
Synergi Plant Training

Thickness and corrosion management

Work Package

Two types of work package

➤ **Inspection associated work package**

For managing monitor data, e.g. wall thickness loading, with linked to inspections.

User perform work pack no creation and grouping of inspections.

➤ **Ad hoc work package**

For managing monitor data, e.g. wall thickness loading, without or not linked to inspections

User input ad hoc work pack no directory when generating measurement loading sheets

Inspections and Work Packages

Facilities : DNV

Work Pack list | Checklists

Facility Data | RBI | **Work Pack** | Thickness Monitoring | Dashboard | Utilities | RBI Setup

Include Child Assets Show History

Type	Asset	Work Pack No.	Work Pack Status	Work Pack Category	Work Pack Due Date	Work Pack Complete...	Previous Date
Work Pack No. - 10 items							
<input type="checkbox"/>	TAG	X-27		Wall Thickness Monitor...	2023/07/13		
<input type="checkbox"/>	TAG	D-211		Wall Thickness Monitor...	2023/05/27		
<input type="checkbox"/>	TAG	8-HM-13-0143-N-A2-1		Wall Thickness Monitor...	2023/07/13		
<input type="checkbox"/>	TAG	D-211		Wall Thickness Monitor...	2023/07/13		
<input type="checkbox"/>	TAG	2-WW-13-0140-S-A2-1		Wall Thickness Monitor...	2023/07/13		
<input type="checkbox"/>	TAG	D-211		Wall Thickness Monitor...	2023/07/13		
<input type="checkbox"/>	TAG	8-HM-13-0143-N-A2-1		Wall Thickness Monitor...	2023/07/13		
<input type="checkbox"/>	TAG	8-HM-13-0179-N-A2-1		Wall Thickness Monitor...	2023/07/13		
<input type="checkbox"/>	TAG	X-171		Wall Thickness Monitor...	2023/07/13		
<input type="checkbox"/>	TAG	D-211		Wall Thickness Monitor...	2023/04/27		
Work Pack No.: 2023/0020 - 3 items							
<input type="checkbox"/>	TAG	2-WW-13-0140-S-A2-1	2023/0020	INITIATED	Wall Thickness Monitor...	2025/12/25	
<input type="checkbox"/>	TAG	8-HM-13-0143-N-A2-1	2023/0020	INITIATED	Wall Thickness Monitor...	2023/04/24	

1 of 1 pages (16 items)

• Inspection activities without assigned work pack no.

• Inspection activities with assigned work pack no (2023/0020)

Assign Work Pack No. – For the First Inspection Activity

Type	Asset	Work Pack No.	Work Pack Status	Work Pack Category	Work Pack Due Date	Work Pack Complete...	Previous Da
<input checked="" type="checkbox"/>	TAG	X-27		Wall Thickness Monitor...	2023/07/13		
<input type="checkbox"/>	TAG	D-211					
<input type="checkbox"/>	TAG	8-HM-1					
<input type="checkbox"/>	TAG	D-211					
<input type="checkbox"/>	TAG	2-WW-1					
<input type="checkbox"/>	TAG	D-211					
<input type="checkbox"/>	TAG	8-HM-1					
<input type="checkbox"/>	TAG	8-HM-1					
<input type="checkbox"/>	TAG	X-171					
<input type="checkbox"/>	TAG	D-211		Wall Thickness Monitor...	2023/04/27		
Work Pack No.: 2023/0020 - 3 items							
<input type="checkbox"/>	TAG	2-WW-13-0140-S-A2-1	2023/0020	INITIATED	Wall Thickness Monitor...	2025/12/25	
<input type="checkbox"/>	TAG	8-HM-13-0143-N-A2-1	2023/0020	INITIATED	Wall Thickness Monitor...	2023/04/24	

• Step 1. Select one activity

• Step 2. Modify activity

• Step 3. Generate new work pack no.

• Step 4. Save the change

- ▶ Work Pack No.: - 9 items
- ▶ Work Pack No.: 2023/0020 - 3 items
- ▶ Work Pack No.: 2023/0022 - 3 items
- ▶ Work Pack No.: 2023/0024 - 1 item

<input type="checkbox"/>	TAG	X-27
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• New work pack 2023/0024

Assign Work Pack No. – For Another Inspection Activity

The screenshot shows a software interface for managing work packs. A 'Work Pack' dialog box is open, showing 'Plant A' selected for the link scope. A 'Single Linking Work Pack' dialog box is also open, displaying a table with one entry selected. The 'Apply' button is highlighted.

Work Pack No.	Inspection Type	Category	Work Pack Status	Work Pack Due Date
<input checked="" type="checkbox"/> 2023/0024	Inspection	Wall Thickness Monitoring Campaign	INITIATED	2023/07/13

• Step 1. Select one activity

• Step 2. Modify activity

• Step 3. Specify the plant in the link scope, and select the existing work pack no.

• Step 4. select the existing work pack no.

• Step 5. Apply the change

Work Pack No.: - 8 items
Work Pack No.: 2023/0020 - 3 items
Work Pack No.: 2023/0022 - 3 items
Work Pack No.: 2023/0024 - 2 items
<input type="checkbox"/> TAG X-27
<input type="checkbox"/> TAG X-171

• Two activities in work pack 2023/0024

Assign Work Pack No. – Linking Multiple Activities

The screenshot shows a software interface for managing work packs. On the left is a treeview with a 'Plant A' folder selected. The main area displays a table of activities. A 'Multiple Linking Work Pack' dialog is open, showing a 'Filter Work Pack List' with one entry selected: '2023/0024'. Below it, a 'Filter Inspection List' dialog shows a table of activities with two rows selected (AG D-211). An 'Apply' button is highlighted in the bottom right of the 'Filter Inspection List' dialog.

• Step 1. Focus on the plant

• Step 2. Click “Multiple Linking Work Pack”

• Step 3. select the existing work pack no.

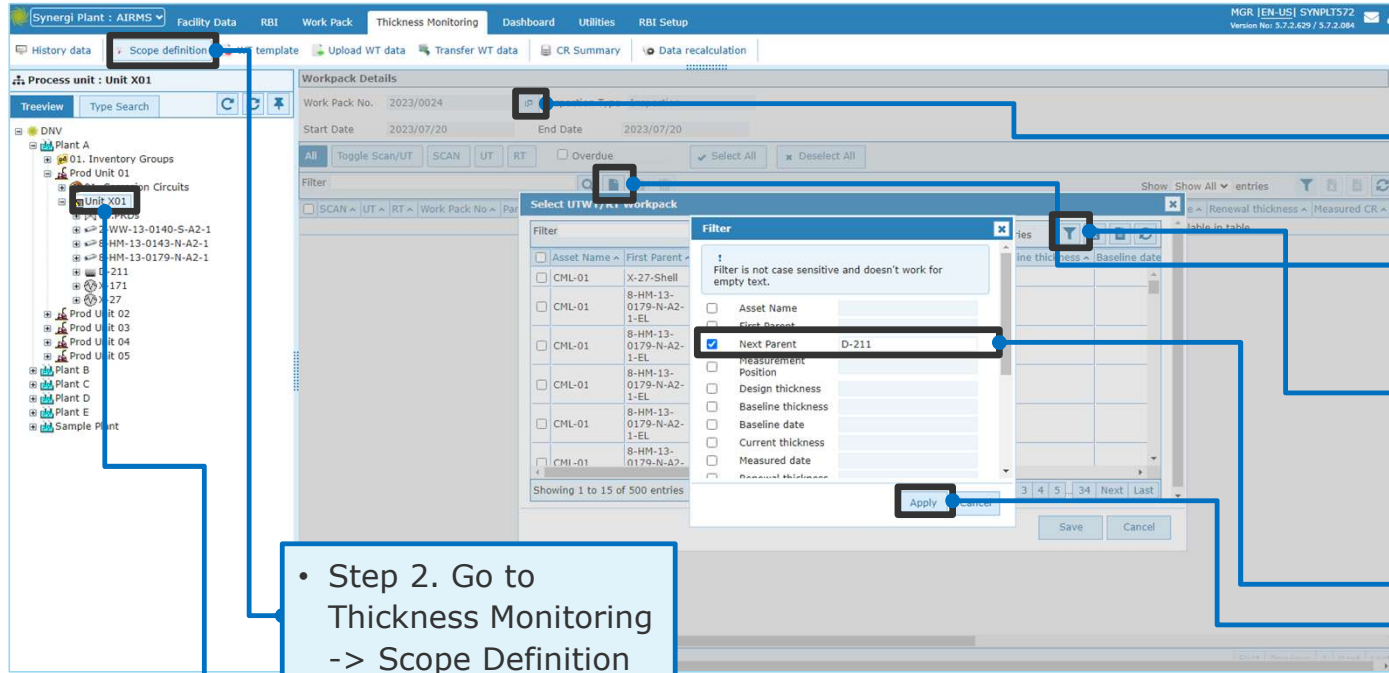
• Step 4. select activities to add to the work pack.

• Step 5. Apply the change

Work Pack No.: - 4 items			
Work Pack No.: 2023/0024 - 4 items			
<input type="checkbox"/>	TAG	D-211	2023/0024
<input type="checkbox"/>	TAG	X-27	2023/0024
<input type="checkbox"/>	TAG	X-171	2023/0024
<input type="checkbox"/>	TAG	D-211	2023/0024

• Two more activities in work pack 2023/0024

Using Work Pack in Thickness Loading – Scope Definition (1)



• Step 1. Focus on the Process Unit

• Step 2. Go to Thickness Monitoring -> Scope Definition

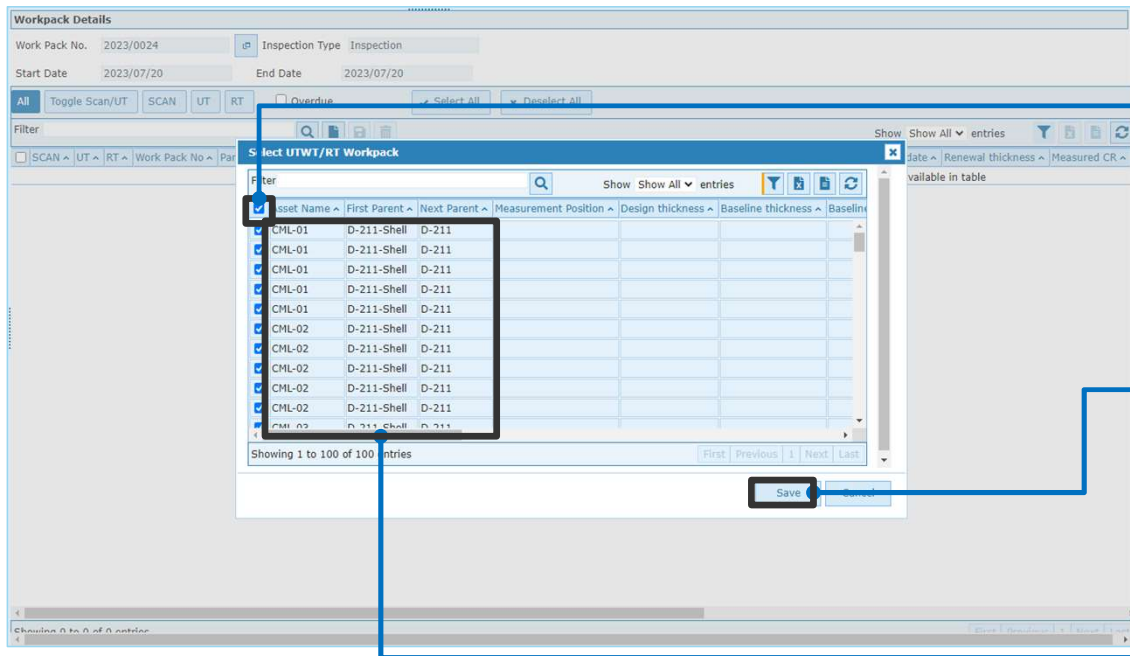
• Step 3. Select the Work Pack No.

• Step 4. Add CMLs

• Step 5. Set the select list filter.

• Step 6. Set Next Parent = D-211 as the filter. Then apply the filter.

Using Work Pack in Thickness Loading – Scope Definition (2)



• Step 1. Click the 'Check All' checkbox to select all rows in the list

• Step 2. Click the 'Save' button to add all CMLs in the list to the scope

• As there are multiple rows for the same CML names from different units, we will apply a result list filter in the next process.

Using Work Pack in Thickness Loading – Scope Definition (3)

The screenshot shows the Synergi Plant software interface. The 'Workpack Details' window is open, displaying a table of workpack entries. A 'Filter' dialog box is open over the table, with 'Parent3' set to 'Unit X01'. The table columns include 'SCAN', 'UT', 'RT', 'Work Pack No', 'Parent3', 'Parent2', 'Parent1', 'Asset Name', 'Design thickness', 'Baseline thickness', 'Baseline date', 'Current thickness', 'Measured date', 'Renewal thickness', and 'Measured CR'. The 'Filter' dialog has a warning message: 'Filter is not case sensitive and doesn't work for empty text.' and an 'Apply' button.

SCAN	UT	RT	Work Pack No	Parent3	Parent2	Parent1	Asset Name	Design thickness	Baseline thickness	Baseline date	Current thickness	Measured date	Renewal thickness	Measured CR
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X04	D-211	D-211-Shell	CML-01							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X01	D-211	D-211-Shell	CML-01							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X03	D-211	D-211-Shell	CML-01							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X02	D-211	D-211-Shell	CML-01							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X05	D-211	D-211-Shell	CML-01							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X01	D-211	D-211-Shell	CML-02							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X02	D-211	D-211-Shell	CML-02							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X05	D-211	D-211-Shell	CML-02							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X03	D-211	D-211-Shell	CML-02							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X04	D-211	D-211-Shell	CML-02							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X02	D-211	D-211-Shell	CML-03							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X04	D-211	D-211-Shell	CML-03							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X05	D-211	D-211-Shell	CML-03							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X01	D-211	D-211-Shell	CML-03							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X03	D-211	D-211-Shell	CML-03							

- Step 1. Click the filter button on the right-top corner of the result list to add result list filter

- Step 2. Set Parent3 to the Process Unit, e.g. Unit X01, then apply the filter.

Using Work Pack in Thickness Loading – Scope Definition (4)

Workpack Details

Work Pack No. 2023/0024 Inspection Type Inspection

Start Date 2023/07/20 End Date 2023/07/20

All Toggle Scan/UT SCAN UT RT Overdue Select All Deselect All

Filter

SCAN	UT	RT	Work Pack No.	Parent3	Parent2	Parent1	Asset Name	design thickness	Baseline thickness	Baseline date	Current thickness	Measured date	Renewal thickness	Measured CR
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X01	D-211	D-211-Shell	CML-01							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X01	D-211	D-211-Shell	CML-02							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X01	D-211	D-211-Shell	CML-03							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X01	D-211	D-211-Shell	CML-04							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X01	D-211	D-211-Shell	CML-05							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X01	D-211	D-211-Shell	CML-06							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X01	D-211	D-211-Shell	CML-07							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X01	D-211	D-211 Head	CML-08							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X01	D-211	D-211 Head	CML-09							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X01	D-211	D-211 Head	CML-10							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X01	D-211	D-211 Head	CML-11							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X01	D-211	D-211 Head	CML-12							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X01	D-211	D-211-Shell	CML-13							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X01	D-211	D-211-Shell	CML-14							
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2023/0024	Unit X01	D-211	D-211 Head	CML-15							

Showing 1 to 20 of 20 entries

First Previous 1 Next Last

- After filtered by the selection list and the result list, the CMLs in the scope should be only all CMLs of D-211 for one Process Unit. Also check the number of rows to confirm.

Using Work Pack in Thickness Loading – Generate Template

The screenshot shows the Synergi Plant software interface. The top navigation bar includes 'Facility Data', 'RBI', 'Work Pack', 'Thickness Monitoring', 'Dashboard', 'Utilities', and 'RBI Setup'. The 'Work Pack' tab is active, showing options for 'WT template', 'Upload WT data', 'Transfer WT data', 'CR Summary', and 'Data recalculation'. The left sidebar shows a treeview of the plant structure, with 'Unit X01' selected. The main area displays a table with columns for 'Parent3', 'Parent2', 'Parent2', 'Parent1', 'Cml', 'Reading Procedure', 'CML', 'CML_ACTIVE', 'Spot', 'Outside Diameter', 'Nominal Thickness', 'MAWT', 'Measured min. thickness', 'Measured Max. Thickness', and 'Reading date'. The table is populated with 17 rows of data for 'Unit X01'. A blue box highlights the 'WT template' button in the top bar. Another blue box highlights the 'Add' button in the table's toolbar. A third blue box highlights the 'Ad hoc' checkbox in the table's header.

- Step 1. Go to Thickness Monitoring -> WT template to generate the template

- Step 2. Select all CMLs in the scope

- Step 3. Generate Excel template

- To use **Ad hoc work pack** without inspection:
 - Check the 'Adhoc' checkbox
 - Type in a 'Work Pack No'
 - Click the 'Add' button to add CMLs
 - Generate Excel template

Input Thickness, Date, and Check the Work Pack No.

Measured min. thickness(mm)	Measured Max. Thickness(mm)	Reading date (yyyy/MM/dd)	Reading Temperature(°C)	Measurement Position	Previous Reading 1 (MM-yy / mm)	Previous Reading 2 (MM-yy / mm)	Baseline Thickness (MM-yy / mm)	Work Pack No
5.71	5.71	2022/04/01	28					2023/0024
5.72	5.72	2022/04/01	28					2023/0024
5.72	5.72	2022/04/01	28					2023/0024
5.68	5.68	2022/04/01	28					2023/0024
5.73	5.73	2022/04/01	28					2023/0024
5.68	5.68	2022/04/01	28					2023/0024
5.73	5.73	2022/04/01	28					2023/0024
5.73	5.73	2022/04/01	28					2023/0024
5.68	5.68	2022/04/01	28					2023/0024
5.73	5.73	2022/04/01	28					2023/0024
5.72	5.72	2022/04/01	28					2023/0024
5.68	5.68	2022/04/01	28					2023/0024
5.73	5.73	2022/04/01	28					2023/0024
5.74	5.74	2022/04/01	28					2023/0024
5.68	5.68	2022/04/01	28					2023/0024
5.73	5.73	2022/04/01	28					2023/0024
5.72	5.72	2022/04/01	28					2023/0024
5.68	5.68	2022/04/01	28					2023/0024
5.72	5.72	2022/04/01	28					2023/0024
5.68	5.68	2022/04/01	28					2023/0024

- In the normal process, inspector / contractor needs to input the min and max thickness, and the reading date

- If you are using the template from any previous work pack, you will need to modify the Work Pack No to match the current work pack you are loading the measurements

Using Work Pack in Thickness Loading – Upload WT Data (1)

The screenshot shows the 'Synergi Plant - AIRMS' interface. The 'Thickness Monitoring' tab is active, and the 'Upload WT data' button is highlighted. The 'Import Preview - Select Reading to Import' dialog box is open, displaying a table of data. The table has the following columns: 'OK - Ready to import', 'Unit', 'D-211 Shell', 'CML - CML', 'Measured min. thickness', 'Measured Max. Thickness', 'Reading date', and 'Reading Temperature'. The 'OK - Ready to import' column contains green checkmarks for all rows, indicating that the data is acceptable for import.

OK - Ready to import	Unit	D-211 Shell	CML - CML	Measured min. thickness	Measured Max. Thickness	Reading date	Reading Temperature	
<input checked="" type="checkbox"/>	Unit 01	D-211 Shell	CML - CML 01 01 - Y	602.94	6.07	2,895 5.71	5.71	2022/04/01
<input checked="" type="checkbox"/>	Unit 01	D-211 Shell	CML - CML 02 02 - Y	602.94	6.07	2,895 5.72	5.72	2022/04/01
<input checked="" type="checkbox"/>	Unit 01	D-211 Shell	CML - CML 03 03 - Y	602.94	6.07	2,895 5.72	5.72	2022/04/01
<input checked="" type="checkbox"/>	Unit 01	D-211 Shell	CML - CML 04 04 - Y	602.94	6.07	2,895 5.68	5.68	2022/04/01
<input checked="" type="checkbox"/>	Unit 01	D-211 Shell	CML - CML 05 05 - Y	602.94	6.07	2,895 5.73	5.73	2022/04/01

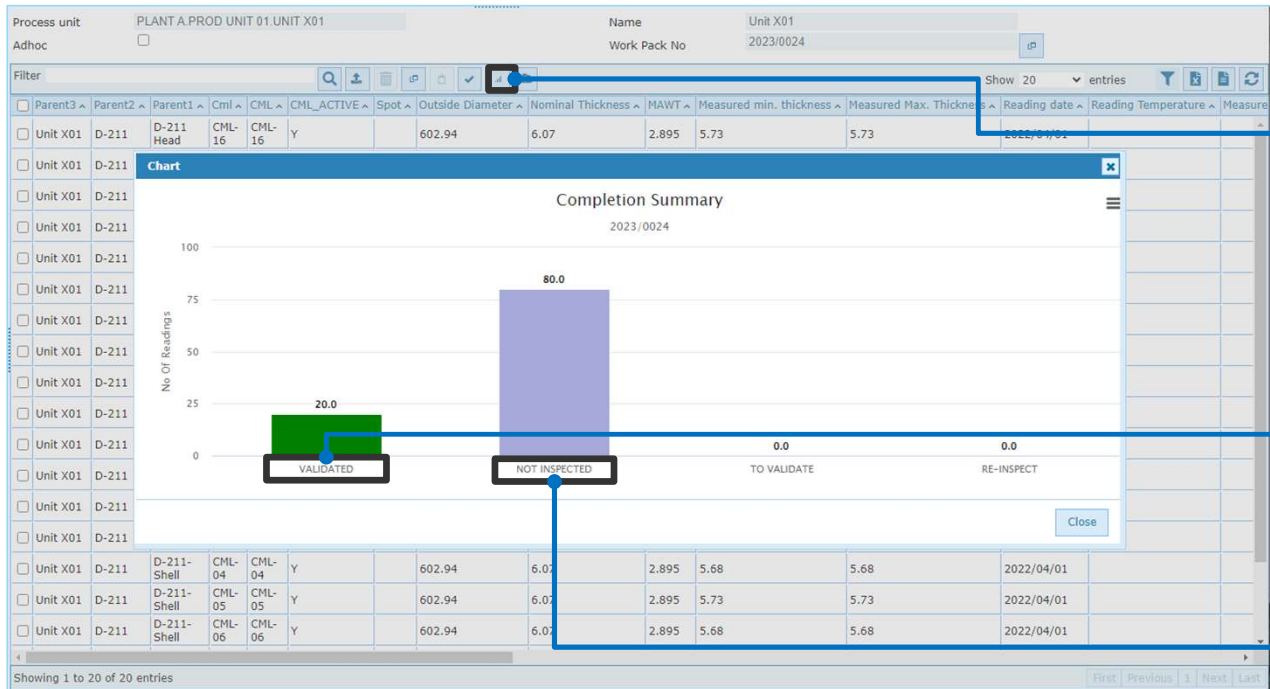
- Step 1. Go to Thickness Monitoring -> Upload WT data

- Step 2. Upload the template with thickness data in it

- Step 3. Select all CML thickness data to import

- Before import the data you should check the validation status and the color of data rows:
 - Green – Acceptable
 - Yellow – Accept with Anomaly
 - Red – Not Acceptable

Using Work Pack in Thickness Loading – Upload WT Data (2)



- Click the Completion Summary button to check the validation completion status

- These readings are the ones being imported

- There are other CMLs defined in the same work pack without thickness to import now, as they were filtered out of the scope

Using Work Pack in Thickness Loading – Upload WT Data (3)

The screenshot shows a software interface for thickness loading. At the top, the process unit is 'PLANT A.PROD UNIT 01.UNIT X01' and the work pack number is '2023/0024'. A 'Validation' dialog box is open, displaying a table of CMLs (CML-01 to CML-04) with columns for Cml, Tag, Process unit, and Production unit. The 'Validation Status' is set to 'ALL' and the 'Validation Rule' is set to 'ALL'. A dropdown menu is open for the 'Validation Status' column, showing options: 'Acceptable data', 'Accept With Anomaly', 'Validate on Paper', 'Reinspection to be done', and 'Not yet validated'. Below the CML table, there is a table of validation rules with columns for Sequence, Rule Name, Description, and Status. The rules listed are: 1. READ DATE IN PAST (Measurement read date must be in past), 2. WT ALERT 1 - ABOVE 50 PERCENT NWT (Measured thickness exceeds 50% of Design thickness), and 3. WT ALERT 2 - READING BELOW MAWT (Measured thickness below renewal thickness.).

- Step 1. Click the Validation button to check the validation status of CMLs against the validation rules

- Step 2. Select Validation Status and Validation Rule filters

- Step 3. Select the CML to check its validation status

- Step 4. Override the validation status for a rule if required.

Using Work Pack in Thickness Loading – Transfer Data

The screenshot shows the Synergi software interface for 'Thickmess Monitoring'. The top menu bar includes 'Synergi Plant : AIRMS', 'Facility Data', 'RBI', 'Work Pack', 'Thickmess Monitoring', 'Dashboard', 'Utilities', and 'RBI Setup'. The main window displays a table of data for 'Process unit : Unit X01'. The table has columns for 'Process unit', 'Status', 'Parent3', 'Parent2', 'Parent1', 'Cml', 'CML', 'CML_ACTIVE', 'Spot', 'Outside Diameter', 'Nominal Thickness', 'MAWT', 'Measured min. thickness', 'Measured Max. Thickness', and 'Reading date'. A confirmation dialog box is open, asking 'Do you want to transfer the selected reading data?' with 'Transfer' and 'Cancel' buttons. A red box highlights the 'Transfer WT data' button in the top menu. A red box highlights the 'Transfer' button in the confirmation dialog. A red box highlights the 'CML' column in the data table.

Process unit	Status	Parent3	Parent2	Parent1	Cml	CML	CML_ACTIVE	Spot	Outside Diameter	Nominal Thickness	MAWT	Measured min. thickness	Measured Max. Thickness	Reading date
ACCEPTED Unit X01	No	D-211	D-211	D-211 Head	CML-16	CML-16	Y		602.94	6.07	2.895	5.73	5.73	2022/04/01
ACCEPTED Unit X01	No	D-211	D-211	D-211 Head	CML-17	CML-17	Y		602.94	6.07	2.895	5.72	5.72	2022/04/01
ACCEPTED Unit X01	No	D-211	D-211	D-211 Head	CML-18	CML-18	Y		602.94	6.07	2.895	5.68	5.68	2022/04/01
ACCEPTED Unit X01	No	D-211	D-211	D-211 Head	CML-19	CML-19	Y		602.94	6.07	2.895	5.72	5.72	2022/04/01
ACCEPTED Unit X01	No	D-211	D-211	D-211 Head	CML-20	CML-20	Y		602.94	6.07	2.895	5.68	5.68	2022/04/01
ACCEPTED Unit X01	No	D-211	D-211	D-211 Head	CML-08	CML-08	Y		602.94	6.07	2.895	5.73	5.73	2022/04/01
ACCEPTED Unit X01	No	D-211	D-211	D-211 Head	CML-09	CML-09	Y		602.94	6.07	2.895	5.68	5.68	2022/04/01
ACCEPTED Unit X01	No	D-211	D-211	D-211 Head	CML-10	CML-10	Y		602.94	6.07	2.895	5.73	5.73	2022/04/01
ACCEPTED Unit X01	No	D-211	D-211	D-211 Head	CML-11	CML-11	Y		602.94	6.07	2.895	5.72	5.72	2022/04/01
ACCEPTED Unit X01	No	D-211	D-211	D-211 Head	CML-12	CML-12	Y		602.94	6.07	2.895	5.68	5.68	2022/04/01
ACCEPTED Unit X01	No	D-211	D-211	D-211 Head	CML-15	CML-15	Y		602.94	6.07	2.895	5.68	5.68	2022/04/01
ACCEPTED Unit X01	No	D-211	D-211	D-211-Shell	CML-01	CML-01	Y		602.94	6.07	2.895	5.71	5.71	2022/04/01
ACCEPTED Unit X01	No	D-211	D-211	D-211-Shell	CML-02	CML-02	Y		602.94	6.07	2.895	5.72	5.72	2022/04/01
ACCEPTED Unit X01	No	D-211	D-211	D-211-Shell	CML-03	CML-03	Y		602.94	6.07	2.895	5.72	5.72	2022/04/01
ACCEPTED Unit X01	No	D-211	D-211	D-211-Shell	CML-04	CML-04	Y		602.94	6.07	2.895	5.68	5.68	2022/04/01
ACCEPTED Unit X01	No	D-211	D-211	D-211-Shell	CML-05	CML-05	Y		602.94	6.07	2.895	5.73	5.73	2022/04/01
ACCEPTED Unit X01	No	D-211	D-211	D-211-Shell	CML-06	CML-06	Y		602.94	6.07	2.895	5.68	5.68	2022/04/01

• Step 1. Go to Thickness Monitoring -> Transfer WT data

• Step 2. Select all CML thickness data to transfer

• Step 3. Click the Transfer button

• Step 4. Confirm the data transfer

• Note: Before data transfer, all imported data are still in the buffer area, not affecting the asset data

Using Work Pack in Thickness Loading – Load 2nd Readings

The screenshot shows the Synergi software interface for 'Plant A'. The 'Thickness Monitoring' tab is active. The 'Upload WT data' button is highlighted in the top menu. A table of CML thickness data is displayed, with several rows selected. A 'Confirmation' dialog box is open, asking 'Do you want to delete the selected record(s)?' with 'Delete' and 'Cancel' buttons. The 'Delete' button is highlighted.

Parent3	Parent2	Parent1	Cml	CML	CML_ACTIVE	Spot	Outside Diameter	Nominal Thickness	MAWT	Measured min. thickness	Measured Max. Thickness	Reading date	Reading Temperature	Measure
Unit X01	D-211	D-211	CML-16	CML-16	Y		602.94	6.07	2.895	5.73	5.73	2022/04/01		
Unit X01	D-211	D-211	CML-17	CML-17	Y		602.94	6.07	2.895	5.72	5.72	2022/04/01		
Unit X01	D-211	D-211	CML-18	CML-18	Y		602.94	6.07	2.895	5.68	5.68	2022/04/01		
Unit X01	D-211	D-211	CML-19	CML-19	Y		602.94	6.07	2.895	5.72	5.72	2022/04/01		
Unit X01	D-211	D-211	CML-20	CML-20	Y		602.94	6.07	2.895	5.68	5.68	2022/04/01		
Unit X01	D-211	D-211	CML-08	CML-08	Y		602.94	6.07	2.895	5.68	5.68	2022/04/01		
Unit X01	D-211	D-211	CML-09	CML-09	Y		602.94	6.07	2.895	5.71	5.71	2022/04/01		
Unit X01	D-211	D-211	CML-10	CML-10	Y		602.94	6.07	2.895	5.72	5.72	2022/04/01		
Unit X01	D-211	D-211	CML-11	CML-11	Y		602.94	6.07	2.895	5.72	5.72	2022/04/01		
Unit X01	D-211	D-211	CML-12	CML-12	Y		602.94	6.07	2.895	5.68	5.68	2022/04/01		
Unit X01	D-211	D-211	CML-15	CML-15	Y		602.94	6.07	2.895	5.68	5.68	2022/04/01		
Unit X01	D-211	D-211	CML-01	CML-01	Y		602.94	6.07	2.895	5.71	5.71	2022/04/01		
Unit X01	D-211	D-211	CML-02	CML-02	Y		602.94	6.07	2.895	5.72	5.72	2022/04/01		
Unit X01	D-211	D-211	CML-03	CML-03	Y		602.94	6.07	2.895	5.72	5.72	2022/04/01		
Unit X01	D-211	D-211	CML-04	CML-04	Y		602.94	6.07	2.895	5.68	5.68	2022/04/01		
Unit X01	D-211	D-211	CML-05	CML-05	Y		602.94	6.07	2.895	5.73	5.73	2022/04/01		
Unit X01	D-211	D-211	CML-06	CML-06	Y		602.94	6.07	2.895	5.68	5.68	2022/04/01		

• Step 2. Select all CML thickness data to delete

• Step 3. Click the Delete button

• Step 4. Confirm the Deletion of imported data

• Step 1. Go back to Thickness Monitoring -> Upload WT data

• After deleting the imported data you can upload and import more thickness reading templates.

Using Work Pack in Thickness Loading – Data Re-calculation

The screenshot shows the Synergi software interface with the 'Data recalculation' button highlighted in the top menu. A 'Batch Recalculation Status' window is open, displaying a table of assets and their calculation status. The table has columns for Asset, Status, Message, Updated By, and Updated On. The status column shows 'INPROGRESS' and 'FINISHED'.

Asset	Status	Message	Updated By	Updated On
PLANT A.PROD UNIT 01.D-211.CML-02	INPROGRESS	DataSheet:Corrosion Rates	MGR	2023/06/22 3:50
PLANT A.PROD UNIT 01.X-27.CML-05	FINISHED	5 DataSheet Recalculated	MGR	2023/06/22 3:50
PLANT A.PROD UNIT 01.X-27.CML-16	FINISHED	5 DataSheet Recalculated	MGR	2023/06/22 3:50
PLANT A.PROD UNIT 01.X-27.CML-06	INPROGRESS	DataSheet:Corrosion Rates	MGR	2023/06/22 3:50
PLANT A.PROD UNIT 01.D-211.CML-01	FINISHED	5 DataSheet Recalculated	MGR	2023/06/22 3:50
PLANT A.PROD UNIT 01.D-211.CML-20	FINISHED	5 DataSheet Recalculated	MGR	2023/06/22 3:50
PLANT A.PROD UNIT 01.D-211.CML-02	FINISHED	5 DataSheet Recalculated	MGR	2023/06/22 3:50
PLANT A.PROD UNIT 01.X-171.CML-13	FINISHED	5 DataSheet Recalculated	MGR	2023/06/22 3:50
PLANT A.PROD UNIT 01.X-171.CML-14	FINISHED	5 DataSheet Recalculated	MGR	2023/06/22 3:50
PLANT A.PROD UNIT 01.X-171.CML-15	FINISHED	5 DataSheet Recalculated	MGR	2023/06/22 3:50
PLANT A.PROD UNIT 01.X-171.CML-16	FINISHED	5 DataSheet Recalculated	MGR	2023/06/22 3:50
PLANT A.PROD UNIT 01.X-171.CML-05	FINISHED	5 DataSheet Recalculated	MGR	2023/06/22 3:50
PLANT A.PROD UNIT 01.X-171.CML-06	FINISHED	5 DataSheet Recalculated	MGR	2023/06/22 3:50
PLANT A.PROD UNIT 01.X-171.CML-07	FINISHED	5 DataSheet Recalculated	MGR	2023/06/22 3:50
PLANT A.PROD UNIT 01.X-171.CML-08	FINISHED	5 DataSheet Recalculated	MGR	2023/06/22 3:50
PLANT A.PROD UNIT 01.X-171.CML-09	FINISHED	5 DataSheet Recalculated	MGR	2023/06/22 3:50
PLANT A.PROD UNIT 01.X-171.CML-10	FINISHED	5 DataSheet Recalculated	MGR	2023/06/22 3:50
PLANT A.PROD UNIT 01.X-171.CML-11	FINISHED	5 DataSheet Recalculated	MGR	2023/06/22 3:50
PLANT A.PROD UNIT 01.X-171.CML-12	FINISHED	5 DataSheet Recalculated	MGR	2023/06/22 3:50
PLANT A.PROD UNIT 01.X-171.CML-01	FINISHED	5 DataSheet Recalculated	MGR	2023/06/22 3:50

- Step 1. Go back to Thickness Monitoring -> Data recalculation

- Step 2. Select CML as the asset level to recalculate

- Step 3. Click the Recalculate button

- The calculation status window will show the calculate of data
- You can close the calculation status window and work on other things if the calculation takes more time

CML Remaining Life Calculation

The screenshot displays the 'CML-01: CML Detail' page in the Synergi Plant software. The interface includes a treeview on the left showing the asset hierarchy, a top navigation bar with tabs like 'Facility Data', 'RBI', 'Work Pack', etc., and a main data entry area. A blue box highlights the 'Remaining Life' tab, and a blue arrow points from a text box on the right to this tab.

General Information

Drawing Number		Drawing Ref Number		Drawing Sketch Number	
Spot		Position / Location			
Rqrd Insp Method(s)	UT	Measurement Position			

MAWT

Nominal Thickness	6.07	mm	Corrosion Allowance	3.17	mm	Max. Design Pressure	3.45	bar	Outside Diameter	0.6	m
MAWT Basis	Nominal Minus Corrosion Allowance										
Structural Tmin		mm	Pressure Tmin		mm	Minimum thickness - expert		mm			
MAWT	2.9	mm									

Corrosion Rate & Remaining Life Calculation

Min. Measured Reading	5.66	mm	Reading Date	2023/04/13	Position		Used MAWT	2.9	mm	
Short Term Corrosion Rate	0.048	mm/yr	User Corrosion Rate		mm/yr	Corrosion Rate Basis				
Long Term Corrosion Rate	0.048	mm/yr	Max. Measured Corrosion Rate	0.048	mm/yr	Corrosion Rate Used	0.048	mm/yr	CR Source	STCR
Remaining Life	57.08	yrs	Retirement Date	2081/03/14	Interval Driver		0.5			
Inspection interval - calculated	29	yrs	Next inspection date - calculated	28/03/2052	User inspection interval			yrs	Next inspection date	2052/03/28

• After thickness data are imported, transferred, and re-calculated, you can go to the CML and check the Remaining Life result.

• Note: The current configuration will only calculate the result when there are 2 measurements loaded

CML T-min Calculation

CML-01: CML Detail

CML: CML-01 Active? Linked Asset: D-211-Shell Asset Type: ELEMENT

Service start date: 1993/01/01

Description:

Remaining Life | **Tmin Calculation** | Responsibility

Design Data

Type: Cylindrical Shell

Nominal Thickness: 6.07 mm Corr. Allowance: 3.175 mm Outer Diameter: 2603 mm Joint Efficiency: 0.85

Max. Design Pressure: 3.447 barg Max. Design Temp.: 150 °C

Mechanical Allowance: mm Allowable Stress Design Factor: 3.75 Pipe Design Factor:

Material Specification

Material Category: Carbon Steel Material: SA-516 \ Grade: 70 Design Code: Type of Joint:

Max. Allow. Stress: 3.75 MPa Tensile Strength: 0 MPa Temp. Coefficient: 0

Quality Factor: Yield Stress: MPa Weld Joint Reduction Factor: 1

Formula Input

Tmin formula: $(P \cdot D) / (2 \cdot ((S \cdot E) - (0.6 \cdot P)))$

Max. Design Pressure (P): 3.447 barg Inner Diameter (D): 2590.86 mm Joint Efficiency (E): 0.85 Max. Allow. Stress (S): 3.75 MPa

Tmin calculation

Calculated Min. Thickness: 149.811 mm

Including gauging tolerance: mm

- There is a configurable Tmin Calculation engine to calculate the Tmin based on various formula

- For MAWT, there are different options:
 - Nominal – CA
 - Structure Tmin
 - Pressure Tmin
 - Min of Structure and Pressure Tmin

Synergi Plant Training

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