

Work Clearance Management



Énergie NB Power

Nucléaire Nuclear



Introduction

NB Power Nuclear

- Part of the NB Power Group of Companies
- One unit - Point Lepreau GS - 25 years
- Shutdown in March 2008 for \$1.4B refurbishment
- Expected restart – December 2010



Background

- PM had been implemented for about 18 months
- Existing paper based, manual tagout process proven and accepted for over 20 years.
- Two processes disconnected
- SAP scheduling changes not always communicated to paper process – tagout not ready when work was scheduled
- Difficult to save and replicate for future work

Background (con't)

- Labour intensive and no integration with orders.
- Numerous checks and verifications throughout the process provides a very safe work environment.
- These checks and verifications must be maintained.

Risks / Barriers

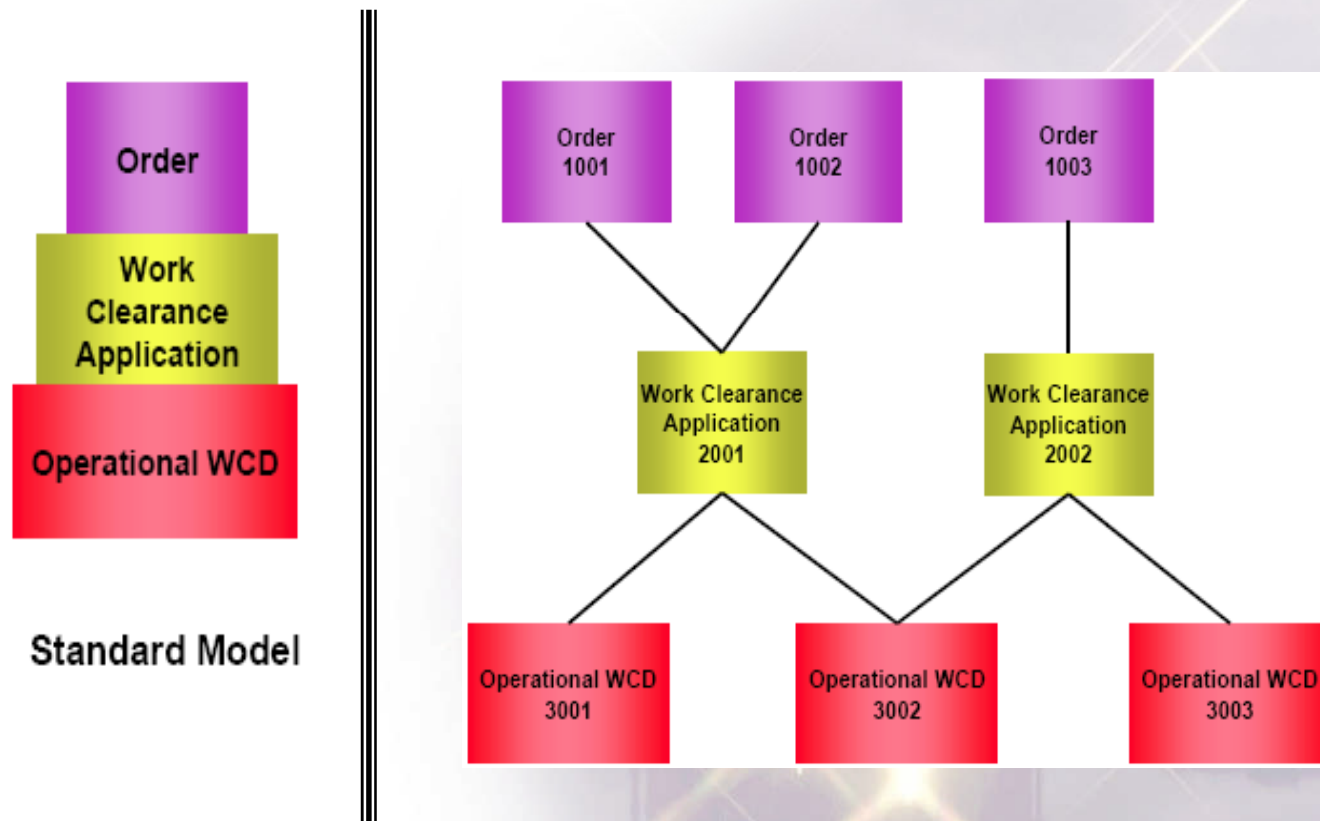
- Lack of SAP experience in Operations staff
- Availability of qualified staff for project team
- Implementation just prior to annual maintenance outage
- Ability of SAP to meet mandated requirements
- Short project timeline
- Acceptability by end users

WCM Project Objectives

- Integrate work order and work permit systems
- Provide visibility to all users in one location (SAP)
- Decrease the risk of error
- Maintain checks and balances from existing process
- Project Team
 - 4 consultants
 - 13 NBPN (9 full time, 4 part time)
- Implementation schedule – 14 weeks

What did we implement?

• The WCM Standard Model



Link from Order to Work Clearance

Order PL01 558520 Clean SG1 5281-HX-01

Sys.status REL PRT WCM GMCO GMPS MACM PRC SE... PLND NLRY

HeaderData Operations Components Costs Partner Objects Add. data Location Planning Control WEC Data

| Op... | SOp | Wor... | Co... | StTextKy | S... | Short text | LT | Work | Un | N... | Du... | Un | Earl.start d... | Earl.star... | Earl. fin. da... | Early fin.... |
|-------|-----|--------|-------|----------|------|-----------------------------------|----|------|----|------|-------|----|-----------------|--------------|------------------|---------------|
| 0005 | | P01 | PM01 | | | Provide isolations for 5281-HX-01 | | 6H | 2 | | 3H | | 2006/11/26 | 20:00:00 | 2006/11/26 | 23:00:00 |
| 0010 | | PM2 | WCM | | | Clean SG1 5281-HX01 | | 32H | 2 | | 16H | | 2006/11/27 | 08:00:00 | 2006/11/28 | 12:00:00 |
| 0020 | | PM2 | WCM | | | Reinstall the tube bundle | | 16H | 2 | | 8H | | 2006/11/28 | 12:00:00 | 2006/11/28 | 20:00:00 |
| 0040 | | P02 | PM01 | | | Remove isolations from 5281-HX-01 | | 3H | 1 | | 3H | | 2006/11/29 | 08:00:00 | 2006/11/29 | 11:00:00 |

Work Clearance Development

Work clearance document Edit Goto Environment System Help

WCM: Change Operational WCD: Partners

Partner New entries

| Funct | Partner | Name | Address |
|----------------------|---------|------------|----------|
| Tagging Developed By | PLE677 | Dave Grant | Grant, . |
| Tagging Checked By | PLE681 | | |

Tagging Developed By
Tagging Checked By
Test Developed By
Test Checked By
Retag Developed By
Retag Checked By
MOD Developed By
MOD Checked By
Untag Developed By
Untag Checked By

Operational WCD Edit Goto System Help

Change Operational Work Clearance Document: Header

Approvals WC application

WC document: 3021059 TO ISOLATE EAST AND WEST S.F. R.V.'S 000

Status: PREP PROC ETG **CHK**

Valid from: 2006/11/17

Priority:

Cond. op. syst.

Revision phase:

Approvals

Change Work Clearance Application

WC application Edit Goto System Help

Approvals - Work clearance application

Approvals

| Permit | Short text | Cat | Pr | L | PI | Approv. by | Ent. by |
|------------|--------------------------|-----|----|-------------------------------------|----|--------------|---------|
| APPROVER 1 | CRO Approval for Tagging | W | | <input checked="" type="checkbox"/> | ✓ | D DEMERCHANT | CCP73 |
| APPROVER 2 | SS Approved | W | | <input type="checkbox"/> | ✓ | DSM00RE | PLE432 |
| APPROVER 3 | Other Approvals | W | | <input type="checkbox"/> | ✓ | GJMARTIN | PLE681 |
| FINAL APPV | Field Work Approved | W | | <input type="checkbox"/> | ✓ | DJGRANT | PLE677 |

Application: 2027852 Remove
 Status: PREP
 Valid from: 2006/11/17 00:00:00
 Priority: R Restricted Use
 Cond. op. syst.: 1 Running Work Clearance
 Revision phase: PROTECTION GUARANTEE Protection Guarantee Permit

The screenshot displays the 'Operational WCD' application window. The title bar includes menus for 'Operational WCD', 'Edit', 'Goto', 'System', and 'Help'. Below the menu bar is a toolbar with various icons. The main window has a header titled 'Change Operational Work Clearance Document: Header'. A red circle highlights the 'Approvals' button in the left-hand navigation pane. The right-hand pane shows the 'Approvals - Operational Work Clearance Document' section. It contains a table with columns: Permit, Short text, Cat, Pr, L, PI, Approv. by, and Ent. by. The table lists two entries: 'WCD-INIT' with 'WCD Auto Approval for Tagging' and 'WCD-FINAL' with 'WCD Approval-Tagging Complete'. Both entries have a green checkmark in the 'PI' column. To the left of the table is a form with fields for 'WC document' (3021059), 'Status' (PREP PROC ETG), 'Valid from' (2006/11/17), 'Priority', 'Cond. op. syst.', and 'Revision phase'.

| Permit | Short text | Cat | Pr | L | PI | Approv. by | Ent. by |
|-----------|-------------------------------|-----|----|--------------------------|----|------------|---------|
| WCD-INIT | WCD Auto Approval for Tagging | W | | <input type="checkbox"/> | ✓ | | PLE681 |
| WCD-FINAL | WCD Approval-Tagging Complete | W | | <input type="checkbox"/> | ✓ | PLE460 | PLE460 |

Execution

Order Edit Goto Extras Environment System Help

Change PREVENTIVE MAINTENANCE (O&M) 555112: Central Header

WC application Labor release Complete (business)

Order PL02 555112 Lubricate/setup/test West S/F Bundle Sto

Sys.status REL PRT WCM MACM PRC SETC PLND SCHO NLRY

HeaderData Operations Components Costs Partner Objects Add. data Location Planning Control WEC Data

Person responsible

| | | |
|--------------|-----------|---------------------------|
| PlannerGrp | PF / 0780 | Fuel Handling |
| Mn.wk.ctr | PE / 0780 | Operations Fuel Handli... |
| System Sp... | PLE224 | Trevor Paul Langlais |

Notifctn

Costs 0.00 CAD

PMActType

SystCond.

Address

Execution (con't)

Change Work Clearance Application

Application: 2027852 [Remove, calibrate and reinstall RV](#)

Status: PREP

Valid from: 2006/11/17 00:00:00 Valid to: Recall time

Priority: R Restricted Use

Cond. op. syst.: 1 Running Work Clearance

Revision phase: PROTECTION GUARANTEE Protection Guarantee P

Reference object: FunctLocation 0781

Equipment: Train

Responsibility: Planner group Work center PFM AuthorizGroup

WCM: Change WCA: Partners

| Funct | Partner | Name |
|---------------------|---------|--------------|
| WC Holder Signed-on | PLE423 | Peter Hooper |

Change Documents for Object Class WAPI

| Object value | Doc. no. | User ID | First name | Last name | Date | Time | Field na | Old valu | New valu | Change ID |
|--------------|----------|---------|------------|-----------|------------|----------|----------|------------|------------|-----------|
| 000002027852 | 58282409 | PLE676 | Jack | Folkins | 2006/11/22 | 17:41:22 | Partner | | PLE676 ... | I |
| 000002027852 | 58282436 | PLE676 | Jack | Folkins | 2006/11/22 | 17:42:56 | Partner | PLE676 ... | | E |
| 000002027852 | 58370066 | PLE423 | Peter | Hooper | 2007/03/16 | 11:29:13 | Partner | | PLE423 ... | I |
| 000002027852 | 58370067 | PLE423 | Peter | Hooper | 2007/03/16 | 11:30:26 | Partner | PLE423 ... | | E |

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Prints



POINT LEPREAU GENERATING STATION WORK CLEARANCE APPLICATION

WCA 2027852
WCA Functional Location 0781-3532-RV
WCA Short Text Remove, calibrate and reinstall RV's.

PROTECTION GUARANTEE
Plant Condition: Running Work Clearance

Restricted Use

| | | | |
|----------------|---------|--------|--|
| Final Approval | DJGRANT | PLE677 | Date Approved: 2006/11/22 Time Approved: 14:09:50 |
|----------------|---------|--------|--|

Status: OPR2
Operations 2 Reviewed

SSAP
Shift Super Approval Required

1 - DESCRIPTION OF WORK:
TO REMOVE 3532-RV1(E) AND 3532-RV1(W) AND REPLACE WITH CALIBRATED SPARES.
ENSURE EAST AND WEST FARE TOOLS ARE UNDERWATER.
THIS WCA IS RESTRICTED DUE TO REQUIREMENT FOR ACCESS CONTROL KEY 27.
DJGRANT 2006/11/20.

2 - INSTRUCTIONS TO HOLDER:
FOLLOW RPP-03400-DC12 FOR ENTRY TO DISCHARGE BAY.
DJGRANT 2006/11/20.

Ensure prerequisites completed per MM-35320-FP01 before Key #27 issued.
GJMartin 06/11/21 11:24

3 - MAINTENANCE DETAILS:

4 - RELEASE FOR SERVICE:

3021059

LINKED WORK CLEARANCE DOCUMENTS



POINT LEPREAU GENERATING STATION WORK CLEARANCE DOCUMENT

WCD 3021059
WCD Functional Location 0781-3532-RV
WCD Short Text TO ISOLATE EAST AND WEST S.F. R.V.'S

| | | |
|--------------------------|------------|--------|
| System Status : PREP | PROC | ETG |
| Syst Stat Desc: Prepared | Processing | Tagged |

| | |
|---------------------------------|--------|
| PARTNERS | |
| Tagging Developed By Dave Grant | PLE677 |
| Tagging Checked By Gary Martin | PLE681 |

WCD Header Text:
2006/11/20 14:33:48 Dave Grant (PLE677)
XXXXX
2006/11/20 14:37:18 Dave Grant (PLE677)
ENSURE CLOSURE PLUGS ARE INSTALLED IN THE EAST AND WEST SPENT FUEL PORTS AS PER
MM-35320-FP1 BEFORE ISOLATING THIS EQUIPMENT.
2006/11/21 13:20:50 Gary Martin (PLE681)
Added 35320-V8(e), V8(w and V9(e / V9(w to prevent inner Ball valves to open and added statement : rehearsal valves to
remain isolated after RV job.
2006/11/22 13:57:49 Jack Folkins (PLE676)
PEER CHECK COMPLETED
2006/11/22 13:58:39 Jack Folkins (PLE676)
peer check complete on electrical device

LINKED WORK CLEARANCE APPLICATIONS
2027852

Prints



POINT LEPREAU GENERATING STATION TAGGING WORK LIST

WCD 3021059

WCA 2027852

WCD Functional Location 0781-3532-RV

WCD Short Text TO ISOLATE EAST AND WEST S.F. R.V.'S

Tag Series _____

Copy Printed: 1
Printed By: PLE423
Date Printed: 2007/03/16
Time Printed: 16:05:10
PAGE 1 OF 2

| ST | Functional Location Description | Tagging Condition | Tag Type | Initials | Pin | Item Board No. | Field Operator Comments |
|----|--|-------------------|----------|----------|-----|----------------|-------------------------|
| 1 | 0781-5430-MCC-14-FA4 3532-PM-02 POWER SUPPLY | LOCK OPEN | DNO | ___ | ___ | 0010 | |
| | Perform Concurrent Check and LOCK Device (if Lockable) | | | | | | By ___ Lock # _____ |
| 2 | 0781-3532-V-12(E) SHUTOFF & REGULATING PURGE LINE TO S/F | CLOSED | DNO | ___ | ___ | 0020 | |
| 2 | 0781-3532-V-12(W) SHUTOFF PURGE LINE TO S/F PORT | CLOSED | DNO | ___ | ___ | 0030 | |
| 2 | 0781-3532-V-16(W) STANDBY COOLING BACK-UP ISOLATION VALVE | CLOSED | DNO | ___ | ___ | 0040 | |
| 2 | 0781-3532-V-6(E) SHUTOFF INST AIR TO S/F PORT OUTER | CLOSED | DNO | ___ | ___ | 0050 | |
| 2 | 0781-3532-V-6(W) SHUTOFF & REG INST AIR TO S/F PORT | CLOSED | DNO | ___ | ___ | 0060 | |
| 2 | 0781-3532-V-7(E) SHUTOFF INST AIR TO S/F PORT OUTER | CLOSED | DNO | ___ | ___ | 0070 | |
| 2 | 0781-3532-V-7(W) SHUTOFF & REG INST AIR TO S/F PORT | CLOSED | DNO | ___ | ___ | 0080 | |

| | | |
|--------------------------|-------------|----------------|
| Tagging List | WC Operator | Field Operator |
| Verified / Completed by: | | |
| Date Completed: | | |
| Time Completed: | | |

| |
|-------------------------|
| Flowsheets Updated List |
| |
| |
| |



POINT LEPREAU GENERATING STATION UNTAGGING WORK LIST

WCD 3021059

WCA 2027852

WCD Functional Location 0781-3532-RV

WCD Short Text TO ISOLATE EAST AND WEST S.F. R.V.'S

Tag Series _____

Copy Printed: 0
Printed By: PLE423
Date Printed: 2007/03/16
Time Printed: 16:05:36
PAGE 2 OF 2

| SU | Functional Location Description | Untagging Condition | UnTag Type | Initials | Pin | Item Board No. | Field Operator Comments |
|----|--|---------------------|------------|----------|-----|----------------|-------------------------|
| 0 | 0781-3532-V-7(W) SHUTOFF & REG INST AIR TO S/F PORT | OPEN | DNO | ___ | ___ | 0080 | |
| 0 | 0781-35618-V-1 ISOLATES D2O SUPPLY | CLOSED | DNO | ___ | ___ | 0090 | |
| 0 | 0781-35618-V-2 ISOLATES D2O RETURN | CLOSED | DNO | ___ | ___ | 0100 | |
| 0 | 0781-3532-V-8(E) SHUTOFF INST AIR TO S/F PORT INNER | OPEN | DNO | ___ | ___ | 0110 | |
| 0 | 0781-3532-V-8(W) SHUTOFF & REG INST AIR TO S/F PORT | OPEN | DNO | ___ | ___ | 0120 | |
| 0 | 0781-3532-V-9(E) SHUTOFF INST AIR TO S/F PORT INNER | OPEN | DNO | ___ | ___ | 0130 | |
| 0 | 0781-3532-V-9(W) SHUTOFF & REG INST AIR TO S/F PORT | OPEN | DNO | ___ | ___ | 0140 | |

| | | |
|--------------------------|-------------|----------------|
| Tagging List | WC Operator | Field Operator |
| Verified / Completed by: | | |
| Date Completed: | | |
| Time Completed: | | |

| |
|-------------------------|
| Flowsheets Updated List |
| |
| |
| |

Execution (con't)

WC application Edit Goto System Help

Change Work Clearance Application

Activate Approvals Operational WCD

| | | | |
|-----------------|--|---------------------------------------|---------------------|
| Application | 2027852 | Remove, calibrate and reinstall RV's. | 000 |
| Status | PREP | OPR2 SUSP SSAP | i |
| Valid from | 2006/11/17 00:00:00 | Valid to | 2007/11/17 00:00:00 |
| Priority | R Restricted Use | Recall time | 0 |
| Cond. op. syst. | 1 | Running Work Clearance | |
| Revision phase | PROTECTION GUARANTEE Protection Guarantee Permit | | |

WC application Edit Goto System Help

Change Work Clearance Application

Activate Approvals Order Operational WCD

| | | | |
|-----------------|--|---------------------------------------|---------------------|
| Application | 2027852 | Remove, calibrate and reinstall RV's. | 000 |
| Status | PREP | SRND SSAP | i |
| Valid from | 2006/11/17 00:00:00 | Valid to | 2007/11/17 00:00:00 |
| Priority | R Restricted Use | Recall time | 0 |
| Cond. op. syst. | 1 | Running Work Clearance | |
| Revision phase | PROTECTION GUARANTEE Protection Guarantee Permit | | |

What's Next?

- Expand the WCD template library
- Auto generate WCA and WCD for orders from maintenance plans
- ERP 6.0 Upgrade - 2010

Summary

- Project was completed on time / budget
- The order and permit process are now directly linked
- The existing checks and balances were maintained
- All SAP users at the station have the ability to view order and WCM data
- Efficiencies have been realized by the integration of the two processes
- User acceptance came relatively quick.

Questions ?

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