAN / HLP1

Requesters Employee Number 00001186

Functional Location HL-08

Description Long Text

WHAT WORK WILL BE DONE, SPECIAL CONDITIONS, WHO WILL BE DOING THE WORK, AND ANY PERTINENT INFORMATION NEED TO

Requested Dates:

Scheduled Start 01/19/2008 Time 0700

Scheduled Finish 01/20/2008 Time 1730

Offset +

WCD Creation:

- ☐ Do Not Create WCD At This Time
☒ Create Using WCA Header Information (Creates a WCD Without Items)
☐ Create Using Reference Number

Reference Number Can Be Either A WCD Number Or A Template Number

Group Clearance

- ☒ Yes ☐ No



Optional

Priority

- ☐ Emergency
☐ Urgent
☒ Normal
☐ Preventative

Scope

- ☒ Complete
☐ Electrical
☐ Mechanical

Other

☐ Check If This is a Confined Space

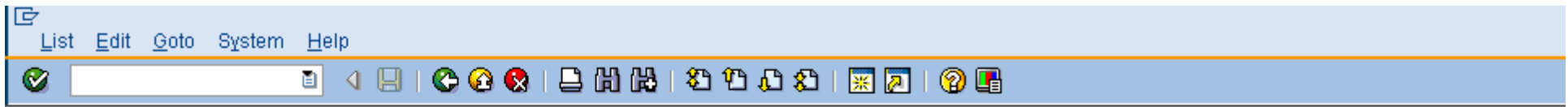
Recall Time in Hours

Motor Rotation

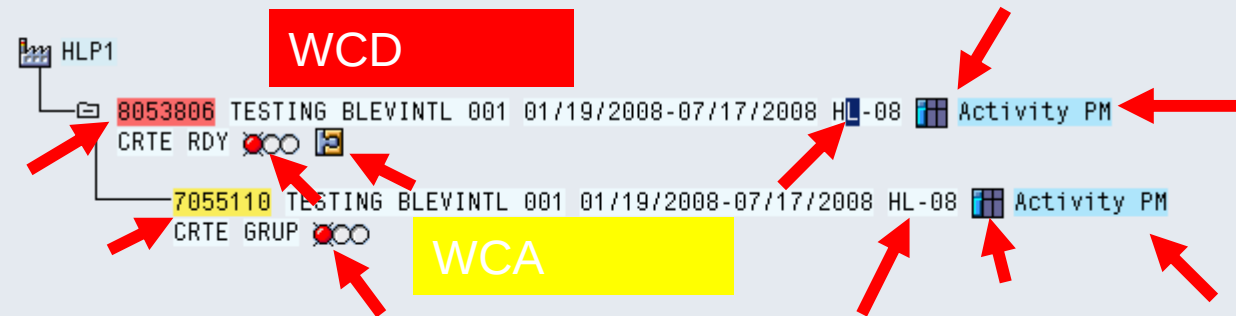
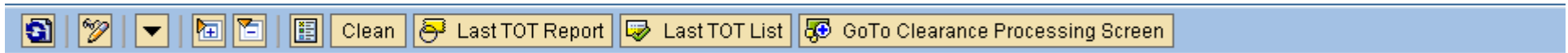
Continue

WCA

Work
Clearance
Application



Multi-Level List Editing - Change

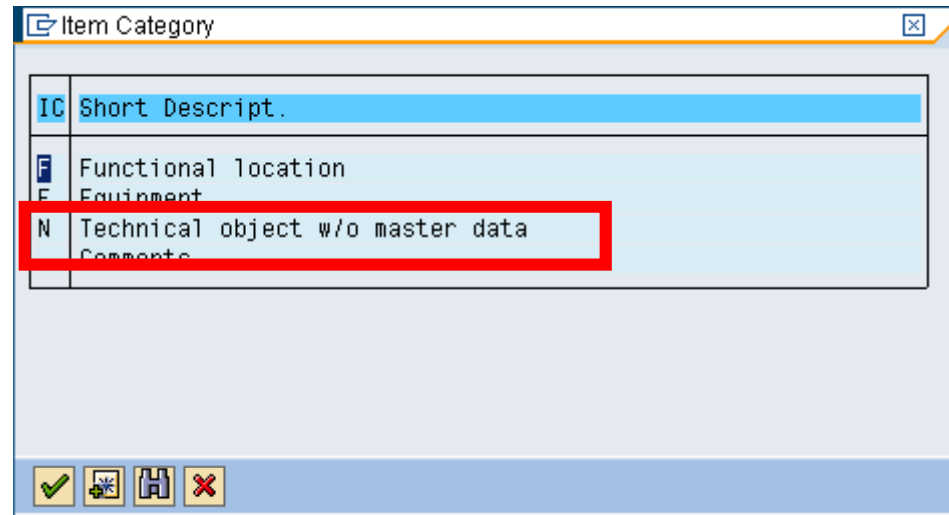


Home Base

Hot Spots

ReNumber

Templates Should Always Contain Equipment Numbers

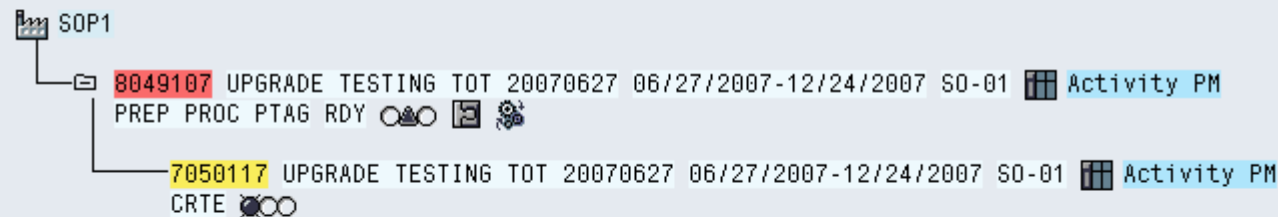
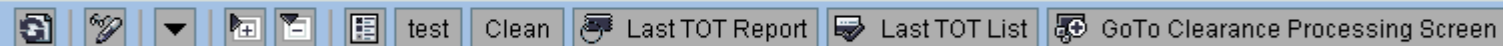


Using “N” type technical objects can cause problems with conflict checking.

Multi-Level List Editing - Change

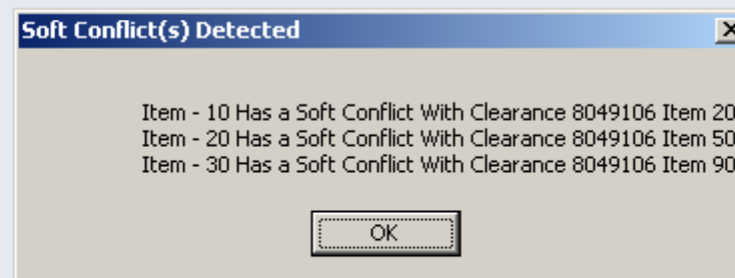


Multi-Level List Editing - Change



Soft Conflicts (Green Conflicts) are handled automatically.

Processing will stop with Hard Conflicts (Red Conflicts)



Hard Conflict Detected

New Lines Print Tags and Tagging List

WC Document 8049110 UPGRADE TESTING TOT 20070627 c
 Status PREP ITG RDY

1 / 1

Hard Conflict Detected

Counter	Technical Object	OG	OperCondtn	OT						
Op.	WCD	Counter	MTyp	OperCondtn	OT	Status	Date	Time	MaintScrn	SwitchScrn
10	UPGRADE	TESTING	TOT	20070627	BA B	OPEN	BLK			
8049109	10		CLOSE	NON	BUG	06/27/2007	16:21:12			
20	UPGRADE	TESTING	TOT	20070627	BB B	OPEN	BLK			
8049109	20		CLOSE	NON	BUG	06/27/2007	16:21:12			

d. UT US
 Tag

Lock

NON 20

10

Hard Conflict Error

Hard Conflict Detected
 Please Review the Conflict List and Correct the Problem

Hint: If the Red Conflict has the
 Status BUG it may need to be closed in SAP.

OK

Operational WCD

Edit

Goto

Extras

System

Help

Change Operational Work Clearance Document: Header

WC applications

Change WCD

WC Document

8049106

UPGRADE TESTING TOT 20070627

Status

PREP PROC UNT ETG

RDY

Valid from

06/27/2007

00:00:00

Valid to

12/24/2007

00:00:00

Priority

Cond.Tech.S

Revision Pha

Reference C

Functional I

Respor

Work Cente

Last WCA Warning

Warning !

The Last WCA for this WCD has been closed. The Next Step in this Process is to Close the WCD.

Do You Want to Continue ?

Yes

Selecting YES will start the Untagging Process,
which will print the untagging list and set
the clearance to the status BUG. Once this
status is set, the clearance MUST be returned.

If you would like to leave the clearance open
you have two options. One click NO and the
clearance will be left as is, or click create
WCA and an Operating Authority (OA) WCA
will be added to the clearance.

Create OA WCA

No

test
Clean
 Last TOT Report
 Last TOT List
 GoTo Clearance Processing Screen

```

0849106 UPGRADE TESTING TOT 20070627 06/27/2007-12/24/2007 SO-01 Activity PM
PREP PROC ETG RDY    

7050114 UPGRADE TESTING TOT 20070627 06/27/2007-12/24/2007 SO-01 Activity PM
PREP CLSD   

7050115 UPGRADE TESTING TOT 20070627 06/27/2007-12/24/2007 SO-01 Activity PM
PREP CLSD   

7050116 Operating Authority WCA 06/27/2007-12/24/2007 SO-01 Activity PM
CRTE   

```

Renumber Button

Change Operational Work Clearance Document: Maintenance Screen

New Lines

WC Document 8053806 TESTING BLEVINTL 001
Status CRTE RDY

1 / 1

Technical Object

Short Text

Location

F Functional location
E Equipment
N Technical object w/o master data
Comments

IS

Lock

Add Items (Steps)

Search Text

SEARCH TEXT

☒ Use FunctLo

Get Template

210 E 10848333 B DISENGAGE BLK 210 ☐ ☒ HOLD ENGAGE BLK 10
7GT CRANKING MOTOR BRK 723 144213
7 MEZZ 7A 4160 SWITCHGEAR BRK-723

60 ☐ ☐ 60 ☐ ☐ 99999
NOTIFY MEMBERS BEFORE OPENING GAS VEN...

 New Lines

 Print Tags and Tagging List

WC Document	8053806	TESTING BLEVINTL 001	
Status	CRTE	RDY	

1 / 1

Lock

 Tagging Condition

LAF

ME.



OG	Tag. Cond.	Short Text	TT	UntagCond.	UT	Ph
B	CLOSE	CLOSE	BLK	OPEN	NON	
B	DISENGAGE	DISENGAGE DEVICE	BLK	ENGAGE	NON	
B	ENGAGE	ENGAGE DEVICE	BLK	DISENGAGE	NON	
B	INSTALL	INSTALL	BLK	REMOVE	NON	
B	OPEN	OPEN	BLK	CLOSE	NON	
B	REMOVE	REMOVE	BLK	INSTALL	NON	
I	CLOSE	CLOSE	CAU	OPEN	NON	
I	INSTALL	INSTALL	CAU	REMOVE	NON	
I	LOCKOUT	PLACE IN LOCKOUT POSITION	CAU	NORMAL	NON	
I	MANUAL	IN MANUAL POSITION	CAU	AUTO	NON	
I	OFF	IN OFF POSITION	CAU	ON	NON	
I	ON	IN ON OR OPERATING POSITION	CAU	OFF	NON	
I	OPEN	OPEN	CAU	CLOSE	NON	
I	REMOVE	REMOVE	CAU	INSTALL	NON	

Looking Back

- ▣ Using equipment numbers was good decision
- ▣ Creating a separate structure for equipment numbers was a bad idea (duplicate problems)
- ▣ Minimizing and standardizing the number of tagging conditions was a good idea
- ▣ Providing the users with the “N” choice when selecting a boundary device was not a good idea
- ▣ Not providing the users access to the ignore button on conflict checking was a good idea