Easy Piping User Manual

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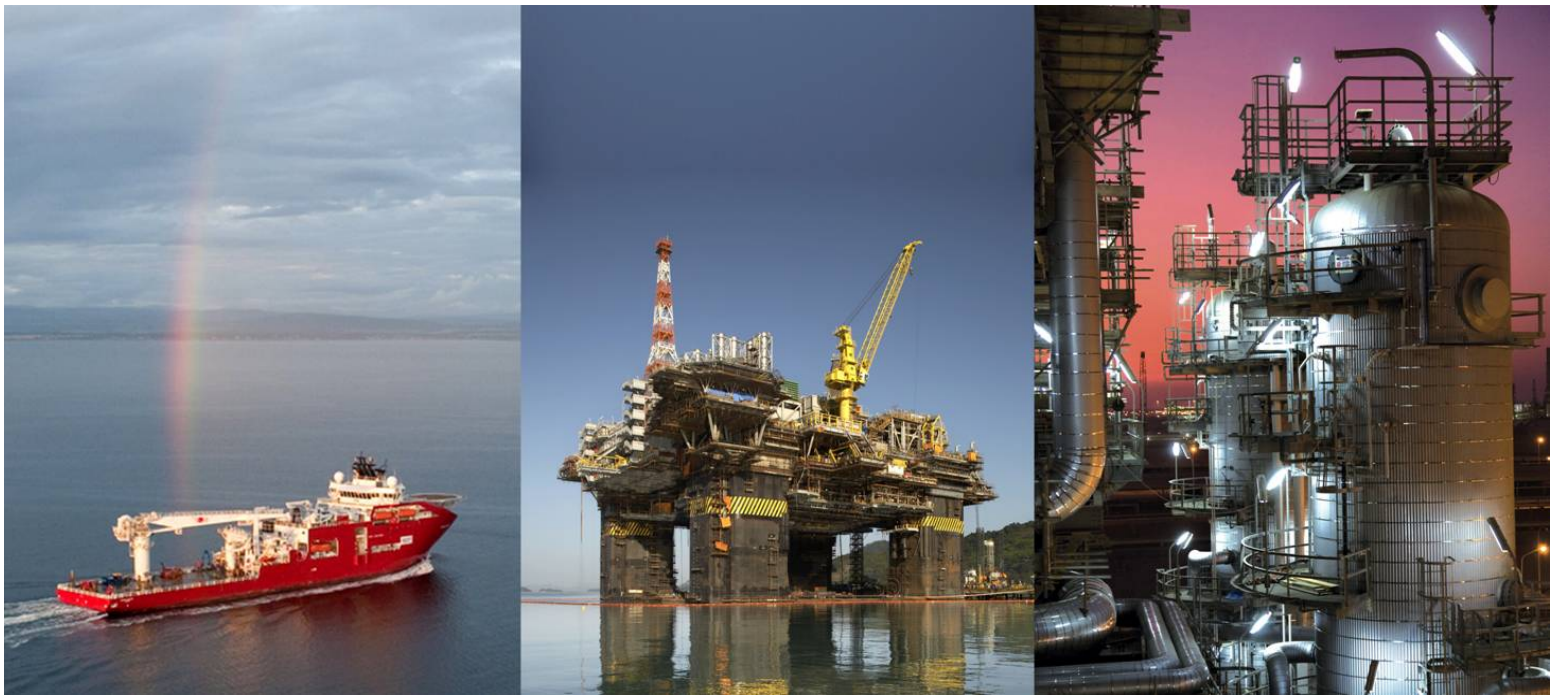
Easy Piping

User Manual Version 4.7.3



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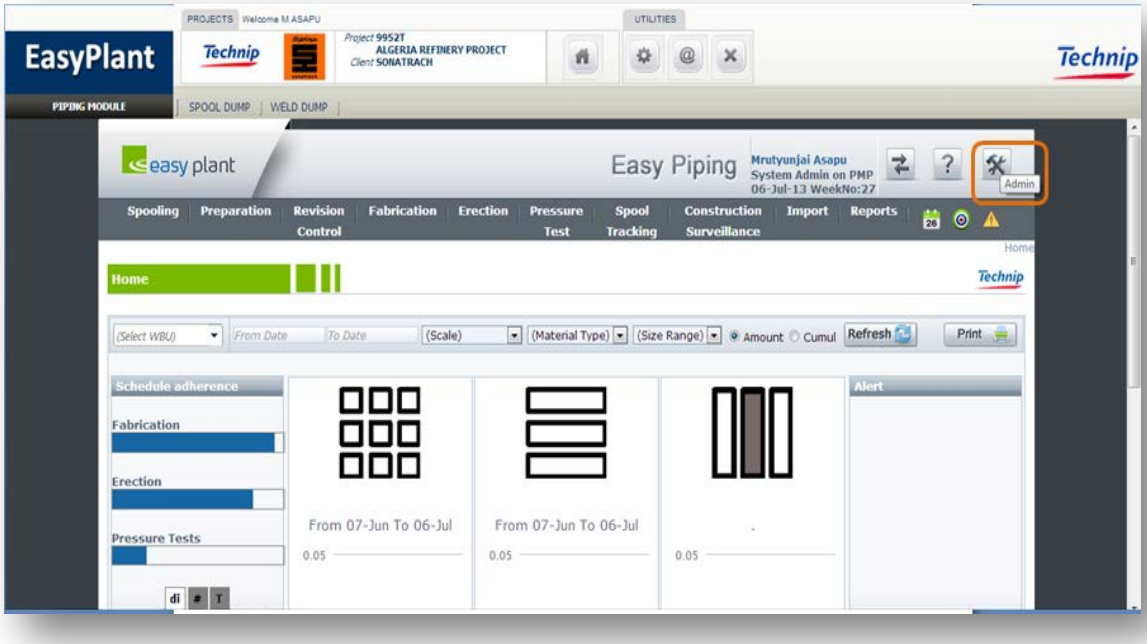
Easy Piping Part 1: Set up

ACCESS TO THE PROJECT SETUP

The user can access the setup screen from the home page “Admin Module” of Easy Piping (Below Image) this screen is accessible only for the System admin, Project admin and site admin defined by the project. This screen allows the user to perform various activities like defining a new project, defining the System referential, project referential, define access rights and import settings.

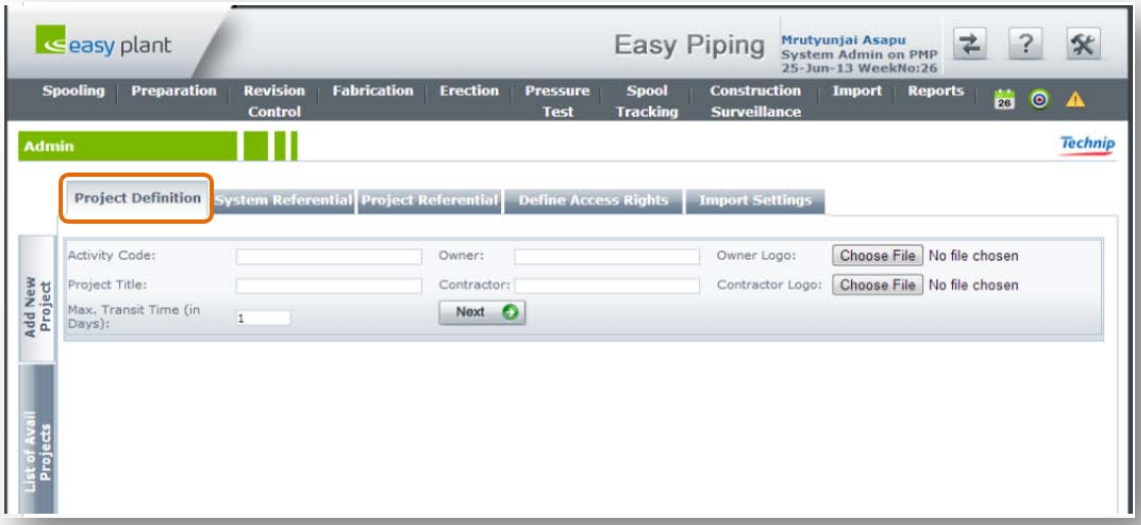


The Below Matrix will help the user to know the sequence of operations during setup

PROCESS	ACTIVITY NO	PROJECT REFERENTIAL ACTIVITIES	STEP 1	STEP 2	PREDECESSOR	COMMENTS
GENERAL PROJECT DEFINITION	Act 3.1	Sub-contractor list	X			
SPOOLING	Act 3.7	Service class/Material type list	X			
SPOOLING	Act 3.8	Weld Type List	X			Should define before weld progress entry
SPOOLING	Act 3.9	NDE Matrix		X	Act 3.7,Act 3.8,Act3. 11	
SPOOLING	Act 3.10	Rework Code	X			
SPOOLING	Act 3.11	Thickness	X			
FAB & ERECTION	Act 3.12	Progress Weight Factor	X			
FAB & ERECTION	Act 3.3	Area Classification	X			
FAB & ERECTION	Act 3.4	PDS Area/Sub-contractor list		X	Act 3.1,Act 3.3	
FAB & ERECTION	Act 3.5	WPS List	X			
FAB & ERECTION	Act 3.6	Welders Qualification		X	Act 3.1,Act 3.5	Should define before weld progress entry
FAB & ERECTION	Act 3.12	Project Piping Material List	X			Should define before weld progress entry
TESTPACK	Act 3.13	Joint Category Definition	X			Should define before Bolting progress entry
TESTPACK	Act 3.14	Unit of Time Reference	X			Should define before Bolting progress entry
TESTPACK	Act 3.15	Jointer List	X			Should define before Bolting progress entry
TESTPACK	Act 3.16	Blinding Team	X			Should define beforeTestpack progress entry
TESTPACK	Act 3.17	Finishing Team	X			Should define beforeTestpack progress entry
TESTPACK	Act 3.18	Reinstatement Team	X			Should define beforeTestpack progress entry
TESTPACK	Act 3.19	System	X			Should define before testpack assignment
TESTPACK	Act 3.20	Sub System		X	Act 3.19	
TESTPACK	Act 3.21	Line Checker Team	X			Should define beforeTestpack progress entry
TESTPACK	Act 3.26	Pressure Unit	X			Should define before Testpack preparation
TESTPACK	Act 3.27	Line Service	X			Should define before Testpack preparation
SPOOL TRACKING	Act 3.22	Location Category	X			
SPOOL TRACKING	Act 3.23	Locations		X	Act 3.22	
SPOOL TRACKING	Act 3.24	Devices	X			
SPOOL TRACKING	Act 3.25	PDA Users	X			

1. PROJECT DEFINITION

The project definition module helps the user to setup a new project, define the custom columns and defines the project parameters like project activity no; client and client's logo, contractor and contractor's logo, sub-contractor and its logo etc., the user can modify or delete the existing projects

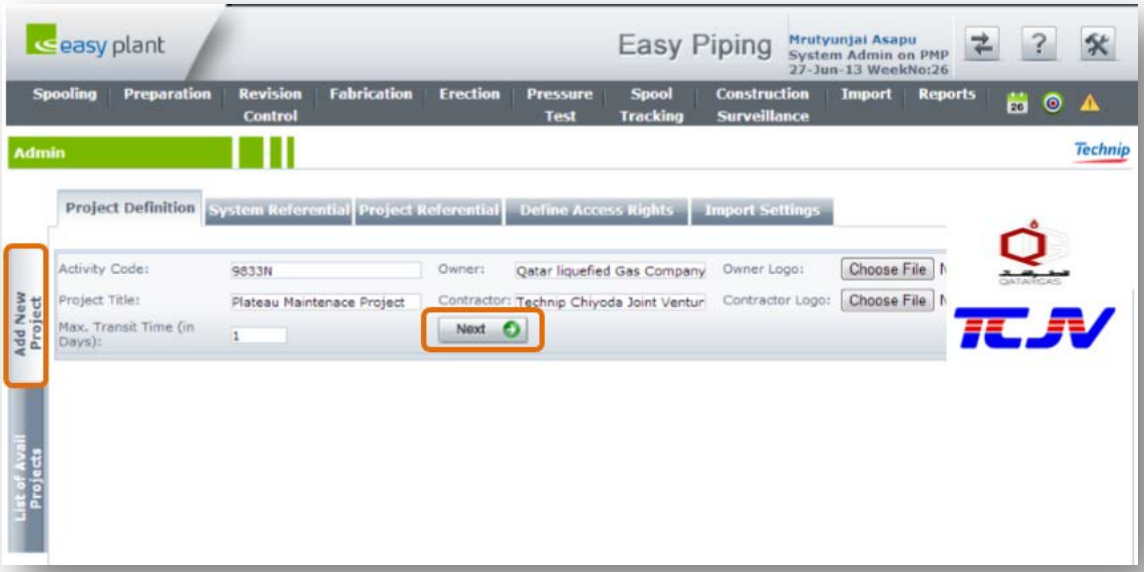


Under this module there are two tabs namely "Add a New project" and "List of Available Projects" which are described here below

1.1 Add New Project

The user need to follow the below parameters while creating a new project

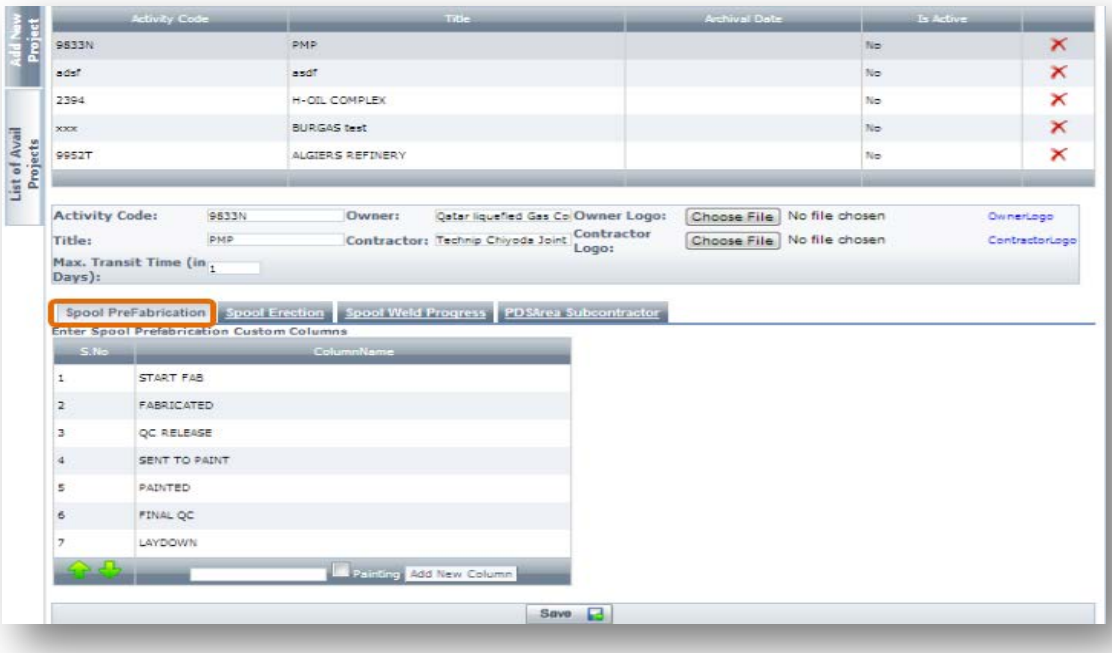
- Activity Code: The alphanumeric string defined for the project Ex: 9833N
- Project Title: Project Name Ex: Plateau Maintenance Project
- Owner: The name of the client company
- Contractor: The name of the contractor company
- Owner Logo (System will accept only the following file types ".bmp" ".jpg" and size should be less than 200 KB)
- Contractor Logo (System will accept only the following file types ".bmp" ".jpg" and size should be less than 200 KB)
- Maximum Transit Time (default value 1) this value is used in the 'Spool Tracking' module to calculate the no. of days a spool has been in transit from a location. The last tracking date of a spool will be compared with the current date, and if the difference exceeds the 'Maximum Transit Time', the spool will be listed in the 'Transit out' section.



On clicking the icon

, the user will see a grid with 4 tabs:

- Spool Prefabrication
- Spool Erection
- Spool Weld Progress
- PDS Area Subcontractor



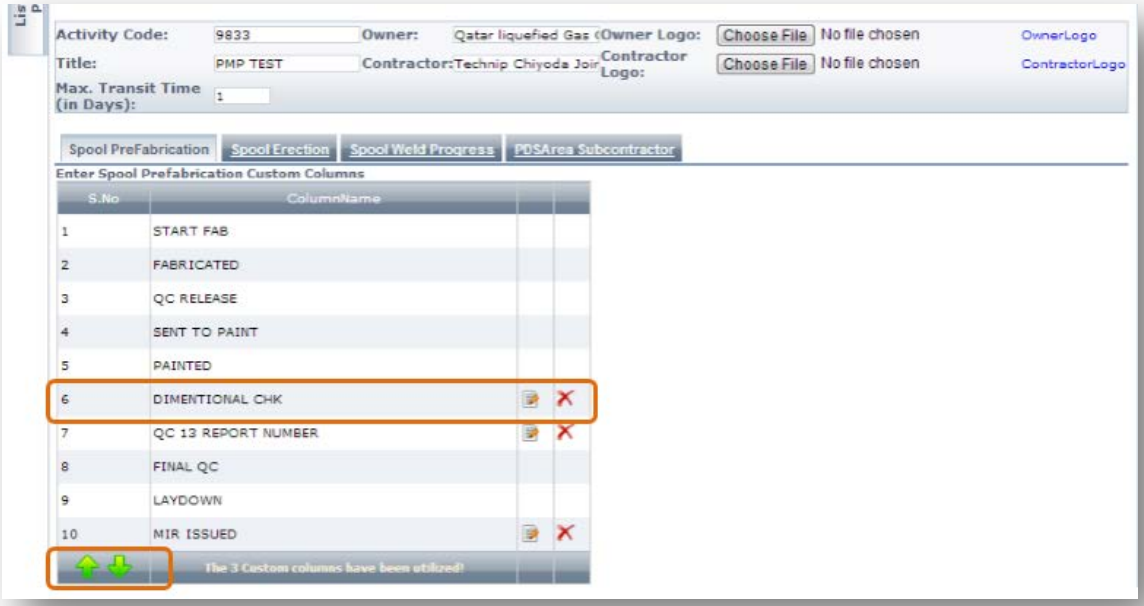
Prefabrication, Erection and Weld tabs show the default columns that are available to the user to enter the progress information in the 'Progress' module.
In the Prefabrication tab, the following columns are the default columns that will appear under Spool Fabrication:

- Start Fab
- Fabrication
- QC Release

The following columns are the default columns that will appear under Painting:

- Sent to Paint
- Painted
- Final QC
- Laydown

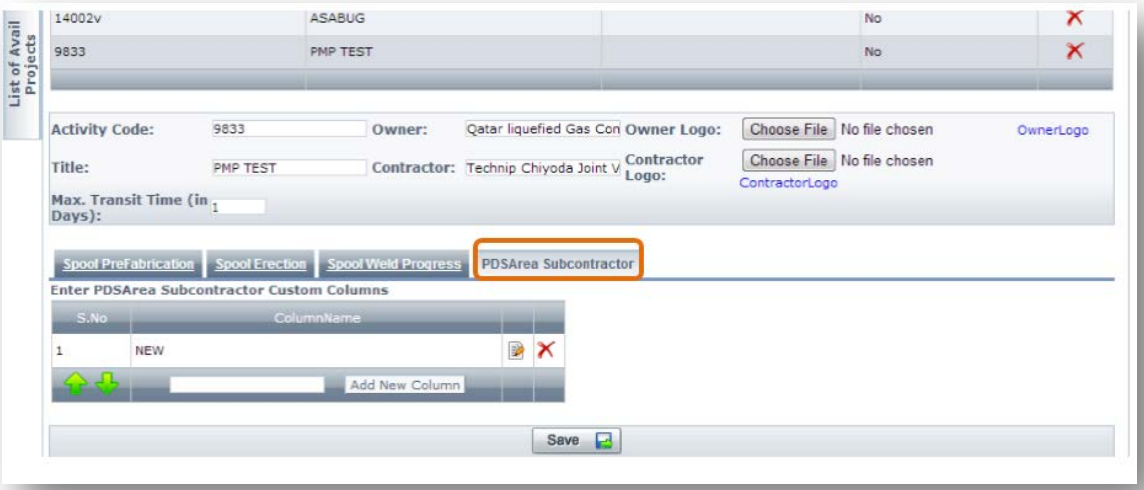
Prefabrication & Erection : User can add up to 3 custom columns to the 'Prefabrication' and 'Erection' tabs. The user has to specify whether the newly added column should appear under 'Painting or 'Fabrication' by checking or clearing the 'Painting' checkbox.
All columns under this tab are used to record progress in the respective modules and therefore they are expected to be 'date' values. These columns can be positioned in any order by clicking on the 'up' and 'down' arrows. These custom columns will appear in the Progress module in the order defined.
The custom columns added by the user can be edited and deleted at any time, even if the project has some values in front of these columns, in such case these values will be lost.



the PDS Area/ Subcontractor: The user can add 3 custom columns to the PDS Area/ Subcontractor tab. The Use of this option is to define custom attributes at PDS Area level. The Columns which are defined in the following screen

These custom columns will appear in the Project referential of PDS Area/ Subcontractor . It will allows the user to link the information to the subcontractor by design area.(Refer to Para 3.4)

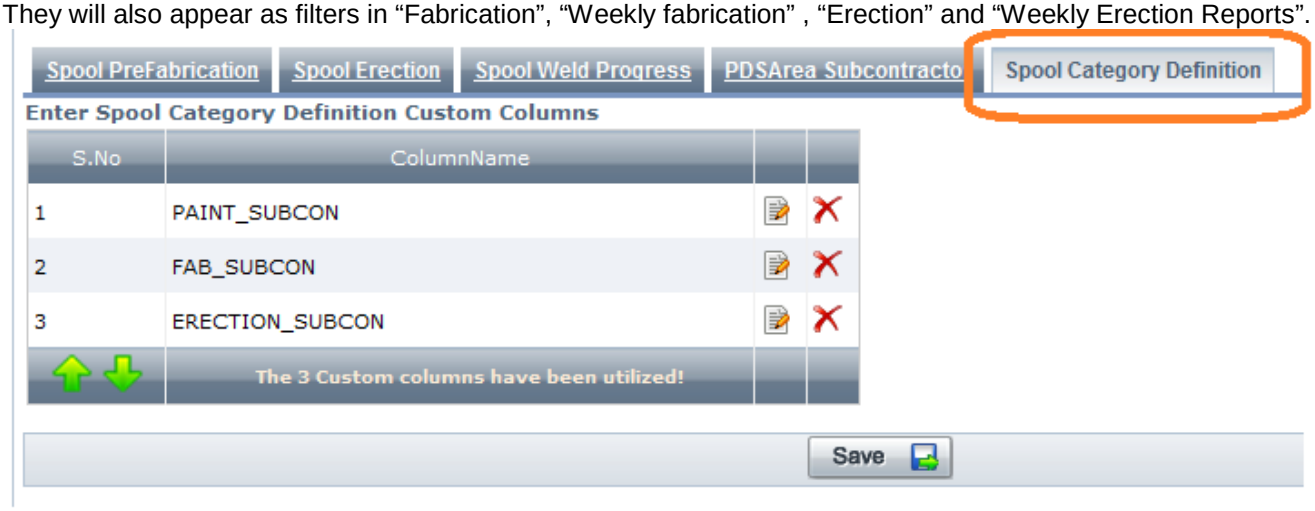
They will also appear as filters in "Summary report", "Weekly fabrication" and "Progress Report-Fabrication "reports.



Spool Category Definition: Spool Category Definition options allows user to define custom attributes to all spools. In this Option user can define 3 custom attributes at Spool Area level. The Columns which are defined in the following screen

There defined attributes can be updated against each spool through import module.(Refer to Para 3.4)

They will also appear as filters in “Fabrication”, “Weekly fabrication” , “Erection” and “Weekly Erection Reports”.



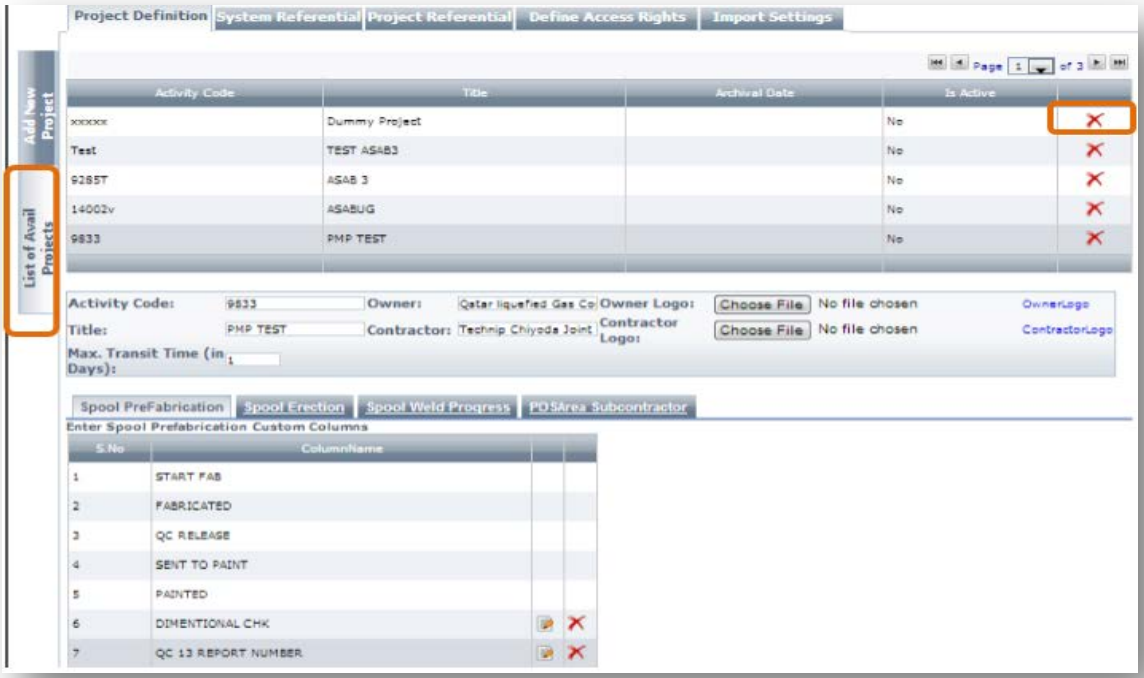
1.2 List of available projects

The tab allows the user to view project's information and edit some of the associated data. The following parameters can be modified when modifying a project in SYSTEM:

- Activity Code
- Project Title
- Owner
- Contractor
- Owner Logo
- Contractor Logo
- Maximum Transit Time

The custom columns can be added at a later stage as well. These custom columns can also be deleted at any stage in the project. However, all the data belonging to these columns will also be deleted.
The System Administrator can delete a project. However, he must be logged into another project to delete a particular project. All project specific information like project referential, isometrics, spools, joints, batches, progress information, and examination information will be deleted.

The user can choose the icons ( ) & ( ) to delete and edit the details respectively.



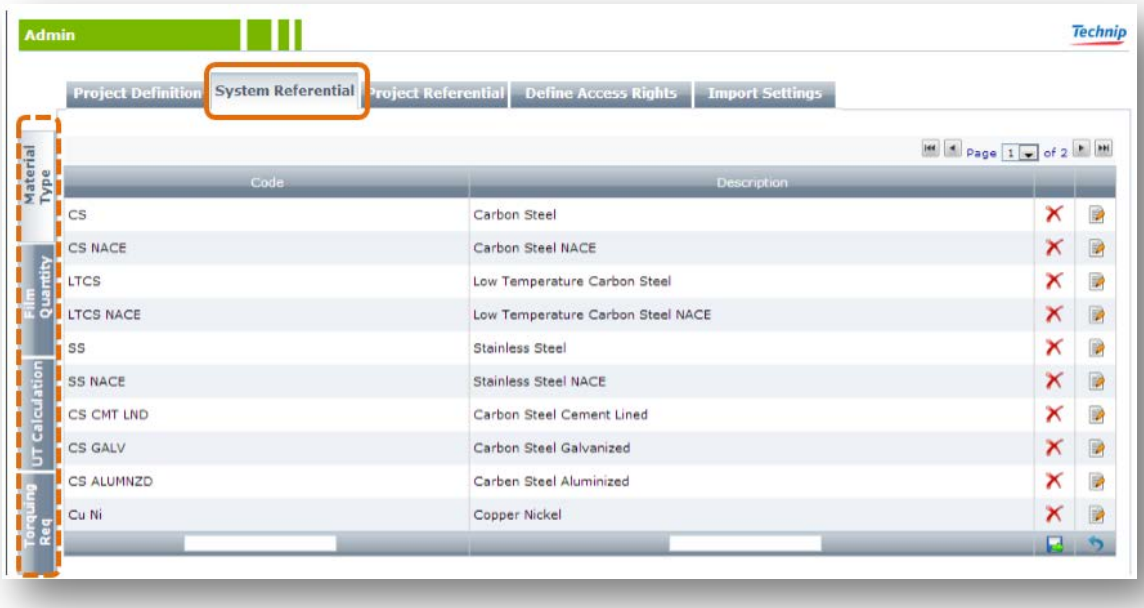
2. SYSTEM REFERENTIAL

The System referential module will allows the System admin to define all the lists that the application might refer to through the course of the application, irrespective of the project selected. These lists include the following:

- Material Type List
- Film Quantity per Diameter
- UT Calculation
- Torquing Requirement

The above referential is common to all projects.
Once these lists are defined, they will appear as a dropdown list whenever needed in the various screens of the application so that the user can select values out of these lists. The objective of this approach is to maintain the consistency of data entry across the application, which will result in better and accurate reports. Moreover, it will ease up the data entry process.

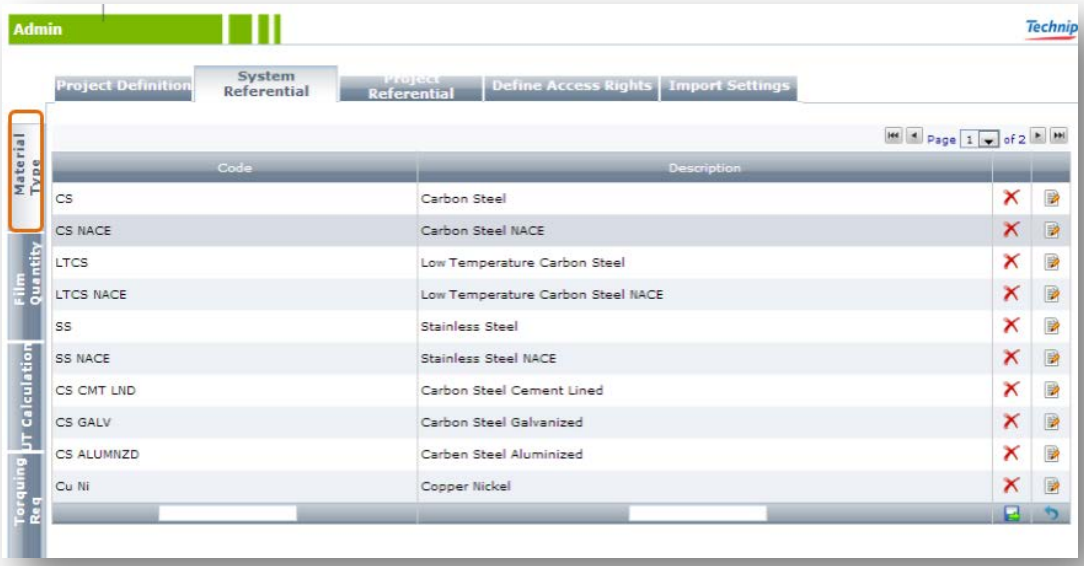
After every change press ( ) to update the details and user can use the icons ( ) & ( ) to delete and edit the details respectively.



2.1 Material Type

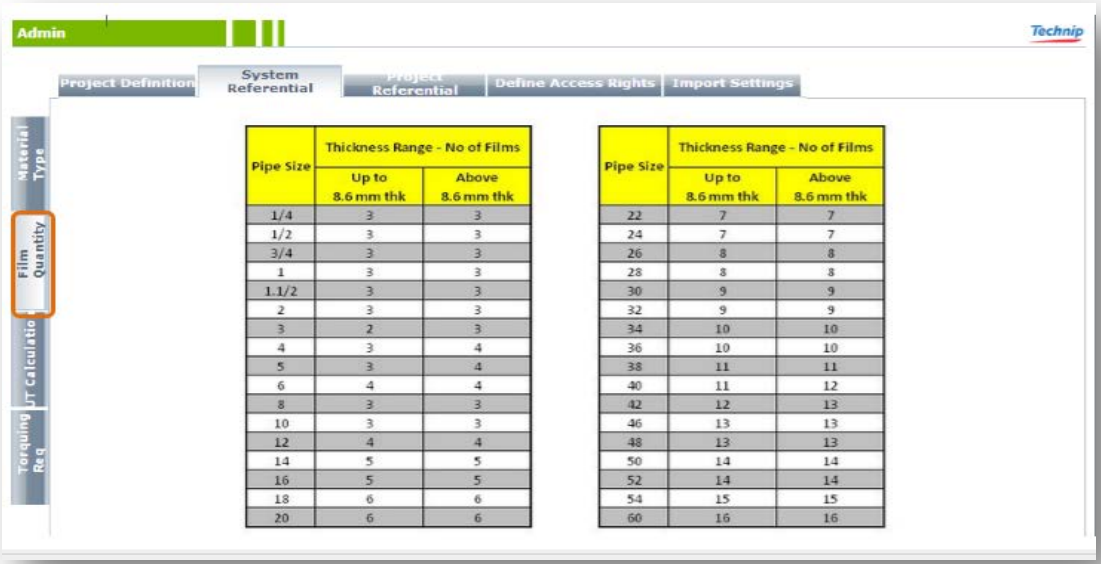
In the below picture all the lists are shown as explained earlier, as the screen shows the first sub tab material list. This screen will allow the user to define all the different types of materials. The user needs to define the Code and Description both the fields are mandatory. Once it is defined, the user is not allowed to delete the material type if it is assigned for any service class but can be modified at any time. The same will display in all kind of reports

After every change press ( ) to update the details and user can use the icons ( ) & ( ) to delete and edit the details respectively.



2.2 Film Quantity per Diameter

The screen displays to the user the film quantities based on pipe diameter and thickness. This number will be displayed to the user in the relevant Progress screen. This screen is static and user will not be allowed to edit or delete any information. However the user can edit the total number of films in the RT progress screen.



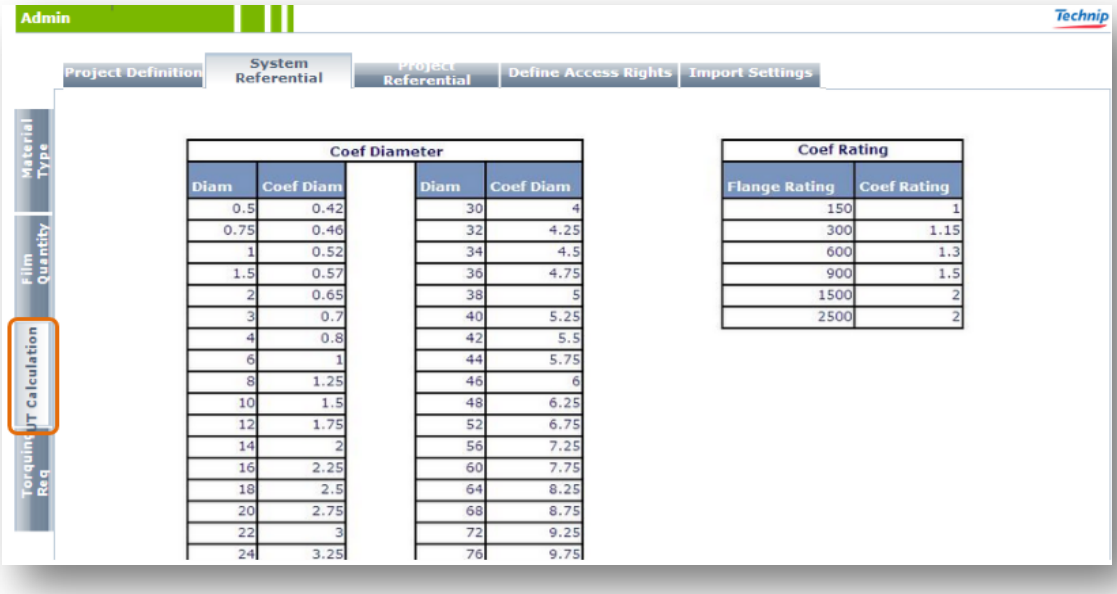
Pipe Size	Thickness Range - No of Films	
	Up to 8.6 mm thk	Above 8.6 mm thk
1/4	3	3
1/2	3	3
3/4	3	3
1	3	3
1.1/2	3	3
2	3	3
3	2	3
4	3	4
5	3	4
6	4	4
8	3	3
10	3	3
12	4	4
14	5	5
16	5	5
18	6	6
20	6	6

Pipe Size	Thickness Range - No of Films	
	Up to 8.6 mm thk	Above 8.6 mm thk
22	7	7
24	7	7
26	8	8
28	8	8
30	9	9
32	9	9
34	10	10
36	10	10
38	11	11
40	11	12
42	12	13
46	13	13
48	13	13
50	14	14
52	14	14
54	15	15
60	16	16

2.3 UT Calculation

The screen displays to the user the values of referential “Coefficient Diameter” and “Coefficient Rating”. This screen is also static and user cannot edit or modify at any time. The values are based on Technip standards.

These values are used for UT calculations based on the diameters and it will export the values in the “Flange joint progress”.



Coef Diameter

Diam	Coef Diam	Diam	Coef Diam
0.5	0.42	30	4
0.75	0.46	32	4.25
1	0.52	34	4.5
1.5	0.57	36	4.75
2	0.65	38	5
3	0.7	40	5.25
4	0.8	42	5.5
6	1	44	5.75
8	1.25	46	6
10	1.5	48	6.25
12	1.75	52	6.75
14	2	56	7.25
16	2.25	60	7.75
18	2.5	64	8.25
20	2.75	68	8.75
22	3	72	9.25
24	3.25	76	9.75

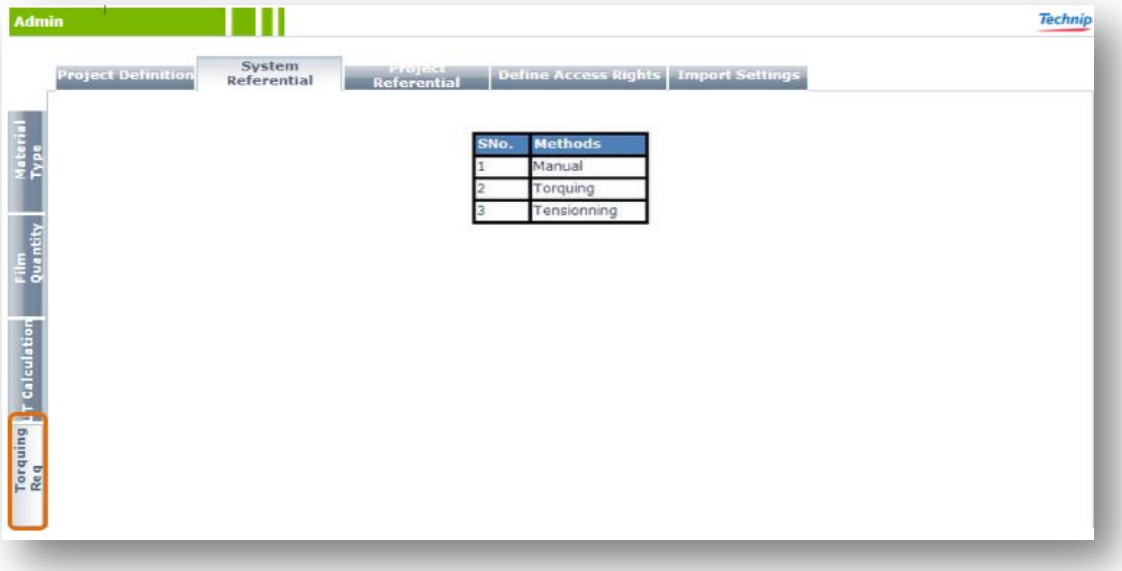
Coef Rating

Flange Rating	Coef Rating
150	1
300	1.15
600	1.3
900	1.5
1500	2
2500	2

2.4 Torquing requirement

The user can view the methods of bolting. This screen is a static screen, the torqueing methods are defined in this referential none of the values can be edit or modify.

- Manual
- Torquing
- Tensioning



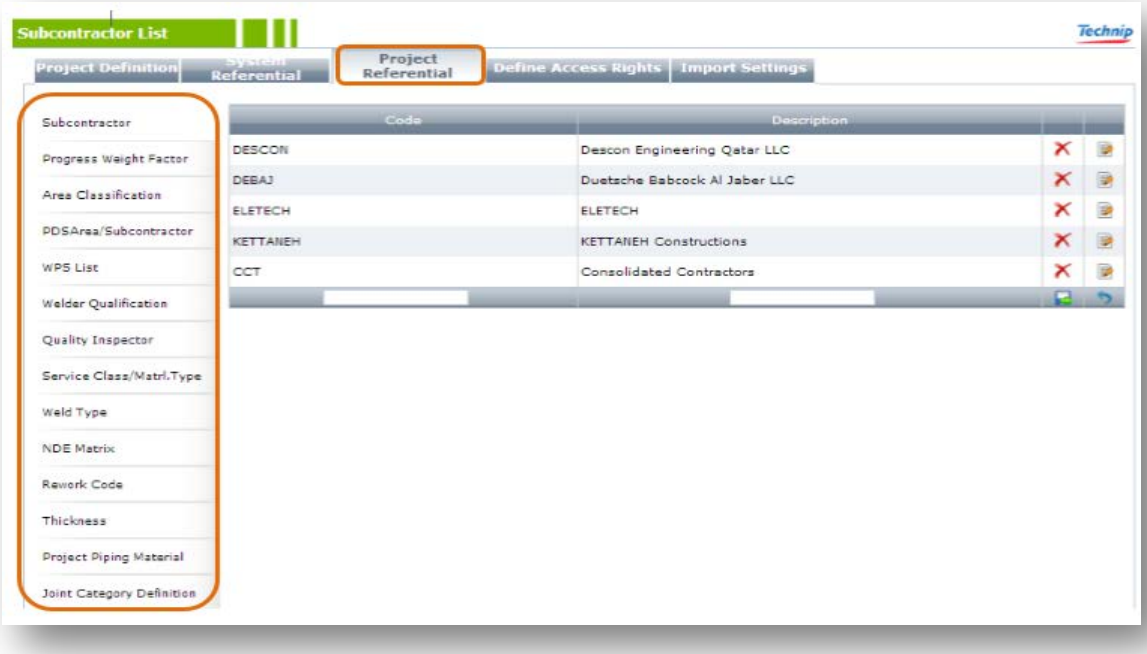
SNo.	Methods
1	Manual
2	Torquing
3	Tensionning

3. PROJECT REFERENTIAL

The project referential module will be used to define all the lists that the application might refer to through the course of the application. These lists include the following:

- Sub-contractor list
- Progress Weight Factor
- Area Classification
- PDS Area/Sub-contractor list
- WPS List
- Welders Qualification
- Service class/Material type list
- Weld Type List
- NDE Matrix
- Rework Code
- Thickness
- Project Piping Material List
- Joint Category Definition
- Unit of Time Reference
- Jointer List
- Blinding Team
- Finishing Team
- Reinstatement Team
- System
- Sub System
- Line Checker Team
- Location Category
- Locations
- Devices
- PDA Users
- Pressure Unit
- Line Service

Once the above lists are defined, they will appear as a dropdown list whenever needed in the various screens of the application so that the user can select values out of these lists.

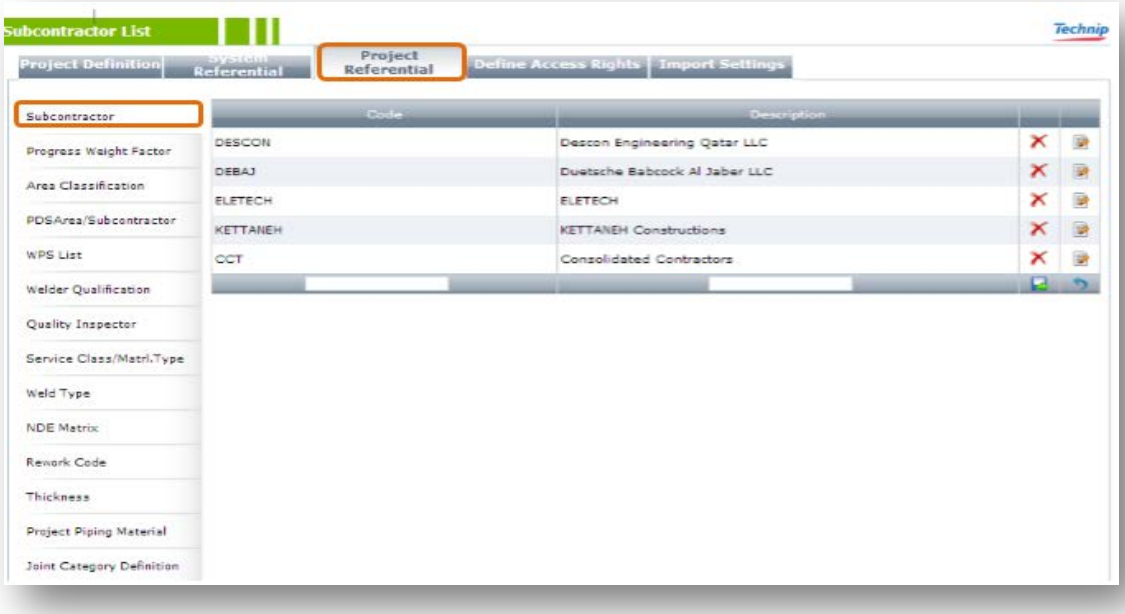


3.1 Subcontractor List

The user can define all the subcontractors specified by the project, the user need to define the following details

- Subcontractor Code
- Subcontractor Description

After every change press ( ) to update the details and user can use the icons ( ) & ( ) to delete and edit the details respectively.
Once it is defined, the System will not allow the user to delete if the subcontractor is already assigned to any PDS Area. However the user can edit or modify the code and description at any time



3.2 Progress Weight Factor

The user need to define the progress weight factors, these weight factors are used to calculate the completion of the following activities.

- Spool Prefabrication
- Spool Painting
- Spool Erection

Each activity in each phase will have its own progress factor; the total of progress factors for all the activities should be one hundred. In the reports module, the progress will be reported either by phase (prefabrication, painting, erection), or as an overall progress. The weight values can be modified at any time, but if modified, it will have a direct impact on the weight calculation of the generated reports. It should be noted that there will be discrepancies between reports before modifying the weight and after modifying the weight.

After every change please press (Save) to update the details.

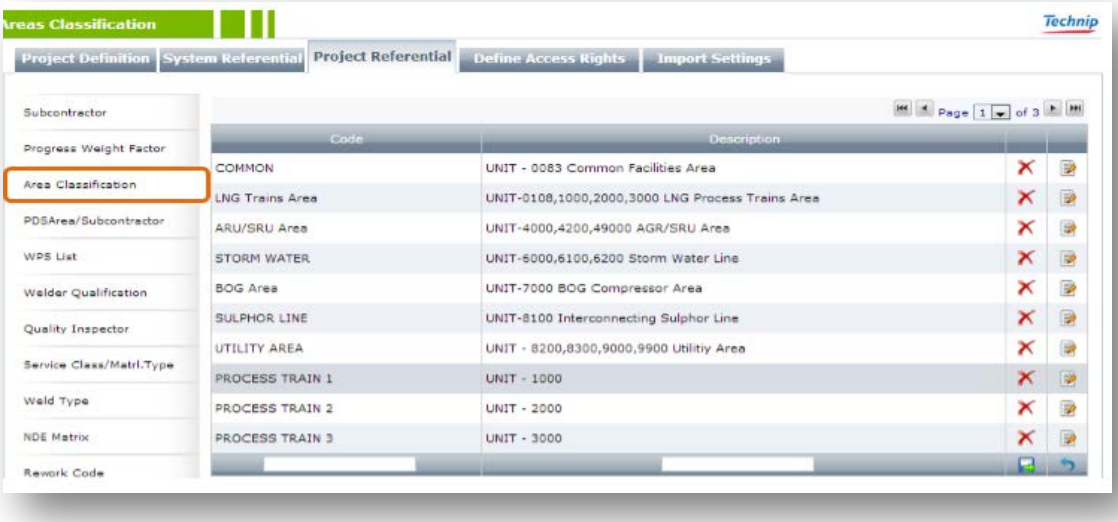
3.3 Area Classification

This screen helps the user to define the Area classification of the project, the user need to define the following details

- Area Classification code
- Area Classification description

The same details will be used while linking certain PDS areas in another referential (Refer to Para 3.4) this codes are used to generate reports by different area classification. The user can see all the areas in the dropdown while generating various reports.

After every change press ( ) to update the details and user can use the icons ( ) & ( ) to delete and edit the details respectively.



3.4 PDS Area/Subcontractor

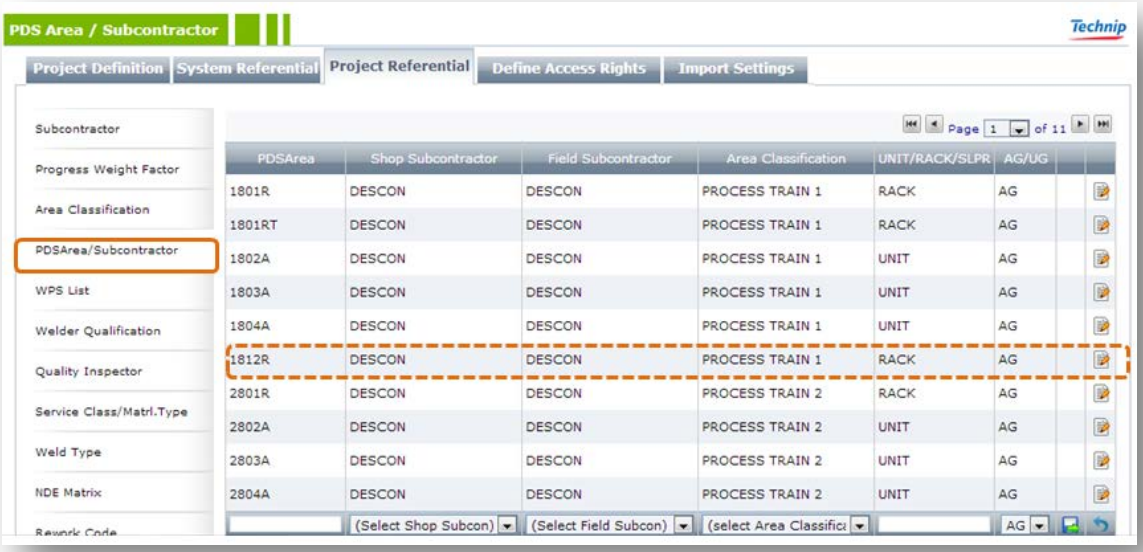
This screen is used to define the referential based on the PDS (Design area) and assign to the following details

- Shop Sub-contractor
- Field Sub-contractor
- Area Classification
- AG/UG

In addition of above, the user can specifies the area is unit or rack and any custom column if any, which are predefined while defining project (Refer to Para 1.2)

Note: The subcontractor can be assigned only by Design area, if the user wants to change the subcontractor of a particular Isometric, It can be done manually in the browse latest module.

After every change press ( ) to update the details and user can use the icons ( ) & ( ) to delete and edit the details respectively.



3.5 WPS List

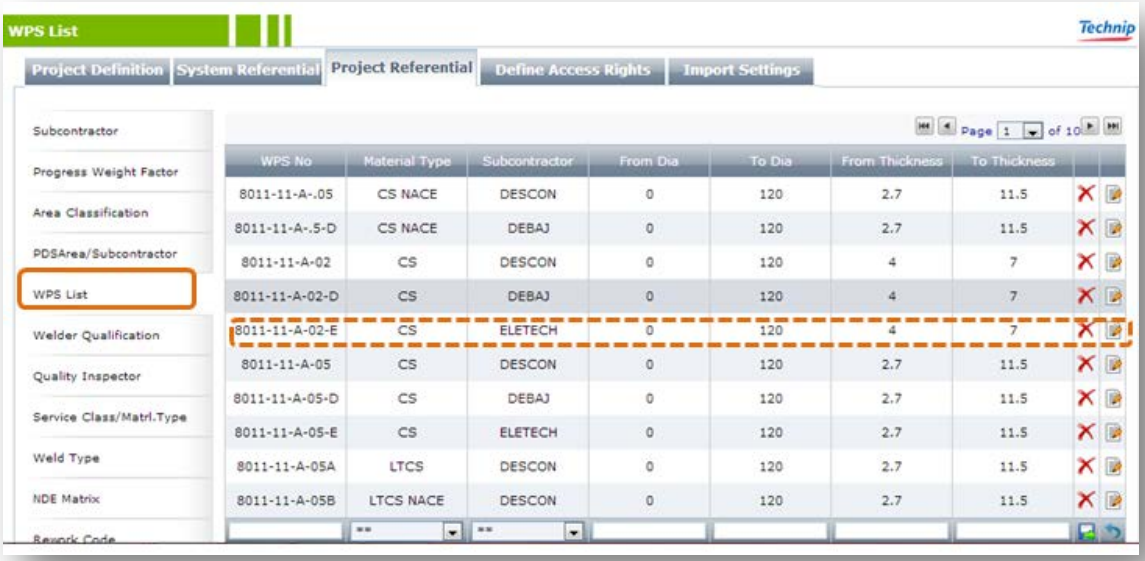
This screen is used to define the WPS approved by the Quality team. The WPS defined in this screen is used in the Welder Qualification module in order to define the WPS for a particular qualified welder. The user defines each WPS with material type, Dia, thickness and link to a subcontractor.

Validations

- All fields are mandatory.
- Diameter and Thickness allow only numeric values.
- To Dia should be greater than or equal to From Dia.
- To Thickness should be greater than or equal to From Thickness.

During data import from spooling, Easy Piping will automatically check that a WPS exists in the WPS list to cover new joints. If WPS (based on joint dia, thickness and material type) does not exist, SYSTEM will alert the user but import can proceed.

After every change press ( ) to update the details and user can use the icons ( ) & ( ) to delete and edit the details respectively.

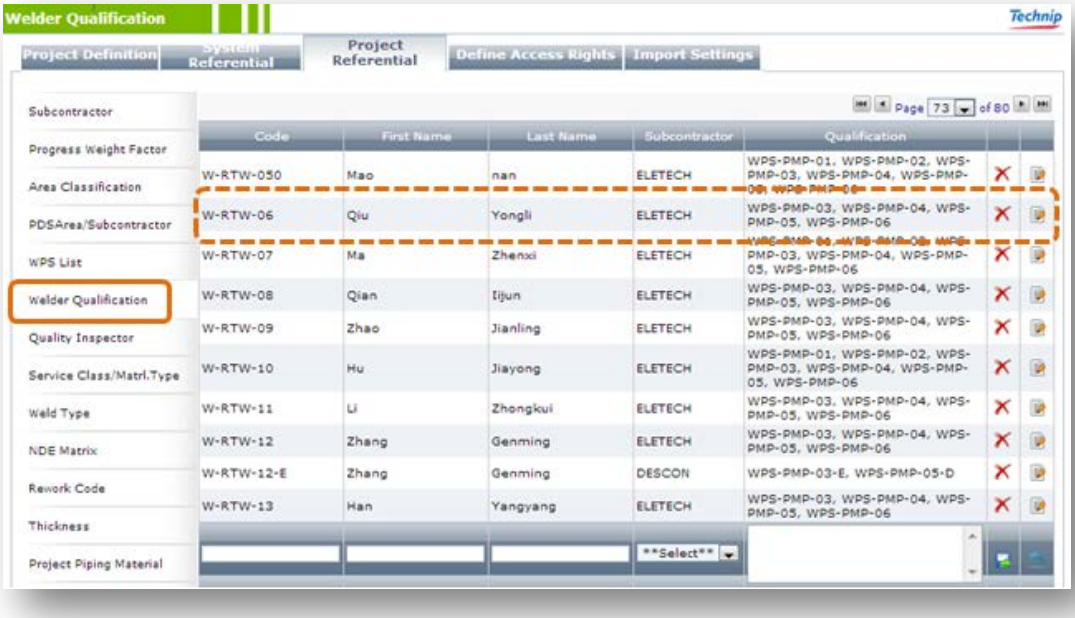


3.6 Welder Qualification

This screen is used to define the welder code and name of welders qualified for the project. The user needs to link the welder to a subcontractor and WPS. This screen allows the user to add, delete and edit the welder code until and unless there is no records for the related welder. The same welders will be seen in a dropdown list in the relevant progress module. In order to qualify the welders, the user needs to create the WPS List. (Refer above Para 3.5)

All the fields are mandatory

After every change press ( ) to update the details and user can use the icons ( ) & ( ) to delete and edit the details respectively.



3.7 Service class/Material type

This screen allows the user to define all the service class available for the project and link to the material type. In order to link, the user have to define the material type (Refer to the Para 2.1) All the service classes are corresponding codes uploaded from the spooling data. The service class cannot be deleted but it can be edit or modify at any time.
The Material type is used while defining the WPS (Refer to Para 3.5) and for generation of the reports as well.

3.8 Weld type List

This screen contains references of all the different types of welds that will be uploaded automatically from the spooling data. In this screen the user can only add new weld types. The list contains the following

- Weld type code (This type code is from spoolgen data)
- Weld type description
- Dia inch factor – User to define Yes or No

Note: If the user defines "Yes" in Dia-inch Factor for a weld type code, the joint will be counted in the Dia inch calculation in the reports.

If the user defines "No" In Dia-Inch factor for a weld type code, the joint will not be counted in the Dia inch calculations in the reports

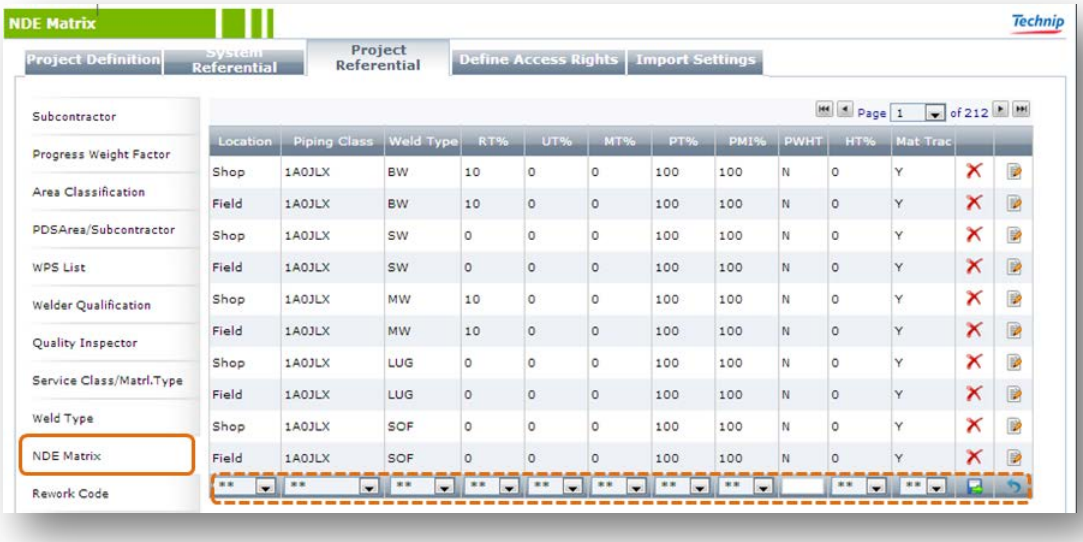
3.9 NDE Matrix

This screen helps the user to define the NDE (Non Destructive Examination) % required for the different types of weld categories.

- User needs to define the various types of testing parameters like RT, MT, PT and UT etc. based on the piping class, weld type and weld location.
- All the fields in this screen will be available as a dropdown list where the user can select the required information.
- The columns RT, UT, MT, PT, PMI, and HT are dropdown lists having the values for different percentages ranging from 0 to 100.
- The columns PWHT, Material Traceability is a dropdown list that will allow "Y" or "N" and the user can also define the thickness which required PWHT.
- The matrix can be filled in an excel format and upload in the System through the import module.
- During import of spools, the System will validate whether the imported welds have the combination of piping class, location and weld type is already defined in the NDE matrix. If not, the System will alert the user and import is not allowed.
- During a weld Progress entry, the System will automatically check the NDE % defined in the NDE matrix and allocate a batch based on the examination category to the joint. This case is particularly for 5% or 10% categories.

- In the case of NDE 100 %, the system will automatically allocate the joints to the relevant NDE category during the spooling data import.

After every change press ( ) to update the details and user can use the icons ( ) & ( ) to delete and edit the details respectively.



Location	Piping Class	Weld Type	RT%	UT%	MT%	PT%	PMI%	PWHT	HT%	Mat Trac
Shop	1A0JLX	BW	10	0	0	100	100	N	0	Y
Field	1A0JLX	BW	10	0	0	100	100	N	0	Y
Shop	1A0JLX	SW	0	0	0	100	100	N	0	Y
Field	1A0JLX	SW	0	0	0	100	100	N	0	Y
Shop	1A0JLX	MW	10	0	0	100	100	N	0	Y
Field	1A0JLX	MW	10	0	0	100	100	N	0	Y
Shop	1A0JLX	LUG	0	0	0	100	100	N	0	Y
Field	1A0JLX	LUG	0	0	0	100	100	N	0	Y
Shop	1A0JLX	SOF	0	0	0	100	100	N	0	Y
Field	1A0JLX	SOF	0	0	0	100	100	N	0	Y

3.10 Rework Code

This screen helps the user to define the different rework codes and their description.

- Rework Code and Description are textboxes
- Both fields are mandatory.
- The user can Add, Edit, Delete at any time during the project phase.
- This code will be displayed to the user in a dropdown list in the weld progress screen.
- There is no limit in number of codes.

3.11 Thickness

The screen helps the user to define criteria to automatically allocate the Thickness for the welds. The criteria are based on Piping class and Diameter of the joint. The thickness information will not be reflected in Isometric. All the fields are mandatory

User has to enter values for the following columns:

- Service Class
- Dia Inch
- Thickness
- Flange Rating

During Spooling import, System will automatically check that a weld has a corresponding thickness defined in the System by checking its piping class and dia-inch. If it does not exist, System will alert the user and import will be stopped. The same service class and diameter should not have two different thicknesses. It should be always unique.

This screen also helps the user to define flange ratings. During bolting import, System will automatically check that a joint has a corresponding flange rating defined in the System by checking diameter. If it does not exist, System will alert the user and import will be stopped.

- Duplicate values for thickness for same piping class and dia-inch are not allowed. Validation will occur
- There should be only 1 Flange Rating entry for a particular combination of piping class, dia inch and thickness.

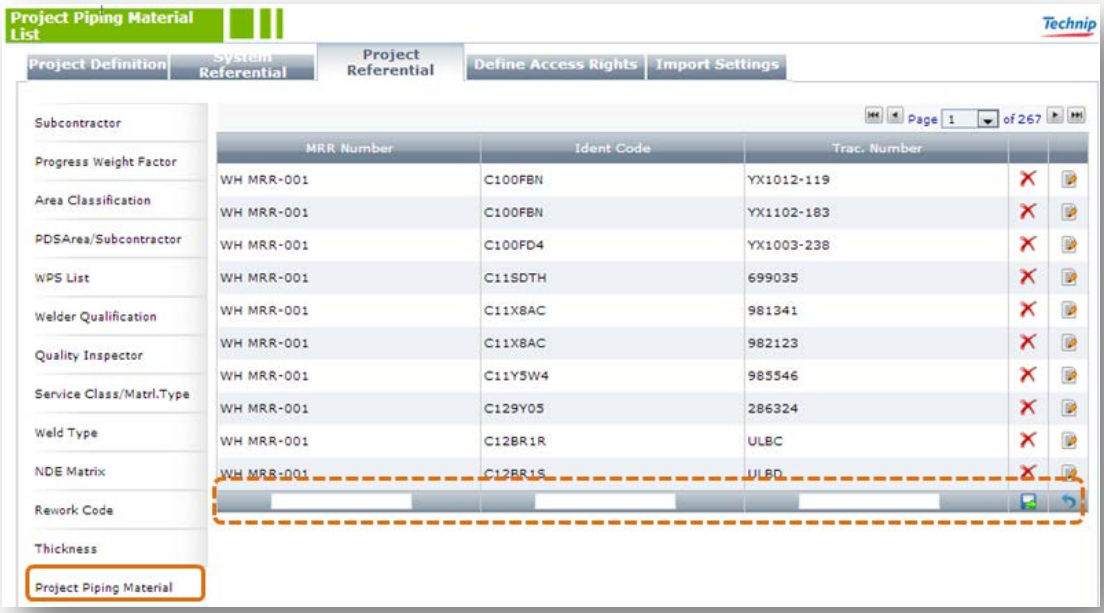
3.12 Project Piping Material Class

The user need to define the define the following details

- MRR No(Material reception request)
- Ident code
- Trace number (Heat number or File No)

This referential is used in the material traceability screen in progress module. The above details can be imported by using Excel format in the import settings module. It allows the system to validate the codes of trace number vs. Ident code.

Note: The file can be exported from SP Mat



3.13 Joint Category Definition

This referential is used for Flange management and Test pack management. The flange joints will be assigned for the below mentioned parameters to manage the Bolt torquing activities. User cannot delete once it is defined for any flange joint.

Each flange joint is associated to a category corresponding to the timing of the joint execution. These categories are directly linked to the test-pack limits and the precomissionning activities.

User has to define the details for the following columns:

- Joint Definition
- Timing
- Category
- Reason
- Coefficient category

Joint definition is the subject to define for a particular joint when it has to be performed. Below are the following example cases

- Joint to be done before Pressure Test
- Joint to be done after Pressure test but before Precomm
- Joint to be done after precomm

Timing is the subject to define the period (Before Pressure test, before Precomm, After Precomm

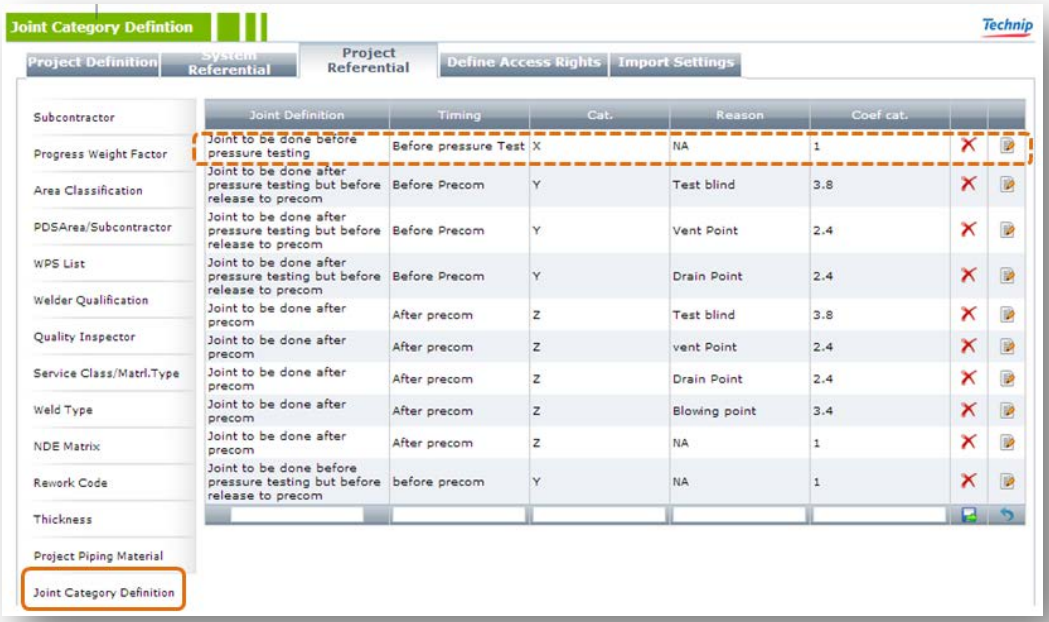
Category is the subject to categorize the activities by defining with codes like (X, Y, Z) or (A, B, C) and it varies from project.

Reason is the subject to define the bolting point like vent point, Test blind point, drain point, blowing point etc.

The coefficient category is the value which is defined based on the punch category and reason. There are some standard coefficient values based on above criteria

Punch	Reason	Coef punch	content
A	NA	1	1 Torquing
B or B1	Test blind	3.8	3 torquing +2 breaking joint
B or B1	Vent point	2.4	2 torquing +1 breaking joint
B or B1	Drain point	2.4	2 torquing +1 breaking joint
B1	Blowing point	3.4	3 torquing +1 breaking joint

After every change press ( ) to update the details and user can use the icons ( ) & ( ) to delete and edit the details respectively.



3.14 Unit of time reference

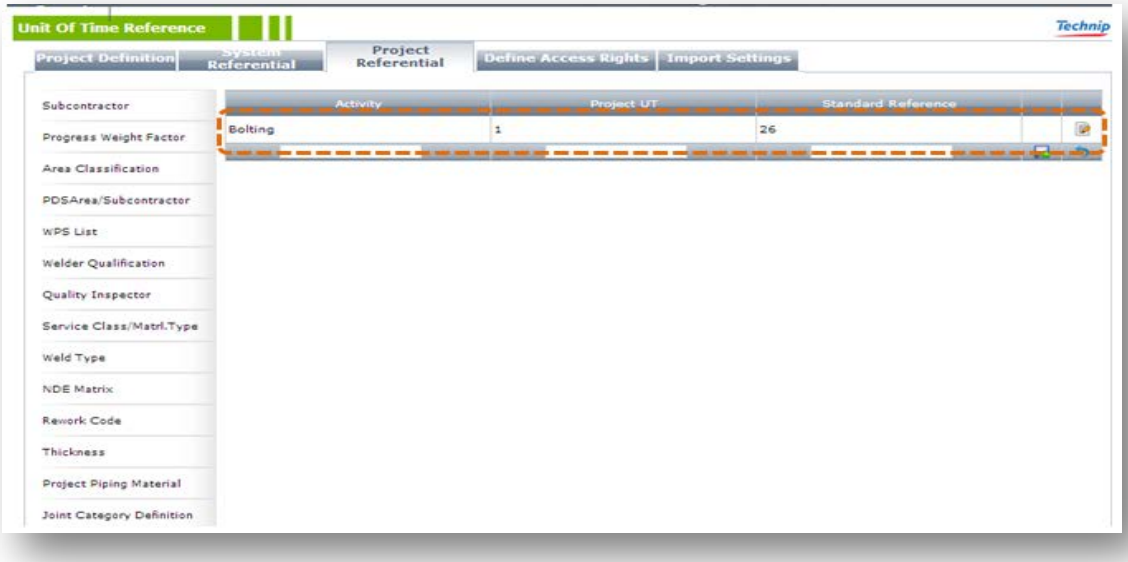
This reference is used to calculate the work volume (Unit of time required to execute the jointing). This referential is used in ‘Generate Flange Joint Progress’ template. The ‘UT Calculation’ column is calculated based on the ‘Project UT’ values.

The user have to define the following details

- Activity
- Project UT (Unit of Time)
- Standard Reference

The equivalent quantities are calculated from the quantity of each bolting operation by using the adequate multiplier factors for Piping Size, Flange Rating and punch category

UT = Reference point quantity x coef Diam x Coef Rating x Coef category

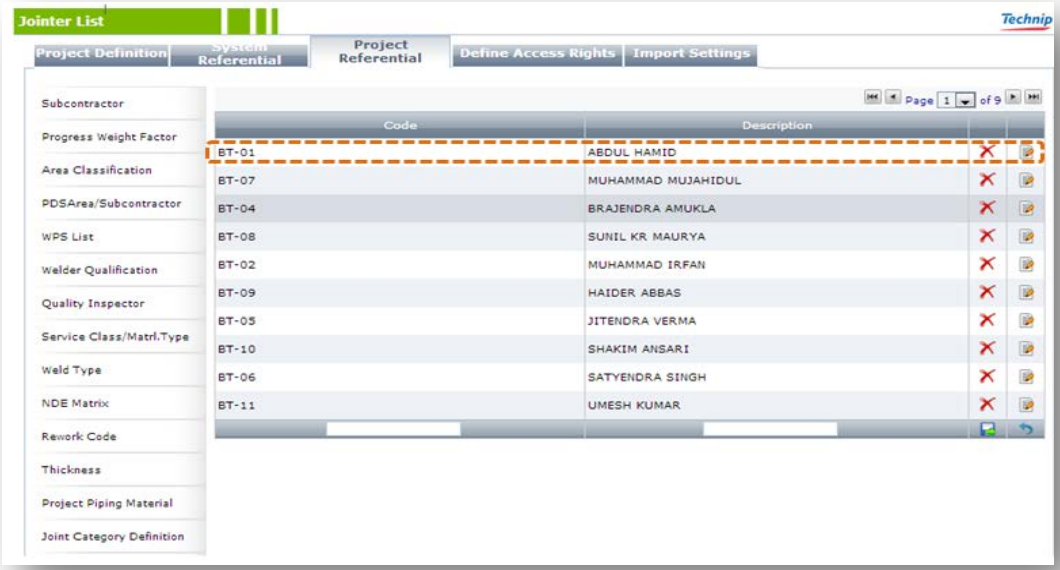


3.15 Jointer List

User has to define the following columns:

- Jointer Code
- Jointer Description

This referential will be used in the flange management. If the user tries to delete a Jointer which is already assigned to a Flange Joint, the System won't allow the deletion. However, the System will allow modifying the Jointer code and description even if it is assigned to a Flange joint. Duplicate values are not allowed to be entered in Jointer code.



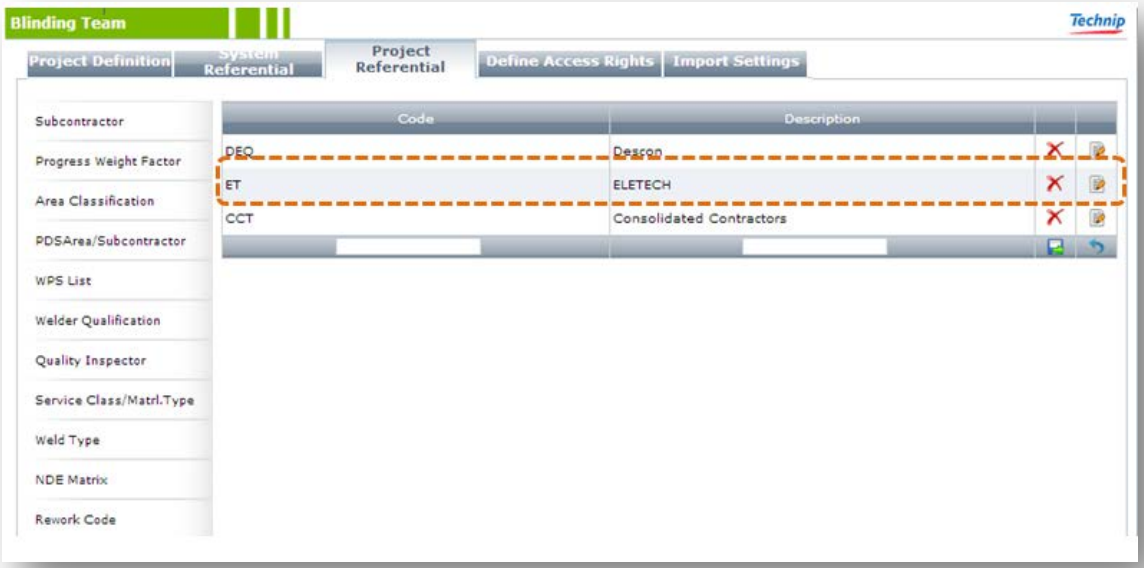
3.16 Blinding Team

This screen allows the user to define the following details

- Code (Blinding team)
- Description

This referential is used in the pressure test module. If the user tries to delete a Blinding Team which is already used in blinding module, the System won't allow the deletion. However, the System will allow modifying the code and description even if it is assigned to blinding module.

After every change press ( ) to update the details and user can use the icons ( ) & ( ) to delete and edit the details respectively.

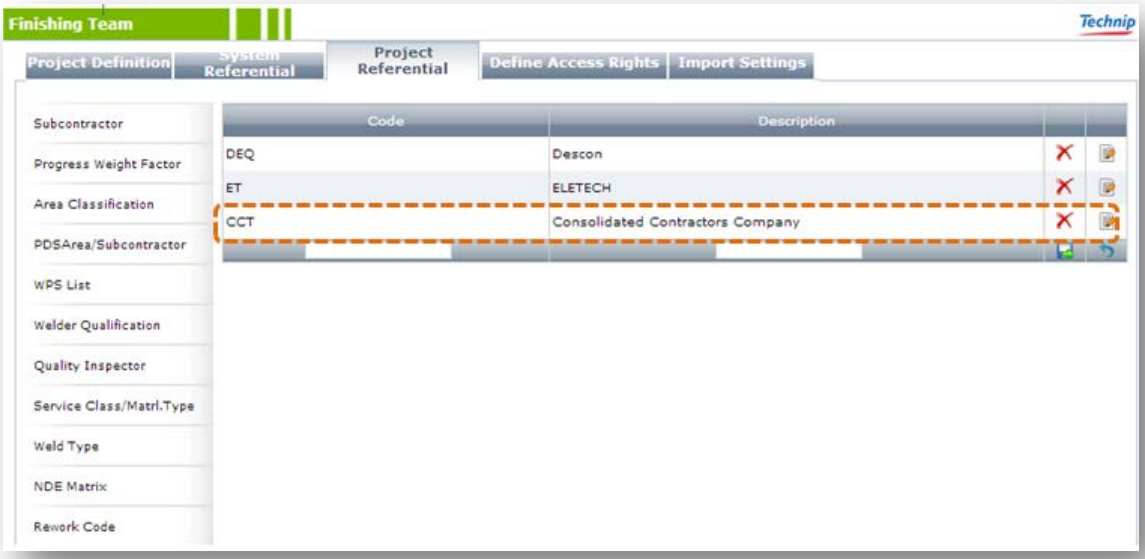


3.17 Finishing Team

This screen allows the user has to define the following columns:

- Code
- Description

This referential is used for Pressure Test (Item Clearance Module). If the user tries to delete a Finishing Team which is already used in Item clearance module, the System won't allow the deletion. However, the System will allow modifying the code and description even if it is assigned to Item clearance module.

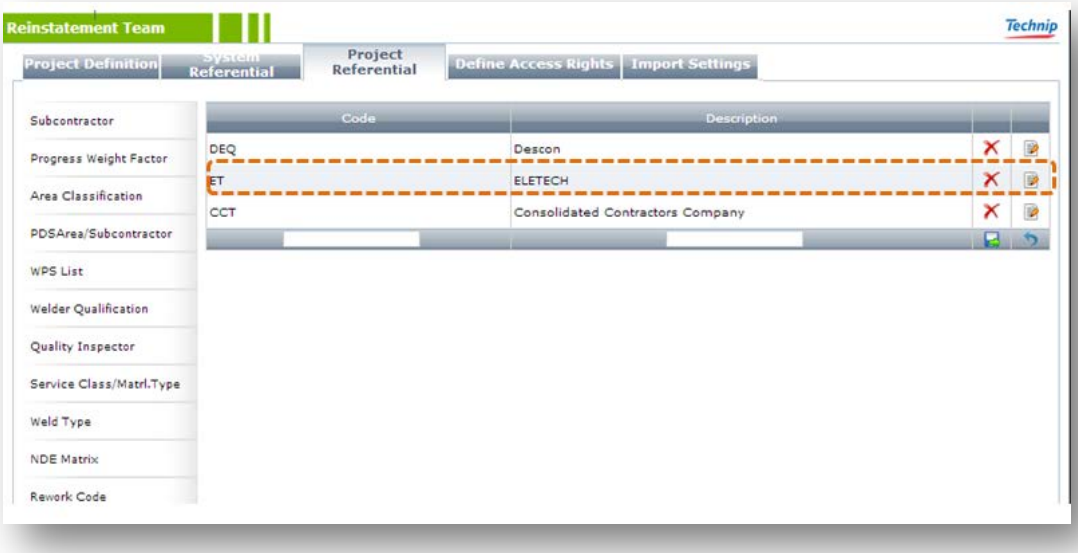


3.18 Reinstatement Team

User needs to enter values for the following columns:

- Code
- Description

This referential is used for Pressure Test (Reinstatement Module).



3.19 System

User needs to define the following columns:

- Code
- Description

This referential is used for Test Pack module. The test packs will be assigned to the System which is defined by the project. Both fields are mandatory.

Note: This referential will be integrated with easy plant.

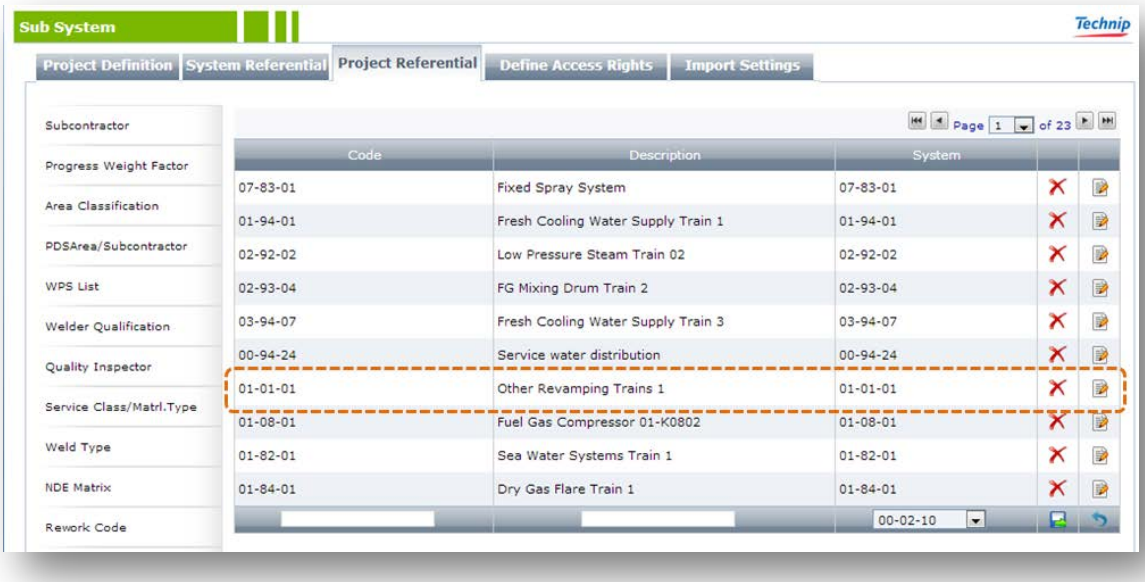
After every change press ( ) to update the details and user can use the icons ( ) & ( ) to delete and edit the details respectively.

3.20 Sub System

This screen allows the user to define the sub System which is linked to the System. This referential is used in the test pack module. The user needs to define the following details

- Code
- Description
- System

The column System will be auto drop down.

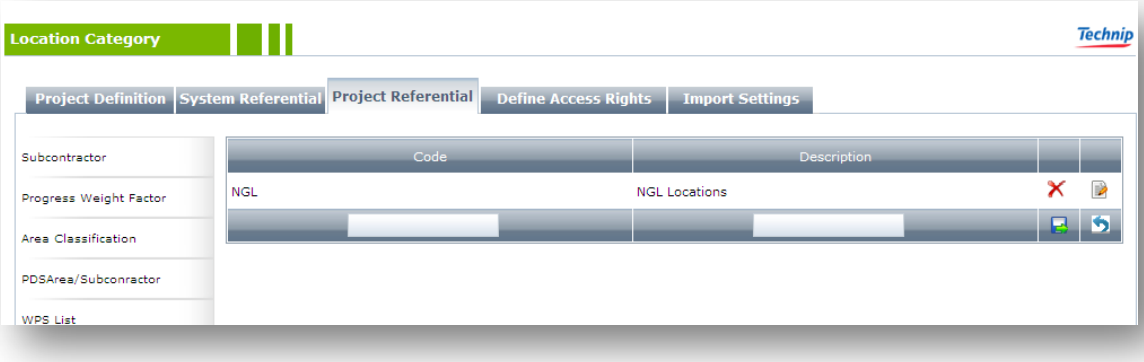


3.21 3.21 Line Checker Team

This screen helps the user to define the line checking teams for a specific project. The test packs or Isometrics will be assigned for the line checker team. This referential is used in the test pack module. The user needs to enter the code and description.

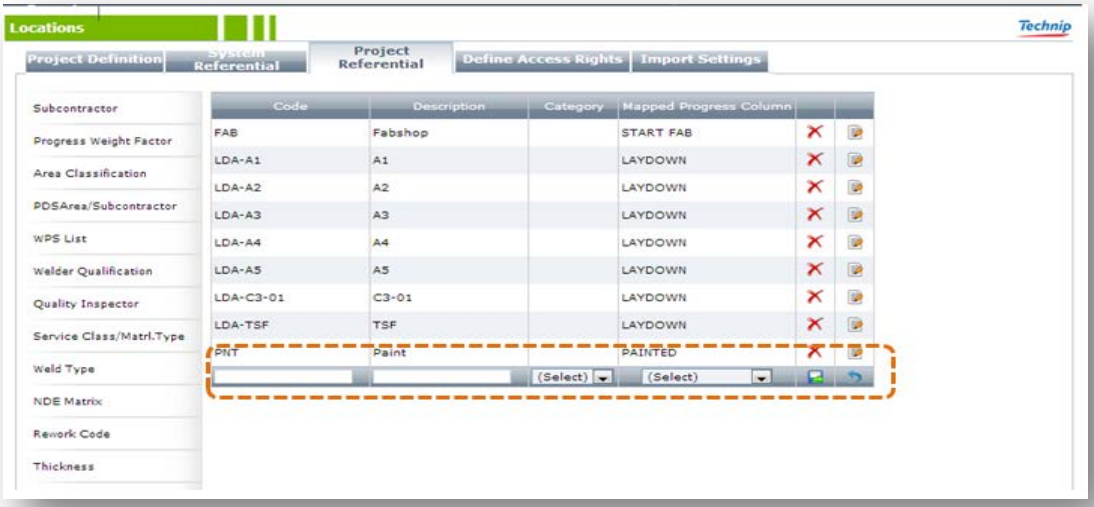
3.22 Location Category

This referential is used in the spool tracking module. This screen helps the user to define the code and descriptions for the different areas of a project.



3.23 Location

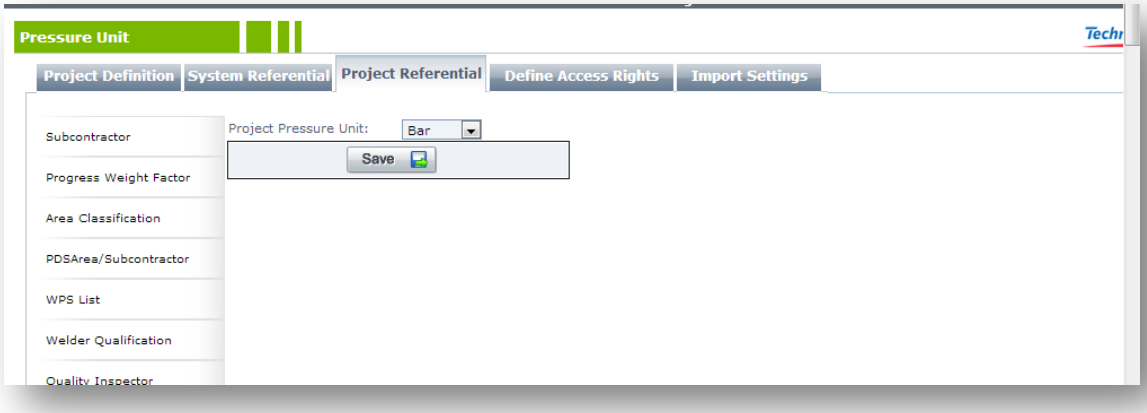
This referential is used in the spool tracking module. This screen helps the user to define the Code, Description, Category, Mapped progress columns. It establishes a relation between spool location and spool status where system will provide an analysis of consistencies.



3.24 Pressure Unit

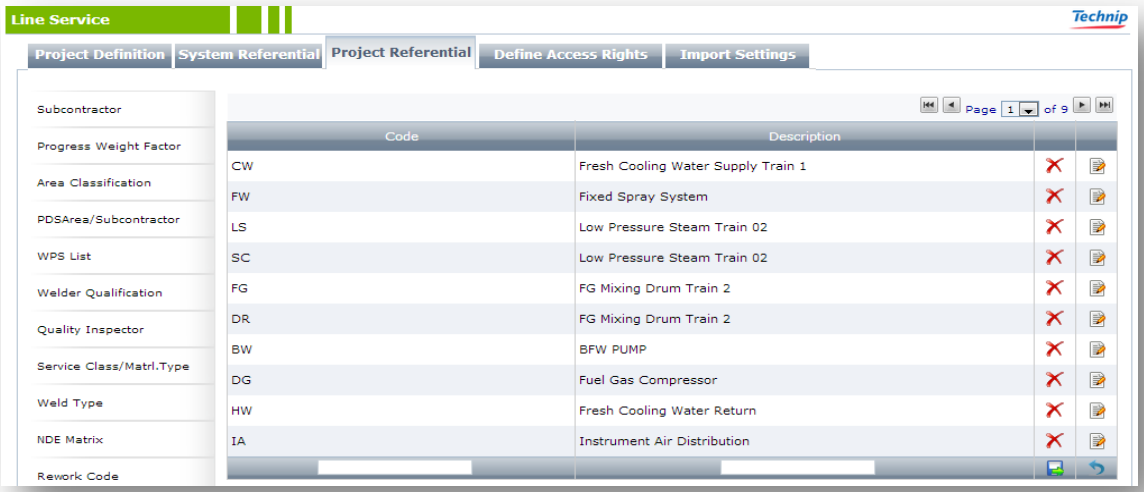
This is a referential for the assigned Pressure unit of the Project. Only one Pressure unit will be assigned to a project and this will be used to in Test Pack Builder Module when adding new Test Packs. Normally the following will be used on any project

- Bar
- Psi



3.25 Line Service

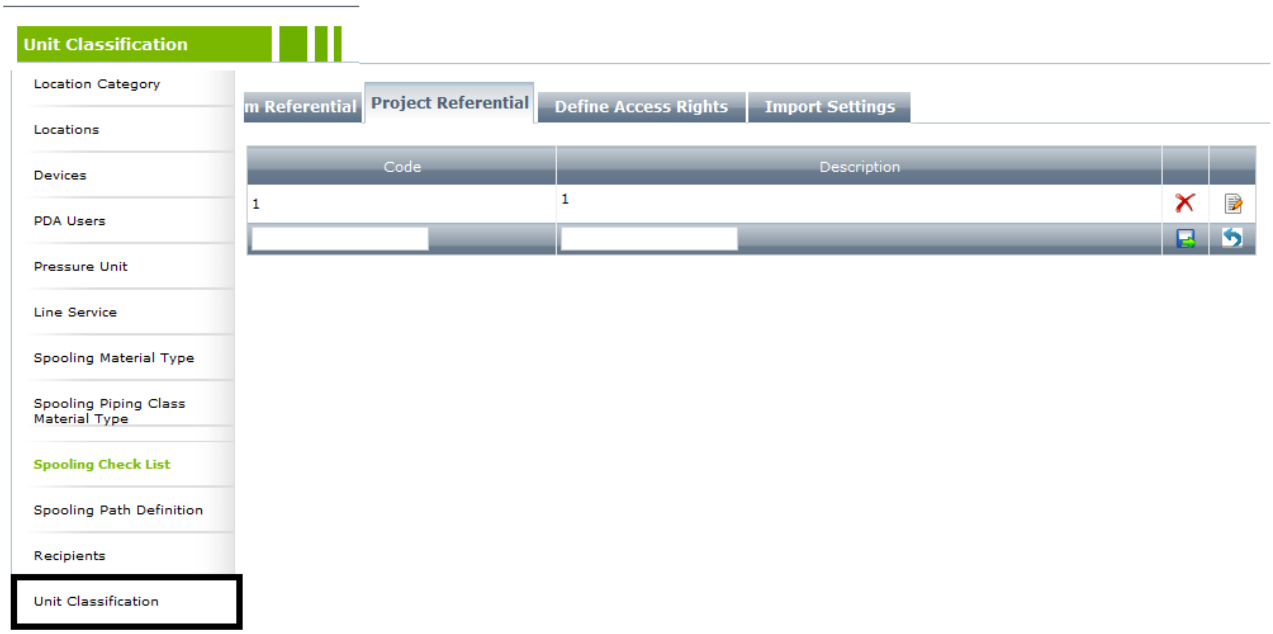
This screen helps the user to define the line service code and description. This is used in the testpack builder module to define the line service of the specific testpack.These codes will be the auto dropdown while creating a test pack.
Note: The Codes must be related to the line service code included in the spooled Iso's data



3.26 Unit Classification

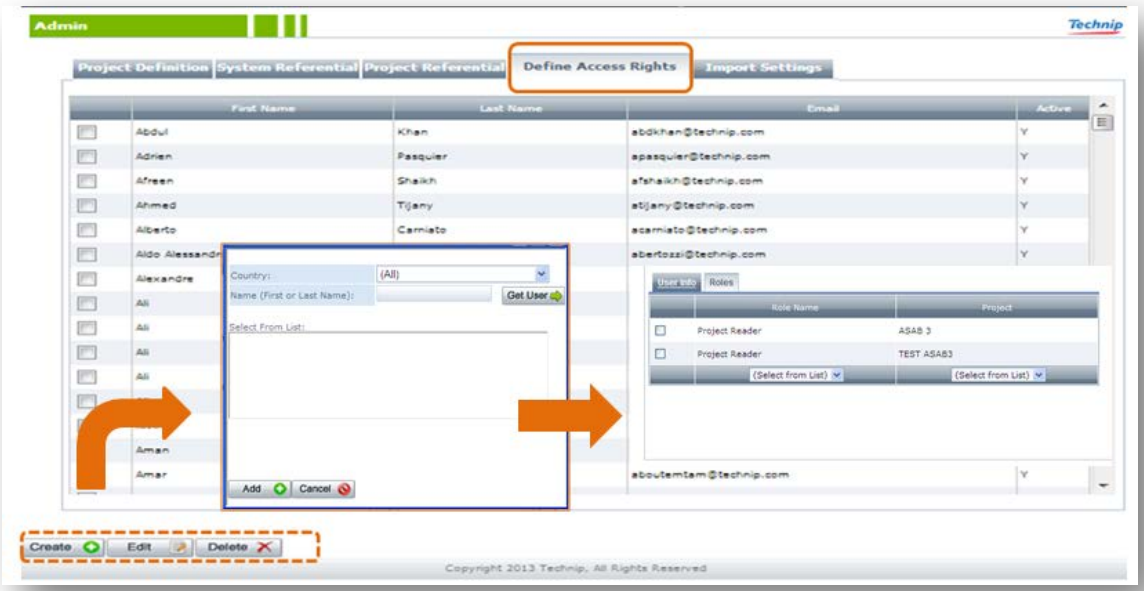
Unit Classification is another level of Hierarchy which stays above Area Classification. This screen helps user to define Units of the project. These Units are shall appear in “Area Classification” definition as drop down while defining Areas.

This Units shall appear in Report Filters as selection criteria while generating reports.



4. .DEFINE ACCESS RIGHTS

This module allows the administrator to create a new user and assign a role as per the project specific. The roles can be edit and deleted at any time. The role is based on project based, user can access to several projects with different rights.

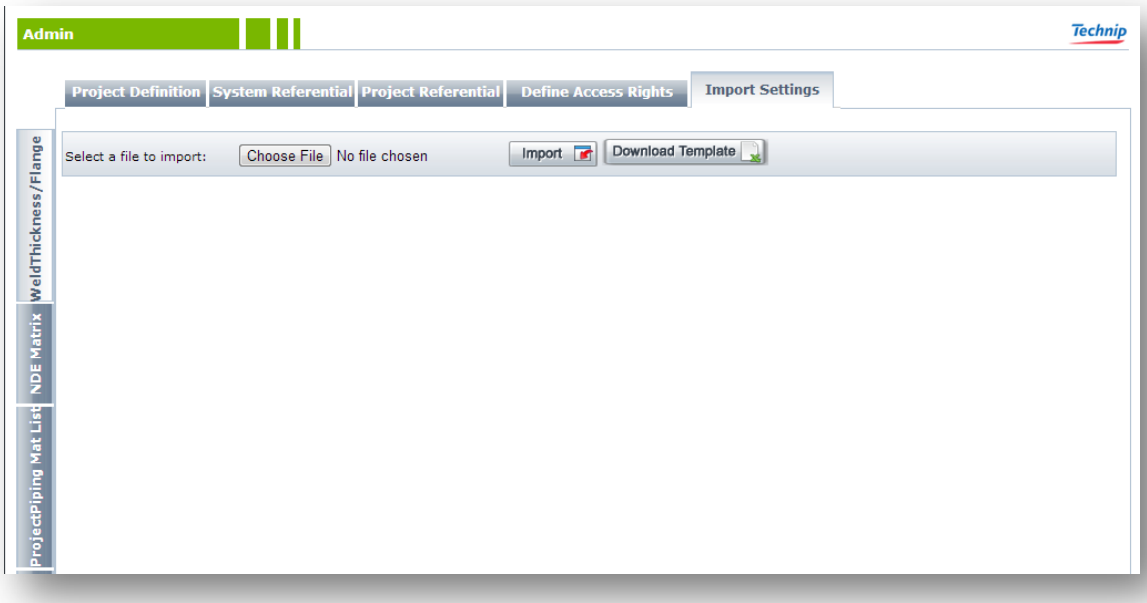


- When assigning a new user a “subcontractor” role, the System will display the list of subcontractors available for this project (from the “subcontractors” referential)
- Subcontractor can view only data related to his PDS area. This is maintained by forcing all the ‘’Subcontractor’ dropdown lists in all the screens to be disabled and set the selected value as logged-in subcontractor.

5. IMPORT SETTINGS

This module helps the user to generate an empty excel template in which the user can enter the relevant information and import into the System. There are several sub modules where the user can perform the imports for different kind of information which will be used throughout the process. These are the following sub modules available in this module.

- Weld thickness/Flange
- NDE Matrix
- Project Piping Material List
- Spooling Images
- Spooling Material
- Spooling Class Material



5.1 Weld Thickness/Flange

This module helps the user to generate an empty excel template in which the user can enter the weld thickness details and import to the System. The user needs to define the following details in the template

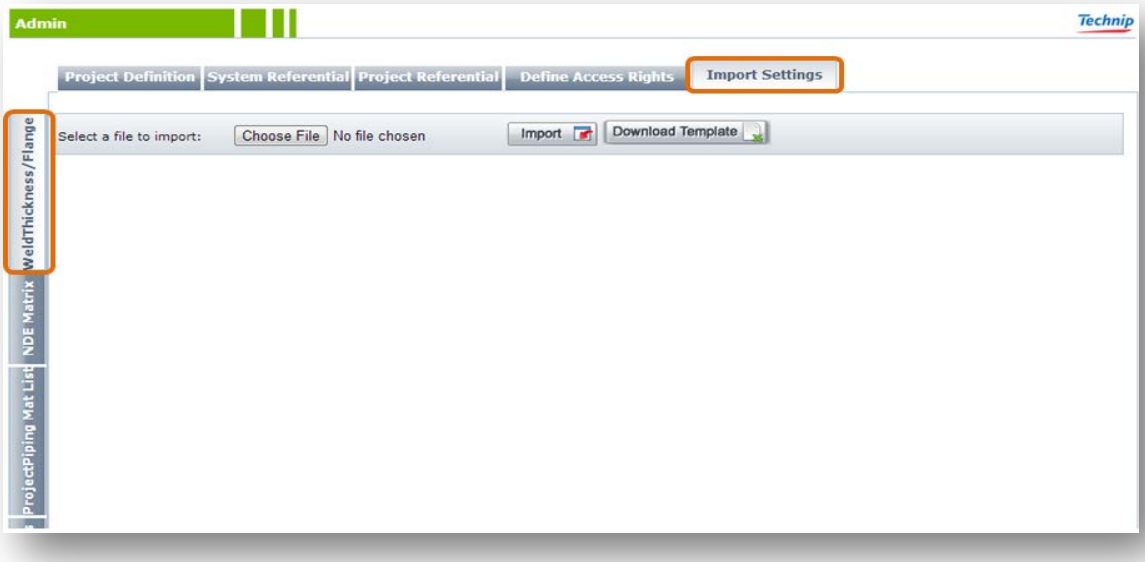
- Piping Class
- Dia Inch
- Thickness
- Flange Rating

The user should choose the option Download Template to generate the empty template.

During the import procedure the System will validate the information provided by the user. In this case the user needs to follow certain rules

- Piping class, Dia-inch, Thickness and Flange Rating are mandatory fields.
- There should be no duplicate entries, i.e., there should be only 1 thickness entry for a particular combination of piping class, dia inch and Flange Rating.
- Piping class entered in the excel file should exist in the project referential.
- Numeric values are only allowed for Dia-inch, Thickness and Flange Rating.

The user needs to click the Choose File option to select the file to import. After this action the user has to click on the Import option to import the file. By choosing the option Proceed the data will be saved successfully in the database.



5.2 Import NDE Matrix

This module helps the user to generate an empty excel template in which the user can enter the NDE Matrix details and import to the System. The user needs to define the following details in the template

- Location
- Piping class
- Weld Type
- RT%
- UT%
- MT%
- PT%
- PMI%
- PWHT
- HT%
- Material Traceability

The user should choose the option Download Template to generate the empty template.

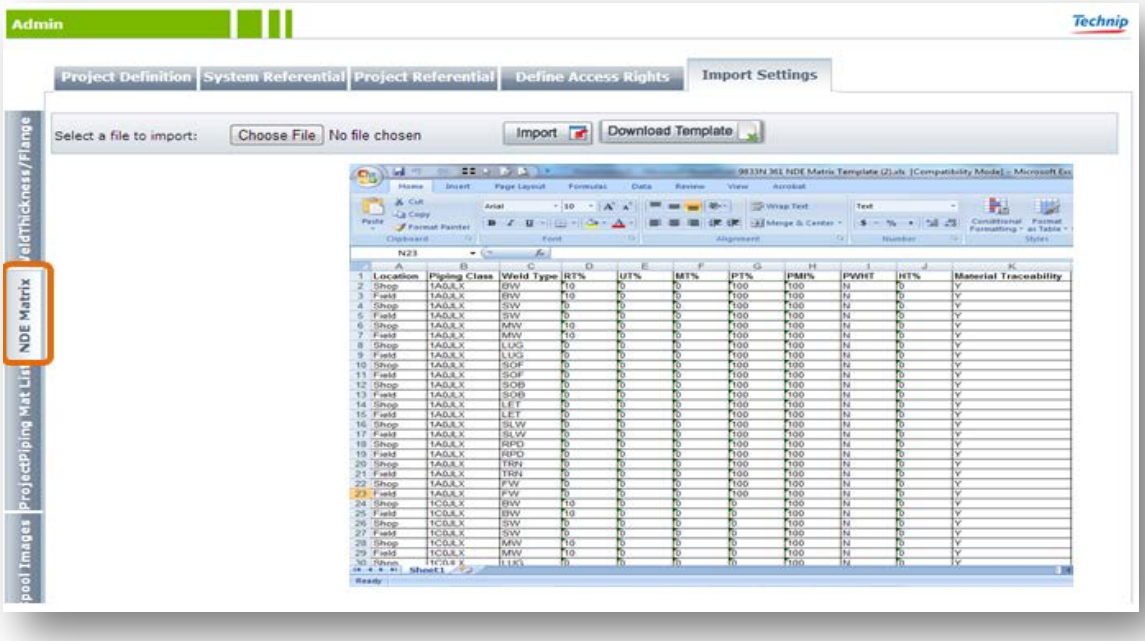
During the import procedure the System will validate the information provided by the user. In this case the user needs to follow certain rules

- Piping class entered in the excel file should exist in the project referential.
- Weld type entered in the excel file should exist in the project referential.
- 'Location' column should only have the values 'Shop' or 'Field'.
- RT, UT, MT, PT, PMI, HT should have values 0, 5, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100.
- PWHT and 'Material Traceability should only have values 'Y' or 'N'.

The user needs to click the Choose File option to select the file to import. After this action

the user has to click on the Import option to import the file. By choosing the option

Proceed the data will be saved successfully in the database.



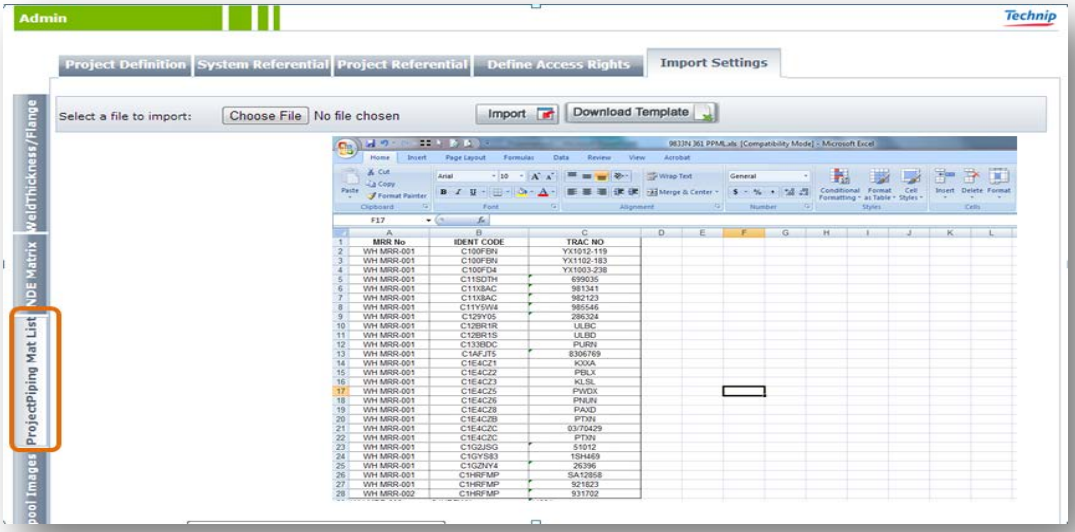
5.3 Import Project Piping Material List

This module helps the user to generate an empty excel template in which the user can enter the Project material details and import to the System. The user needs to define the following details in the template

- MRR No
- Ident Code
- Heat No.

The user should choose the option Download Template to generate the empty template.

The user needs to click the Choose File option to select the file to import. After this action the user has to click on the Import option to import the file. By choosing the option Proceed the data will be saved successfully in the database.

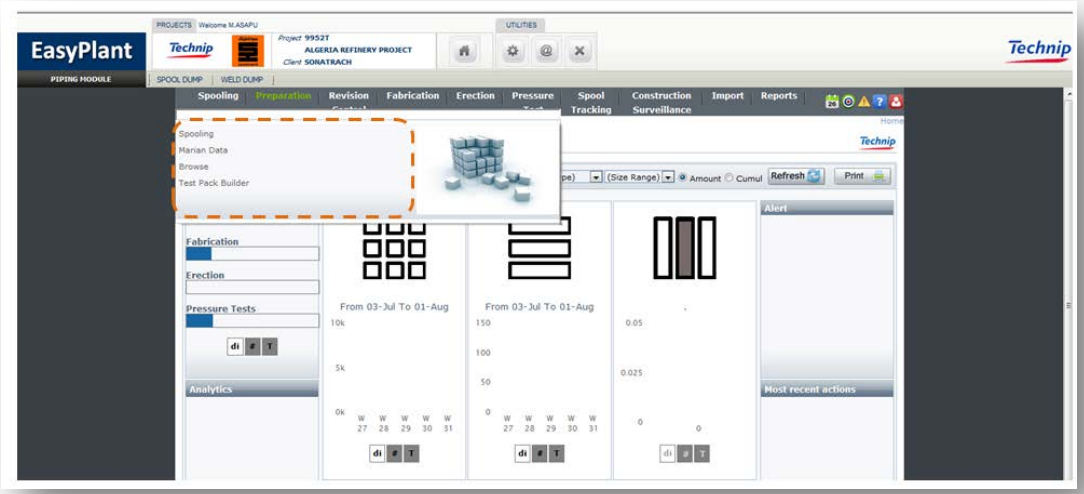

Admin
Technip
Project Definition
System Referential
Project Referential
Define Access Rights
Import Settings
Select a file to import:
Choose File
No file chosen
Import
Download Template
WeldThickness/Flange
NDE Matrix
ProjectPiping Mat List
pool Images

Easy Piping Part 2: Preparation

PREPARATION MODULE

The Preparation module is organized in 4 different sections. This module allows the user to import all the information's like spooling data, material status data which will be used during the operation phase. This module also helps navigate the status of latest and history of each isometrics. The details of each section are explained below in detail.

- Spooling
- Marian Data
- Browse
- Test pack Builder



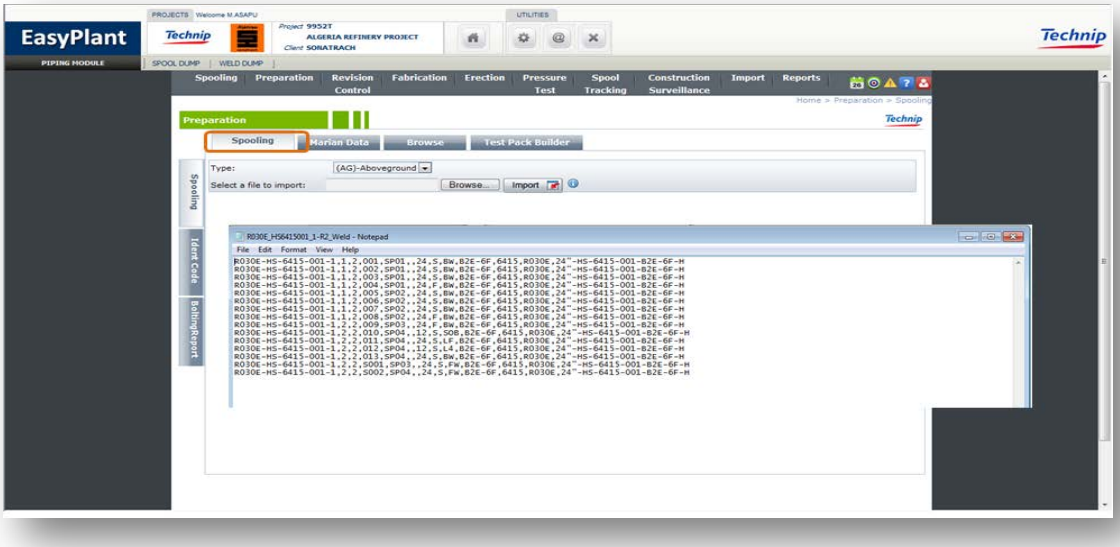
6. SPOOLING

This module is interrelated with the spooling outputs. This module helps the user to import the spooling information (Iso NO, Spool NO, Weld No, Size Etc.)Into Easy Piping. Both the New spooled Isometrics and revised spooled Isometrics are able to import in this screen. This information's are exported from the spooling in a predefined .txt or .csv format. This module is having 3 tabs which are namely "Spooling","Ident Code", "Bolting report" and works with the similar function.

ISOMETRIC NO	SHT	REV	WELD NO	SPL No	Field Pipe	SIZE	WELD CAT	WELD TYPE	SERVICE CLASS	WBU	PDS Area	PIPELINE NO
R030E-HS-6415-001-1	1	2	1	SP01		24	S	BW	B2E-6F	6415	R030E	24"-HS-6415-001-B2E-6F-H
R030E-HS-6415-001-1	1	2	2	SP01		24	S	BW	B2E-6F	6415	R030E	24"-HS-6415-001-B2E-6F-H
R030E-HS-6415-001-1	1	2	3	SP01		24	S	BW	B2E-6F	6415	R030E	24"-HS-6415-001-B2E-6F-H
R030E-HS-6415-001-1	1	2	4	SP01		24	F	BW	B2E-6F	6415	R030E	24"-HS-6415-001-B2E-6F-H
R030E-HS-6415-001-1	1	2	5	SP02		24	S	BW	B2E-6F	6415	R030E	24"-HS-6415-001-B2E-6F-H
R030E-HS-6415-001-1	1	2	6	SP02		24	S	BW	B2E-6F	6415	R030E	24"-HS-6415-001-B2E-6F-H
R030E-HS-6415-001-1	1	2	7	SP02		24	S	BW	B2E-6F	6415	R030E	24"-HS-6415-001-B2E-6F-H
R030E-HS-6415-001-1	1	2	8	SP02		24	F	BW	B2E-6F	6415	R030E	24"-HS-6415-001-B2E-6F-H
R030E-HS-6415-001-1	2	2	9	SP03		24	F	BW	B2E-6F	6415	R030E	24"-HS-6415-001-B2E-6F-H
R030E-HS-6415-001-1	2	2	10	SP04		12	S	SOB	B2E-6F	6415	R030E	24"-HS-6415-001-B2E-6F-H
R030E-HS-6415-001-1	2	2	11	SP04		24	S	LF	B2E-6F	6415	R030E	24"-HS-6415-001-B2E-6F-H
R030E-HS-6415-001-1	2	2	12	SP04		12	S	L4	B2E-6F	6415	R030E	24"-HS-6415-001-B2E-6F-H
R030E-HS-6415-001-1	2	2	13	SP04		24	S	BW	B2E-6F	6415	R030E	24"-HS-6415-001-B2E-6F-H
R030E-HS-6415-001-1	2	2	S001	SP03		24	S	FW	B2E-6F	6415	R030E	24"-HS-6415-001-B2E-6F-H
R030E-HS-6415-001-1	2	2	S002	SP04		24	S	FW	B2E-6F	6415	R030E	24"-HS-6415-001-B2E-6F-H

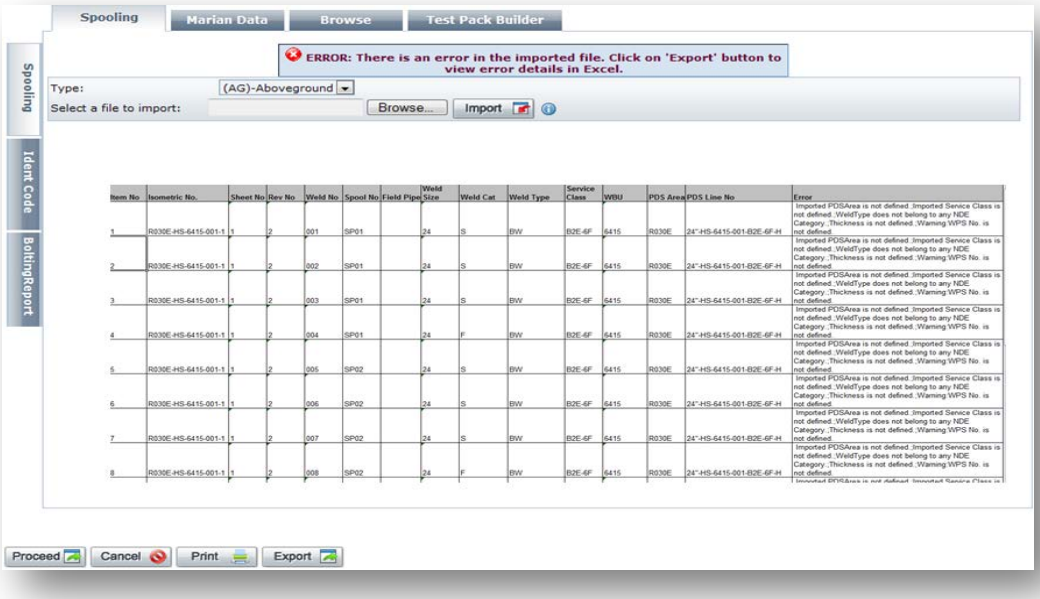
6.1 Spooling

In the spooling section. The user can use the Icon [Browse...] and select the file and use the icon [Import] to import all the weld data into Easy Piping. This information will be shown in the browse screens, fabrication and erection modules also.
Note: The file size should not exceed 4MB



Importing Data

Once the user imports the "weldsumm data" into Easy piping. The system will validate the information. If the file consist any errors the system will display an error message and user can able to export the error file. The user can choose the option Export to export the file.



Note:

• PSMS will validate whether PDS Area, Service class and Weld Type data that is being imported exists in the corresponding referential. If not, the import process will stop and the user will be notified.

• PSMS will validate whether the 'thickness' for the imported welds exist in the 'Thickness' referential by checking the weld's Piping class and dia-inch. If it exists, PSMS will assign the corresponding thickness to the weld, otherwise an error message will appear.

• PSMS will validate whether each imported weld has a corresponding NDE in the NDE matrix referential by checking the weld's location, piping class and weld type. If it does not exist, an error message will appear against the particular weld.

• PSMS will check that a WPS exists in the WPS list to cover new joints. If WPS (based on joint dia, thickness and material type) does not exist, PSMS will alert the user with a warning message but import can proceed.
• PSMS will check whether there are different entries for pipeline no. for a particular ISO. If so, the user will be alerted. An ISO should have the same pipeline no. for all spools and welds.
• PSMS will check whether there are different entries for service class for a particular ISO. If so, the user will be alerted. An ISO should have the same service class for all spools and welds.
• As long as the imported file is not validated by PSMS (contains errors), the import process will not be completed.
Once all the errors are rectified by the user the system will display the results.

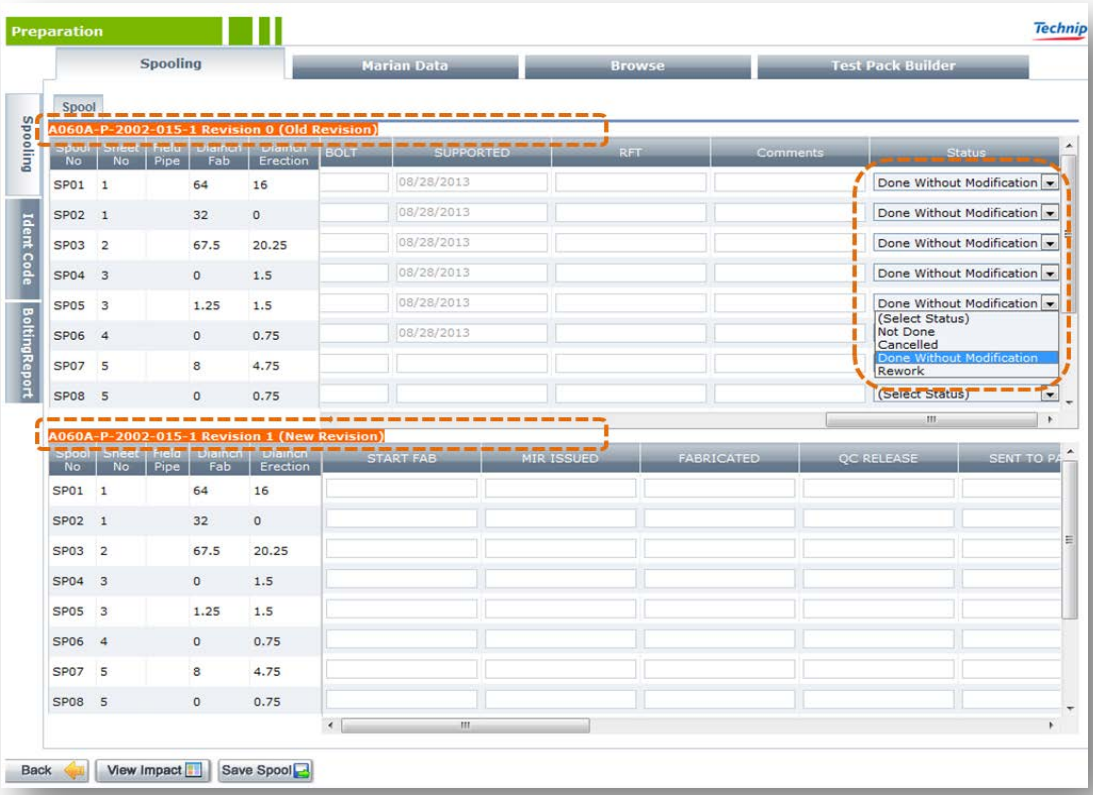
Revision Management

If the imported data have no previous revisions (For ex: Importing ISO R0 for the first time) associated to it in the database, then Easy Piping will simply import the data to the database.
In case the imported data is having a previous revision (For ex: Importing ISO R1 or R2 or R3, etc. when R0 already exists in the system) stored in Easy Piping, then the revisions management process will be triggered.
The revisions management process will alert the user informing him that a previous revision of the imported data was found, the user can select to proceed to resolve the conflict and take action, or he can choose to cancel the entire import process.

If the user chooses to proceed, Easy Piping will display a list of all the ISOs which are found to have a previous revision in the database, next to each ISO, there will be a “status” column to indicate whether the conflict of each ISO has been resolved or not. The user can click on each of the ISO’s one by one to resolve the conflict.

Each time the user selects an ISO to resolve the conflict, a wizard will be launched to allow the user to visually compare the definition and progress information related to the new version versus the previous version of each spool. The wizard starts by comparing the prefabrication and erection in the same screen, and if necessary the welds related to each ISO. In each step, the system will show the original progress data on the top, versus the new data in the bottom.

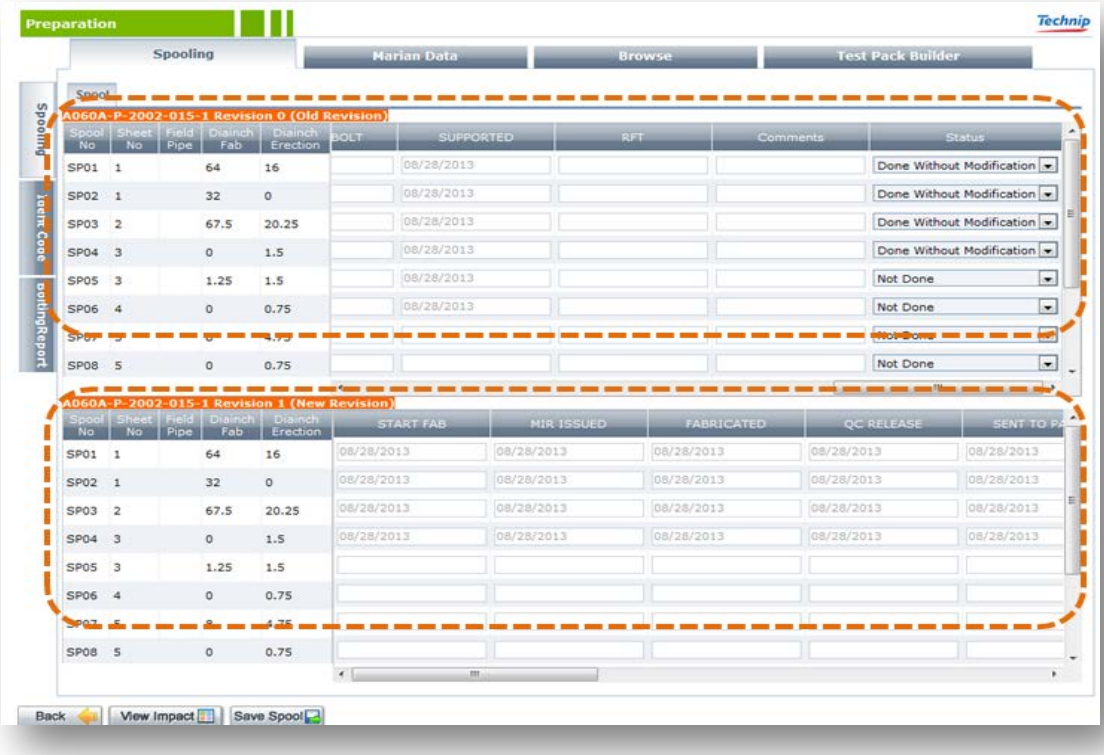
When comparing between a spool of an older revision and a spool of a newer revision, the older ones will appear on top with all progress information related to “Prefabrication” and “Erection” on the same grid, while in the bottom the revised spool will appear with blank progress information.



the progress information will either be copied to the newer revision of the spool or not, as explained in the table below:

	Status	Action	Check Weld?
	Not Done	The user will select this value if there is no progress information. No action to be taken in this case, the newer version of the spool will remain empty, same applies to the weld	No
	Cancelled	The user will select this value if the spool has been cancelled. No action to be taken in this case, the spool will not appear in the newer revision.	No

	Done, but revised w/o modification	This value refers to Spools which are fabricated in the older revision, but the newer version of the spool hasn't changed, so the progress information of the older revision will be copied to the newer revision. Weld progress information of the older revision will also be copied to welds in the newer revision. The 'Spool Revision No.' will remain the same.	No.
	Rework	If the user selects this value, it means that the spool in the older revision has been fabricated (or fabrication has started) but it has changed in the newer revision, which will result in rework. In this case, the system will copy the "Fabrication Start Date", "Sent to Paint" and "Paint" from the older revision to the new revision. The system will force the user to go to the level of the weld, and validate welds one by one. The 'Spool Revision No.' will also be changed to the new ISO rev no.	Yes

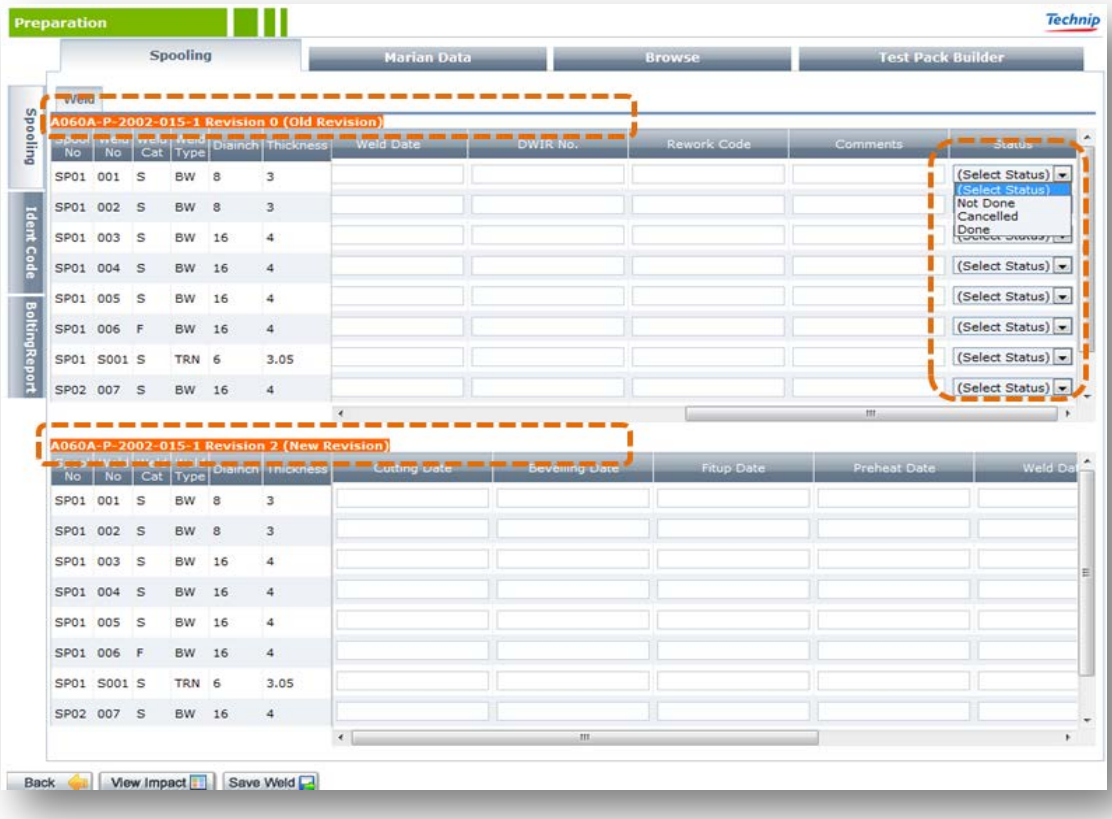


Concerning the weld progress, the "status" column will also apply based on the following values (this is only considered if the spool is "Rework"):

	Status	Action

	Not Done	The user will select this value if there is no progress information. No action to be taken in this case, the newer version of the weld will remain empty.
	Cancelled	The user will select this value if the weld has been cancelled. No action to be taken in this case, the weld will disappear in the newer revision.
	Done, but revised w/o modification	This value refers to welds which are fabricated in the older revision, but the newer version of the weld hasn't changed, so the progress information of the older revision will be copied to the newer revision.

When the user has finished resolving the conflict of a specific ISO, Easy Piping will redirect the user back again into the first screen which displays the list of ISO's to be resolved , the status of the resolved ISO's will be updated to indicate that the conflict was resolved. This process will keep going until the user has finished resolving the conflict for all the ISO's. The user can then finish the process and complete the import. Once the import process is successfully finishes, the system will assign automatically all the new revision numbers to the spools impacted.

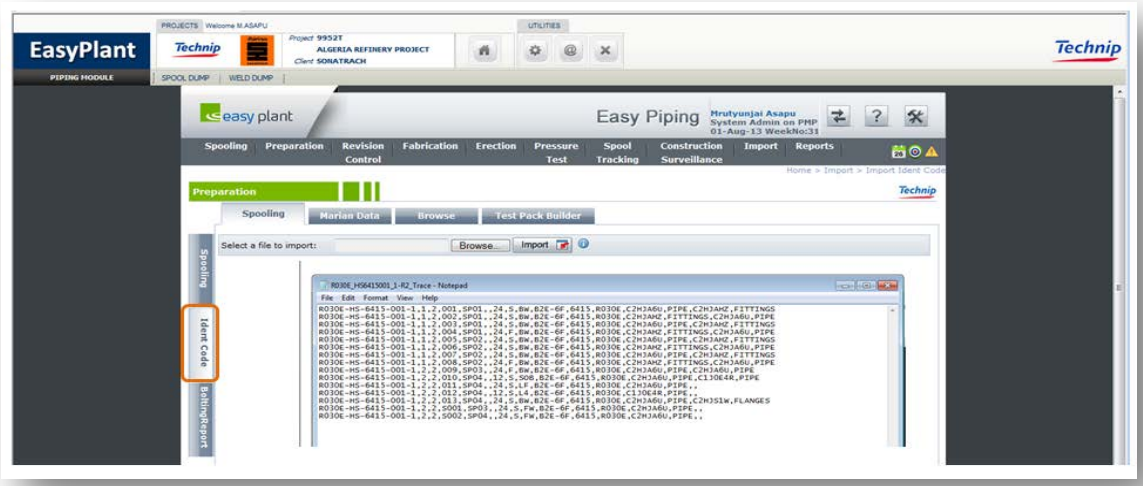


This revision management can be done manually without .txt file. The user can edit the Isometrics by using "Manual revision management" which is generally used by site spooling team. The detailed process is explained in the Para 6.5.3

6.2 Ident Code

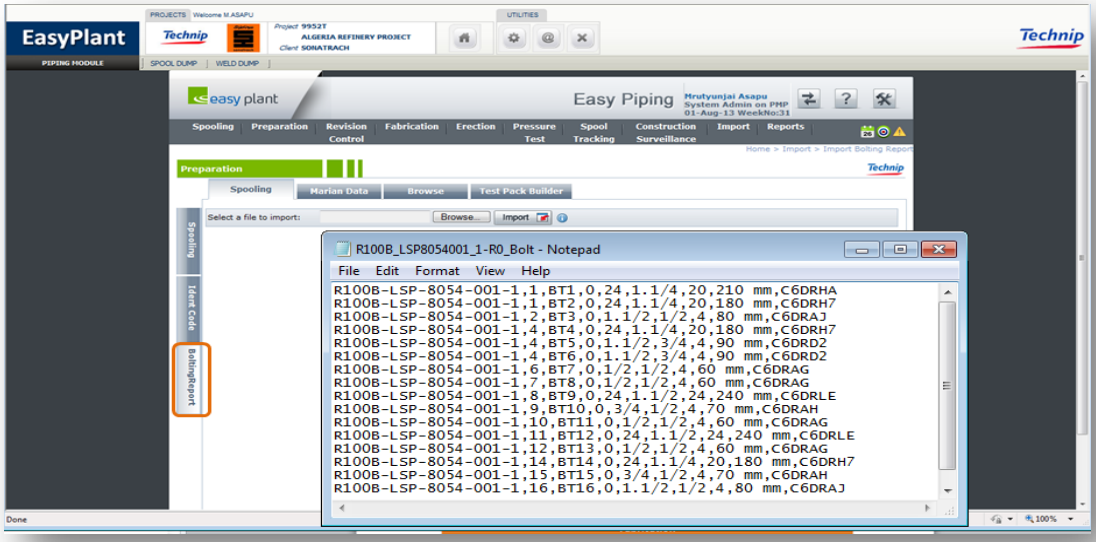
In the Ident code section, the user can use the Icon Browse... and select the file and use the Icon Import to import all the trace files from spooling output .txt files into Easy Piping. This Information will be shown in the material traceability screen. (Refer to Para 7.2)

Note: The file size should not exceed 4MB



6.3 Bolting Report

In the bolting report section, the user can use the Icon Browse... and select the file and use the Icon Import to import all the Bolting records from spooling outputs .txt files into Easy Piping. This information will be shown in the Erection progress screen.

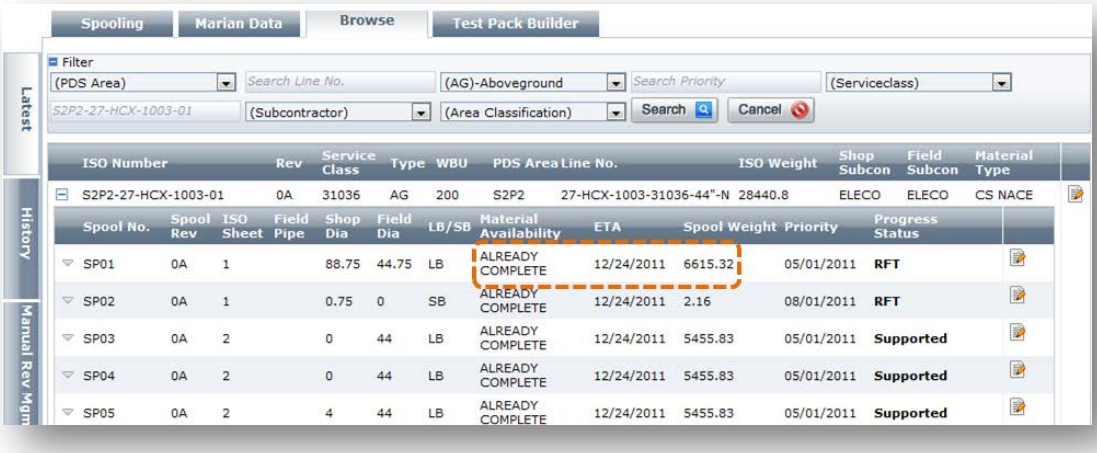


6.4 Marian Data

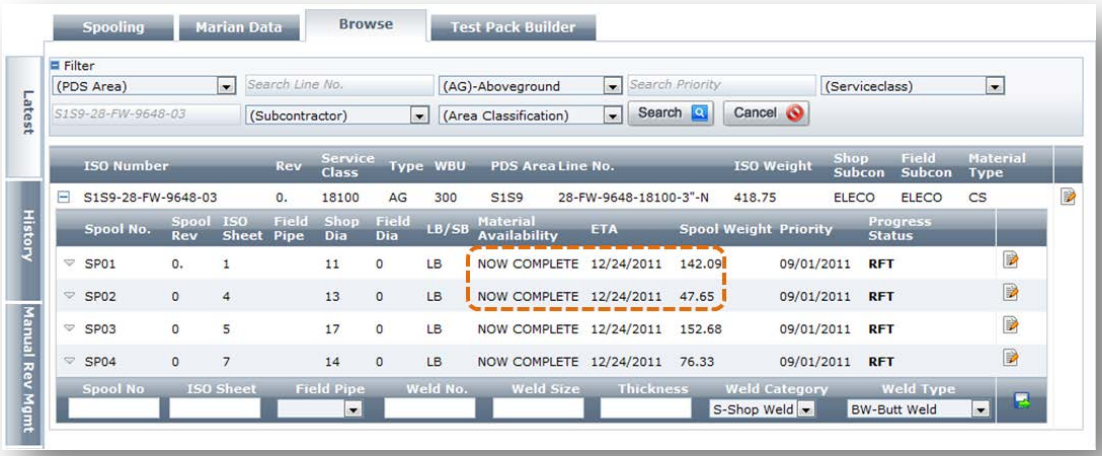
This module helps the user to import the material status “Marian Data” and this file is generated from SP-MAT (Marian). SP-MAT forecast runs and reservation runs are executed by spools. The export file from Marian will have the information of material status and weight of each spool. This should be an excel format with specified columns which is designed for Easy Piping Import.

The user can use the Icon [Browse...] and select the file and use the Icon [Import] to import the Marian data into Easy Piping. This information will be seen in the browse screens, where the weight of each spool, forecast dates of material arrival and status of the spools are shown as

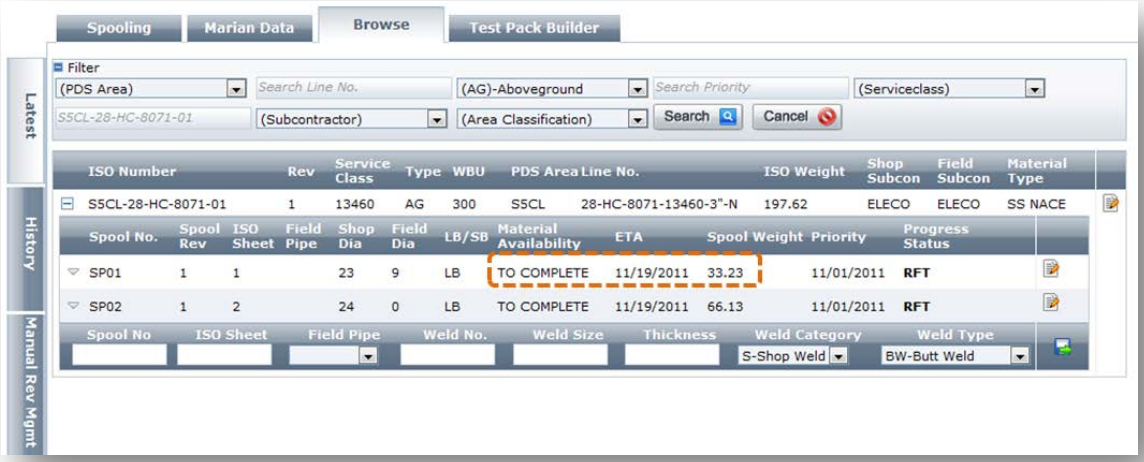
- ALREADY COMPLETED: This status states that all the materials required for a particular spool have been already issued or reserved before the forecast run. SP-MAT will consider that materials are reserved until they are on a MIR and the MIR is posted. Some of the reserved materials might therefore have been already given to contractor (MIR not yet posted) whereas some have not yet been given to contractor (not yet on a MIR). The date of availability for such spools will be determined based on the latest availability of its items: items already on MIR will be considered available at the issue date attached to the MIR whereas materials not yet on MIR will be considered available at the date of the Forecast run.



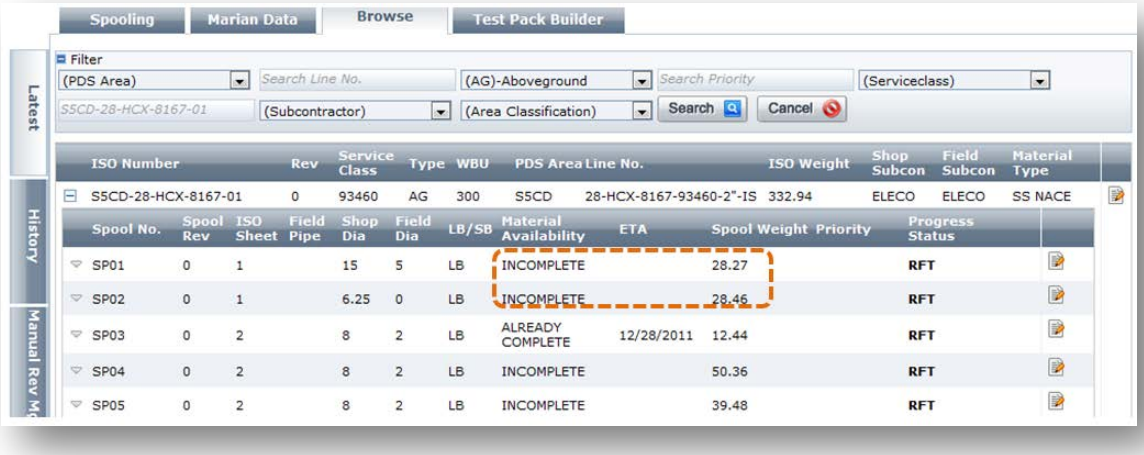
- NOW COMPLETE: This status states that all the materials of a required spool are available at the date of forecast run.



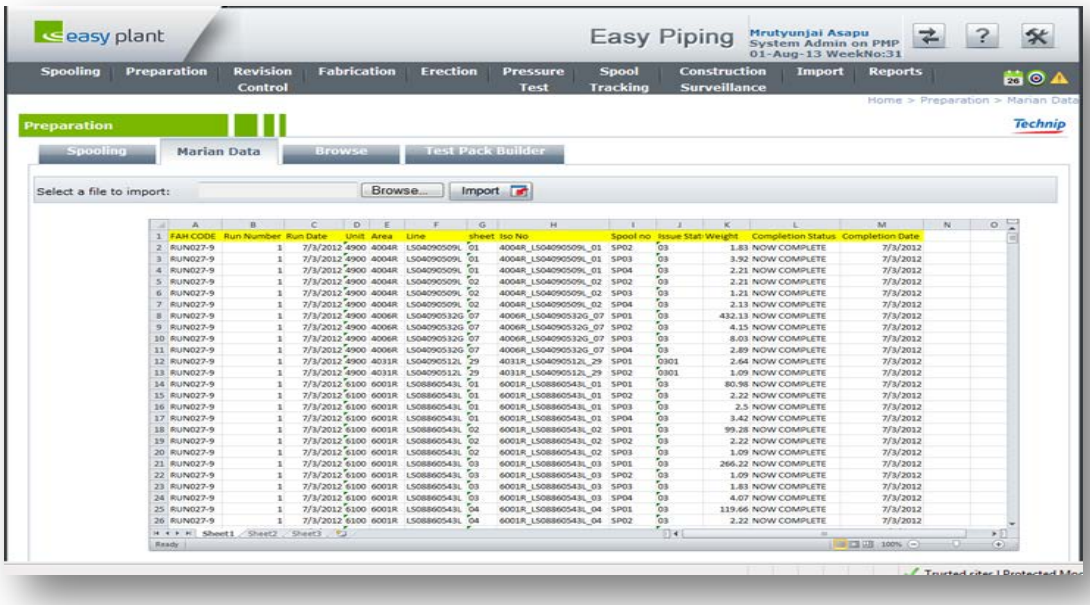
- TO COMPLETE: This status states that the forecast run has identified all the materials but some materials are not available in the ware house and the forecast run has found all the materials in the Purchase Order(PO) with the last material date available.



- INCOMPLETE: This status states that all the materials of a particular spool are not available and there is no date for full availability of material of that spool.



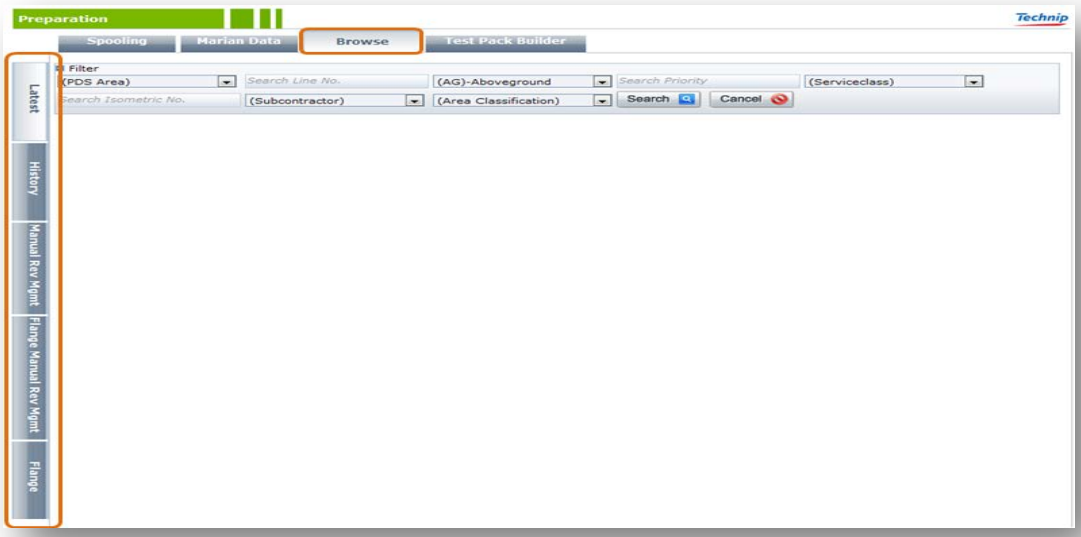
The Import file should not contain any inappropriate data. If the file is having any errors, the system will alert the user with the appropriate error message and by highlighting the error in red color. If any of the imported data will overwrite the data in the database, it will be highlighted in yellow to alert the user.



6.5 Browse

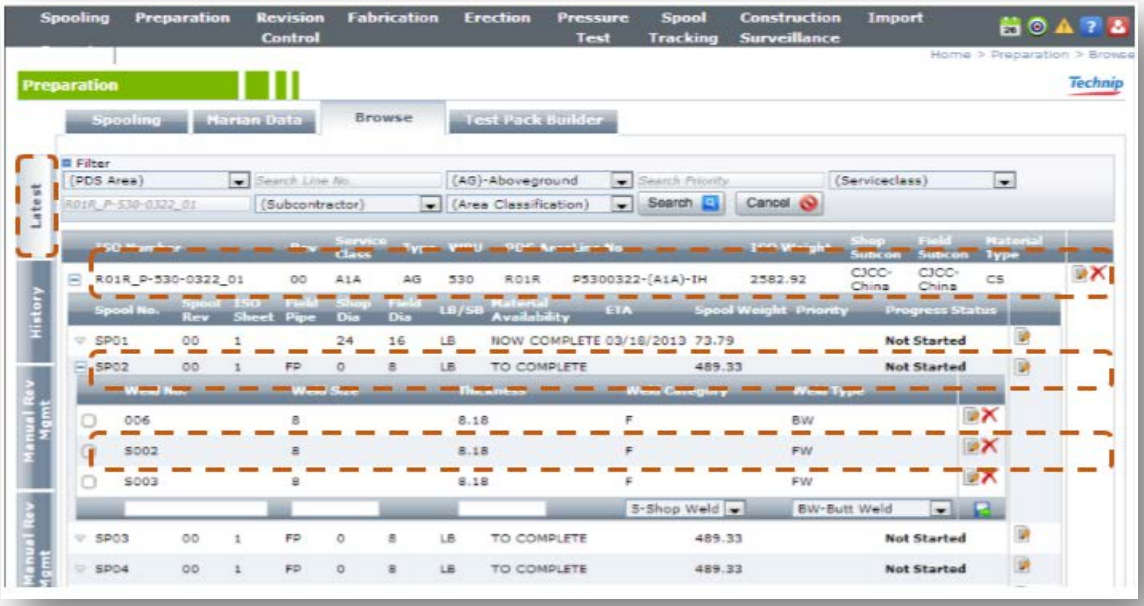
This module helps the user to navigate in a hierarchical manner between the Isometrics, Spools and welds. It will allow the user to view all the information related to each category (Iso, Spool and weld). The user with proper rights like system admin or project admin can also edit some information in this screen. This module is organized in the following tabs as below mentioned.

- Latest
- History
- Manual Revision Management



6.5.1 Browse Latest

This module helps the user to search different parameters from the filters like PDS area, Line No, Isometric No, Service class, Subcontractor, Area Classification etc.
In this menu, the search results will display the latest information in a hierarchical format starting from the ISO, the user can select to expand and explore a specific Iso and related spools also will appear, the user can roll down to the level of the weld to explore the welds belonging to a specific Spool.



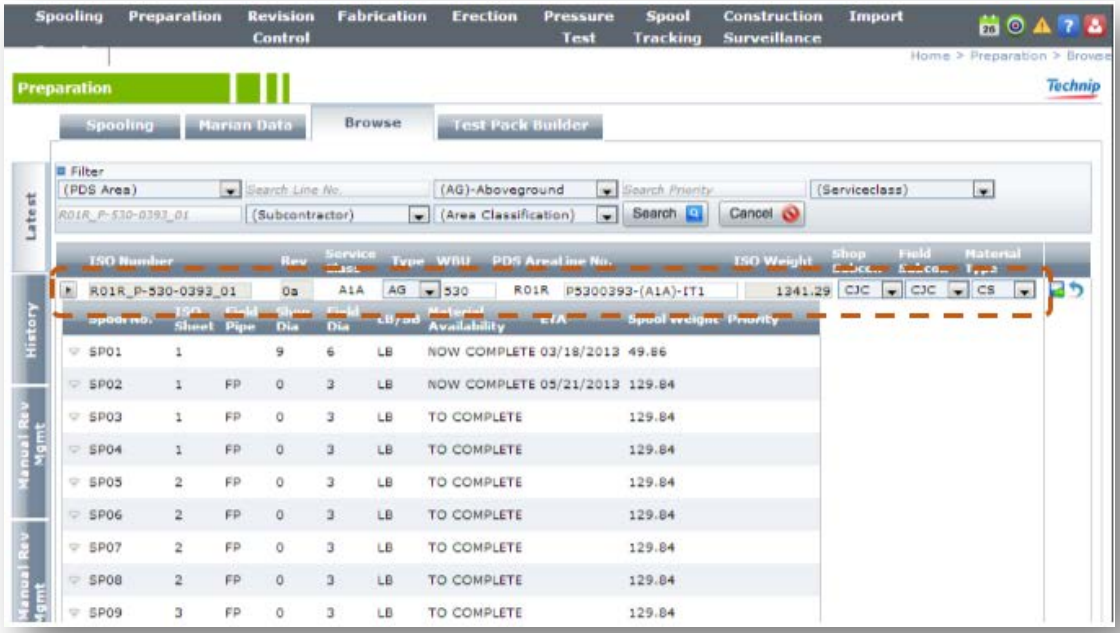
This module helps the user also to edit some information like

- -Type
- -Shop subcontractor
- -Field subcontractor
- -Material type

The above fields can edited at any time during the project phase, The shop and Field subcontractor can edited on Iso level as mentioned in the (Refer to Para 3.4)
Note:

- All the welds in a given spool cannot be deleted. A spool should have at least 1 weld.
- When a weld is progressed, the user cannot delete the particular weld, spool or ISO, i.e., if an ISO or spool has even 1 weld that is progressed, then it cannot be deleted. Only welds that are not progressed can be deleted.
- When a weld is progressed, then that particular weld cannot be edited.
- When an ISO is deleted, PSMS asks the user whether it is a Soft Delete or Hard Delete.

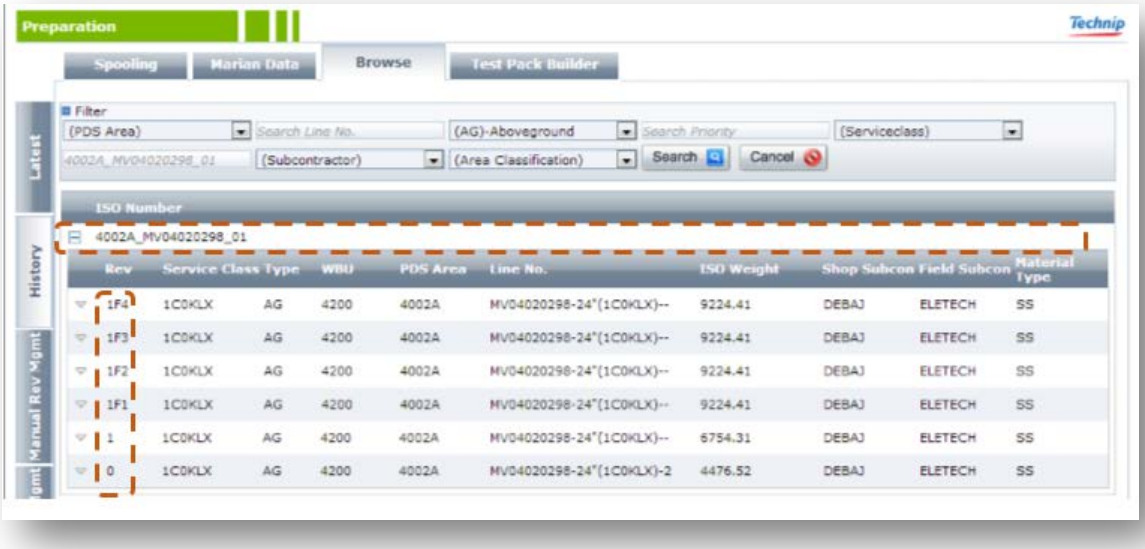
Soft delete means that the deleted ISO will go to “Browse History” with a status=”soft deleted” and comments= date/by (whom deleted).
Hard delete means that the record (ISO, Spool, and Weld) will be deleted permanently from the database.
The user can use this ( ) Icon to edit the information and ( ) to save the information.

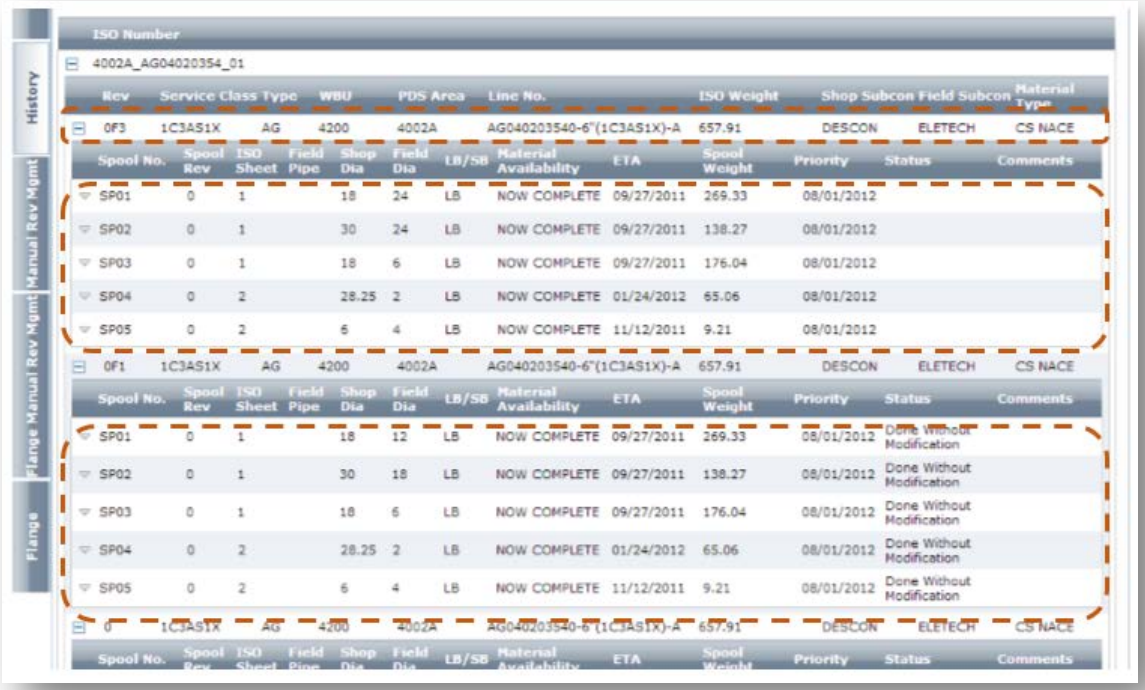


6.5.2 Browse History

This module helps the user to view the history of an Isometric with his various revisions. In this module the user cannot edit any information. The ISO's that have been soft deleted from the "Browse Latest" will appear in the "Browse History". the search results will display all the information in a hierarchical format starting from the ISO, the user can select to expand and explore a specific Iso and related spools also will appear, the user can roll down to the level of the weld to explore the welds belonging to a specific Spool.
In terms of the information displayed in the screen, the same columns of "Browse Latest Revision" will appear in "Browse History", in addition to that, an extra field "Comments" will appear in the level of the spool and weld. The comments column can have different information depending on the following:

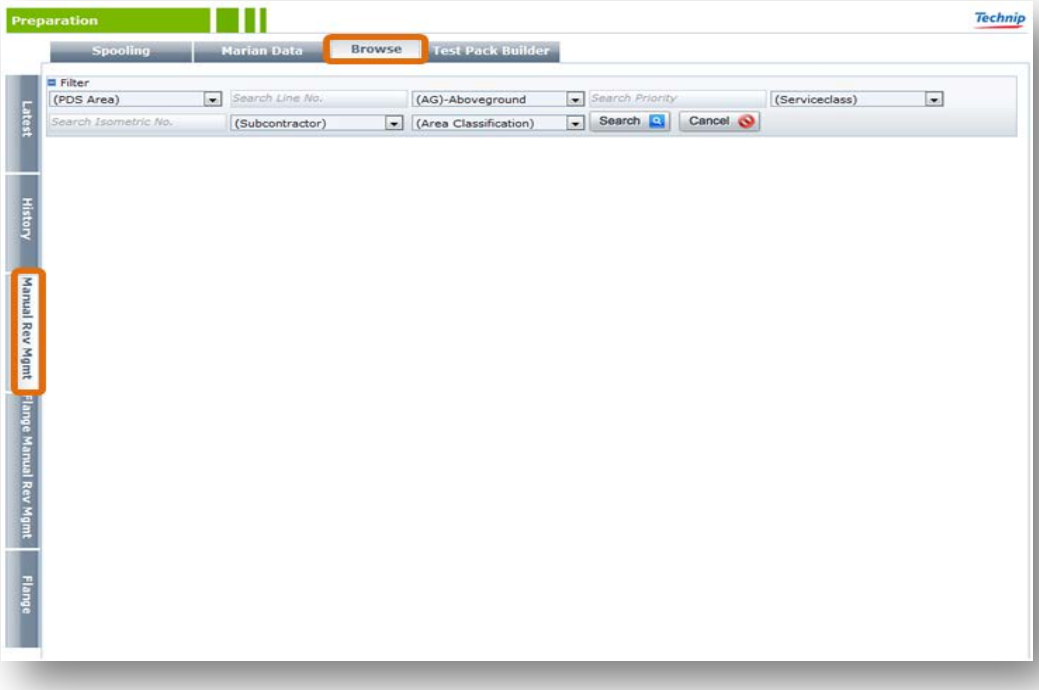
- In a revised ISO/Spool/Weld, the "comments" column will display information on the status of each spool and weld when revised (not done, done without modifications, rework, cancelled).
- In a soft-deleted ISO, the "comments" column will display information related to who/when the ISO was soft-deleted.



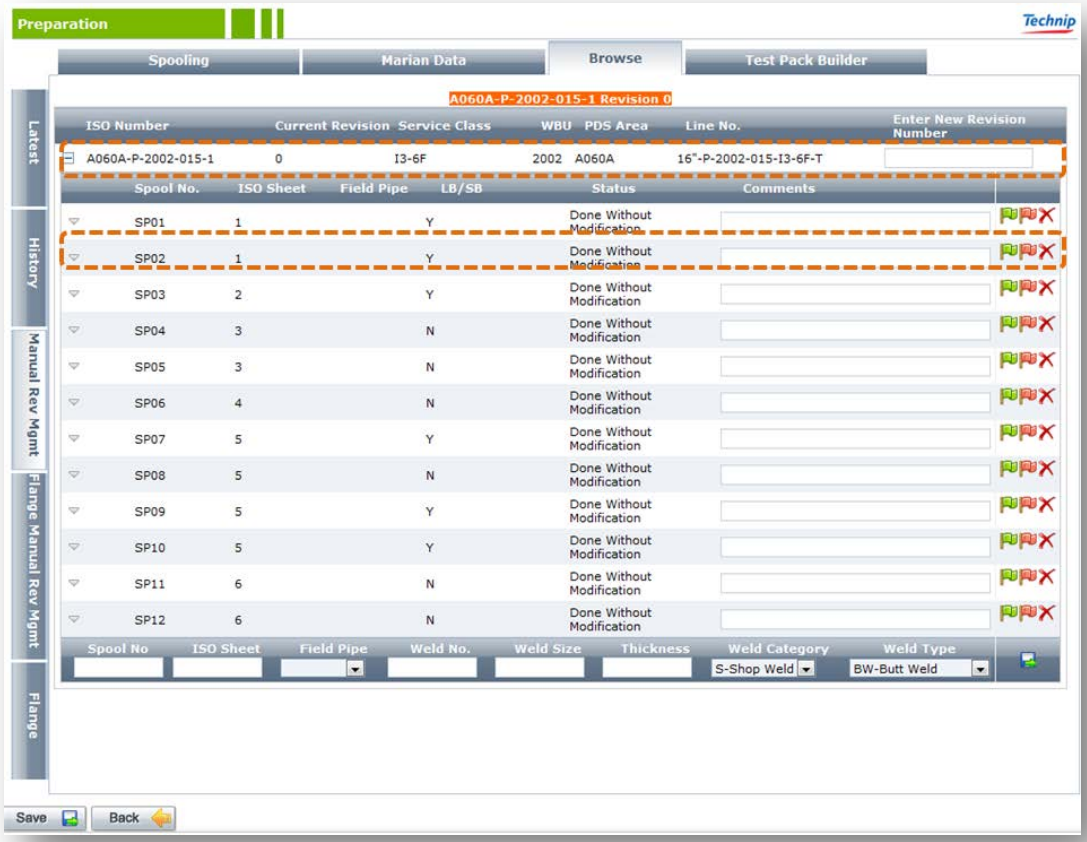


6.5.3 Manual revision Management

This module helps the user to do revision management manually. In this module the user can revise the isometric without the use of spooling .txt file. This module will be mostly used by the site spooling team to revise the field revision Isometrics.



The user can search the isometrics from the fields as shown above, upon searching the isometrics the system will display the list of isometrics as a dropdown and the user can select the required isometric.
After selection of Isometric, the system will take to the revision management screen where the user can revise the isometric as required. The system will show in a hierarchical manner with a default spool status “Done without Modification”



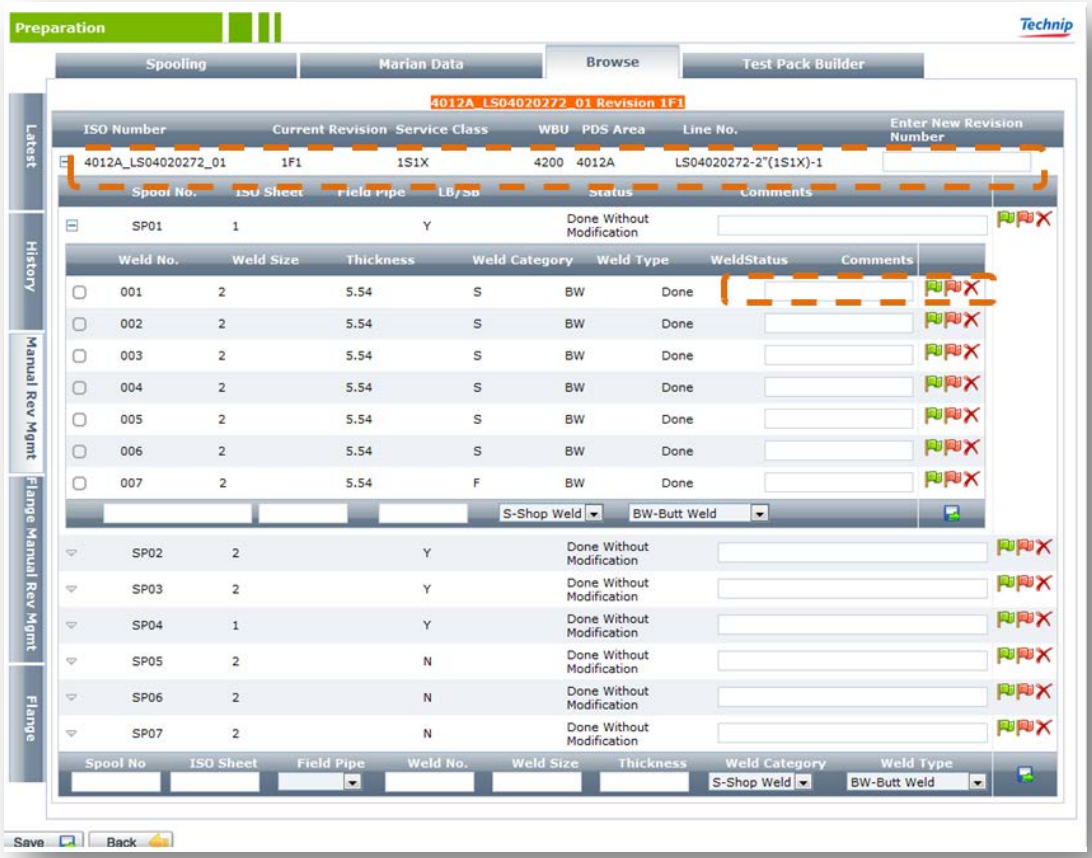
In this screen, the user needs to put the revision number manually and add the comments wherever required during the revision process. All the previous revisions will go the browse history where user can view the changes made in that particular revision.

The progress information will either be copied to the newer revision of the spool or not, as explained in the table below:

	Status	Action	Check Weld?
	Not Done	The user will select this value if there is no progress information. No action to be taken in this case, the newer version of the spool will remain empty, same applies to the weld	No
	Cancelled	The user will select this value if the spool has been cancelled. No action to be taken in this case, the spool will not appear in the newer revision.	No
	Done, but revised w/o modification	This value refers to Spools which are fabricated in the older revision, but the newer version of the spool hasn't changed, so the progress information of the older revision will be copied to the newer revision. Weld progress information of the older revision will also be	No.

		copied to welds in the newer revision. The 'Spool Revision No.' will remain the same.	
	Rework	If the user selects this value, it means that the spool in the older revision has been fabricated (or fabrication has started) but it has changed in the newer revision, which will result in rework. In this case, the system will copy the "Fabrication Start Date", "Sent to Paint" and "Paint" from the older revision to the new revision. The system will force the user to go to the level of the weld, and validate welds one by one. The 'Spool Revision No.' will also be changed to the new ISO rev no.	Yes

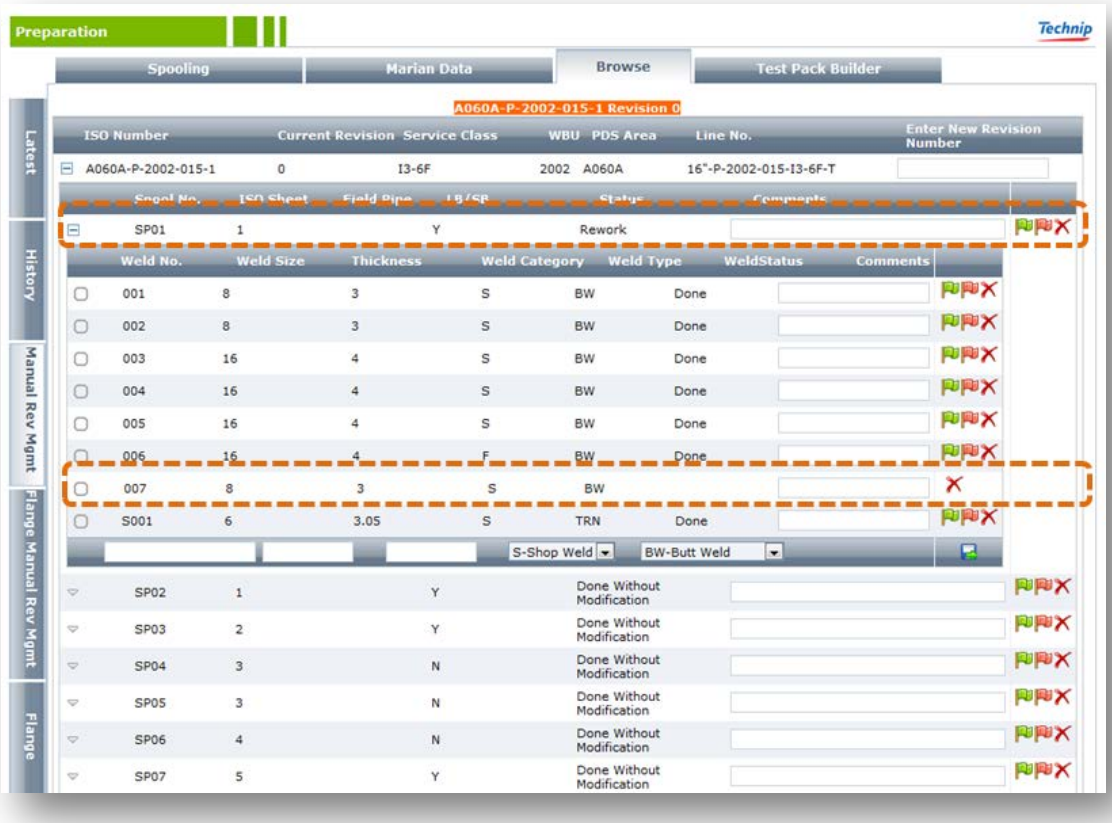
The user can click on the Icon ⊟ to "expand" to view on weld level.



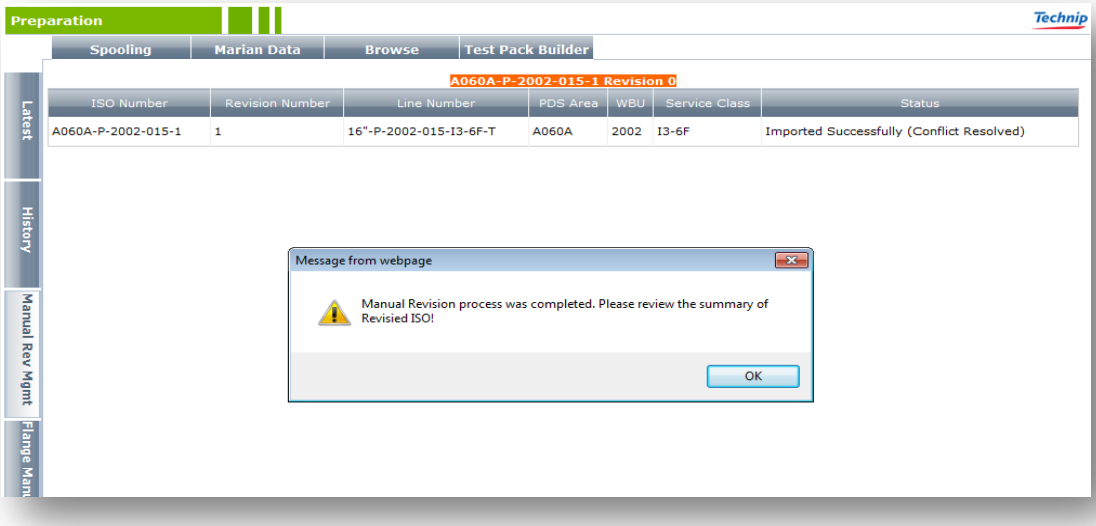
If the user goes to the weld level and did any actions then spool will consider as 'Rework'. For example,
If user add new joint or made any modification to the existing joint then the spool status will changed to 'Rework; automatically.

Concerning the weld progress, the “status” column will also apply based on the following values (this is only considered if the spool is “Rework”):

	Status	Action
	Not Done	The user will select this value if there is no progress information. No action to be taken in this case, the newer version of the weld will remain empty.
	Cancelled	The user will select this value if the weld has been cancelled. No action to be taken in this case, the weld will disappear in the newer revision.
	Done, but revised w/o modification	This value refers to welds which are fabricated in the older revision, but the newer version of the weld hasn’t changed, so the progress information of the older revision will be copied to the newer revision.



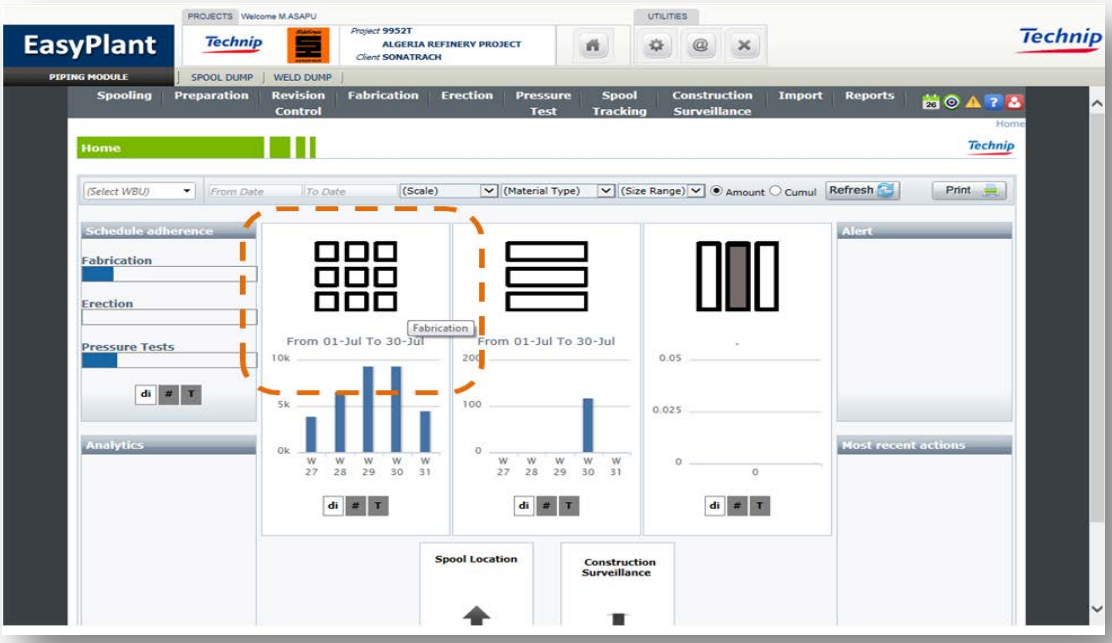
The user should choose the option (Save) to save the manual revision process. Before save, user has to enter the new revision number of the specific ISO. If the entered ISO Revision number is already exists system will discard the revision number then user has to enter new revision number accordingly.
Once the process is finished the system will display the below pop up

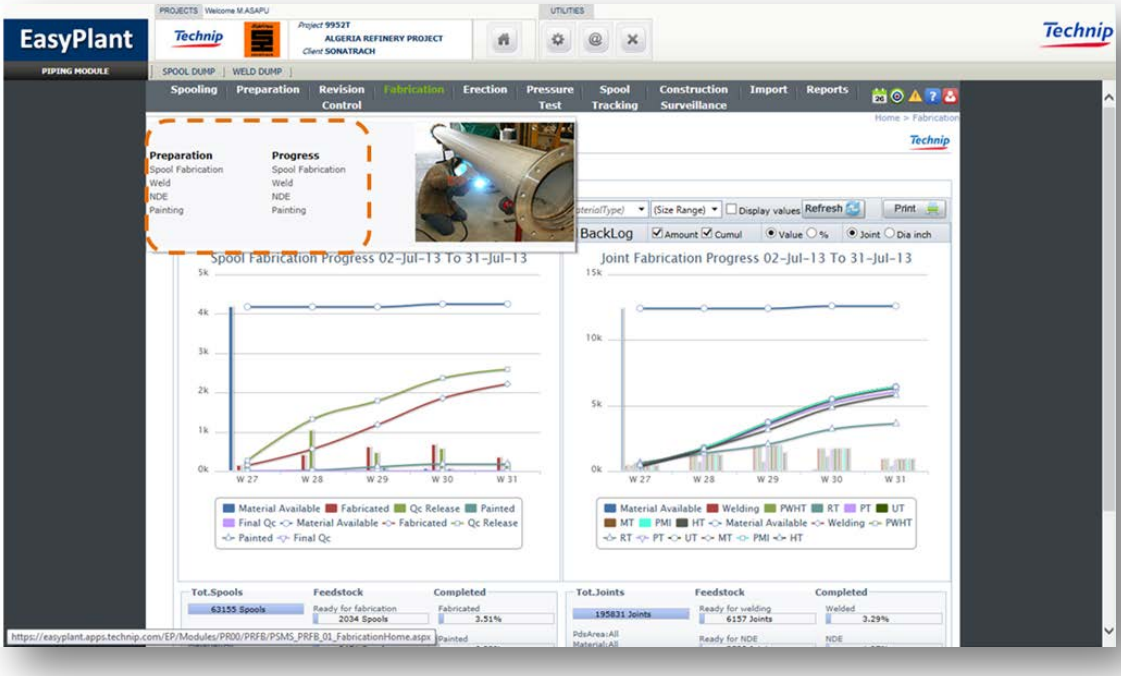

Preparation
Technip
Spooling
Marian Data
Browse
Test Pack Builder
Latest
History
Manual Rev Mgmt
Flange Man
A060A-P-2002-015-1 Revision 0
ISO Number
Revision Number
Line Number
PDS Area
WBU
Service Class
Status
A060A-P-2002-015-1
1
16"-P-2002-015-I3-6F-T
A060A
2002
I3-6F
Imported Successfully (Conflict Resolved)
Message from webpage
Manual Revision process was completed. Please review the summary of Revisied ISO!
OK

Easy Piping Part 3: Fabrication &Spool Tracking

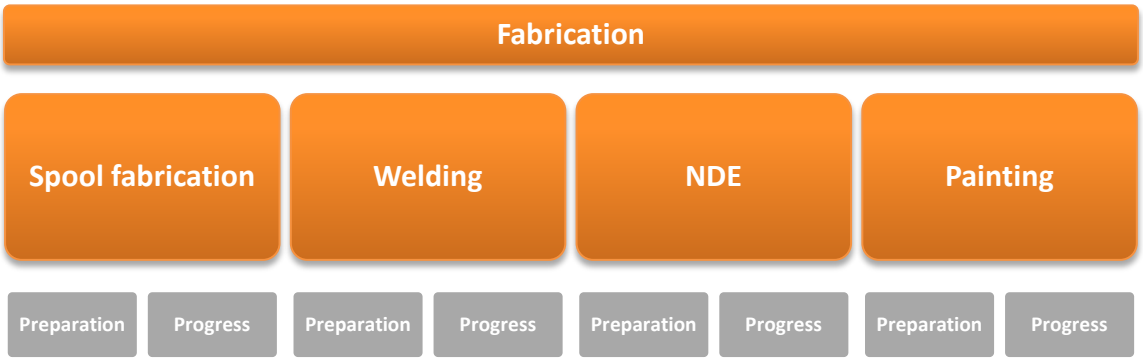
7. FABRICATION MODULE

The Fabrication module is organized in 4 different sections corresponding to the different site activities. These sections allow the user to plan & prepare the workload and record the Progress for each activity. The user can also generate the fabrication reports from this screen. All the sections and its uses are defined clearly in the below details.





DIFFERENT SECTIONS DURING FABRICATION PHASE



SPOOL FABRICATION

This screen contains two different sections which is preparation and progress. The preparation screen allows the user to plan and prepare the workload. The progress screen consists of several steps that user needs to follow. There can be some additional steps which shall be added if it is required for a project (Refer to Para 1.1).Definition of each step has to be agreed in the initial stage of the project

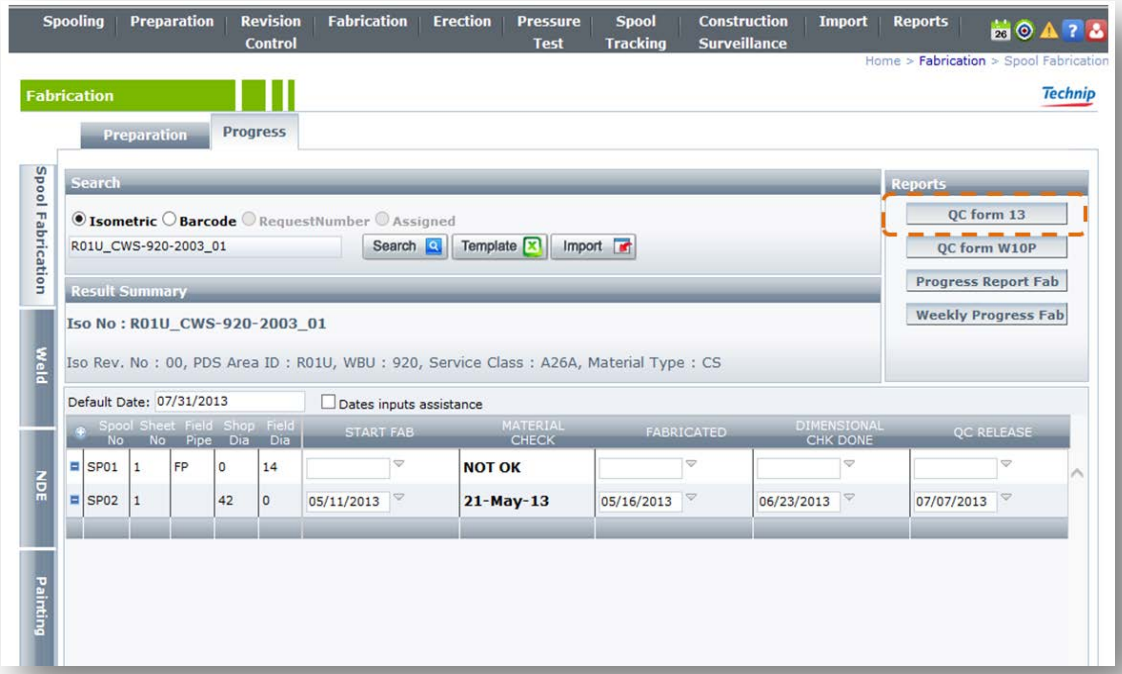
- Start fab
- Material Check
- Fabricated
- QC release
- Sent to paint
- Painted
- Final QC
- Laydown

7.1 Start Fab

The user needs to update this step as soon as the spool has been started to fabricate, once this field is updated the user needs to generate the QC-13 Form
The user can generate the QC forms in two methods.

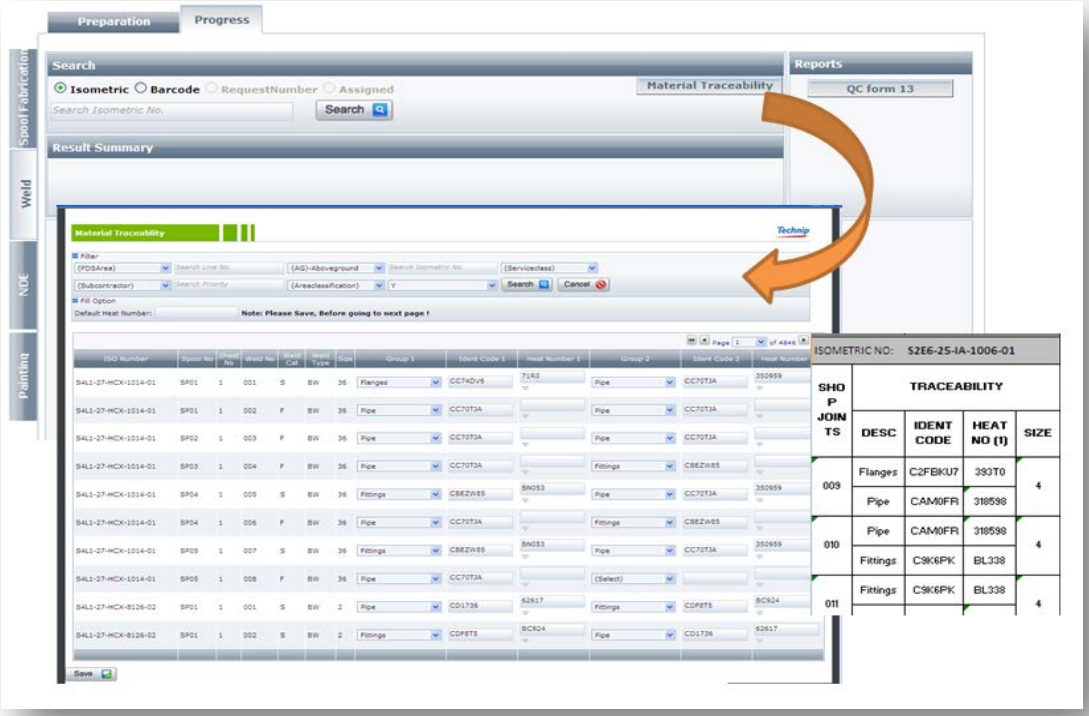
1. Using search method – User can search for single Iso and spool
2. Using Excel Import method – User can List upto Max 50 spools in excel and generate the forms

- QC-13 form is the daily progress report form, at spool level. It should be generated right after “start fab” date has been recorded
- The QC Form should be duly filled by workers about the details of the shop joints for the selected spool
  - Material traceability
  - Welding



7.2 Material Check

In the weld progress screen, the user can access the “material traceability” pop-up window. The user will enter the heat numbers filled in the QC – 13 forms by foreman. Easy piping will validate the entered heat numbers which are predefined in the project referential. (Refer to Para 3.12)
When heat numbers are correctly recorded, the “material check” status of the corresponding spools will be automatically updated.



7.3 Weld Progress

In the fabrication module, the weld progress screen will shows only shop joints only. Welding progress is filled in the QC-13 form, and then the progress is recorded in easy piping in the weld progress screen. The system validates the Information of welders which are predefined in the project referential. (Refer to Para 3.7)
The system will validate the information of WPS recorded against the welder with the welder qualifications which are predefined in the Project referential.(Refer to Para 3.6) The system will alert the user if he records the incorrect information.

TCJV	PROJECT:	PMP	
	OWNER:	Qatar liquefied Gas Company	
QUALITY CONTROL FORM	QC13	PROJECT NO: 9833N	QCF Rev No. 0	Date:
SPOOL PREFABRICATION	WELDING & DIMENSIONAL CHECK	SUBCONTRACTOR: DESCON	Report No: QC13-S-0343

ISOMETRIC NO: 4002R_L504920385_01	Spool No: SP01	Rev No: 0F2	Service Class: 1S1X	Material: CS

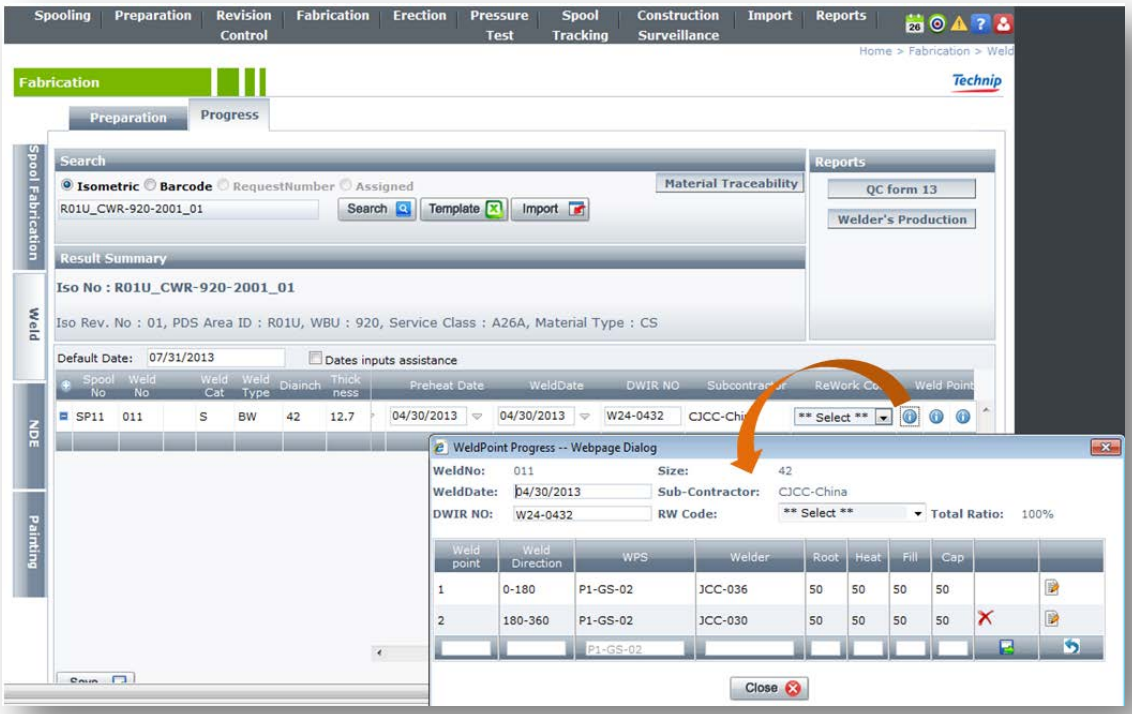
SHOP JOINTS	TRACEABILITY				WELDING								THK	WELD TYPE	DESCON / TP QC
					BEFORE				IN PROGRESS			AFTER			
	DESC	IDENT CODE	TRAC NO (1)	SIZE	WPS NO	CUTTING	BEVELING	FIT-UP	WELDER NO (2) Root	WELDER NO (2) Cap	PRE HEAT	WELDING (VT) DATE			
002	Fittings	C956PV		16	[illegible]	14-Jan-2012	14-Jan-2012	14-Jan-2012	W-083			18-Jan-2012	9.53	BW	
	Pipe	C6D29B							W-097						
										W-068					
										W-073					
003	Pipe	C6D29B		16	[illegible]	14-Jan-2012	14-Jan-2012	14-Jan-2012	W-083			18-Jan-2012	9.53	BW	
	Fittings	C956PV							W-097						
										W-068					
										W-073					

The following are the weld progress columns for which the user needs to fill in this screen

- Cutting Date – User to input the date

- Beveling Date – User to input the date
- Fit-up Date – User to input the date
- Preheat Date – User to input the date
- Weld Date – User to input the date
- DWIR No. – User to input the QC Form No
- Subcontractor – Read Only
- Rework Code – User to select from dropdown
- Weld Point No. – User to input the number
- WPS No. – User to input the WPS No.
- Welder Code – User to input the Welder code

If the joint is progressed by only 1 welder (i.e., if there is only 1 weld point), then the user can enter the progress details in the same screen.
If the joint is progressed by more than 1 welder (i.e., if there are more than 1 weld points), then the user has to click the icon upon which a pop-up is displayed to the user for entering the weld point details.



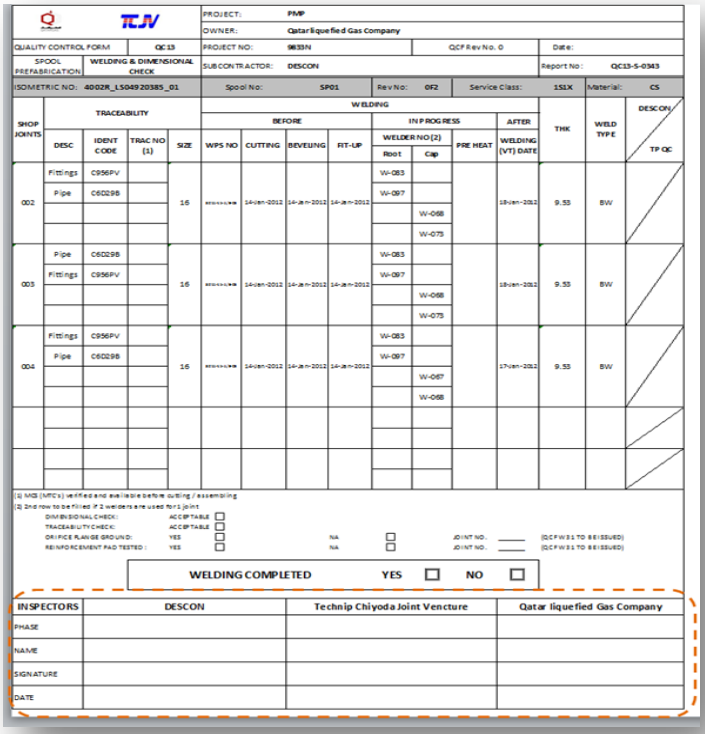
Note:

- In the pop-up screen, when the user enters the progress information for the first weld-point and saves, the same WPS No. will be automatically loaded in read-only mode for entering the progress information of the second weld-point.
- In the pop-up screen, when the user enters the progress information for the first weld-point and saves, the user has to enter a different welder code for the second weld-point. The system will validate the welder code.
- In the pop-up screen, Root and Cap are mandatory fields. The total of Root and Cap for a joint should be 100. The total of Heat and Fill for a joint can be 0 or 100.

- Modification of WPS No, Welder code is not allowed for those weld-points that are selected for examination in any of the batches OR already examined.

7.4 Fabricated

This step will be updated once the dimensional check is finished and all the information is validated and signed by the concerned persons and then spool is considered as “Fabricated”



PROJECT:	PMP		
OWNER:	Qatar liquefied Gas Company		
QUALITY CONTROL FORM	QC13	PROJECT NO: 9833N	QCF Rev No. 0	Date:
SPOOL PREFABRICATION	WELDING & DIMENSIONAL CHECK	SUBCONTRACTOR: DESCON	Report No: QC13-S-0343
ISOMETRIC NO: 4002R_LS04920385_01	Spool No: SP01	Rev No: 0F2	Service Class: 151X	Material: CS

SHOP JOINTS	TRACEABILITY				WELDING								THK	WELD TYPE	DESCON / TP QC
					BEFORE				IN PROGRESS			AFTER			
	DESC	IDENT CODE	TRAC NO (1)	SIZE	WPS NO	CUTTING	BEVELING	FIT-UP	WELDER NO (2) Root	WELDER NO (2) Cap	PRE HEAT	WELDING (VT) DATE			
002	Fittings	C956PV		16	**********	14-Jan-2012	14-Jan-2012	14-Jan-2012	W-083			18-Jan-2012	9.53	BW	
	Pipe	C60298							W-097						
										W-068					
										W-075					
003	Pipe	C60298		16	**********	14-Jan-2012	14-Jan-2012	14-Jan-2012	W-083			18-Jan-2012	9.53	BW	
	Fittings	C956PV							W-097						
										W-068					
										W-075					
004	Fittings	C956PV		16	**********	14-Jan-2012	14-Jan-2012	14-Jan-2012	W-083			17-Jan-2012	9.53	BW	
	Pipe	C60298							W-097						
										W-067					
										W-068					

(1) MCS (MTCs) verified and available before cutting / assembling
(2) 2nd row to be filled if 2 welders are used for 1 joint

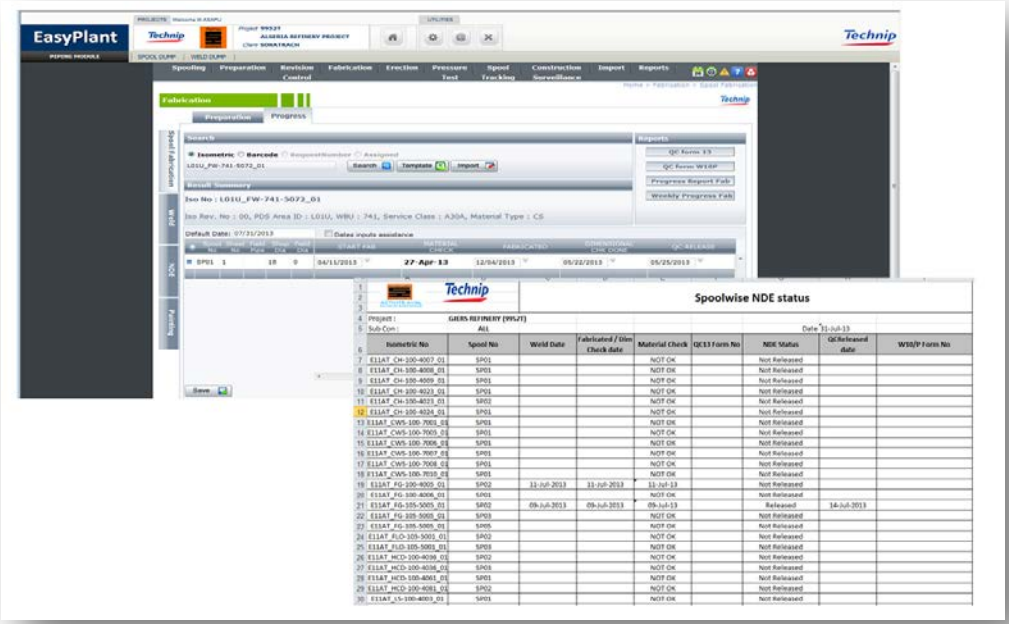
DIMENSIONAL CHECK:	ACCEPTABLE ☐				
TRACEABILITY CHECK:	ACCEPTABLE ☐				
ORIFICE FLANGE GROUND:	YES ☐	NA	☐	JOINT NO. ____	(QCF W 31 TO BE ISSUED)
REINFORCEMENT PAD TESTED :	YES ☐	NA	☐	JOINT NO. ____	(QCF W 31 TO BE ISSUED)

WELDING COMPLETED YES ☐ NO ☐

INSPECTORS	DESCON	Technip Chiyoda Joint Vencture	Qatar liquefied Gas Company
PHASE			
NAME			
SIGNATURE			
DATE			

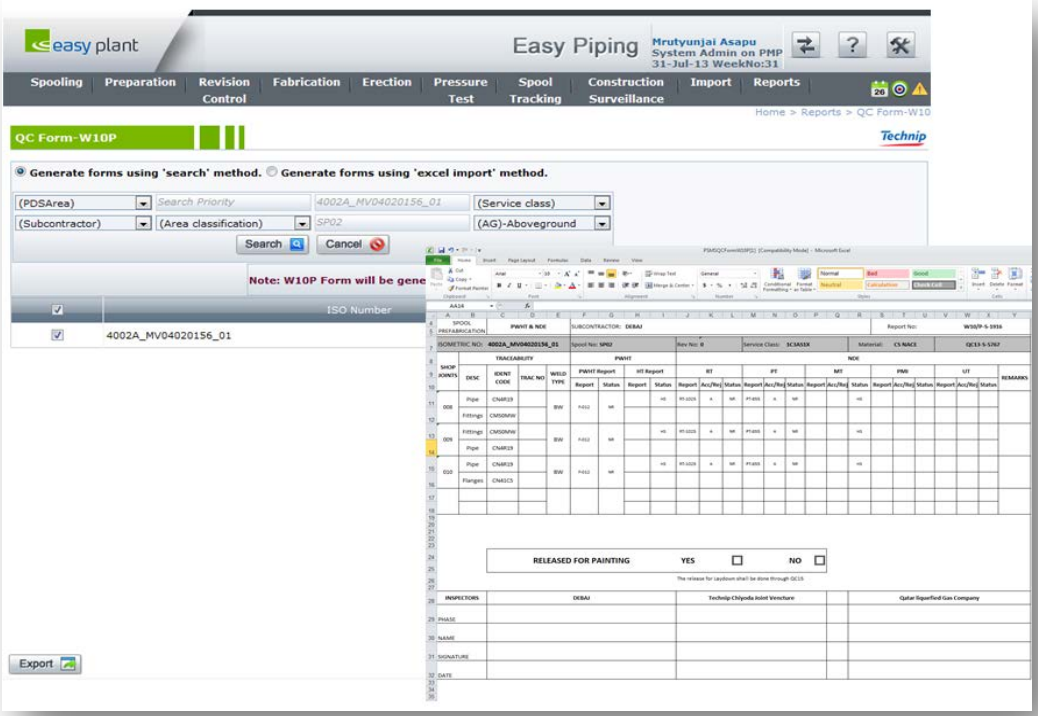
7.5 QC Release

This step will be updated only when all the joints of the particular spool are NDE completed. The user can be able to know the spool release status from the “Spool wise NDE Status” report



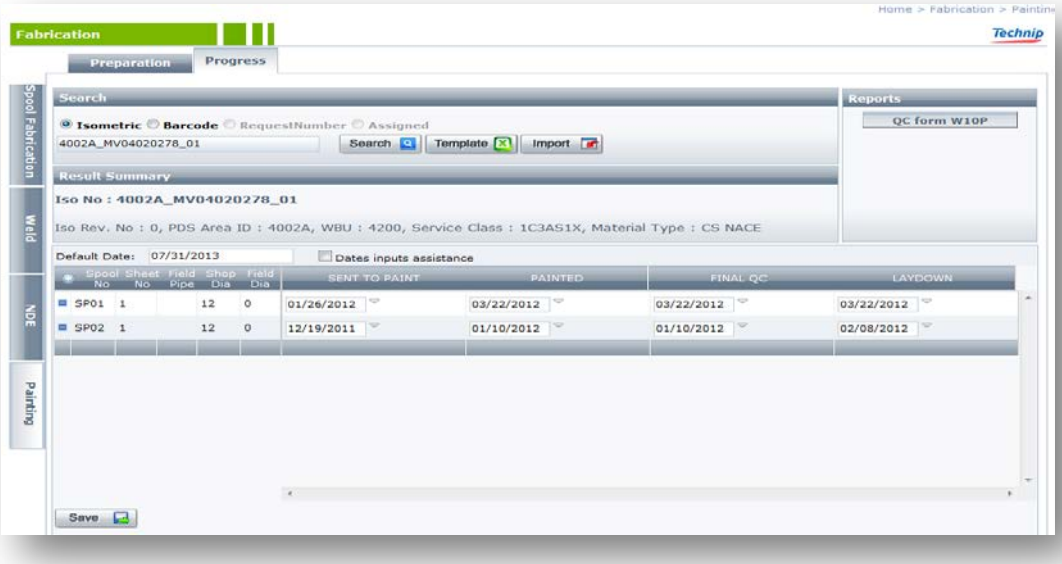
7.6 Sent to Paint

This step will be updated when the QC will declare that the spool is released. The user need to generate the QC form W10P.When the form is signed by the QC. Then the user can update this field.



7.7 Painted, Final QC and Laydown

The above fields can be updated once all the painting activities are completed.

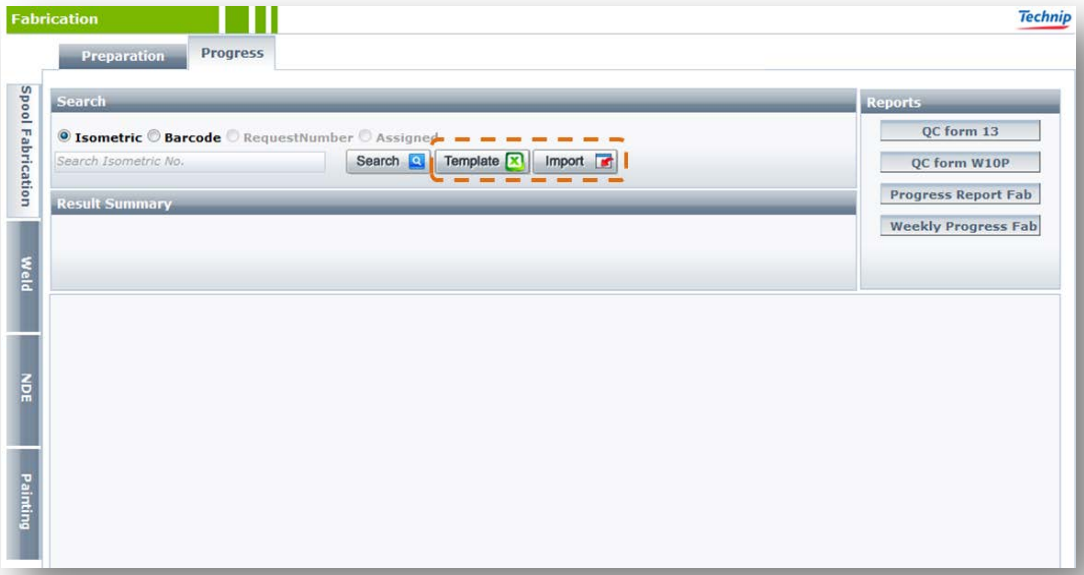


Fabrication Dash Boards

8. IMPORT PROGRESS MODULE

The “Import Progress” screen will allow the user to browse for the excel file containing the progress data, based on the generated template. The user will then specify the type of progress data being imported by selecting one of three possible values from a dropdown list:

a) Import prefabrication progress.
b) Import erection progress.
c) Imports weld progress.
d) Import Spool Category Definition



Note:

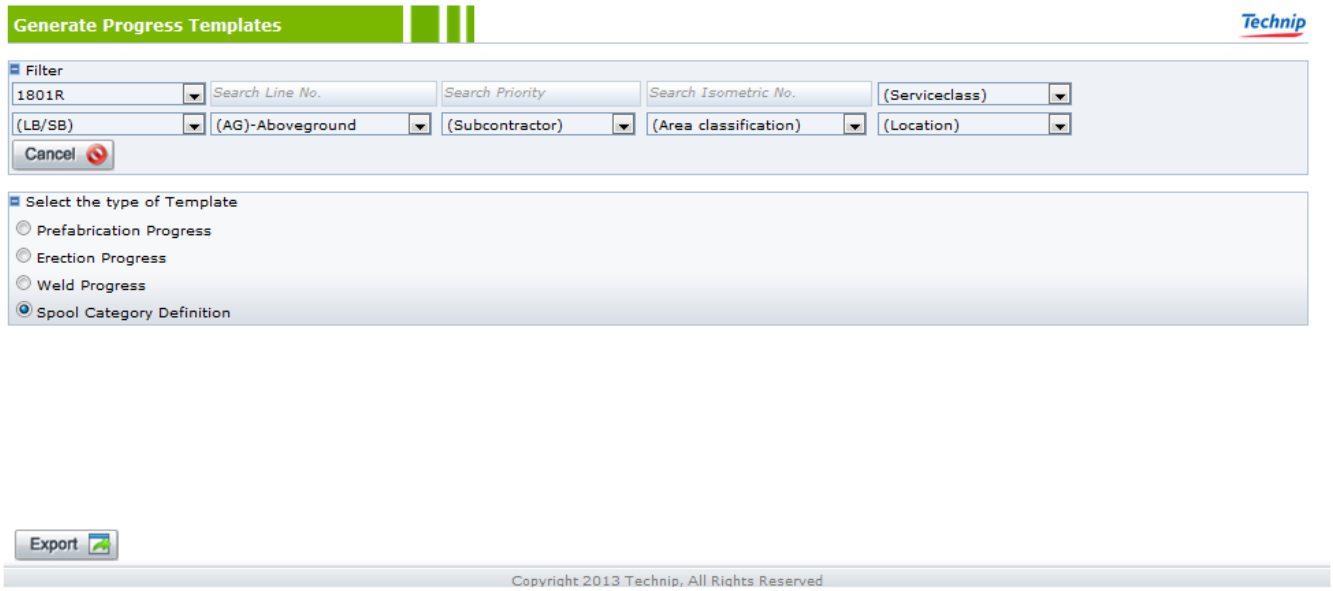
- The format of the template should not be modified in any way.
- User should not Delete any existing records or Progress against the spools from Prefabrication and Erection Templets.
- Only date entries are allowed in the progress columns.
- The progress columns should be entered in the date format dd-MMM-yyyy.
- The column names should not be modified.
- New rows should not be added to the template.
- New columns should not be added to the template.

8.1 Import Prefabrication process

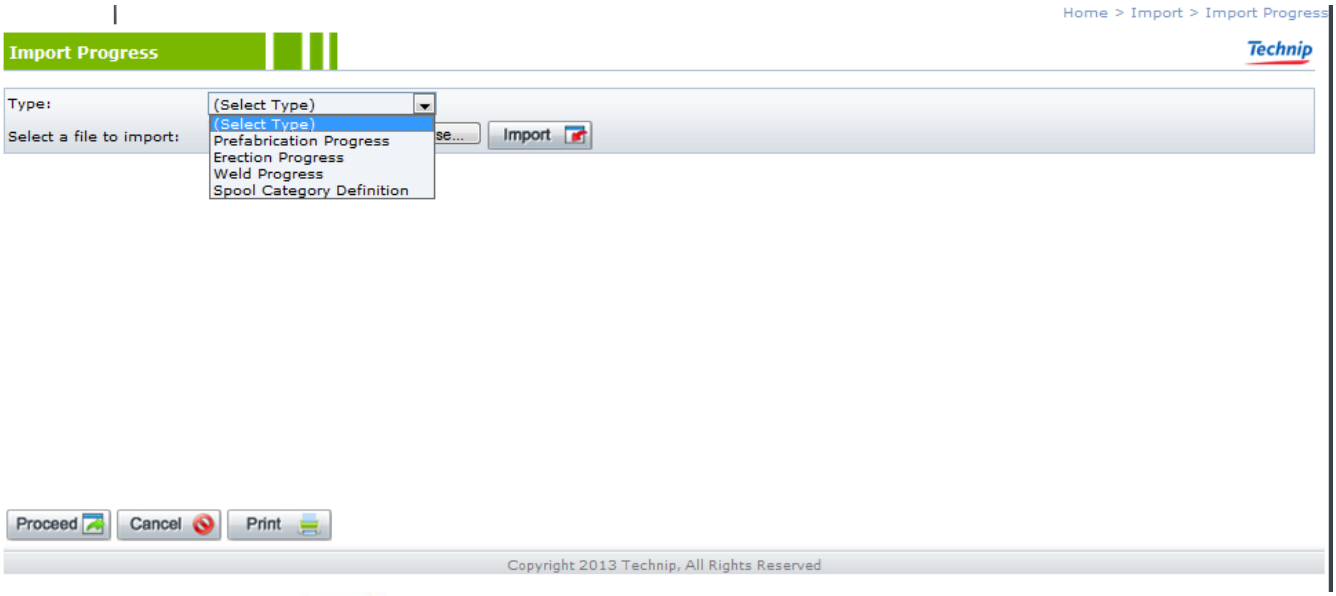
- The progress data in the excel sheet will always supersede progress data in the database. Meaning that if there was a conflict between the data in the excel sheet and the actual data in PSMS, that particular cell will be highlighted in yellow. The user will have to confirm the changes and proceed the import if he wishes. The data in the system will be overwritten with the new data on confirmation.

- Import of spools which do not exist will be rejected by the system

The user needs to download the relevant progress template to import the progress. The user can click the option Template to download the template.



The user can choose the option Browse... and select the progress template and click on Import to import the progress file.
The system will validate the import file and the errors are highlighted in red color with appropriate error messages. Import will not be performed unless all the errors have been rectified by the user. The user will be prompted with how to view the validated import file: via Excel or Screen.
The Excel file will not be able to highlight the errors and overwritten cells in color. However, the error messages will be shown.



Once the user will click on Proceed, the imported information will be saved in the database.

8.2 Import Erection process

The progress data in the excel sheet will always supersede progress data in the database. Meaning that if there was a conflict between the data in the excel sheet and the actual data in PSMS, that particular cell will be highlighted in yellow. The user will have to confirm the changes and proceed the import if he wishes. The data in the system will be overwritten with the new data on confirmation.

Import of spools which do not exist will be rejected by the system

The user needs to download the relevant progress template to import the progress. The user can click the option

to download the template.

8.3 Import Weld Progress

Import Weld progress will update weld progress of Joints associated with the Importing template. During import system shall all the validation like Subcon , WPS and Welder authenticity etc information and coverage of Root, Fill and Capping activities.

If a Joint is already updated as Welded and NDE selection has been done for the joint, then the Joint cannot be editable thro import procedure.

8.4 Import Spool Definition Category

Import Spool Definition Category shall update the User Defined attributes which are created in

Settings / Admin - > Project Definition -> Project Category Definition

The export of Template shall export the list of all spools of selected PDS area with Custom defined attributes as column headings. User can update these attributes at spool level and can import.

Note: All the custom defined attributes are Text fields.

9. FABRICATION REPORTS

In this screen the user can generate the fabrication reports.

9833N_361_Progres s_Report_-_Fabricati This report will provide the progress information of entire fabrication, the user can use several filters like PDS area, Area classification, subcontractor, material type and each Isometric level etc.

WeeklyProgressFabri cationReport.xls This report will provide the progress information on a weekly and cumulative for the fabrication. The user can use several filters like PDS area, Area classification, subcontractor, material type etc.

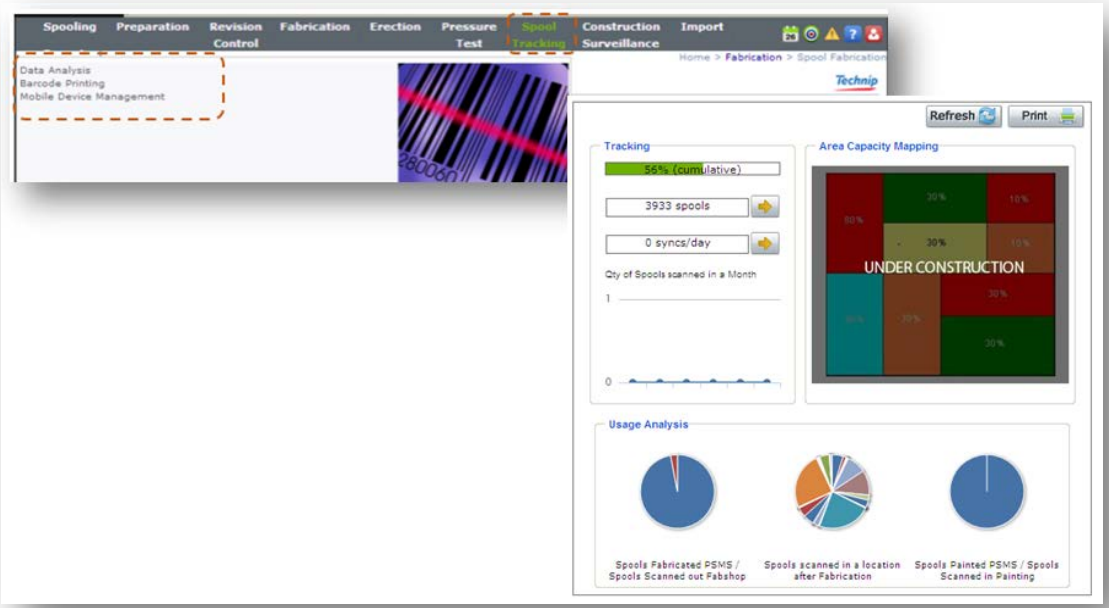
Summary_Report.xls

This report will provide the progress information of each spool status including all activities right from material availability to fabrication, painting, erection and RFT supporting etc.

10. SPOOLTRACKING INTRODUCTION

The spool tracking module allows the user to the track the location of the spools on site by using the mobile devices (PDA).it is organized in 3 different sections. It is also having a separate dashboard to know the statistics.

- Data Analysis
- Barcode Printing
- Mobile Device Management

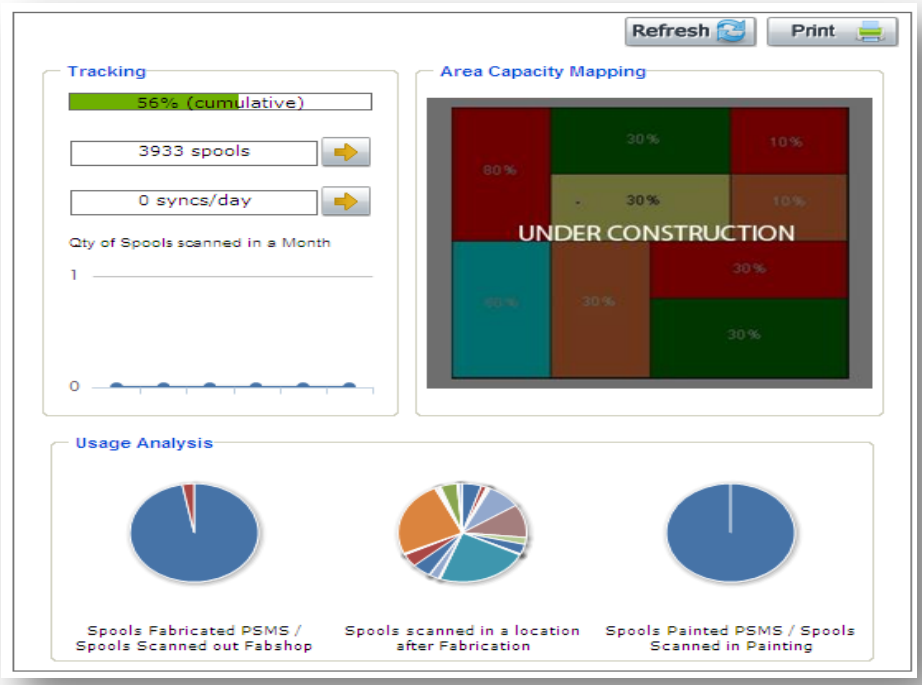


MAIN FUNCTIONALITIES OF SPOOL TRACKING

- Locate the spools of the project

- Track the history location of the spools
- Visualize spool images
- Detect inconsistent scan/records
- Analyze the tracking data
- Manage the storage area capacity
- Print barcodes
- Manage the mobile devices

10.1 Overview of Dashboard



Tracking

- Cumulative percentage of spools scanned (total spools with at least one scan / total of spools of the project)
- Number of spools currently related to the spool tracking functionality (Easy piping status from “Start Fab” to “Erected”) + trend
- Average count of synchronization PDA-Computer per day, during the last week + trend
- Curve representing the quantity of spools scanned during the running month

Usage analysis

- Spools scanned out from the fabshop (in red) among all the fabricated spools (according to easy piping status)

- Repartition of the spools in different areas right after their fabrication
- Spools scanned in the paintshop (in red) among all the painted spools (according to easy piping status

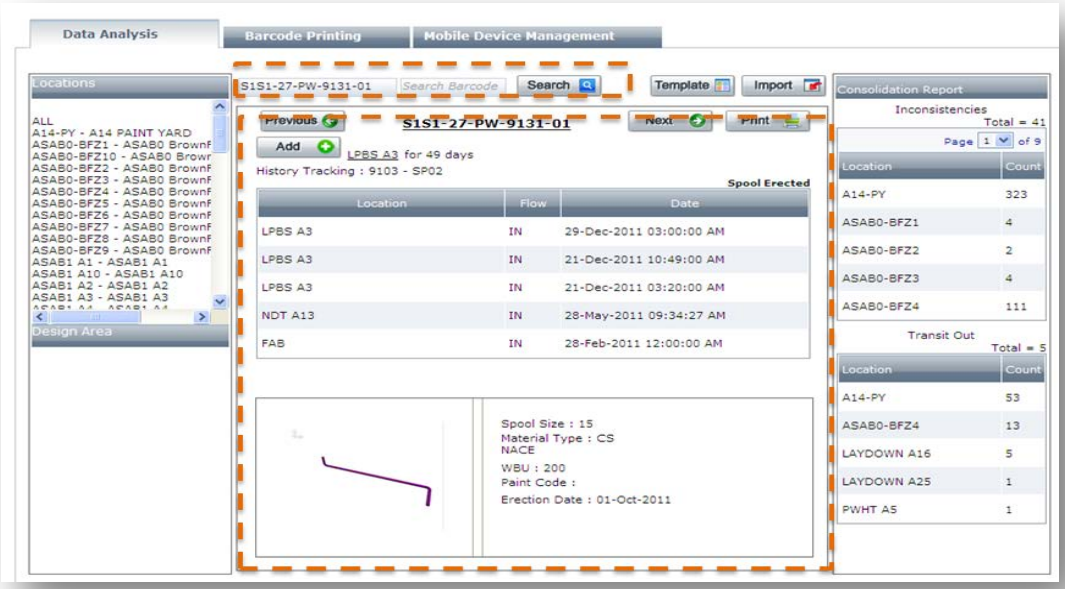
Area capacity mapping

- Map of the locations, filled with the current spool quantities stored versus the location capacity

10.2 Data Analysis

The user can search by isometric or by barcode

- Isometric search allows displaying the first spool of the isometric. The user can then scroll between the other spools of the isometric
- Barcode search allows displaying the corresponding spool. The user can then go to the isometric level by clicking on the isometric number



- Details of the searched spool
  - Location, duration and tracking history
  - Spool description (material, WBU etc.)
  - Spool image

The user can modify manually the current location of the spool by clicking on Add Icon, It will create a new record

The user can also print the spool details by clicking on Print Icon,

The user can use these icons Previous Next as a search options.

In the below screen, The location tab allows the user to visualize all the locations defined in the project referential (Refer to Para 3.23)

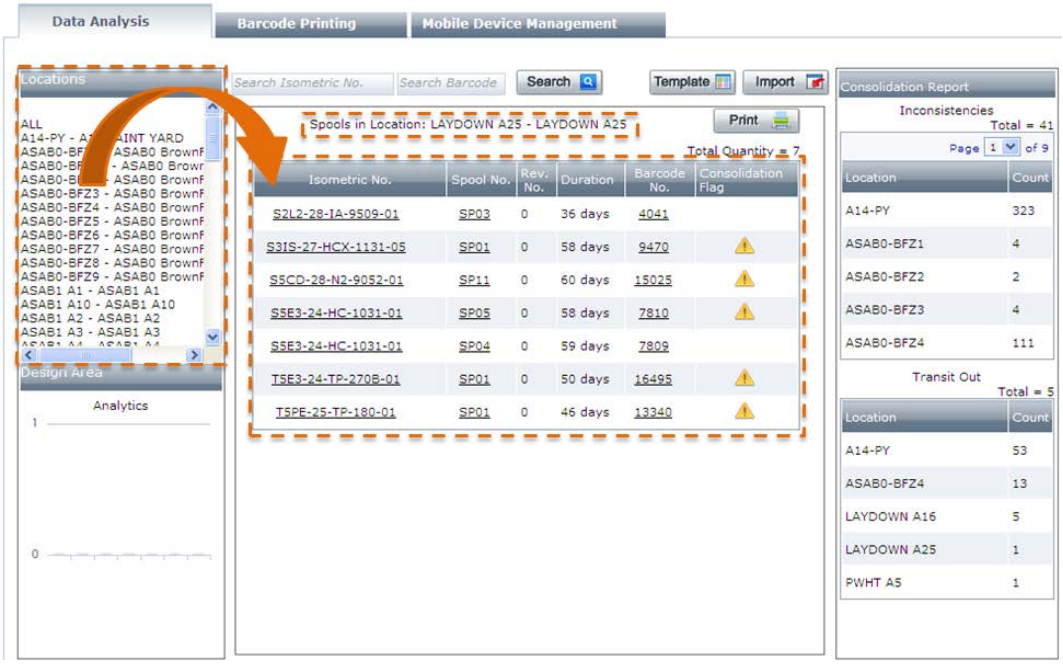
When the user clicks on the any of the location, It will display the list of the spools belongs to the selected location.

- Spool detail (isometric, spool and barcode number)
- Duration in this location
- Flag in case of inconsistency

The user can also click on the tabs Isometric no,Spool no and Barcode to view the details of that particular selection.

The user can also print the spool details by clicking on Print Icon,

Note: Erected spools are not displayed.



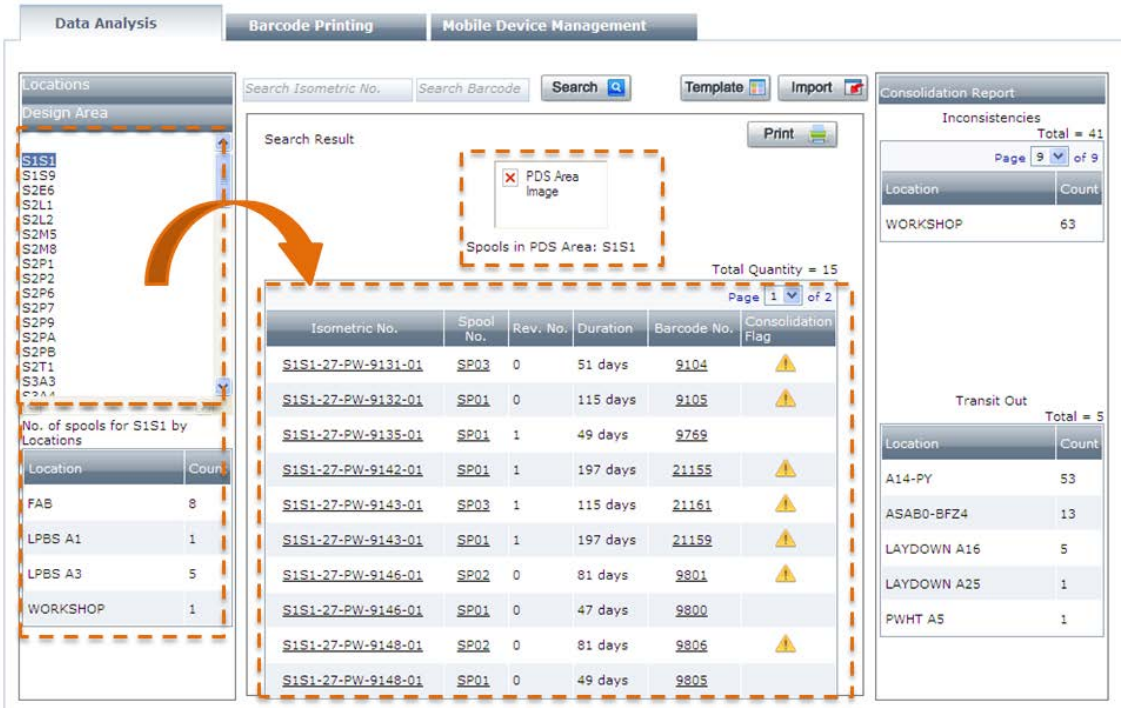
In the below screen, the design area tab allows the user to view the location of the spools of a selected design area.

When user selects any design area, It will displays the

- The list of locations
- The list of spools
- An image of the design area

The user can also print the spool details by clicking on Print Icon,

Note: Erected spools are not displayed.



CONSOLIDATED REPORTS

Two types of consolidation reports are available: inconsistencies and transit out

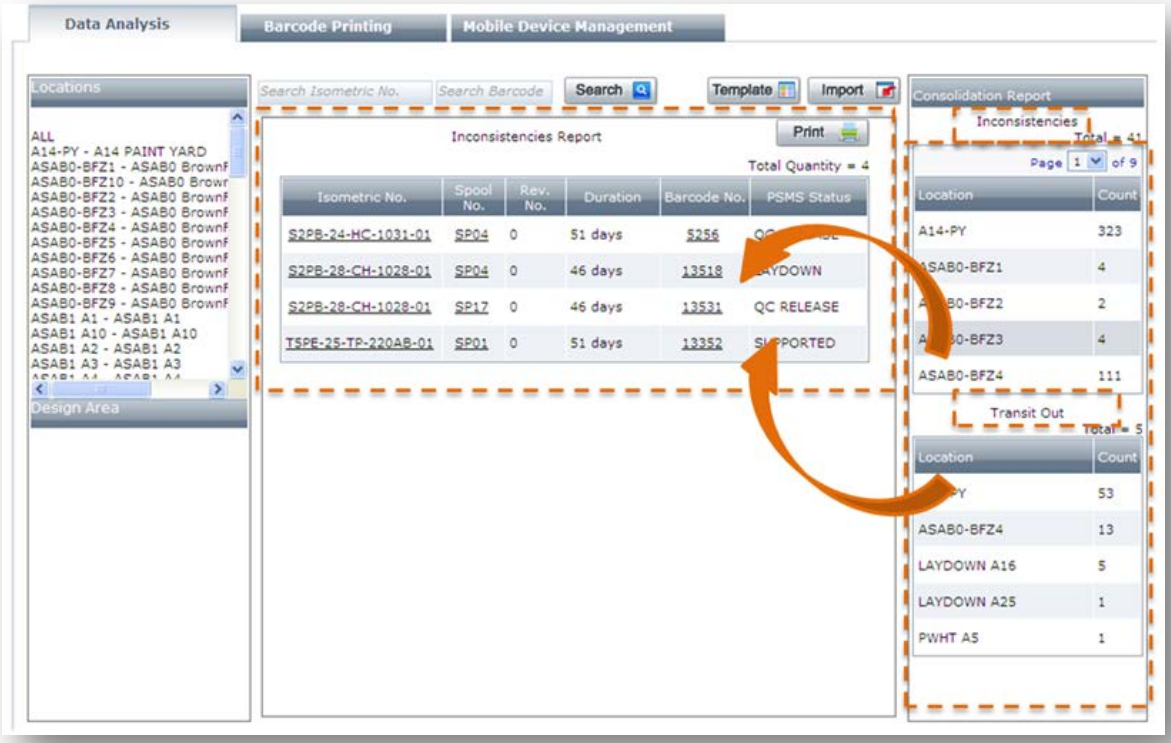
- “Inconsistencies” are flagged when the easy piping status of a spool and its location are not matching
  Example: a spool is painted, and it is still located in the fabshop

Erected spools, which have a location, scan after their erection date will be considered as inconsistent

- Transit out are flagged when a spool is scanned OUT a location, but not scanned IN somewhere else

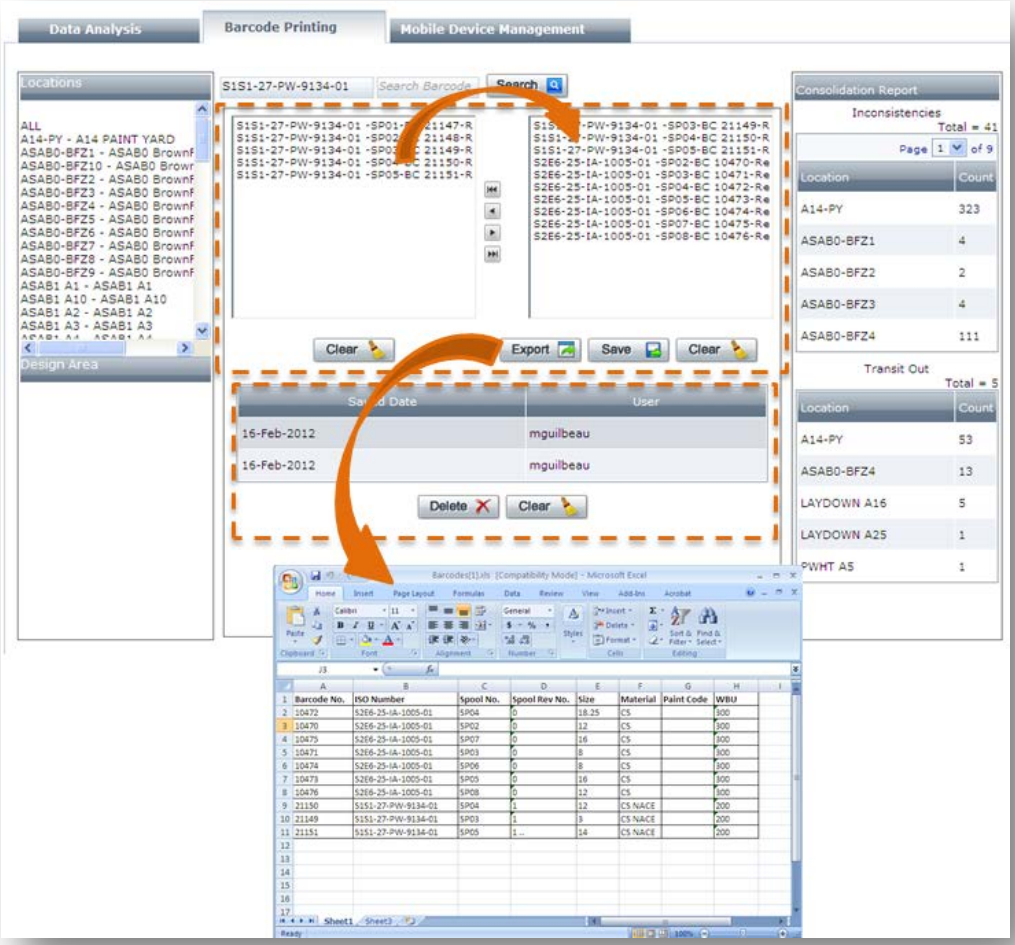
The flag will come only if the spool is out a location during more than two days

The user can also print the spool details by clicking on Print Icon,



10.3 Barcode Printing

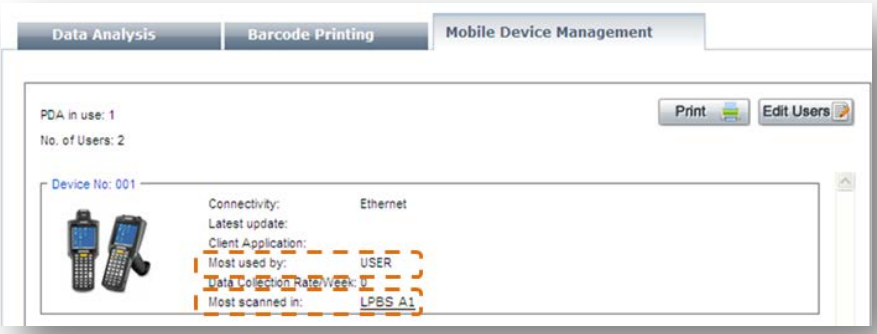
- The barcode printing functionality allows the user for the creation of spool list (excel format)
- This list will be used to print the barcode itself in another software (Zebra)
- The user can search some spools (section in the left) and add them to a basket (section on the right)
- Search is done by isometric or barcode number
- The user can click on the Export to export an excel sheet, filled with the list of spools located on the section on the right



10.4 Mobile Device Management

The mobile device management functionality allows the user to analyze the use of PDA on site All the PDA Devices and PDA users are defined in the Easy piping referential (Refer Doc EP_Setup) and those will be displayed in this page.

The user can also print the spool details by clicking on Print Icon.



10.5 Offline Synchronization of PDA data

PDA Synchronization can be done in 2 methods.

1. **Online Synchronization** : Online synchronization is, if user in resides with in Technip network PDA data can be synchronized directly to easy piping database so that PDA data shall be loaded directly to database and Vice versa.

2. **Offline Synchronization :** Offline synchronization is a method of Synchronising the PDA data in outside Technip network where he has no access to Technip network.

   There are 2 steps in involved in this method.

   2.1 **Import PDA data to Easy Piping** : This step helps user to import data from PDA to Easy piping.

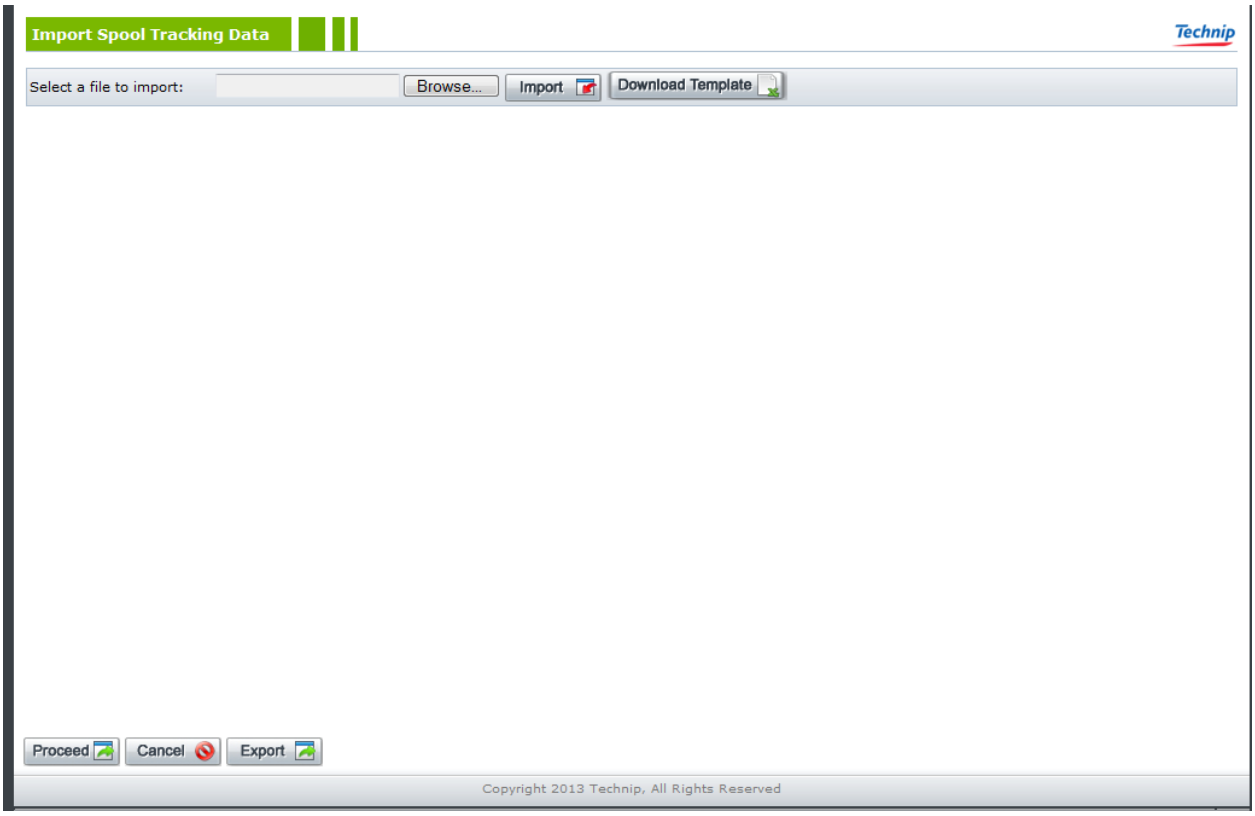
   Easy piping has ability to import the file in both Excel and .txt files for this import. To generate excel template press

   button to download the excel template. This process can be useful if there are no PDAs are available and spool tracking has been doing manually.

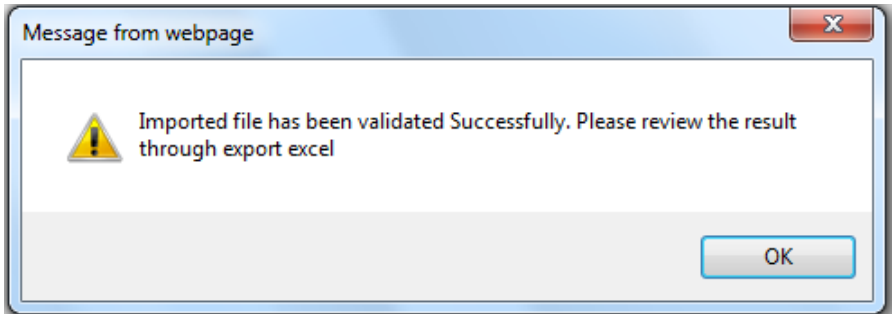
   If PDAs are available a text (.txt) shall be generated by PDA with all scanned data. After synchronising the PDA with computer a Text file shall be generated. This text file will be located at (C:\Kalipso Project Updates\TR0001\ToPC) folder. User need to Import this file to Easy piping.

   The Import option is provided in easy piping at

   Easy piping -> Import - > Import spool Tracking data



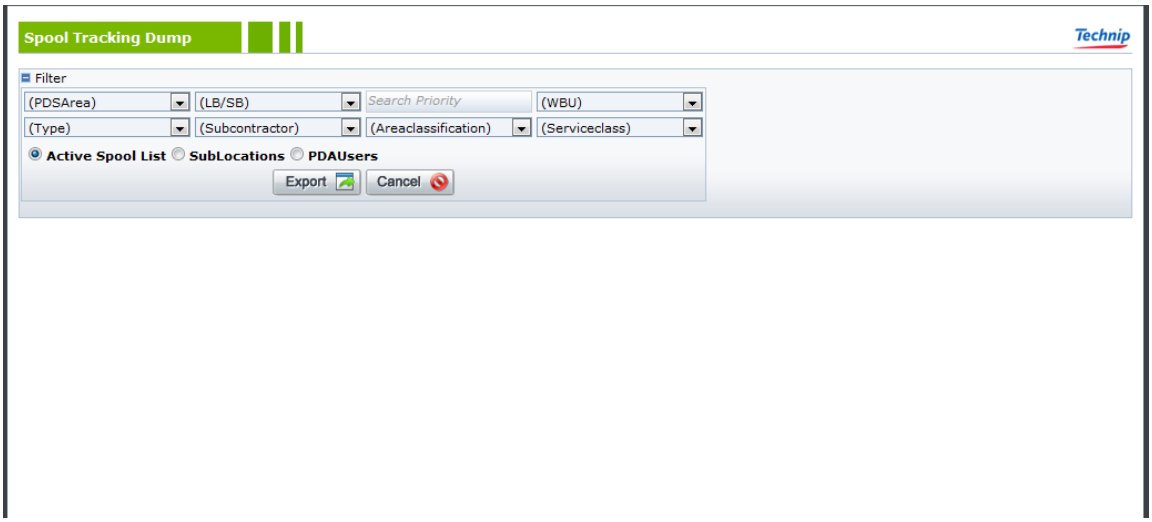
After browsing the file location press import button. System shall import and do the validation check for any inconsistencies. At the end of validation check following message box shall appear to review the validation results.



Click on “Export” button to check if any inconsistencies are there. If any, correct them and reimport the file again. If all data has been validated without any inconsistencies then press “import” button to import the data to easy piping. User can view the data update in Data Analysis tab of Spool tracking.

2.2 Export Easy piping data to PDA : This step export all the files which are required to update PDA from Easy piping. User can export the list required files through Reports module.

Easy piping - > Reports - > Data Dump - >Spool Tracking



Spool Tracking export shall export 3 Different report which are essential to update PDA.

1. Active Spool List : Active spool list shall export all the list of spools which are Active. Active spools are defined as spools for which “Start Fab” date is not null and “Erection date” is null. So any spool for which fabrication is not started or erection is completed is not considered as Active spools.
2. Sub Locations : List of locations
3. PDA user : List of PDA users.

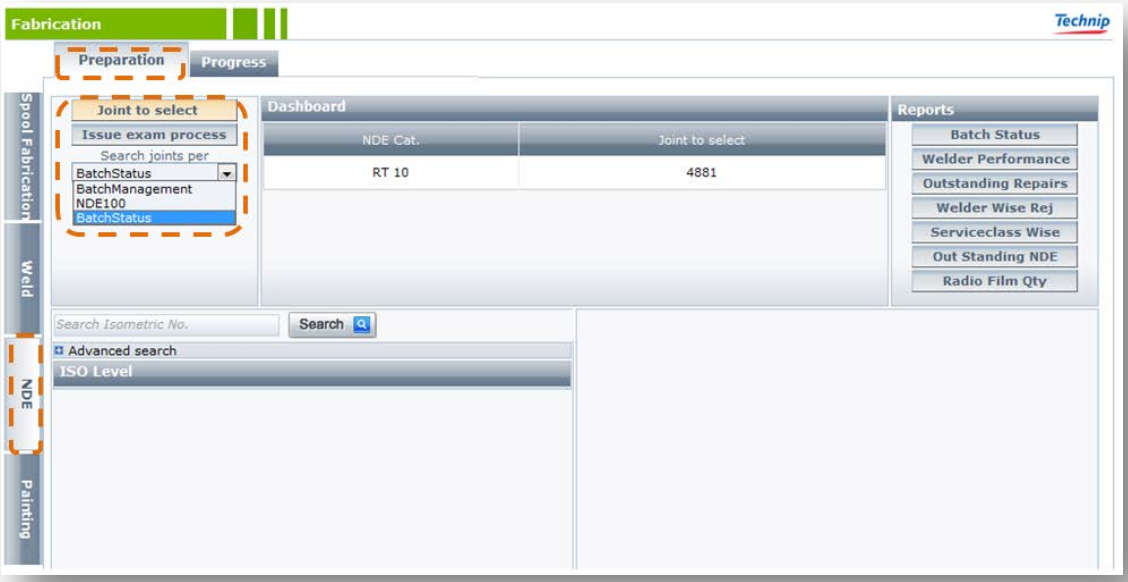
Note : Offline synchronization can be done only by System Admin and Project Admin. Other role user cannot Import or export the PDA data.

Easy Piping Part 4: NDE Management

11. NDE MANAGEMENT

The NDE (Non Destructive Examination) Management is one of the important modules in Easy Piping. This module helps the user to manage all the NDE activities throughout the operational phase. This module is organized in two different sub modules preparation and progress. This screen will appear in both Fabrication and Erection modules. This modules contains different sections as mentioned below

- Batch Status
- Batch Management
- NDE 100
- Joint to select
- Issue Examination process



What is a Batch?

The batch concept is to manage the NDE activities for “Spot or random examination of 10 or 20% refers respectively to 1 or 2 welds done among 10 weld joints which are entirely examined on the whole circumference for each welder”

A batch of weld is made by grouping the welds executed by one welder belonging to a particular NDE category

- Easy piping will create the batch as soon as the weld progress information is recorded. It will take the required NDE% from the NDE matrix which is defined in the project referential (Refer to Para 3.9) based on the progressed weld points, weld type, location and piping class. According to the retrieved NDE %, Welder no and location, System will allocate into different batches.

- If the batch already exists. Then system gets the no. of weld points already in the batch. If it is lesser than the size of the batch (10 or 20 depending on NDE %), then the weld point will be added to the batch with status “S” and batch status ‘Joint to Select’. If the batch has the required no. of weld points then a new batch is created with the same characteristics and the weld point will be added to the new batch with status “S” and batch status ‘Joint to Select’.

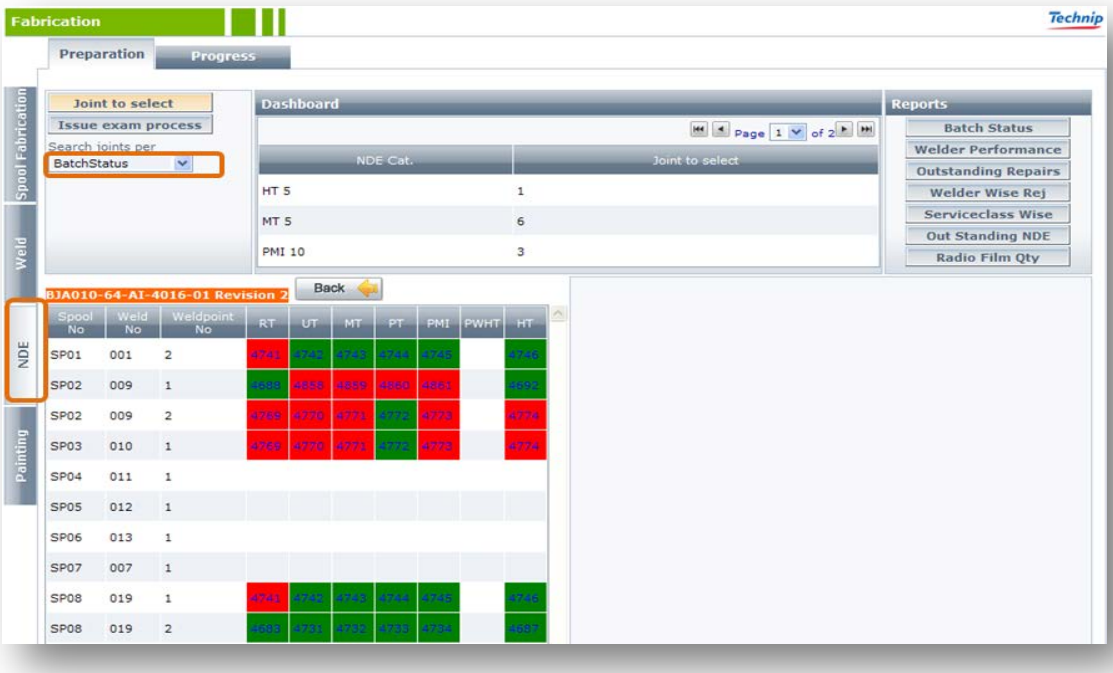
- If a weld point is added to a batch where 4 or more weld-points are rejected, its status will be “SS” because it needs to be tested 100%. Batch status is ‘Awaiting NDE’.

11.1 Batch status

This module helps the user to view the lists of different weld-points of an ISO and displays the batch no. to which it belongs for all examinations. It also helps the user to identify the batch status by color coding defined in the screen.

The batch status of the batch can be identified by viewing the color code.

- Red – Joint to Select
- Orange – Awaiting NDE
- Green – Released



The user can click on the batch to perform all the actions of a batch. As soon as the user clicks on the batch it will show all the joints related to the batch in the same screen. Easy piping will suggest a joint to select for the user to select, the user can select the same joint or he can choose any other joint of his choice. After the selection of joint the status will change from “S” to “SS”

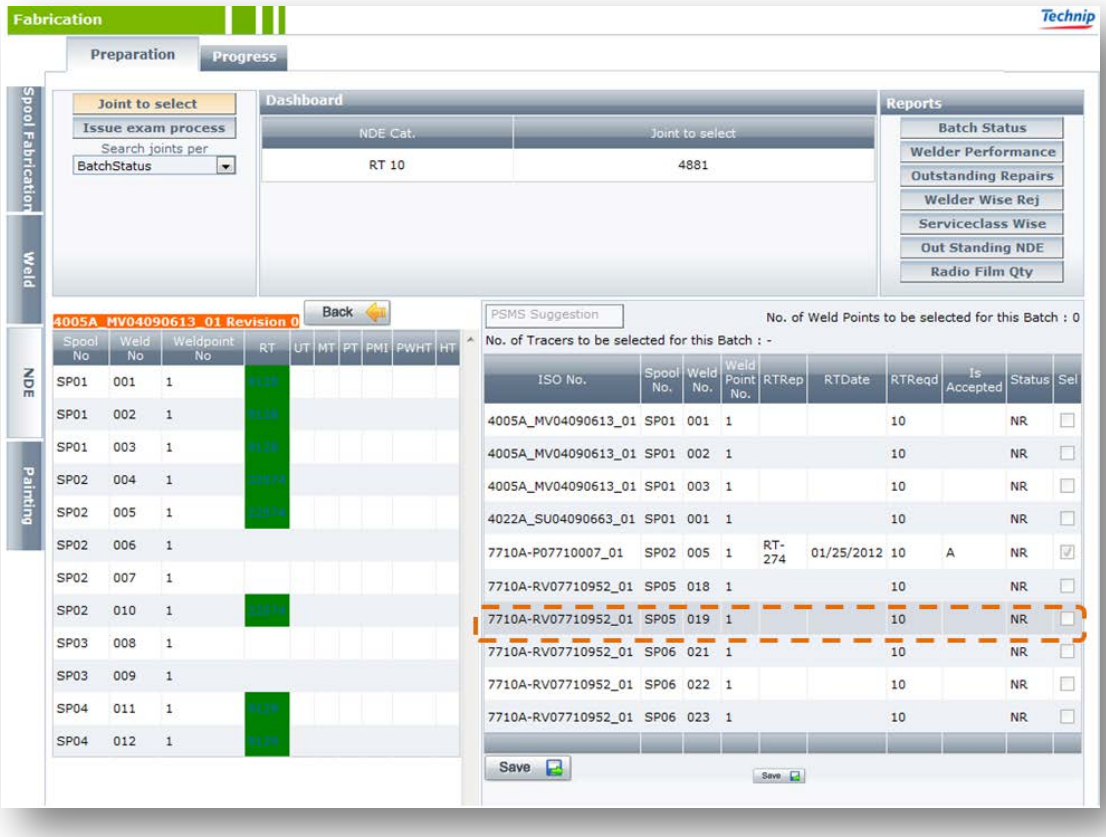
Legend for Joint Status is as follows

“S” – Joint to be selected

“SS – Joint selected and awaiting examination

“NR” – Joint Examination result updated

“?” - Selection of joints completed in a Batch



The user can use the Icon (Save) to save the selected joint.

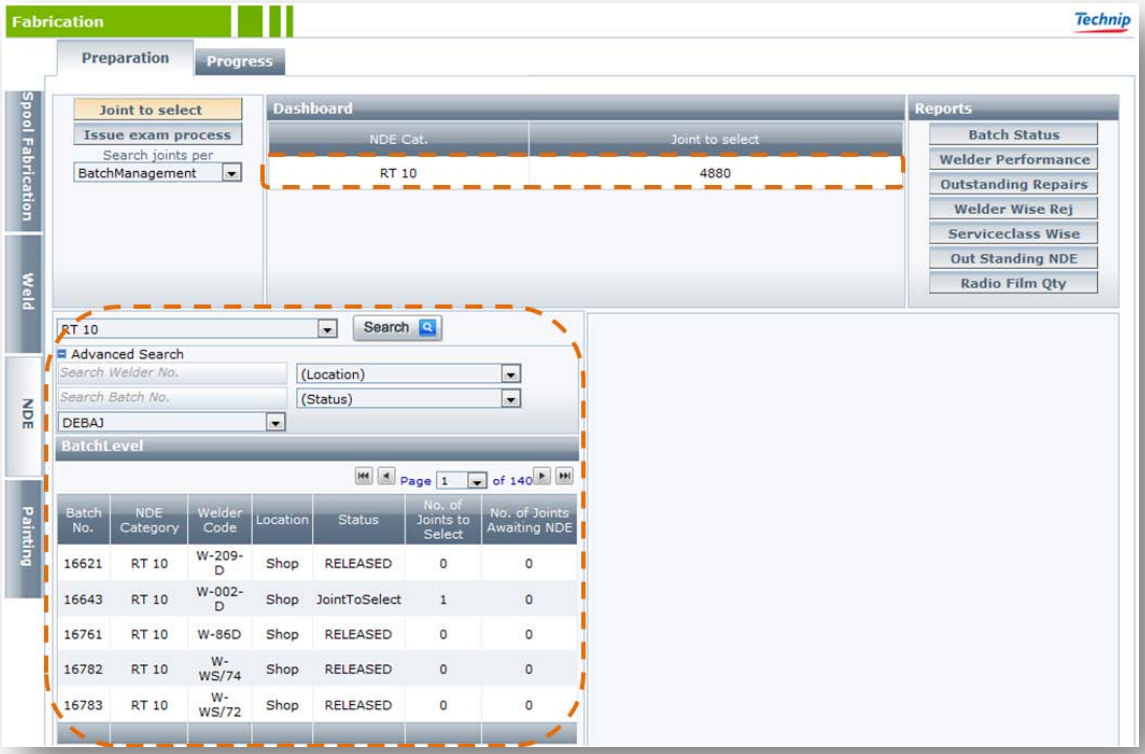
11.2 Batch Management

This module helps the user to view the list of batches defined by the Easy Piping. The user can also view the No of joints to select per NDE category in the dashboard section in the same screen. There is an advanced search which helps the user to filter the list of batches based on the following criteria

- NDE Category
- Welder No.
- Location
- Status
- Batch number
- Sub-Contractor

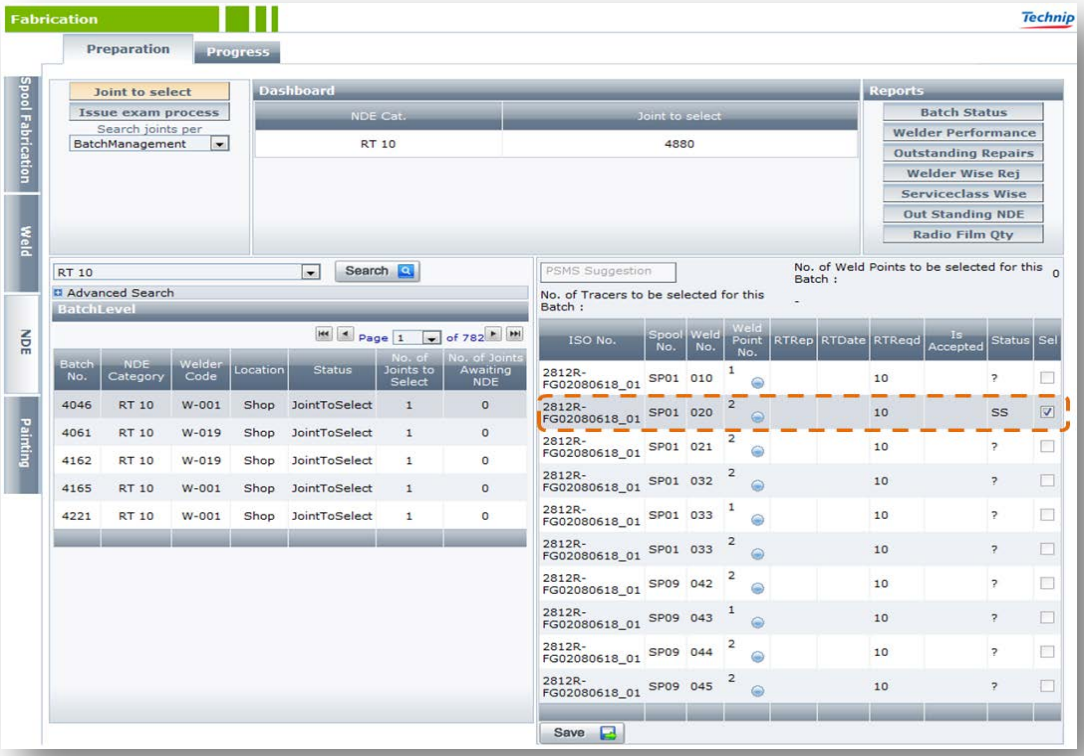
Status could be one of the following:

- Released
- Awaiting NDE
- Joint to Select



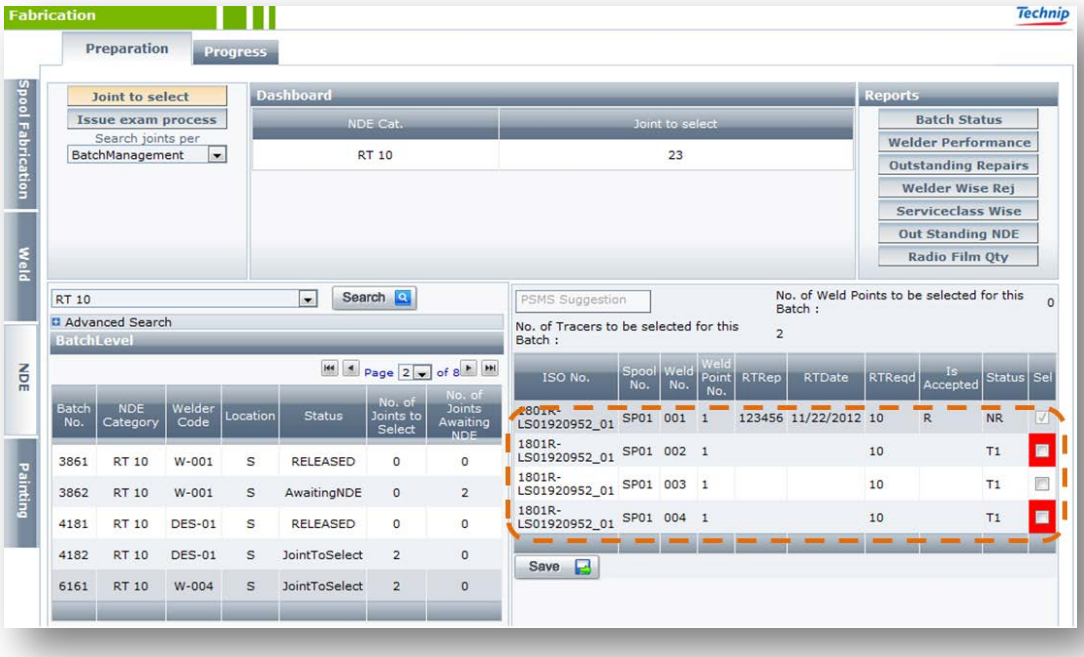
The user can click on the batch to perform all the actions of a batch. As soon as the user clicks on the batch it will show all the joints related to the batch in the same screen.

Easy piping will suggest a joint to select for the user to select, the user can select the same joint or he can choose any other joint of his choice. After the selection of joint the status will change from “S” to “SS” and if the user unselect the joint then the status will change from “SS” to “S”

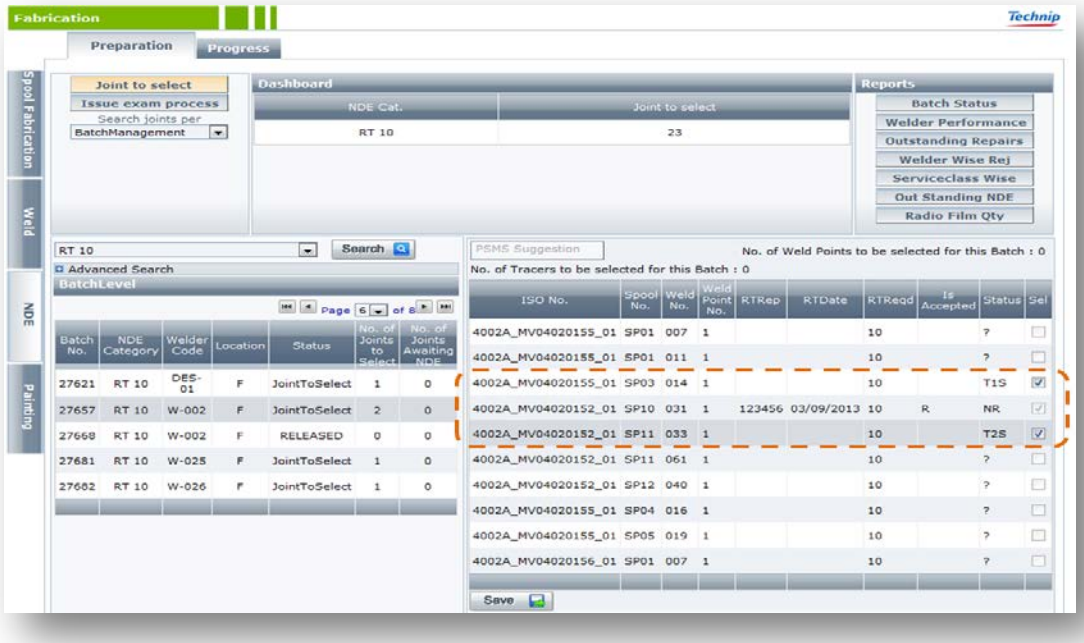


If a selected joint of a batch is accepted. All the other joints of the batch status will be changed to NR and it will disable for selection. The system will show the status of batch as “Released”

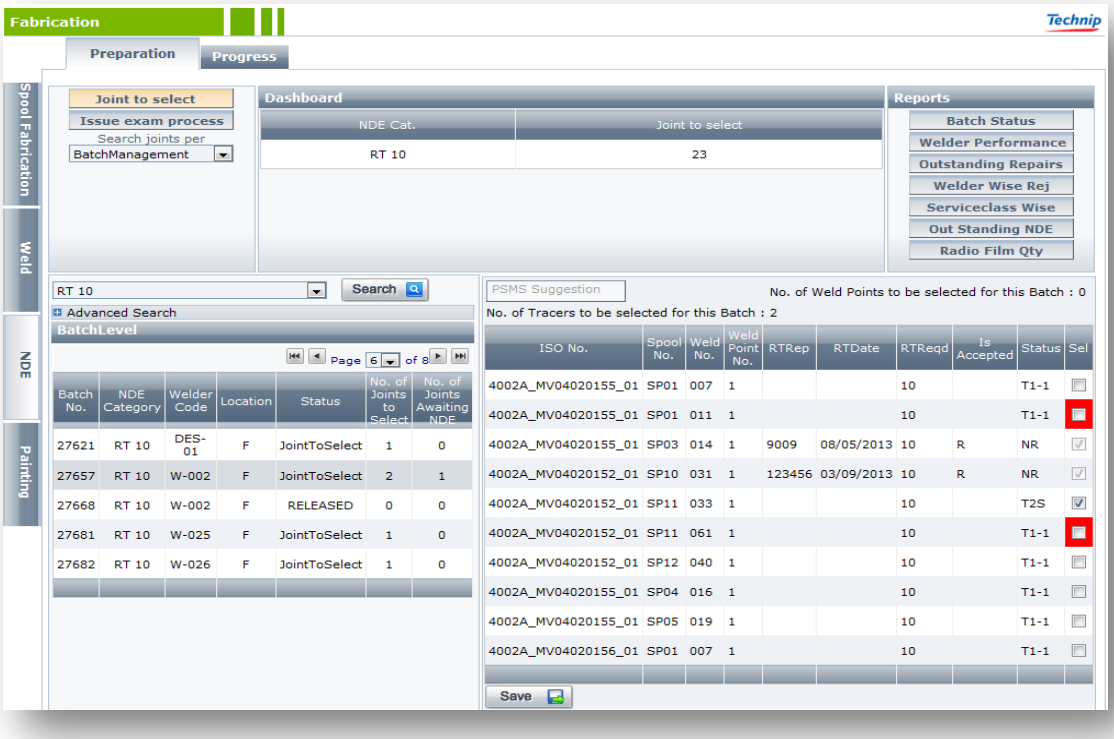
If a selected joint of a batch is rejected, the status for the particular joints is changed to NR and the other joints will be changed to “T1”, Easy Piping will suggest 2 tracers for the user to select. The user can select the suggested tracers or any other tracers for the batch.



Once the user selects the first tracer, the status of that particular joint is changed to T1S and the system shows the status of other joints as T2, after the selection of the second tracer, that particular joint status is changed to T2S and other joints status will be changed to “?”



If any of the selected tracers are rejected, The user is required to select another 2 tracer for rejected joint. Easy Piping will suggest 2 more tracers to select, the user can select the same joints or any other joints from the batch.



The user needs to follow the same principal as followed for the 1st lever tracers to complete the batch.

The user can use the Icon (Save) to save the selected joint.

Legend for Joint Status is as follows

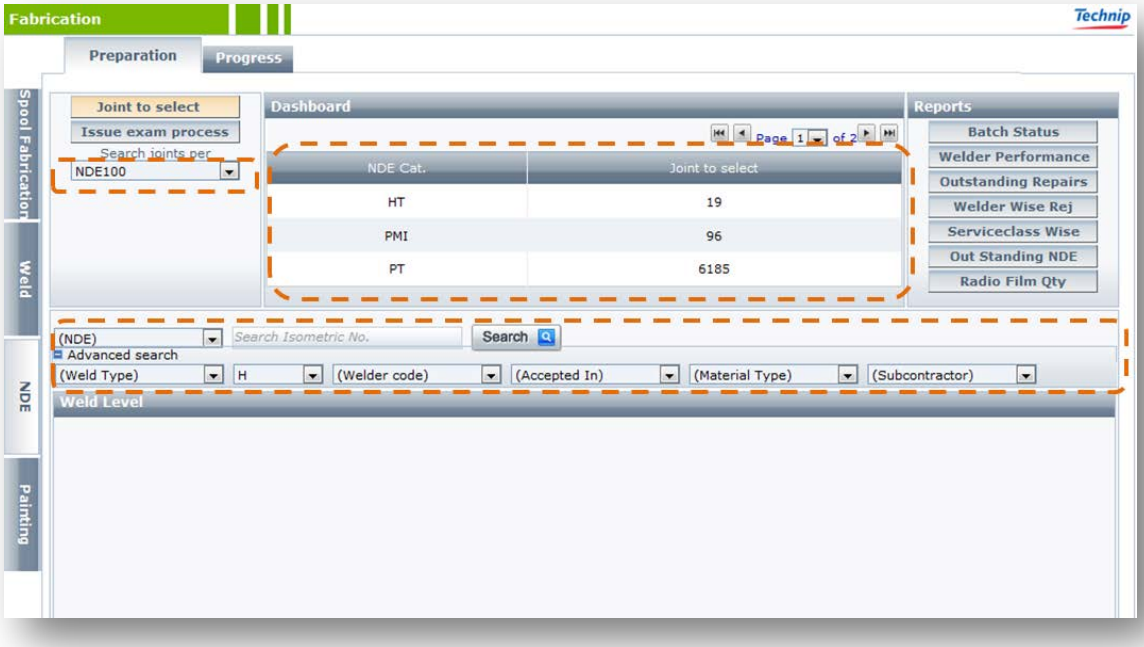
- "S" – Joint to be selected
- "SS – Joint selected and awaiting examination
- "NR" – Joint Examination result updated
- "?" - Selection of joints completed in a Batch
- T1, T2, …. – Tracers in the first level
- T1S, T2S …… - Selected tracers in the first level
- T1-1, T1-2, T2-1, T2-2, …. – Tracers in the second level
- T1-1S, T1-2S, T2-1S, T2-2S – Selected tracers in the second level

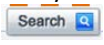
Note:

- If there are any weld-points in a batch that has a sibling, it will be indicated by an icon.
- If there are any weld-points in the batch that are rejected in any other batch, that particular weld-point will be disabled.
- If there are any weld-points in the batch that have related weld-points in any other batch that are rejected, then that particular weld-point will be disabled.
- If 4 or more weld-points in a batch are rejected, then all the weld-points in the batch should be examined 100%. All the weld-points get automatically selected with status "SS". Any new weld-points that are added to this batch will automatically get selected and have status "SS". Status of the batch is "Awaiting NDE".
- If any 2nd level tracer of a batch is rejected, then all the weld-points in the batch should be examined 100%. All the weld-points get automatically selected with status "SS". Any new weld-points that are added to this batch will automatically get selected and have status "SS". Status of the batch is "Awaiting NDE".

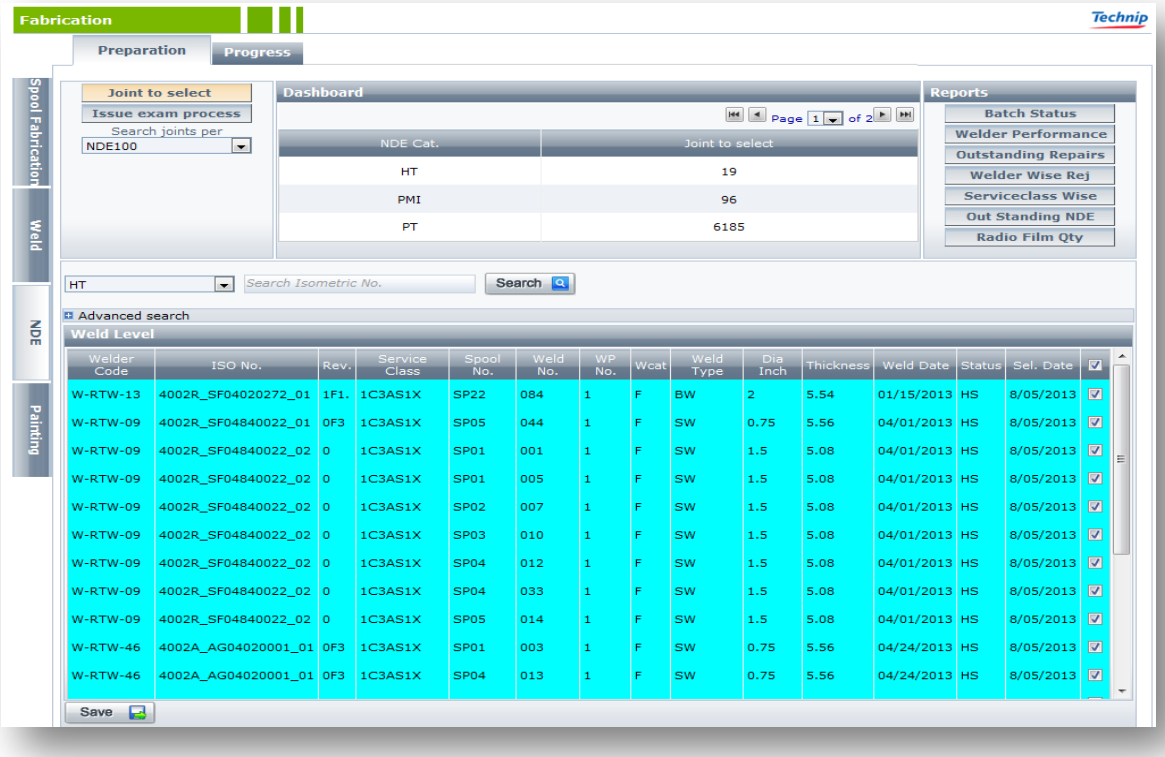
11.3 NDE 100

This module helps the user to select the joints which required 100% NDE for all the categories like (RT, MT, and PWHT etc.) The user can also view the No of joints to select per NDE category in the dashboard section in the same screen.
In this module there is and advanced search which helps the user to unselect the joint and roll back the progress which was recorded mistakenly by the users. This will be for limited users like "System admin" or 'Project admin"



The user needs to select any category of NDE from the dropdown and search for the joints.
The user can use Icon  to view the list of joints to select. The user can select any desired joint or he can select all the joints . the status of the joint will be "H" If it is not selected and the status of the joint will change to "HS" once it is changed.

In this screen the user can see all the joints which required 100% NDE as per the NDE matrix and also the joints created by Easypiping R1, R2, R3 as a suffix for the mother joint which is rejected.

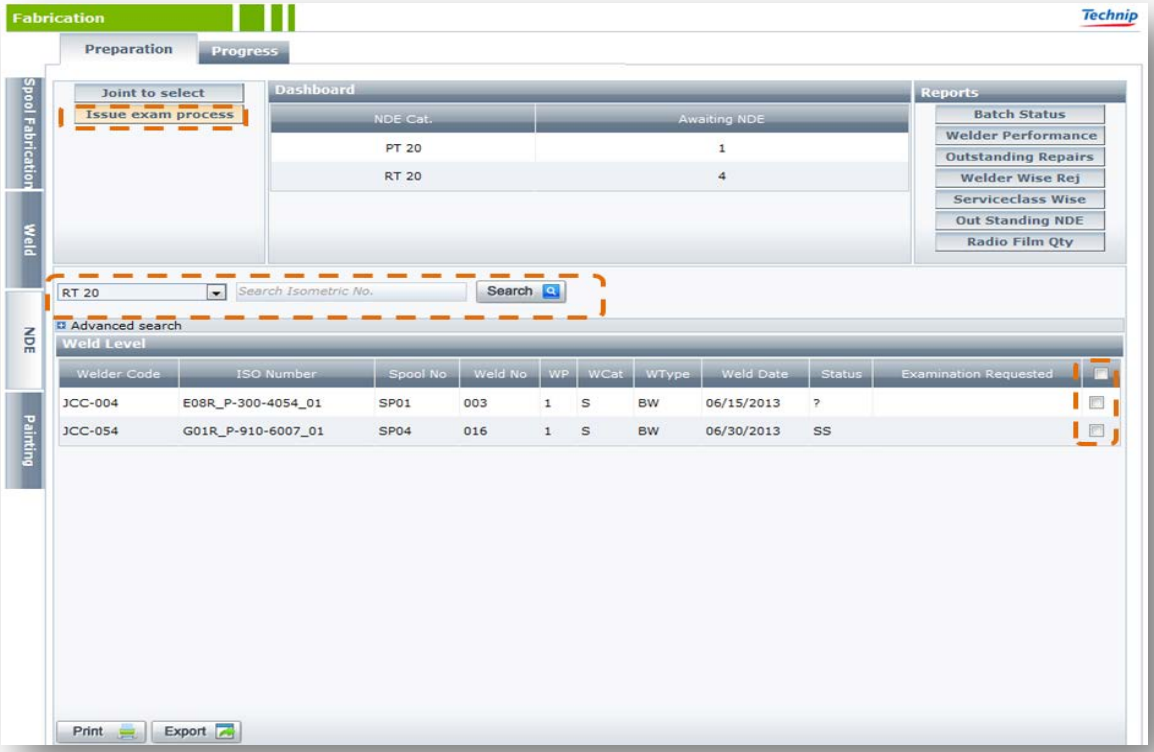


Notes:

- When the joint is “ACCEPTED”, the weld-point will no longer be displayed in this screen.
- When a weld-point is selected, any related weld-points of the selected weld-point also get selected automatically and its status changes to ‘HS’.

11.4 Issue Examination Process

This module helps the user to List out the joints to be examined for a specific NDE category. When the users select all the joints in the “NDE 100” or “Joint to select” all the joints will be viewed in this screen.
The user can issue the joints by selecting the desired joints or he can select all the joints by selecting check all.



Notes:

- The user can use Icon to print all the listed joints to Issue for examination
- The user can use Icon to export all the listed joints into an excel format to issue for examination

11.5 Examination Progress

This module helps the user to update the examination results for the selected welds to the different categories of NDE .The user can update the progress by “Manually” and “Import procedure” as well.
The user can search the desired spools and welds by the different search options available on the screen.

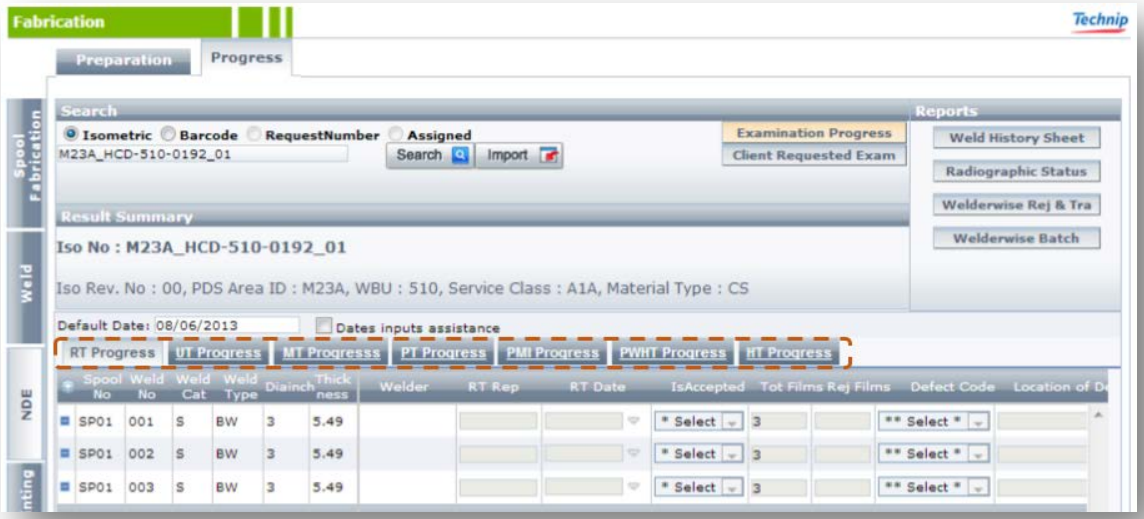
- Search by Isometric
- Search by Barcode

There are different tabs for the different NDE categories to update the examination result.
Note:

- Only the welds that are selected in the ‘Batch Management’ and NDE100 screen for all NDE category examination will be enabled for entry. It will be disabled for all the other welds
- If a weld has more than 1 weld-point, user has to click on which will open a popup where the user can enter the examination results of all weld-points.
- Once the progress is recorded for weld-points in the examination progress screen. results will be disabled and modification will not be possible except for the following fields:
  RT Rep. RT Date, Rejected Films, Defect Code, Location of Defect.

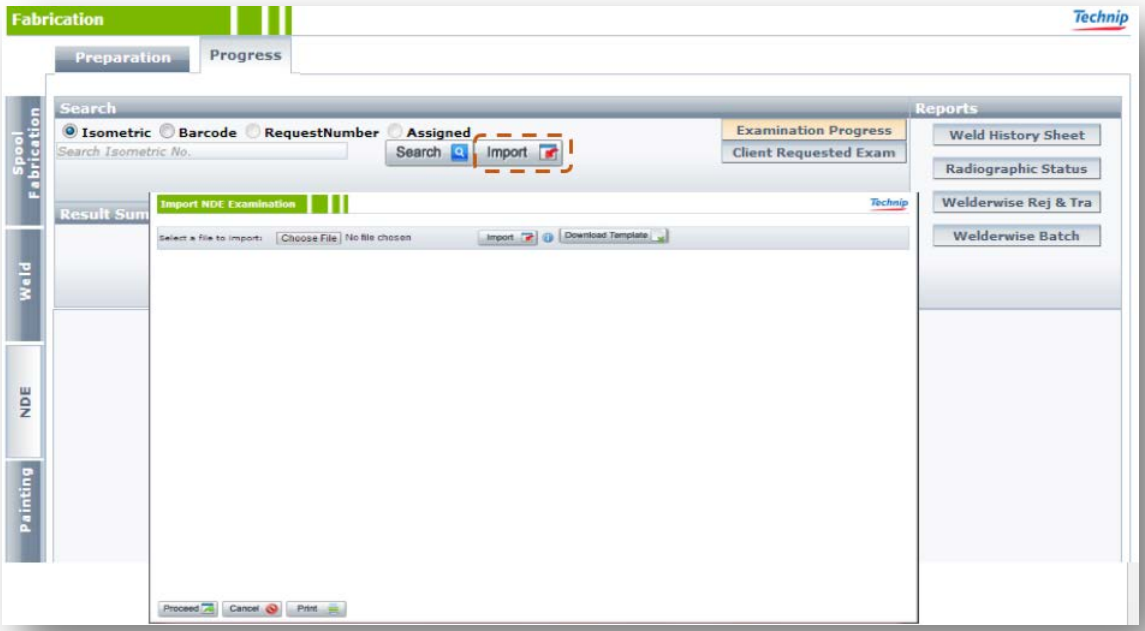
- If any of the weld-points are rejected, new revision of the rejected weld-point is created with suffix R1. For further revision R2, R3, etc. These newly created welds because of revision will be tested 100% for RT examination. It will appear in the NDE 100 module.

- If any of the weld-points of a weld is rejected, then the entire weld will be displayed as rejected.



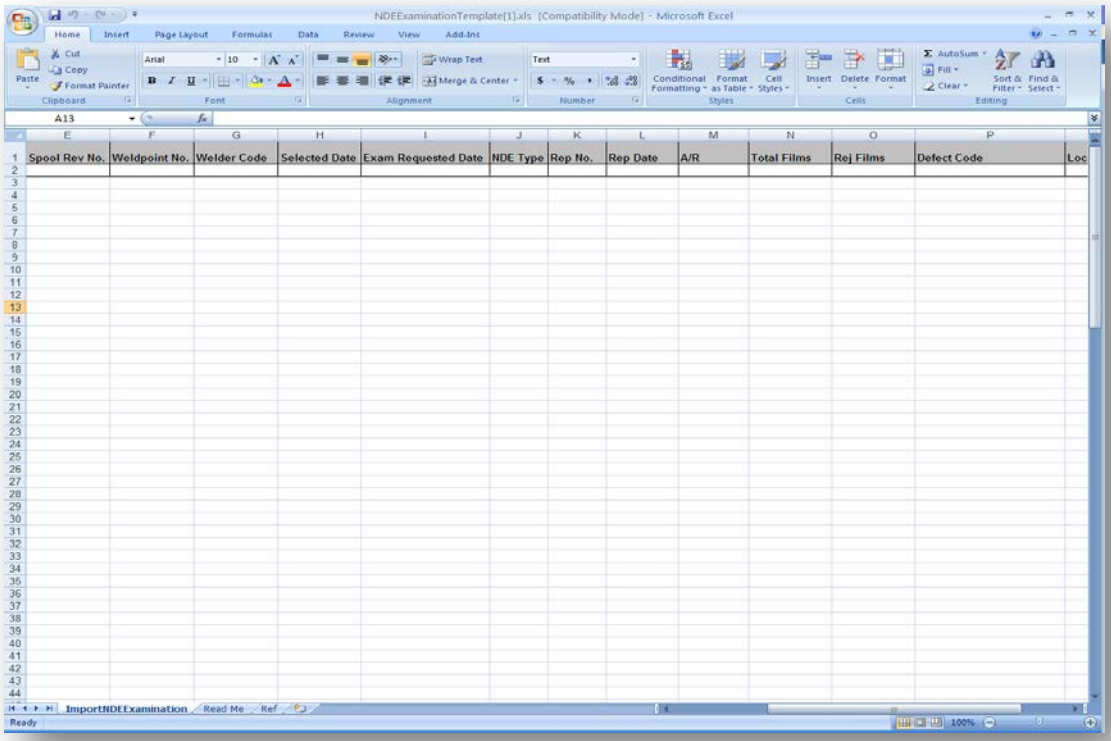
Import procedure for NDE Examination Progress

This module helps the user to import all the Examination progress into the system. In this module the system allows the user to generate a template, this template is duly filled by the user and import the same template into the system.



The user can use the Icon

to download the template and fill the template with the relevant information

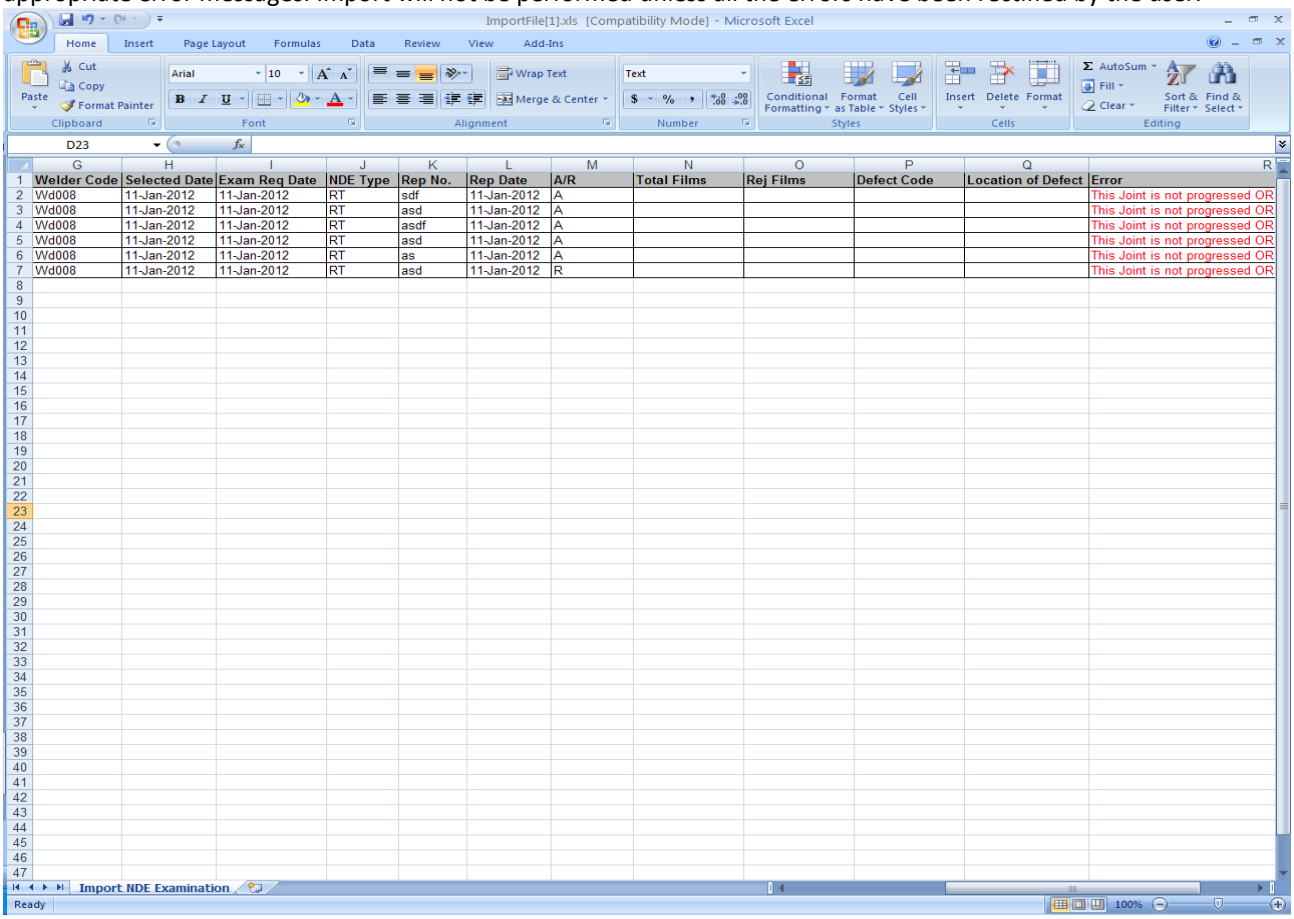


The system will allows the user to browse the file, the user can use the Icon Choose File and select the Import file and Proceed all the information is imported into the system.

Note

- System will allow .xls or .xlsx files only
- Empty file is not allowed
- ISO number, spool number, weld number, ISO Revision number, spool revision number which do not exist will be rejected by the system.
- Import of welds should have weld progress date otherwise rejected by the system.
- Import of welds and NDE Type which do not exist will be rejected by the system, along with the error message - InValid NDE Type
- Duplicates values are not allowed

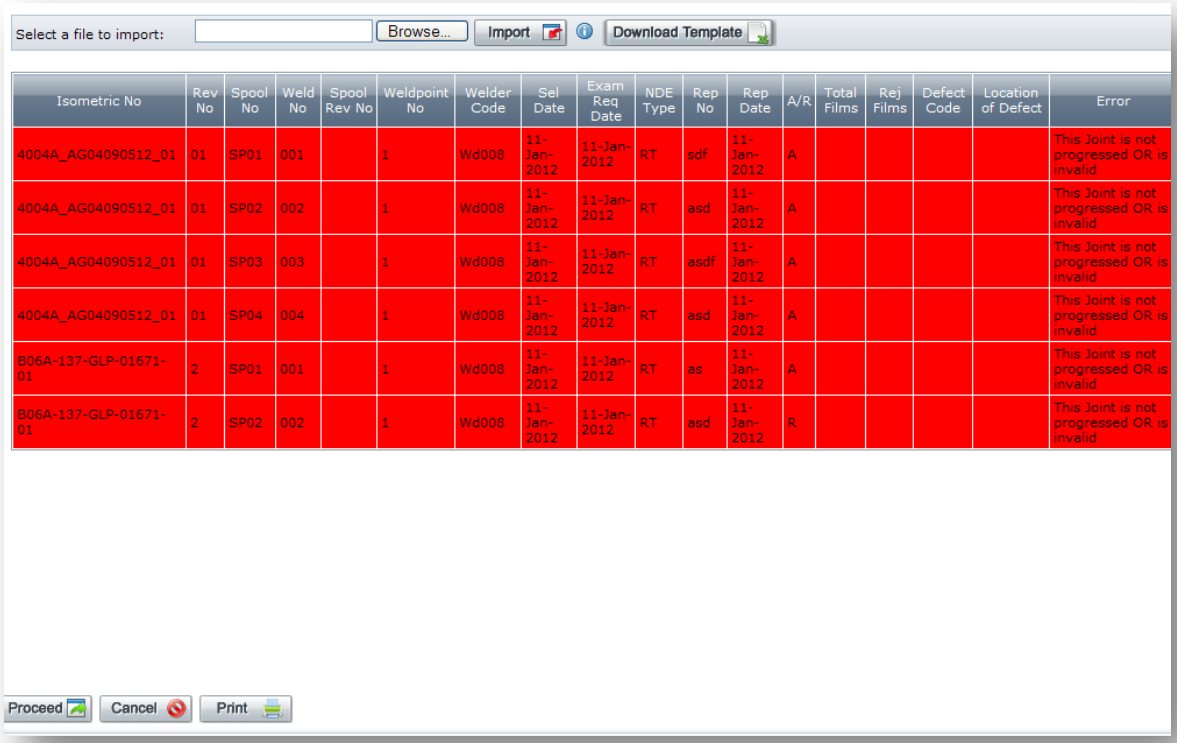
The system will validate the information provided by the user and the system will highlight the errors in red with the appropriate error messages. Import will not be performed unless all the errors have been rectified by the user.



Welder Code	Selected Date	Exam Req Date	NDE Type	Rep No.	Rep Date	A/R	Total Films	Rej Films	Defect Code	Location of Defect	Error
Wd008	11-Jan-2012	11-Jan-2012	RT	sdf	11-Jan-2012	A					This Joint is not progressed OR
Wd008	11-Jan-2012	11-Jan-2012	RT	asd	11-Jan-2012	A					This Joint is not progressed OR
Wd008	11-Jan-2012	11-Jan-2012	RT	asdf	11-Jan-2012	A					This Joint is not progressed OR
Wd008	11-Jan-2012	11-Jan-2012	RT	asd	11-Jan-2012	A					This Joint is not progressed OR
Wd008	11-Jan-2012	11-Jan-2012	RT	as	11-Jan-2012	A					This Joint is not progressed OR
Wd008	11-Jan-2012	11-Jan-2012	RT	asd	11-Jan-2012	R					This Joint is not progressed OR

The user will be prompted with how to view the validated import file: via Excel or Screen.

The Excel file will not be able to highlight the errors and overwritten cells in color. However, the error messages will be shown. If the user selects to view the validations in the screen.



Isometric No	Rev No	Spool No	Weld No	Spool Rev No	Weldpoint No	Welder Code	Sel Date	Exam Req Date	NDE Type	Rep No	Rep Date	A/R	Total Films	Rej Films	Defect Code	Location of Defect	Error
4004A_AG04090512_01	01	SP01	001		1	Wd008	11-Jan-2012	11-Jan-2012	RT	sdf	11-Jan-2012	A					This Joint is not progressed OR is invalid
4004A_AG04090512_01	01	SP02	002		1	Wd008	11-Jan-2012	11-Jan-2012	RT	asd	11-Jan-2012	A					This Joint is not progressed OR is invalid
4004A_AG04090512_01	01	SP03	003		1	Wd008	11-Jan-2012	11-Jan-2012	RT	asdf	11-Jan-2012	A					This Joint is not progressed OR is invalid
4004A_AG04090512_01	01	SP04	004		1	Wd008	11-Jan-2012	11-Jan-2012	RT	asd	11-Jan-2012	A					This Joint is not progressed OR is invalid
B06A-137-GLP-01671-01	2	SP01	001		1	Wd008	11-Jan-2012	11-Jan-2012	RT	as	11-Jan-2012	A					This Joint is not progressed OR is invalid
B06A-137-GLP-01671-01	2	SP02	002		1	Wd008	11-Jan-2012	11-Jan-2012	RT	asd	11-Jan-2012	R					This Joint is not progressed OR is invalid

11.6 Client Examination Progress

This module helps the user to update the NDE examination progress for the welds from the two categories

- Batch is cleared and an additional joint need to be tested in that batch.
- Not defined in the NDE Matrix, but the client/QC inspector calls for NDE examination

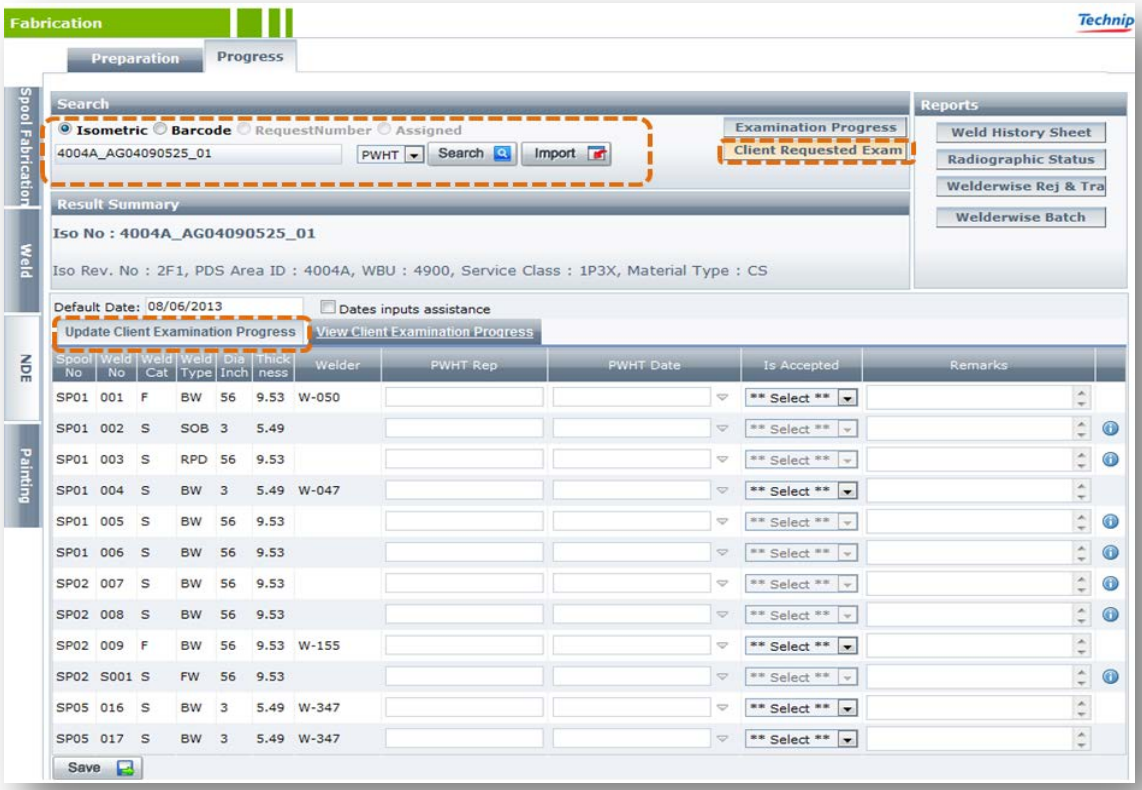
The user can search the desired spools and welds by the different search options available on the screen.

- Search by Isometric
- Search by Barcode

The user can view two tabs available in this screen as follows

- Update Client Examination Progress
- View Client Examination Progress

In the “Update Client Examination progress” tab the user can update the progress for any joint that has been selected.



Note:

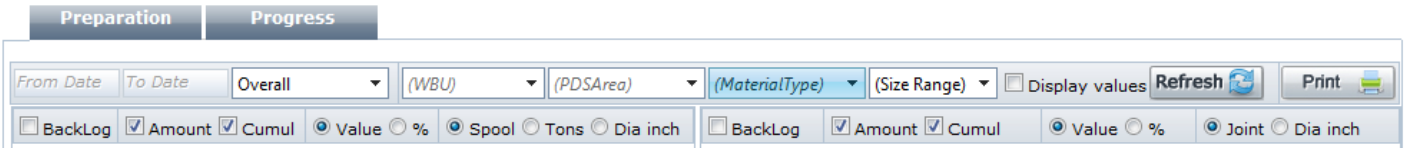
- If a weld has more than 1 weld-point, user has to click on which will open a popup where the user can enter the examination results of all weld-points.
- Once the progress is recorded for weld-points in the examination progress screen. results will be disabled and modification will not be possible except for the following fields:
  RT Rep. RT Date, Rejected Films, Defect Code, Location of Defect.
- If any of the weld-points are rejected, new revision of the rejected weld-point is created with suffix R1. For further revision R2, R3, etc. These newly created welds because of revision will be tested 100% for RT examination. It will appear in the NDE 100 module.
- If any of the weld-points of a weld is rejected, then the entire weld will be displayed as rejected.
- The client requested joints will be highlighted in orange color in the Batch management screen for easy identification.
- Tracer management is not handled

In the “View client examination progress” tab, user can view all the updated progress in a read only mode

11.7 Fabrication Dash Board

Fabrication Dashboard provides graphical representation of progressed quantities and backlogs for various Fabrication activities at Spool level and Joints level. Various Filter option are provided to customize the filters for user convenience.

11.7.1 Filters



Filters provided to customise the search criteria for user convenience. This option shall enable user to view the progress and backlog quantities in terms of Dia- inch, No of spools or Tons Etc. The Main option in the Filters are

Global Filters :

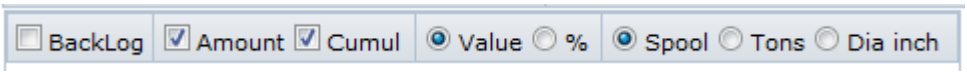
1. Time scale : Facilitates user to select specified time period or predefined time.
2. WBU
3. Design Area (PDS Area)
4. Material Type
5. Size Range

After selection of Global filters user need to Click on

button to apply filters on Graphs.

Print option is provided to print the graph with selected filters.

Spool Fabrication Progress Filters:

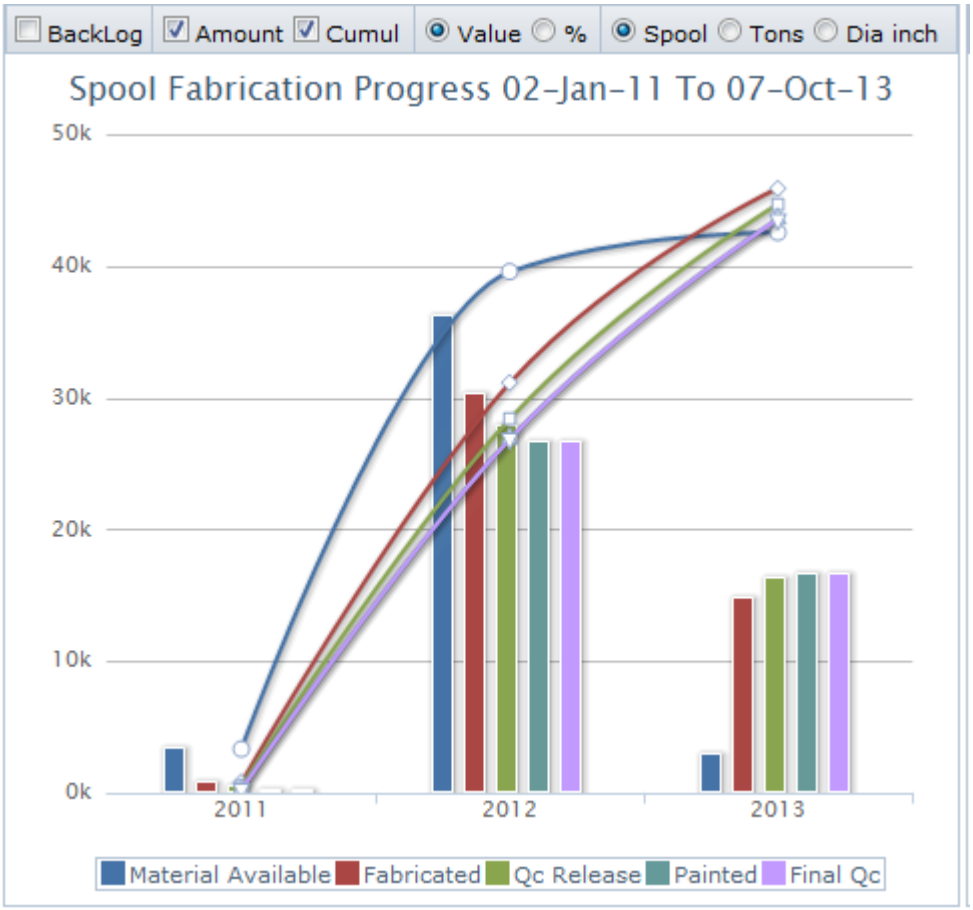


1. Backlog : Provide the information Backlog for each and every activity of Spool Fabrication progress at Spool Level.
2. Amount :Display the periodic values (Bar chart)
3. Cumul : Display the overall values (Line chart)
4. Values or % : Display the values of progress % of Total scope.
5. Spools, Tons or Dia Inch : Display the values of in No of spools or Tons or Diaincah (Spool level Shop Scope) based on the selection.

Joint Fabrication Progress Filters:

1. Backlog : Provides the information of Backlog for all activities of Joint fabrication and NDE process. (Note: Backlog for NDE progress shall not be displayed if other filters are on except Time filters)
2. Amount :Display the periodic values (Bar chart)
3. Cumul : Display the overall values (Line chart)
4. Values or % : Display the values of progress % of Total scope.
5. Joint or Dia inch : Displays the values in No of Joints wise of Dia- inch wise

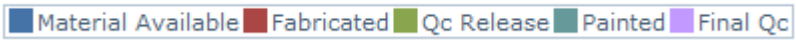
11.7.2 Spool Fabrication Chart :



Spool Fabrication chart provides progress and backlog information for following Activities at Spool level.

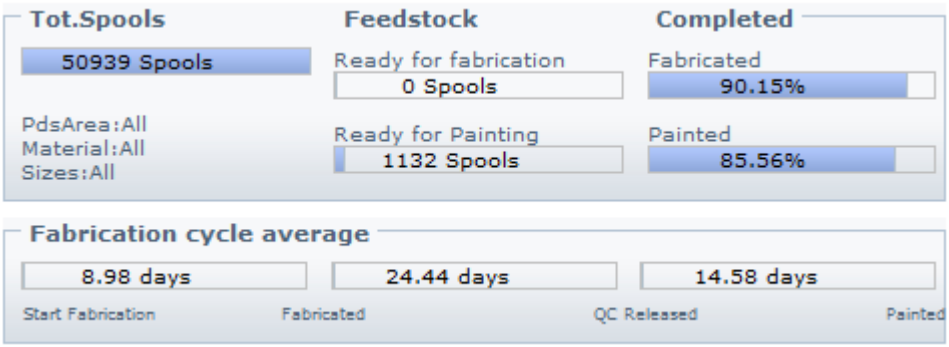
1. Material Availability
2. Fabricated
3. QC Release
4. Painted
5. Final QC

User can switch the visibility of Activities.



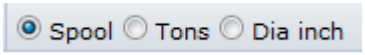
By Clicking the above icons user can show or hide the activity.

11.7.1 Spool Fabrication Feed Stock Quantities and KPI :



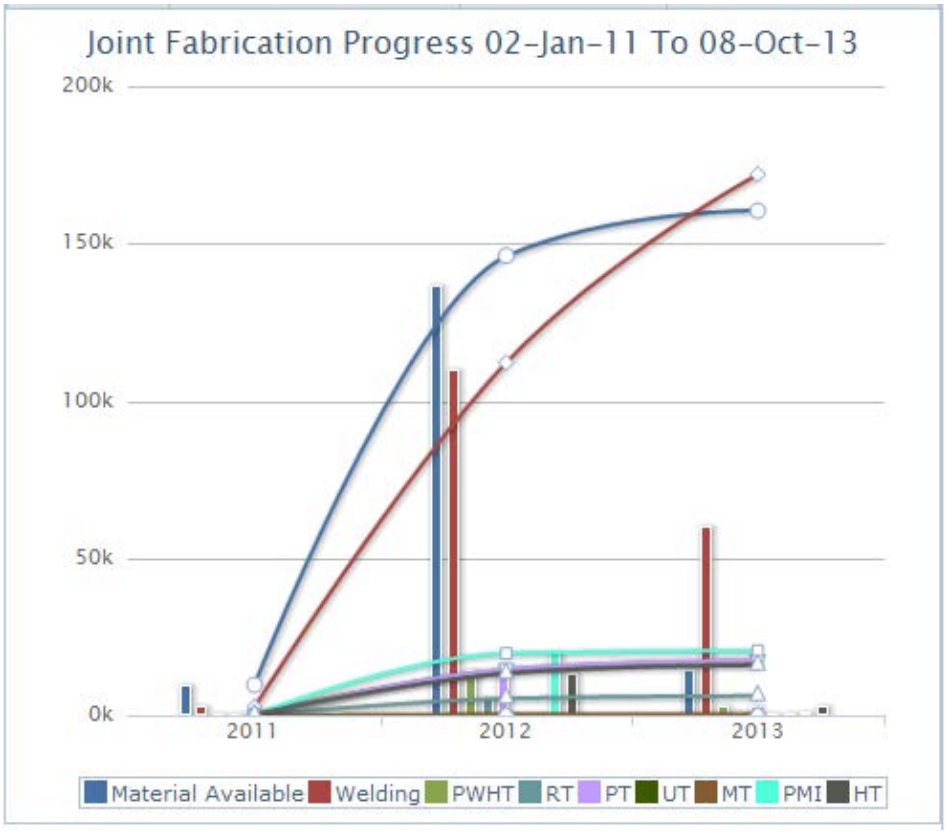
Spool Fabrication Feed stock Quantities represent the overall Scope and Feed stock availability data.

1. Feed stock quantities always display the overall quantities, So Time Filters in global filters are not applicable.
2. Total Spools always represent the overall scope of the project.
3. All the values can be displayed in Spool , Tons or Dia Inch based on the selection in the Spool Fabrication filter



KPI For Spool Fabrication : KPI represents avg time taken for each activities based on historical data of the project.

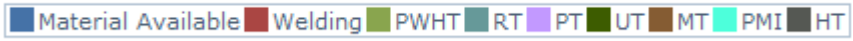
11.7.2 Joint Fabrication Chart :



Joint Fabrication chart provides progress and backlog information for following Activities at Joint level. These values are represents only Shop Joints for which the Dia-Inch Factor is “Yes”.

1. Material Availability
2. Welding
3. PWHT
4. RT
5. PR
6. MT
7. PMI
8. HT

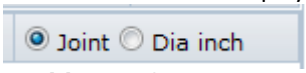
User can switch the visibility of progress by clicking the Following button on the Graph :



11.7.3 Joint Fabrication Feed Stock Quantities and KPI:

Joint Fabrication Feed stock Quantities represent the overall Scope and Feed stock availability data.

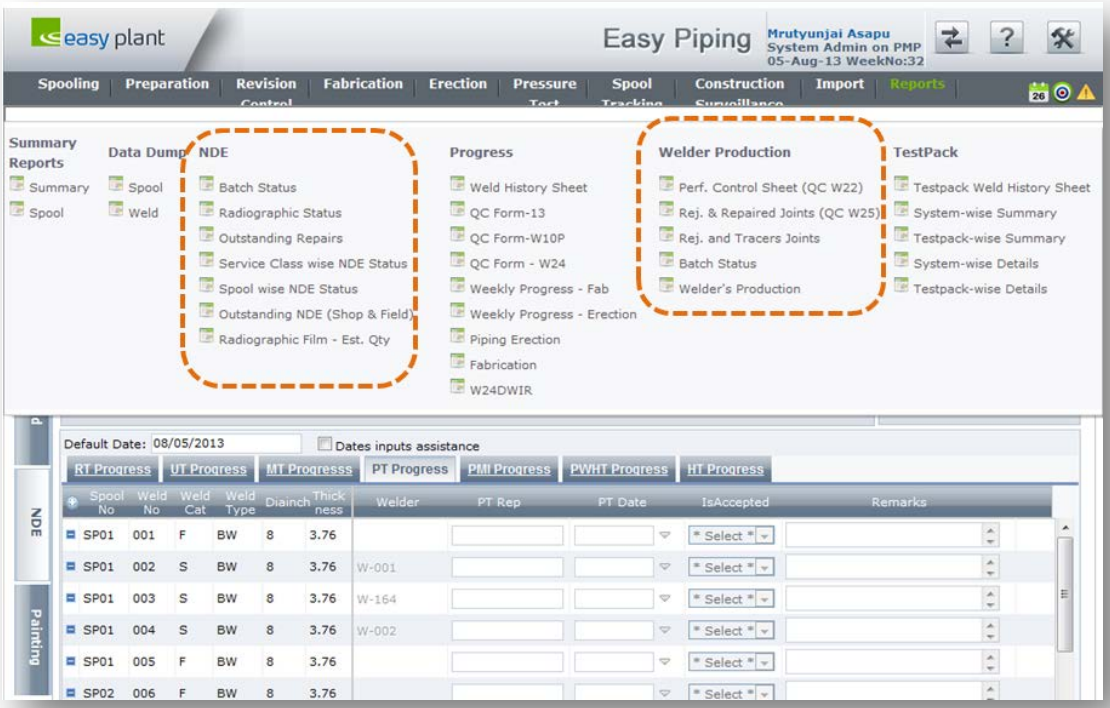
1. Feed stock quantities always display the overall quantities, So Time Filters in global filters are not applicable.
2. Total joints always represent the overall scope of the project.
3. All the values can be displayed in No of Joint or Dia-Inch based on the selection in the Spool Fabrication filter



KPI For Welder Performance : KPI represents the overall Avg Dia Welded by a welder per day.

11.8 NDE Reports

Easy Piping will allow the user to see certain reports related to the NDE which explained below in detail. The user can access the reports from the same screen or a separate tab which is only for all the reports.



Welders_Perf_Control_Sheet.xls

Welders_Perf_ Control Sheet: gives for each welder weekly and cumulative statistics on percentage / number of joints welded accepted /rejected and type of defects

WelderwiseRejectedandTracersJoints.xls

Welder wise rejected and tracer joints: It will list all the rejected joints with the corresponding Tracers. Used to track backlog in penalty shoot.

WelderwiseRejectedandRepairedJoints.xls

Welder wise rejected and repaired joints: It will list for each welder the joints to be repaired - repaired. Used to track backlog in repairs.

WelderwiseBatchStatus.xls

Welder wise batch status: It will gives examination status for a welder

Welders_Production.xls

Welders Production: It will give the production report for the certain selected period for a selected welder or all welders during that period.

9833N_4941_Batch_Status_Report.xls

Batch status: It will gives released status of each welds regarding NDE

Radiographic_Film_Status_Report.xls

Radiographic status: It will give statistics on percentage / number of joints/films accepted /rejected and type of defects - weekly and cumulative

Outstanding_Repairs_Report.xls

Outstanding Repairs: list all the joints to be repaired with all necessary details, including pending days since NDE done

Service_Class_wise_NDE_Status_Report.x

Service class wise NDE status: gives NDE status for each piping class. Used to check examination percentage compliance

Spool_wise_NDE_Status.xls

Spool wise NDE status: It will list all spools status regarding NDE, spool is Qc released or not and display the corresponding QC and W10 report number

Outstanding_NDE.xls

Outstanding NDE: lit all the joints awaiting NDE reports, including pending days since requested. Used for NDE backlog tracking

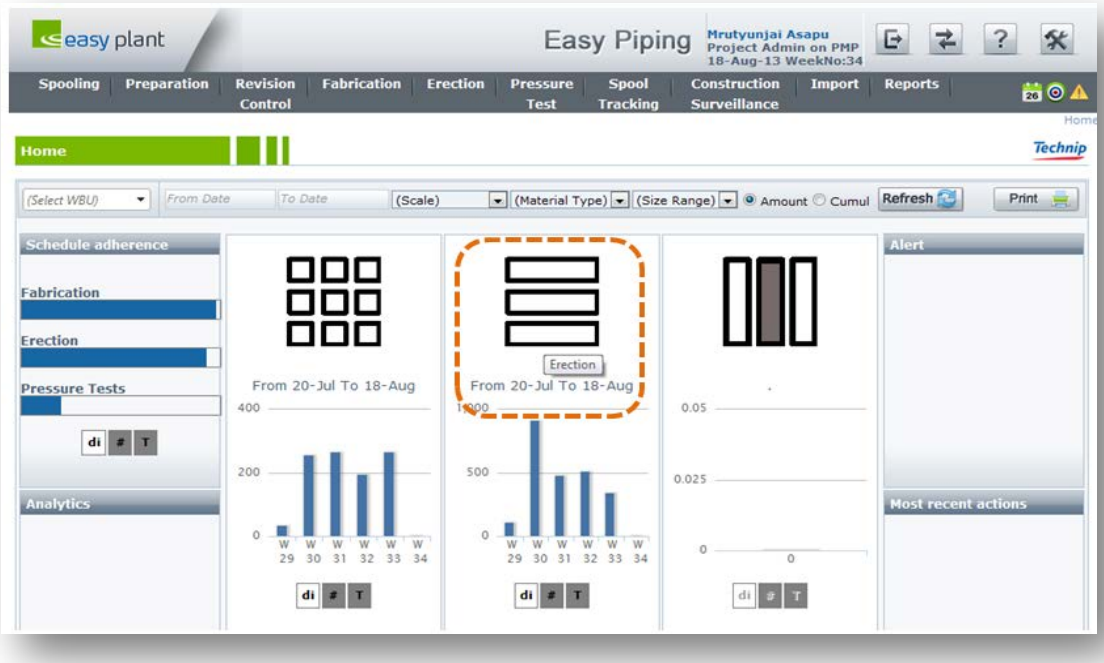
Radiographic_Film_Estimated.xls

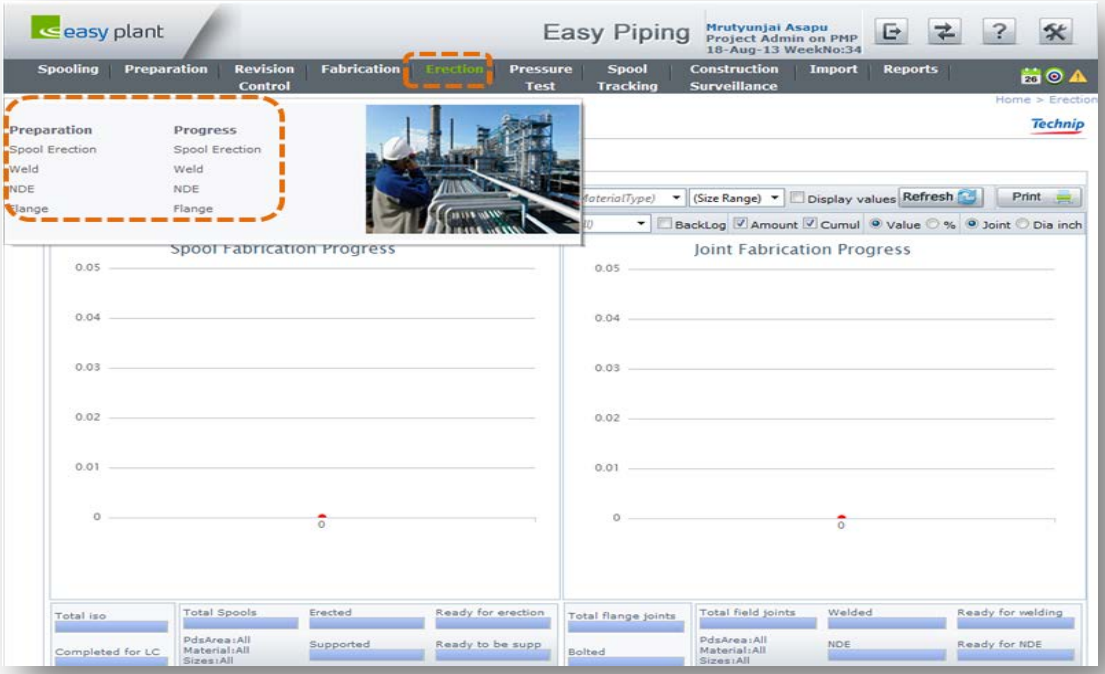
Radiographic film – Est. qty: It will give an estimated quantity of radiographic films to be shoot.

Easy Piping Part 5: Erection Module

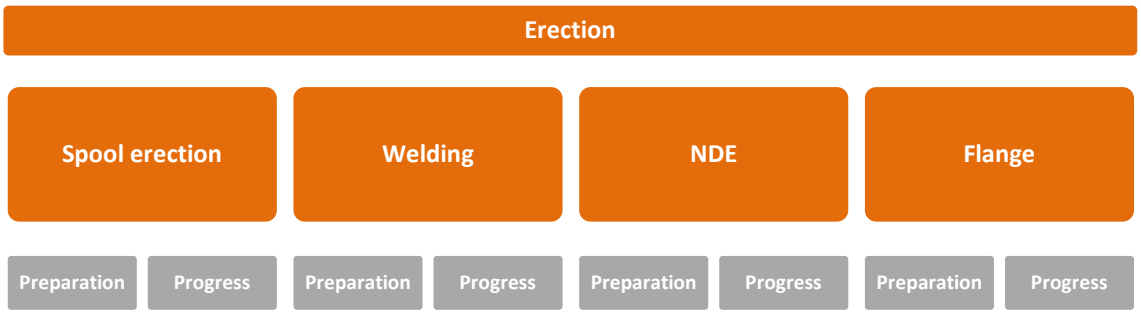
12. ERECTION MODULE

The Erection module is organized in 4 different sections corresponding to the different site activities. These sections allow the user to plan & prepare the workload and record the Progress for each activity. The user can also generate the Erection reports from this screen. All the sections and its uses are defined clearly in the below details.





ARTICLE I. DIFFERENT SECTIONS DURING ERECTION PHASE



12.1 Spool Erection

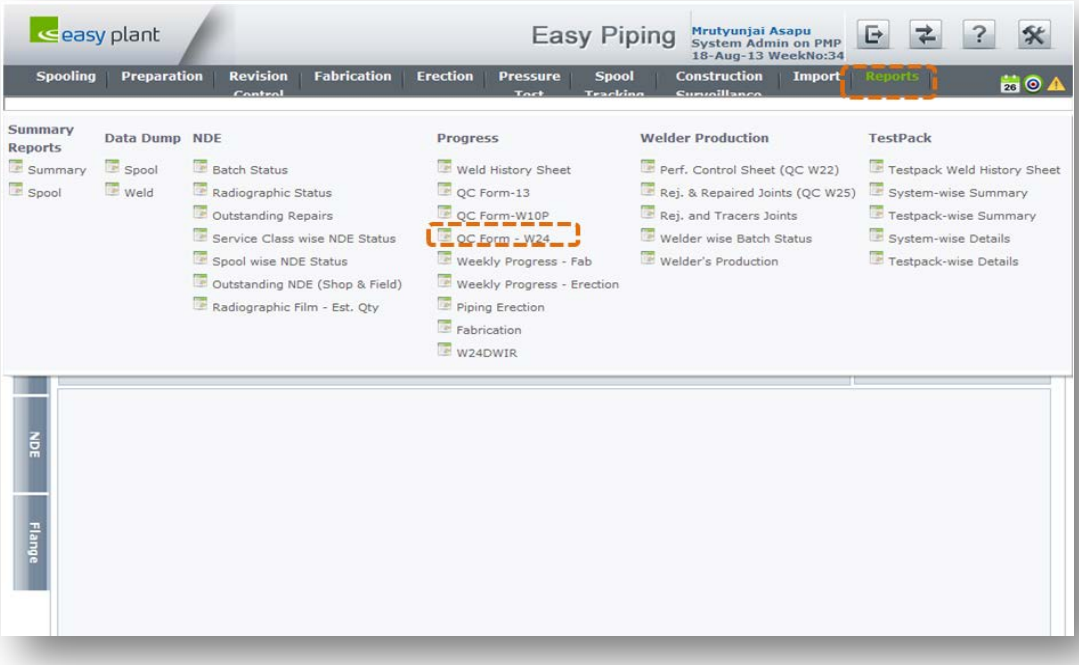
This screen contains two different sections which is preparation and progress. The preparation screen allows the user to plan and prepare the workload. The progress screen consists of several steps that user needs to follow. There can be some additional steps which shall be added if it is required for a project (Refer to Para 1.1).Definition of each step has to be agreed in the initial stage of the project

- To Site
- Erected
- Welded/Bolted
- Supported
- RFT

In order to update progress for the above steps in Easy piping, the users have to follow the QC form (W-24 Form) The user can generate the QC forms in two methods.

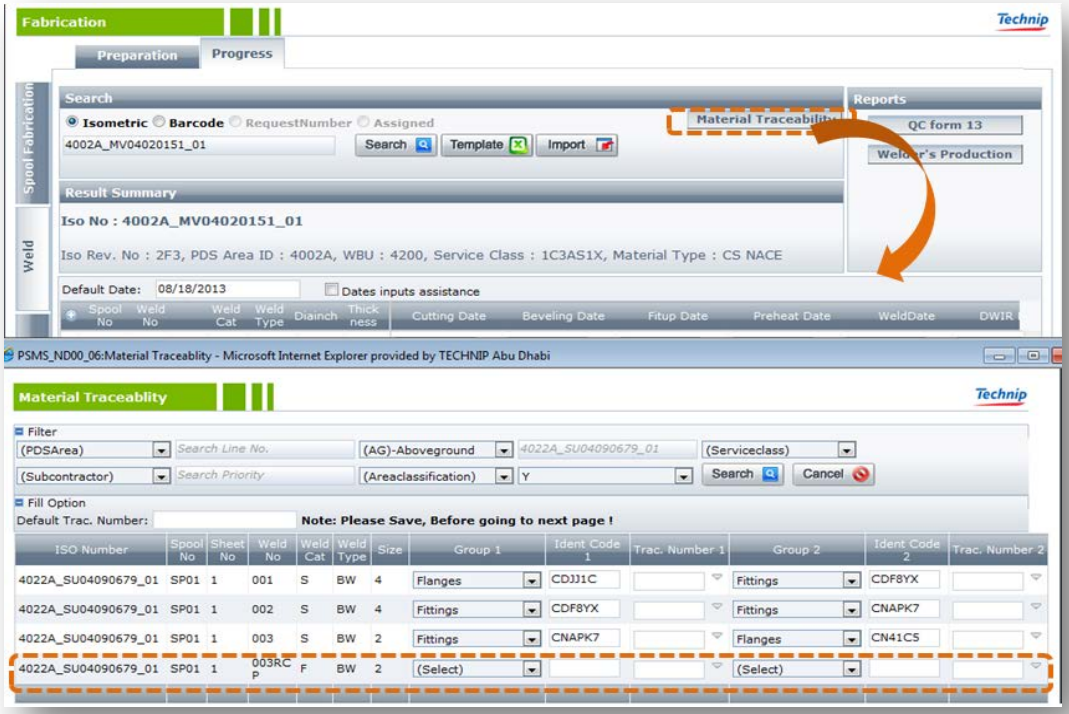
3. Using search method – User can search for single Iso and spool
4. Using Excel Import method – User can List upto Max 50 spools in excel and generate the forms

- W-24 form is the daily progress report form, at spool level.
- The QC Form should be duly filled by workers about the details of the Field joints for the selected spool
    - Material traceability
    - Welding



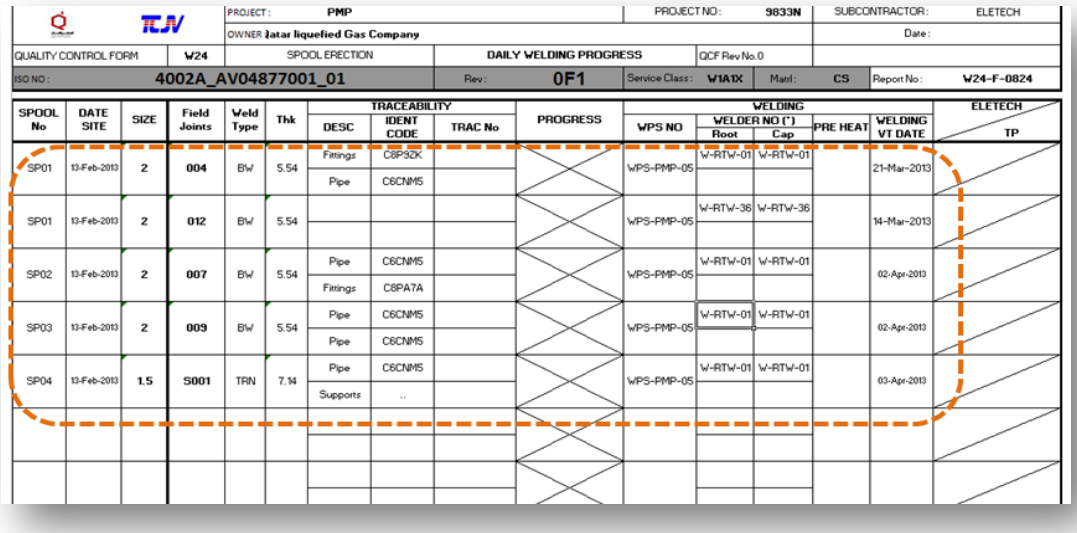
12.2 Material Check

In the weld progress screen, the user can access the “material traceability” pop-up window. The user will enter the heat numbers filled in the QC – 13 forms by foreman. Easy piping will validate the entered heat numbers which are predefined in the project referential. (Refer to Para 3.12)
When heat numbers are correctly recorded, the “material check” status of the corresponding spools will be automatically updated.



12.3 Weld Progress

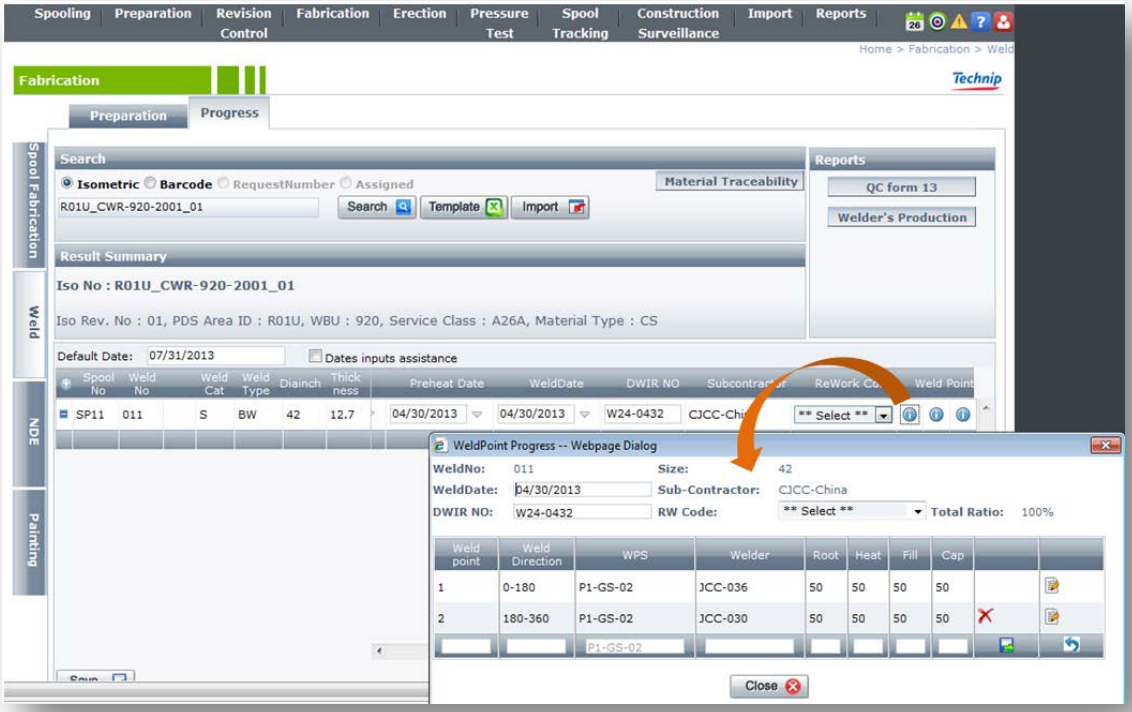
In the Erection module, the weld progress screen will show only the field joints. Welding progress is filled in the W-24 form, and then the progress is recorded in easy piping in the weld progress screen. The system validates the Information of welders which are predefined in the project referential. (Refer to Para 3.7)
The system will validate the information of WPS recorded against the welder with the welder qualifications which are predefined in the Project referential. (Refer to Para 3.6) The system will alert the user if he records the incorrect information.



The following are the weld progress columns for which the user needs to fill in this screen

- Cutting Date – User to input the date
- Beveling Date – User to input the date
- Fit-up Date – User to input the date
- Preheat Date – User to input the date
- Weld Date – User to input the date
- DWIR No. – User to input the QC Form No
- Subcontractor – Read Only
- Rework Code – User to select from dropdown
- Weld Point No. – User to input the number
- WPS No. – User to input the WPS No.
- Welder Code – User to input the Welder code

If the joint is progressed by only 1 welder (i.e., if there is only 1 weld point), then the user can enter the progress details in the same screen.
If the joint is progressed by more than 1 welder (i.e., if there are more than 1 weld points), then the user has to click the icon upon which a pop-up is displayed to the user for entering the weld point details.



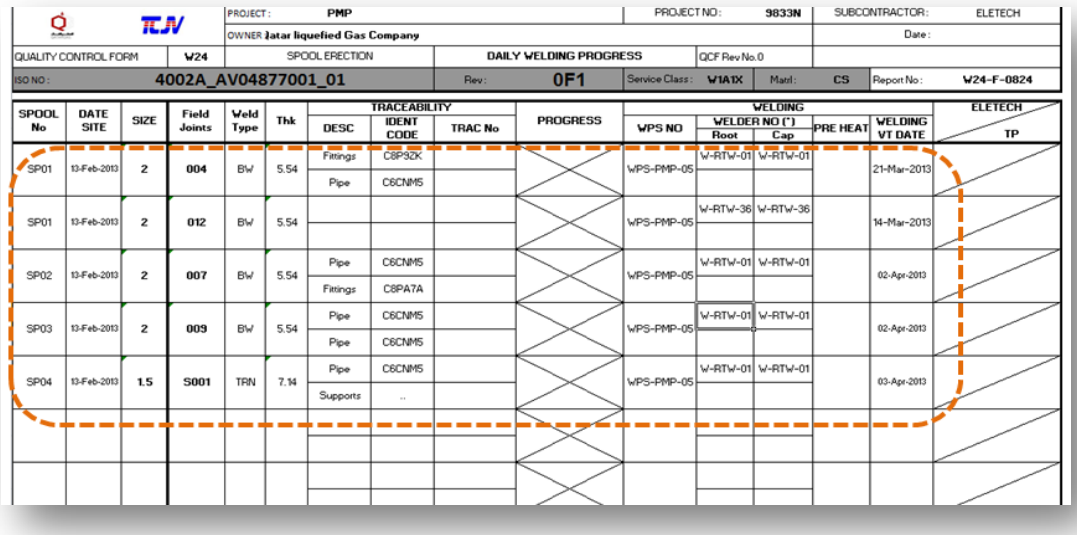
Note:

- In the pop-up screen, when the user enters the progress information for the first weld-point and saves, the same WPS No. will be automatically loaded in read-only mode for entering the progress information of the second weld-point.
- In the pop-up screen, when the user enters the progress information for the first weld-point and saves, the user has to enter a different welder code for the second weld-point. The system will validate the welder code.

- In the pop-up screen, Root and Cap are mandatory fields. The total of Root and Cap for a joint should be 100. The total of Heat and Fill for a joint can be 0 or 100.
- Modification of WPS No, Welder code is not allowed for those weld-points that are selected for examination in any of the batches OR already examined.

12.4 To site

This step will be updated by the user from the W-24 QC form. Once the spools are received at site and confirmed by the area supervisor.

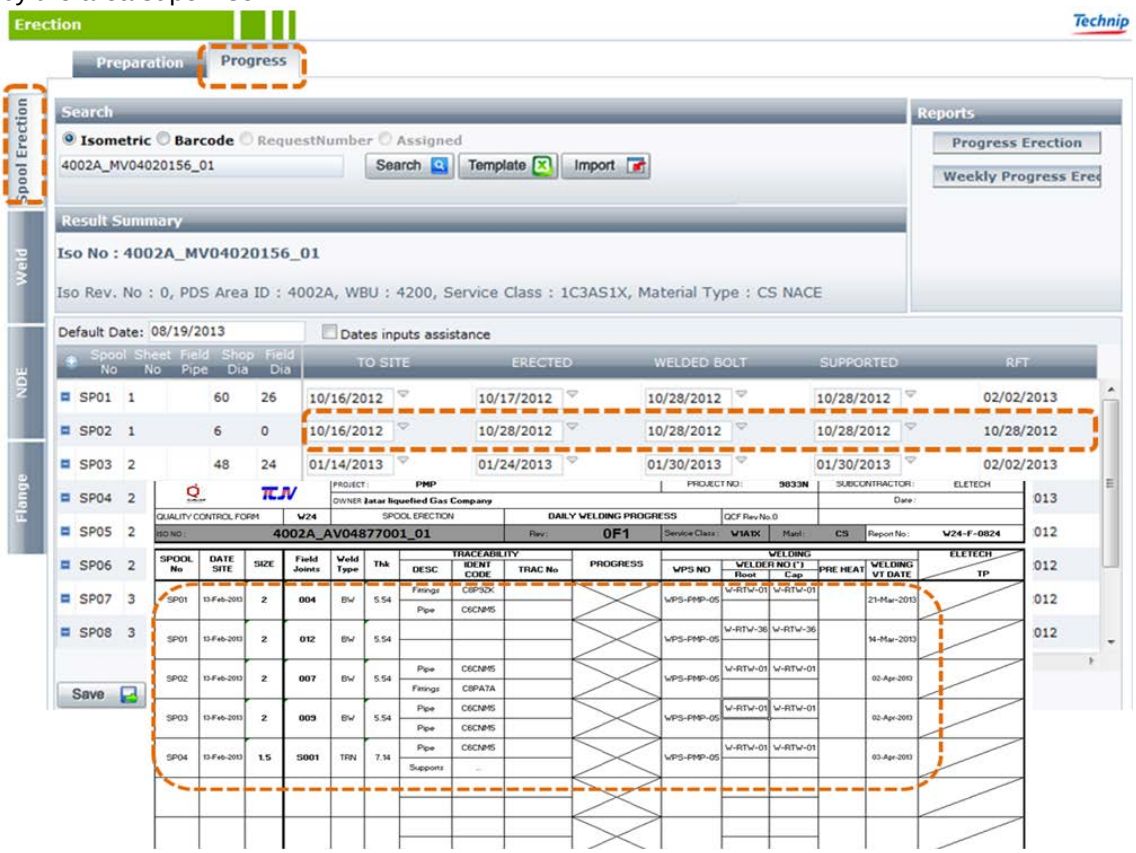


PROJECT: PMP | PROJECT NO: 9833N | SUBCONTRACTOR: ELETECH
OWNER Qatar liquefied Gas Company | Date:
QUALITY CONTROL FORM | W24 | SPOOL ERECTION | DAILY WELDING PROGRESS | QCF Rev No. 0
ISO NO: 4002A_AV04877001_01 | Rev: 0F1 | Service Class: W1A1X | Mat'l: CS | Report No: W24-F-0824

SPOOL No	DATE SITE	SIZE	Field Joints	Weld Type	Thk	TRACEABILITY DESC	TRACEABILITY IDENT CODE	TRAC No	PROGRESS	WELDING WPS NO	WELDER NO (*) Root	WELDER NO (*) Cap	PRE HEAT	WELDING VT DATE	ELETECH TP
SP01	13-Feb-2013	2	004	BW	5.54	Fittings	C8PS2K			WPS-PMP-05	W-RTW-01	W-RTW-01		21-Mar-2013	
						Pipe	C6CNM5								
SP01	13-Feb-2013	2	012	BW	5.54					WPS-PMP-05	W-RTW-36	W-RTW-36		14-Mar-2013	
SP02	13-Feb-2013	2	007	BW	5.54	Pipe	C6CNM5			WPS-PMP-05	W-RTW-01	W-RTW-01		02-Apr-2013	
						Fittings	C8PA7A								
SP03	13-Feb-2013	2	009	BW	5.54	Pipe	C6CNM5			WPS-PMP-05	W-RTW-01	W-RTW-01		02-Apr-2013	
						Pipe	C6CNM5								
SP04	13-Feb-2013	1.5	S001	TRN	7.14	Pipe	C6CNM5			WPS-PMP-05	W-RTW-01	W-RTW-01		03-Apr-2013	
						Supports	..								

12.5 Erected

This step will be updated by the user from the W-24 QC form. Once the spools are erected at site and confirmed by the area supervisor.



12.6 Welded/Bolted

This step will be updated by the user from the W-24 QC form. Once the spools are erected and all the joints of the spools are welded or bolted.

12.7 Supported

This step will be updated by the user from the W-23 QC form. Once all the supported are erected and welded.

12.8 RFT

This step is an automatic update by the Easy Piping system, if all the predecessor steps are completed.

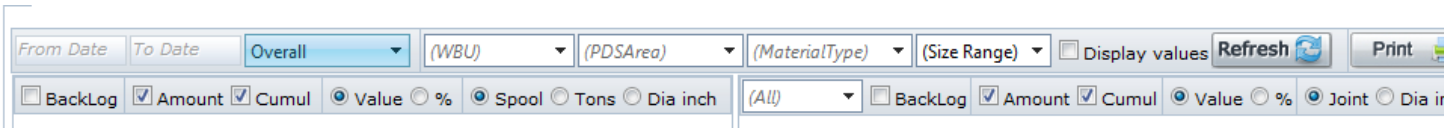
12.9 ERECTION DASH BOARD

Erection Dashboard provides graphical representation of progressed quantities and backlogs for various Erection activities at Spool level, Joints level and Flange Joint . Various Filter option are provided to customize the filters for user convenience.

Spooling
Preparation
Revision Control
Fabrication
Erection
Pressure Test
Preparation
Spool Erection
Weld
NDE
Flange
Progress
Spool Erection
Weld
NDE
Flange
Dash Board

Erection
Preparation
Progress
Filters
Fabrication
Print
BackLog
Joint
Dia inch
Spool Erection Progress 11-Nov-11 To 08-Oct-13
Joint Erection Progress 11-Nov-11 To 08-Oct-13
To site
Erected
Welded bolted
Supported
Iso completed
Welding
Bolting
PWHT
RT
PT
UT
MT
PMI
HT
Total Spools
Ready for erection
Total flange joints
Total field joints
Welded
Ready for welding
6892 Joints
Ready for NDE
5454 Joints
Feed Stock
Waiting for LC
1408 Iso
17.87 days
20.50 days
27.71 days
33.56 days
Ready for bolting
0.02 dia
KPI of Progress
Spool Erection
Field Joint Welding

12.9.1 Filters



Filters provided to customise the search criteria for user convenience. This option shall enable user to view the progress and backlog quantities in terms of Dia- inch, No of spools, No of Flange Joints or Tons Etc. The Main option in the Filters are

Global Filters :

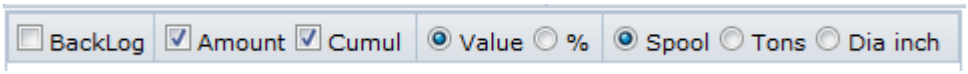
1. Time scale : Facilitates user to select specified time period or predefined time.
2. WBU
3. Design Area (PDS Area)
4. Material Type
5. Size Range

After selection of Global filters user need to Click on

button to apply filters on Graphs.

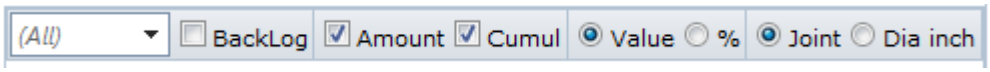
Print option is provided to print the graph with selected filters.

Spool Erection Progress Filters:



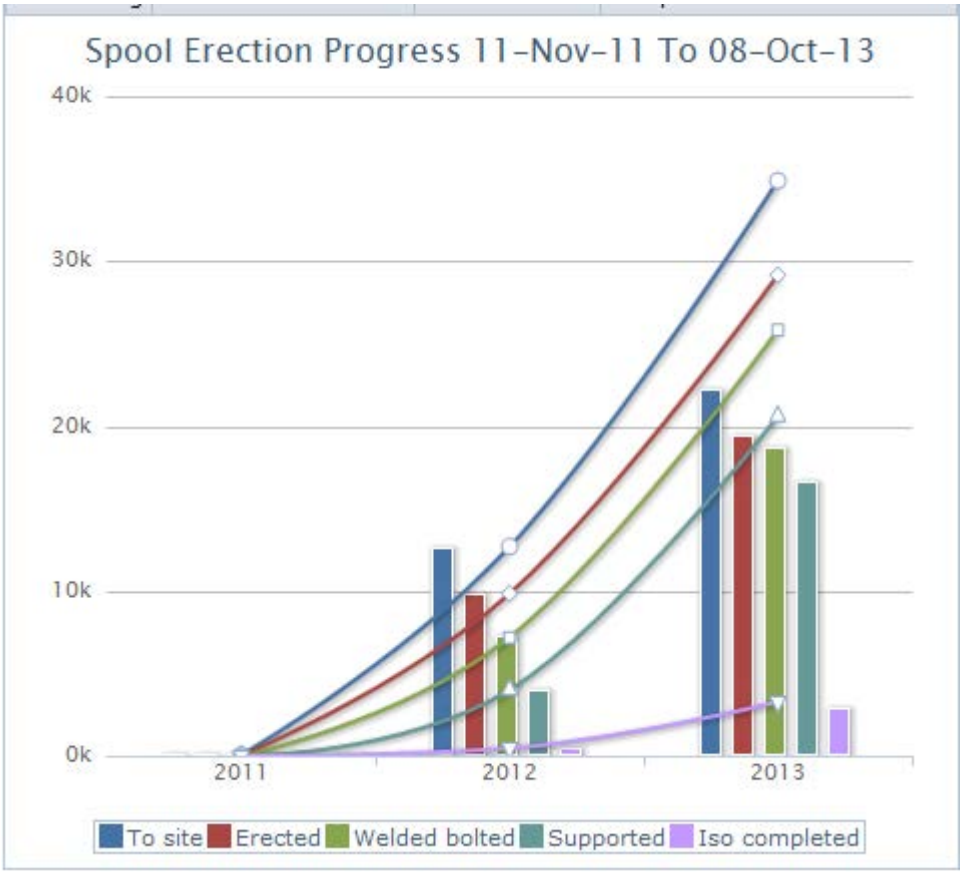
1. Backlog : Provide the information Backlog for each and every activity of Spool Fabrication progress at Spool Level.
2. Amount :Display the periodic values (Bar chart)
3. Cumul : Display the overall values (Line chart)
4. Values or % : Display the values of progress % of Total scope.
5. Spools, Tons or Dia Inch : Display the values of in No of spools or Tons or Diaincah (Spool level Field Scope) based on the selection.

Joint Filed Progress Filters:



1. All: If user wishes to view the Flange joint progress then he need to select the “All” option in the Dash Board.
2. Backlog : Provides the information of Backlog for all activities of Joint fabrication and NDE process. (Note: Backlog for NDE progress shall not be displayed if other filters are on except Time filters)
3. Amount :Display the periodic values (Bar chart)
4. Cumul : Display the overall values (Line chart)
5. Values or % : Display the values of progress % of Total scope.
6. Joint or Dia inch : Displays the values in No of Joints wise of Dia- inch wise

12.9.2 Spool Erection Chart :



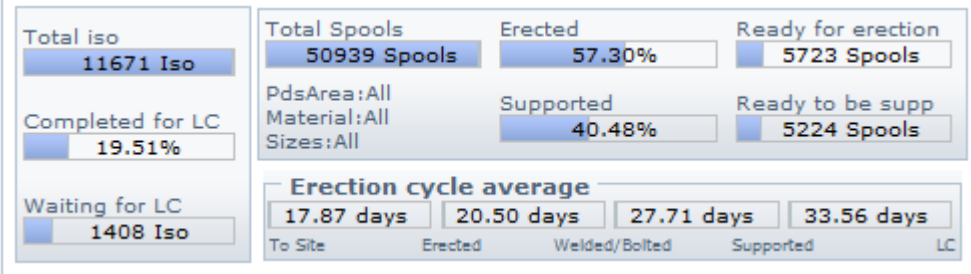
Spool Erection chart provides progress and backlog information for following Activities at Spool level.

1. Sent to Site
2. Erected
3. Welded & Bolted
4. Supported
5. Iso Completed

User can switch the visibility of Activities.

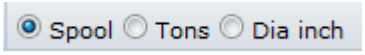
By Clicking the above icons user can show or hide the activity.

12.9.3 Spool Erection Feed Stock Quantities and KPI



Spool Erection Feed stock Quantities represent the overall Scope and Feed stock availability data.

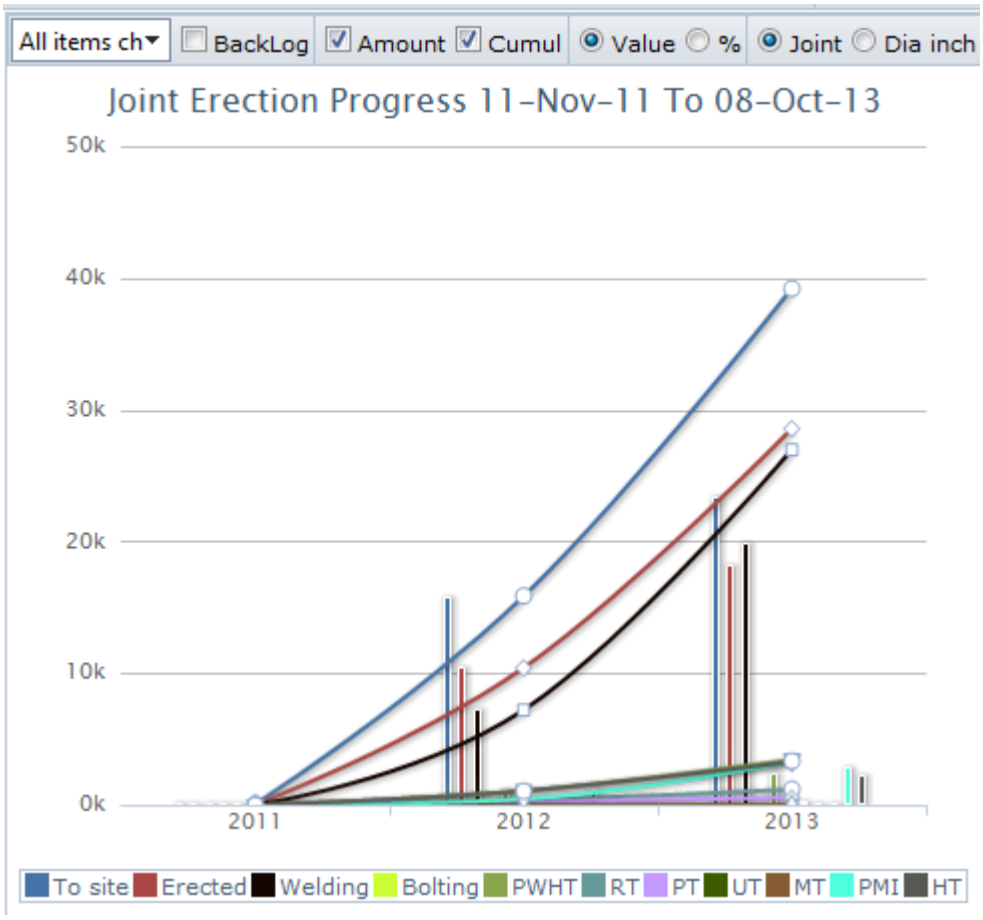
1. Feed stock quantities always display the overall quantities, So Time Filters in global filters are not applicable.
2. Total Spools always represent the overall scope of the project.
3. All the values can be displayed in Spool , Tons or Dia Inch based on the selection in the Spool Fabrication filter

4. Total Iso : Total No Iso in the Project
5. Completed for LC : % Iso completed Line check
6. Waiting for LC : No Iso awaiting for Line check

KPI For Spool Erection: KPI represents avg time taken for each erection activity based on historical data of the project.

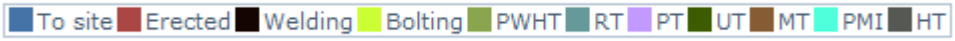
12.9.4 Joint Erection Chart



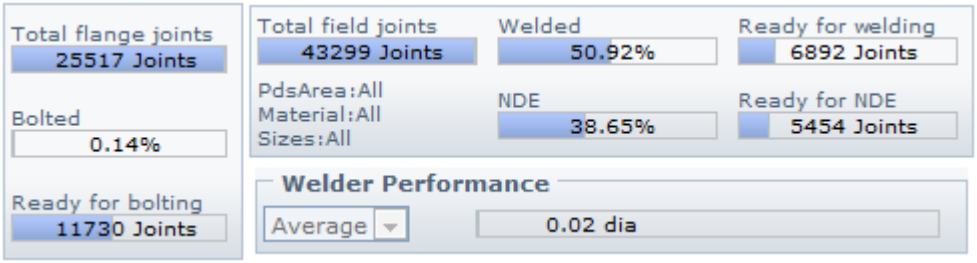
Joint Erection chart provides progress and backlog information for following Activities at Joint level. These values are represents only Shop Joints for which the Dia-Inch Factor is “Yes”.

1. To Site
2. Erected
3. Welding
4. Bolting
5. PWHT
6. RT
7. PR
8. MT
9. PMI
10. HT

User can switch the visibility of progress by clicking the Following button on the Graph :

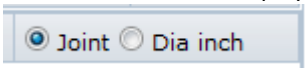


12.9.5 Joint Erection Feed Stock and KPI :



Joint Erection Feed stock Quantities represent the overall Scope and Feed stock availability data.

1. Flange Joints scope and Progress
2. Feed stock quantities always display the overall quantities, So Time Filters in global filters are not applicable.
3. Total joints always represent the overall scope of the project.
4. All the values can be displayed in No of Joint or Dia-Inch based on the selection in the Spool Fabrication filter



KPI For Welder Performance : KPI represents the overall Avg Dia Welded (Erection Joints) by a welder per day.

13. ERECTION REPORTS

In this module the user can generate the erection reports from the same screen.

ProgressPipingErection.xls

This report will provide the erection status for entire project. The user can user several filters like PDS Area, Area Classification, Material type, Subcontractor and LB/SB etc.

WeeklyProgressPipingErection.xls

This report will provide the erection status on a weekly basis. The user can search for particular period of time. The user can also search by filters like PDS Area, Area Classification, Material type, Subcontractor and LB/SB etc.

Erection
Technip
Preparation
Progress
Spool Erection
Weld
NDE
Flange
Search
Isometric
Barcode
RequestNumber
Assigned
Search Isometric No.
Search
Template
Import
Result Summary
Reports
Progress Erection
Weekly Progress Erec

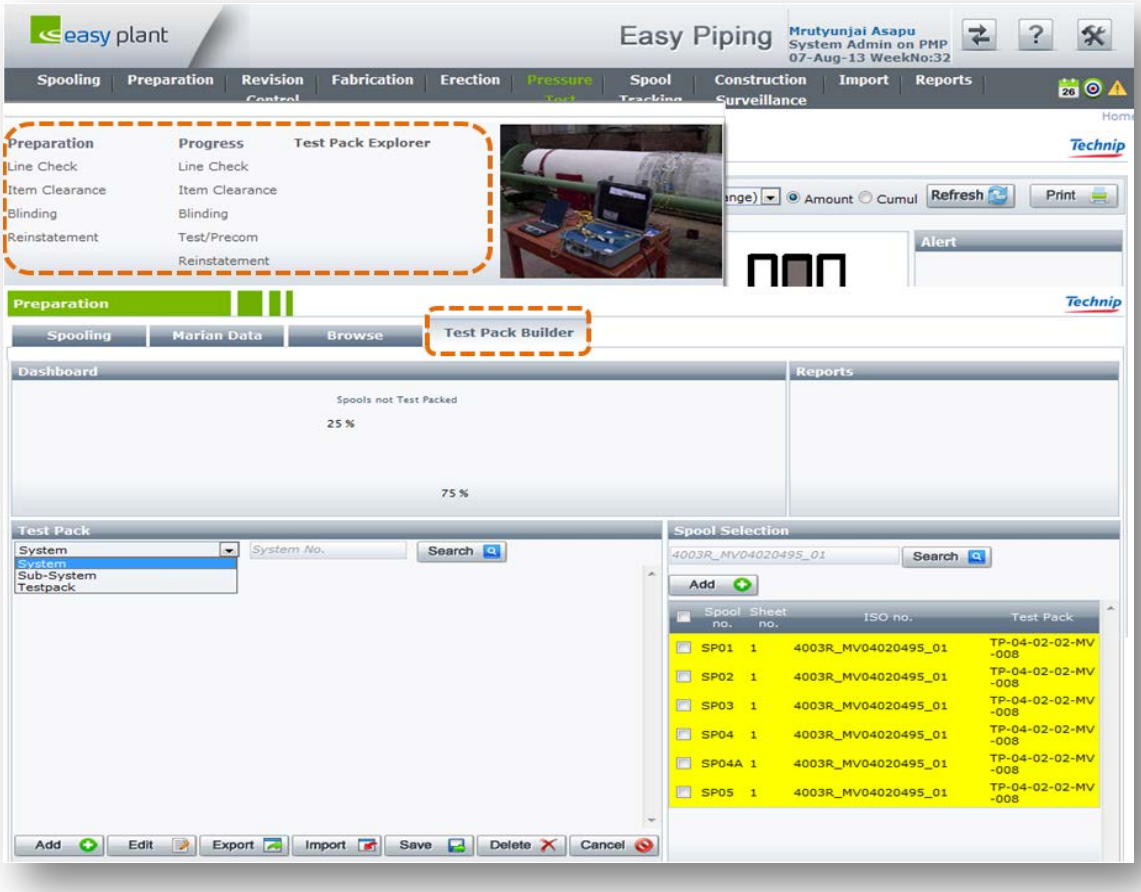
Easy Piping Part 6: Testpack &Flange Management

14. TESTPACK MANAGEMENT

The Test pack module helps the user to manage all the test packs and the process flow of test packages during the project phase. The system allows the user to create and edit the test packages at any stage of the project. This module also helps the user to manage the Flange management (Bolt Torquing).This list of main functionalities are as follows.

- Test packs Preparation.
- Test pack review – Edit and revision management
- Line check Preparation/Progress
- Item Clearance preparation/Progress(Punch item)
- Blinding preparation/Progress
- Reinstatement Preparation/Progress
- Test pack Explorer – Navigation of status

- Tracking reports for construction, Bolting and NDE



15. TESTPACK PREPARATION

In the Easy piping test packs can be created in two methods manual edit method and import procedure. The user can see this screen under preparation module as “Test pack Builder”.

15.1 Testpack builder

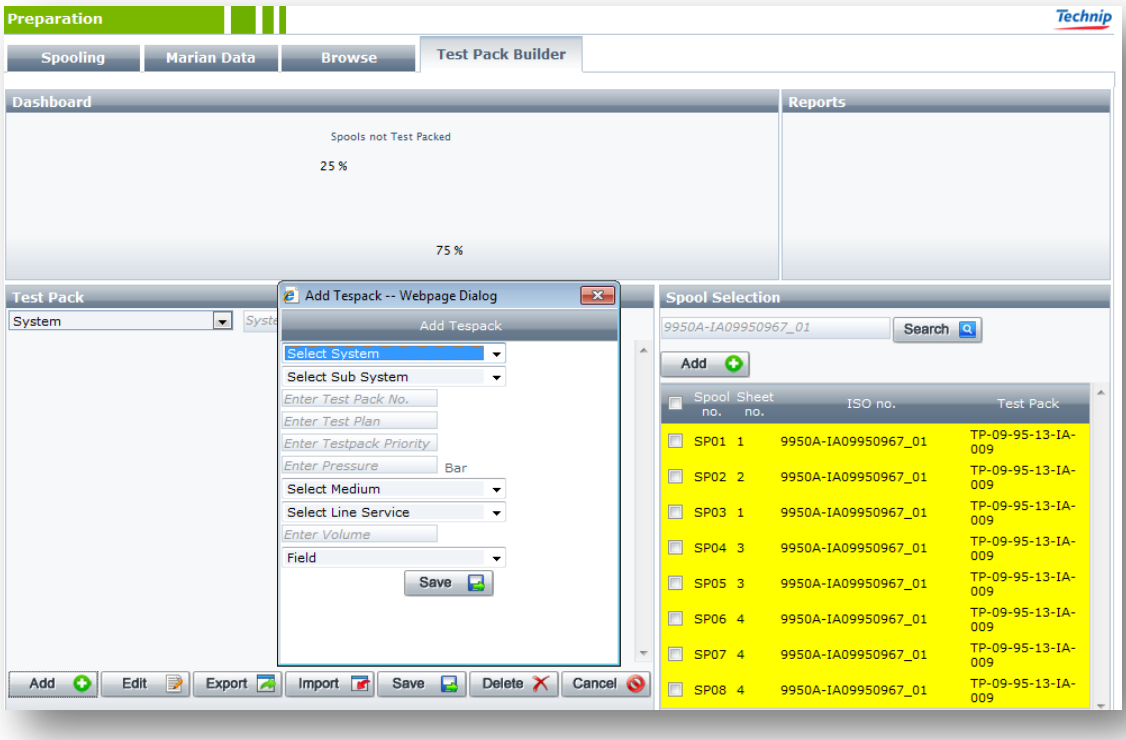
This module helps the user to create a test pack and browse the test packs for review and edit the content if necessary.
The user can browse in a hierarchical level in this screen

- System level – The system will show all the test packs related to the searched system
- Sub system level – The system will show all the test packs related to the searched subsystem
- Test pack level – The system will show the particular test pack related to the searched test pack

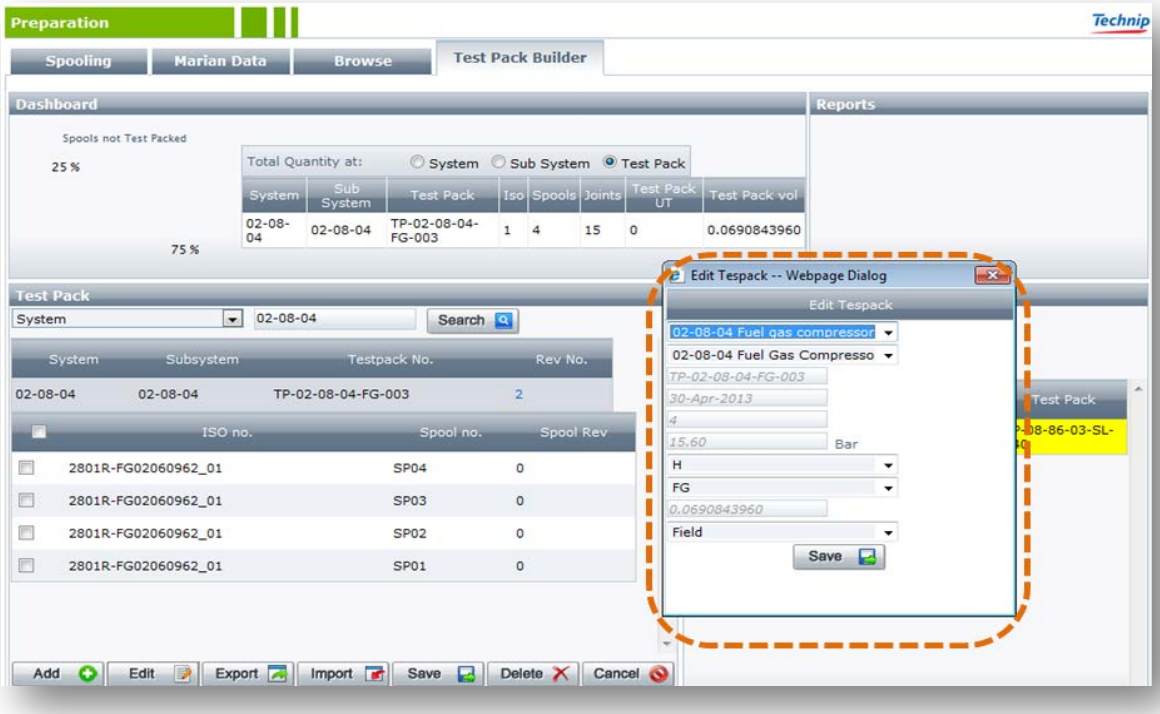
Note: After the search results, if the user click on the test pack it will show the details of test pack like isometric and spools.
The user can start creating the test packs manually by start clicking Add in the screen. When the user clicks on Add the system will show a pop-up where the below fields are shown.

- System
- Sub-system
- Test pack No
- Test plan : date from - to
- Test pack priority
- Test pressure
- Test medium
- Service class
- Test pack volume
- Test pack location

Once the test pack is added from the pop up the user can search for desired Isometrics and spools and add to the test pack in the same screen.
In the aforementioned fields, System, subsystem and service class are predefined referential (Refer to Para 3.19, Para 3.20, Para 3.25)



The user can use the option Edit to edit any parameters for the existing test pack. The system will display a pop up as “Edit Test package” with existing parameters and user can edit the parameters and add the new spools if any,



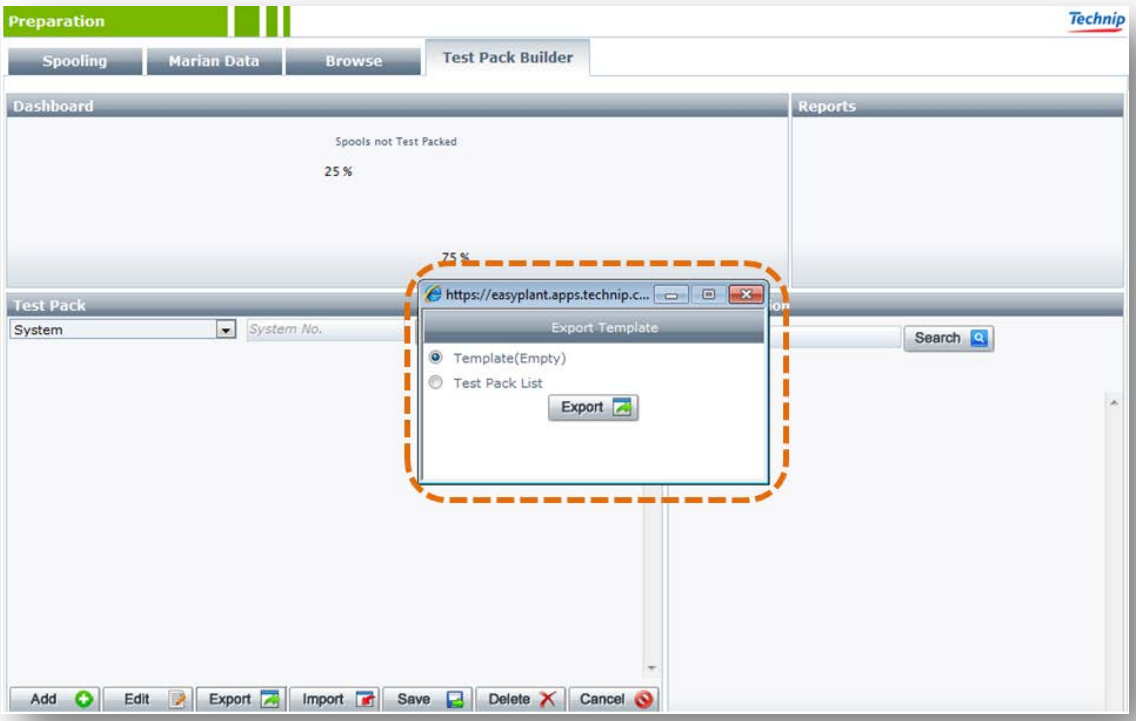
The user can use the options Save after the editing is completed. The user can also delete the inappropriate data if any by using the option Delete

15.2 Testpack import

This module also helps the user to Import the test pack details through import procedure. System allows the user to generate the test pack template where users have to fill the required data and import into the system. When the user clicks on Export system will display a popup with two types of templates. The user can choose the type of test pack he wants to use

Empty Template – It will the empty template with no data related to test packs.

Test pack list – It will give the total list of test packs which are previously assigned.



The user needs to fill the following details in the template before import.

- System
- Subsystem
- Test Pack
- Test pack rev
- Test Medium : Dropdown list H, P or V
- Test Pressure (Editable)
- Test plan date (Editable)
- Iso No (Read only field)
- Rev (Read only field)
- Spool number (Read only field)
- Spool revision (Read only field)
- Test pack Location

System	Sub System	Test Pack No	Test Medium	Test Pressure	Test Plan	Testpack Priority	volume	Isometric	Iso rev no	spoolno	Spool rev	Testpack Location
00-02-10	00-02-10	TP-00-02-10-AV-001	V		31-May-2013	6	0.0672	6003A_AV00020002_01	1	SP01	1	Field
00-02-10	00-02-10	TP-00-02-10-AV-001	V		31-May-2013	6	0.0672	6003A_AV00020002_01	1	SP02	1	Field
00-02-10	00-02-10	TP-00-02-10-AV-001	V		31-May-2013	6	0.0672	6003A_AV00020002_01	1	SP03	1	Field
00-02-10	00-02-10	TP-00-02-10-AV-001	V		31-May-2013	6	0.0672	6003A_AV00020002_01	1	SP04	1	Field
00-02-10	00-02-10	TP-00-02-10-AV-001	V		31-May-2013	6	0.0672	6003A_AV00020353_01	1	SP02	1	Field
00-92-24	00-92-24	TP-00-92-24-SC-007	P	10.5	30-Jun-2013	7	0.0318664	6003A_SC00020001_01	0	SP01	0	Field
00-92-24	00-92-24	TP-00-92-24-SC-007	P	10.5	30-Jun-2013	7	0.0318664	6003A_SC00020001_01	0	SP02	0	Field
00-92-24	00-92-24	TP-00-92-24-SC-007	P	10.5	30-Jun-2013	7	0.0318664	6003A_SC00020001_01	0	SP03	0	Field
00-92-24	00-92-24	TP-00-92-24-SC-007	P	10.5	30-Jun-2013	7	0.0318664	6003A_SC00020001_01	0	SP04	0	Field
00-92-24	00-92-24	TP-00-92-24-SC-007	P	10.5	30-Jun-2013	7	0.0318664	6003A_SC00020001_01	0	SP05	0	Field
00-92-25	00-92-25	TP-00-92-25-SCC-001	H	5.25	31-May-2013	6	0.0022146	6003A_SCC00020351_01	0	SP01	0	Field
00-92-25	00-92-25	TP-00-92-25-SCC-002	H	25.06	31-May-2013	6	1.8218361	6001R_SCC00920352_01	1	SP01	1	Field
00-92-25	00-92-25	TP-00-92-25-SCC-002	H	25.06	31-May-2013	6	1.8218361	6001R_SCC00920352_01	1	SP02	1	Field
00-92-25	00-92-25	TP-00-92-25-SCC-002	H	25.06	31-May-2013	6	1.8218361	6001R_SCC00920352_01	1	SP03	1	Field
00-92-25	00-92-25	TP-00-92-25-SCC-002	H	25.06	31-May-2013	6	1.8218361	6001R_SCC00920352_01	1	SP04	1	Field
00-92-25	00-92-25	TP-00-92-25-SCC-002	H	25.06	31-May-2013	6	1.8218361	6001R_SCC00920352_01	1	SP05	1	Field
00-92-25	00-92-25	TP-00-92-25-SCC-002	H	25.06	31-May-2013	6	1.8218361	6001R_SCC00920352_01	1	SP06	1	Field

The user can choose the option Import to import the test pack template once it is filled.
Notes:

- Import of iso / spools which are not defined in PSMS will be rejected by the system
- Date column should have the following date format (dd-MM-yyyy).
- To add an additional spools to an existing test pack it should be done manually the system will display the message “To add additional spools manually”

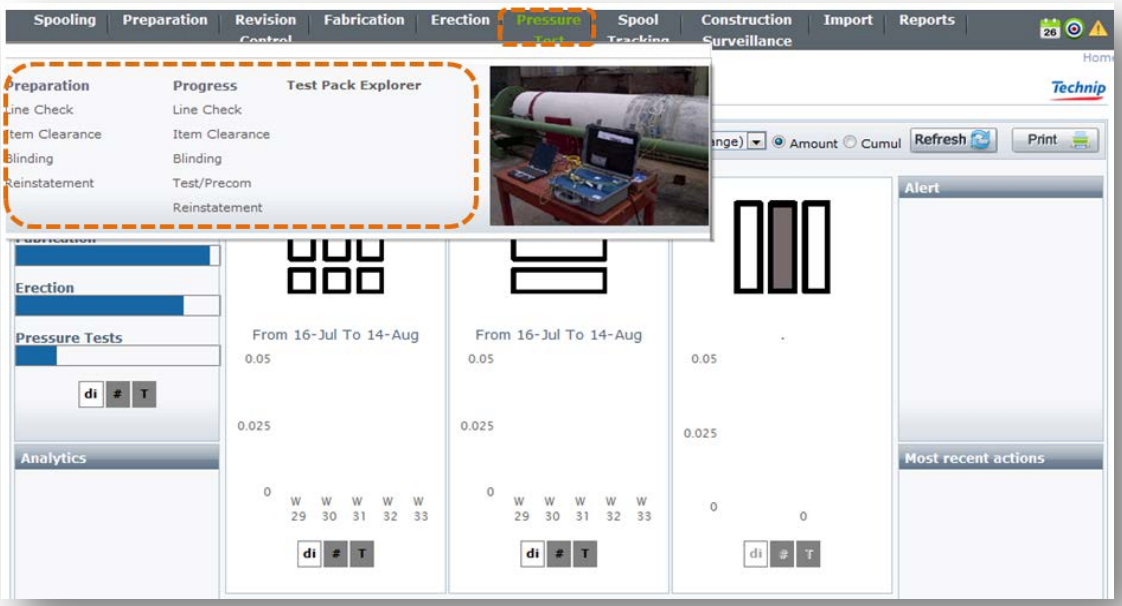
- The data in the excel sheet will always supersedes data in the database. Meaning that if there was a conflict between the data in the excel sheet and the actual data in Easy Piping that particular cell will be displayed with the errors. The user will have to confirm the changes and proceed the import if he wishes. The data in the system will be overwritten with the new data on confirmation.

Failure of any of these rules will be validated by the system and the errors will be displayed with the appropriate error messages. Import will not be performed unless all the errors have been rectified by the user.

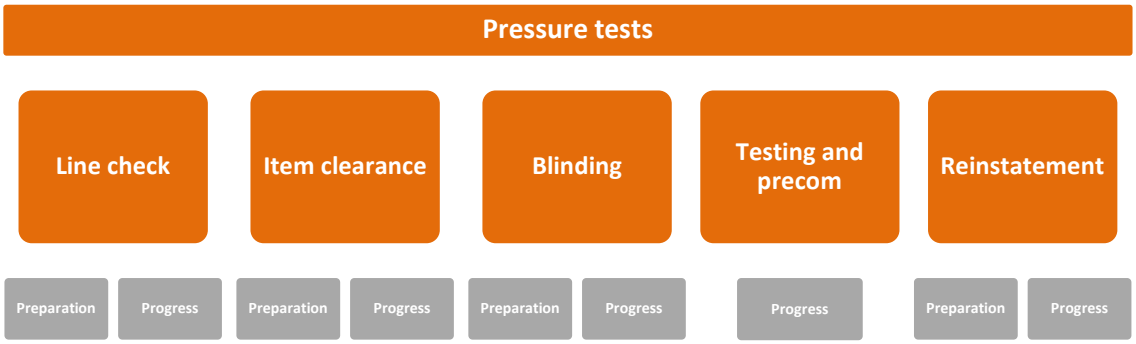
16. PRESSURE TEST MODULE

This module helps the user to prepare the workload and update the progress for the same. This section is organized into 5 different sections corresponding to different testing activities like

- Line check
- Item Clearance
- Blinding
- Testing and ProComm
- Reinstatement



- **Each activities is divided in two sub-modules**
  - Preparation – This module allows the user to prepare the workload
  - Progress – This module allows the user to enter the progress related to the corresponding activity



16.1 Line Check Preperation

This module allows the user to assign the line checking activity for the line checkers. The line checkers are predefined in the project referential (Refer to Para 3.21).The user can assign the workload in two different levels

- Isometric level
- Test pack level

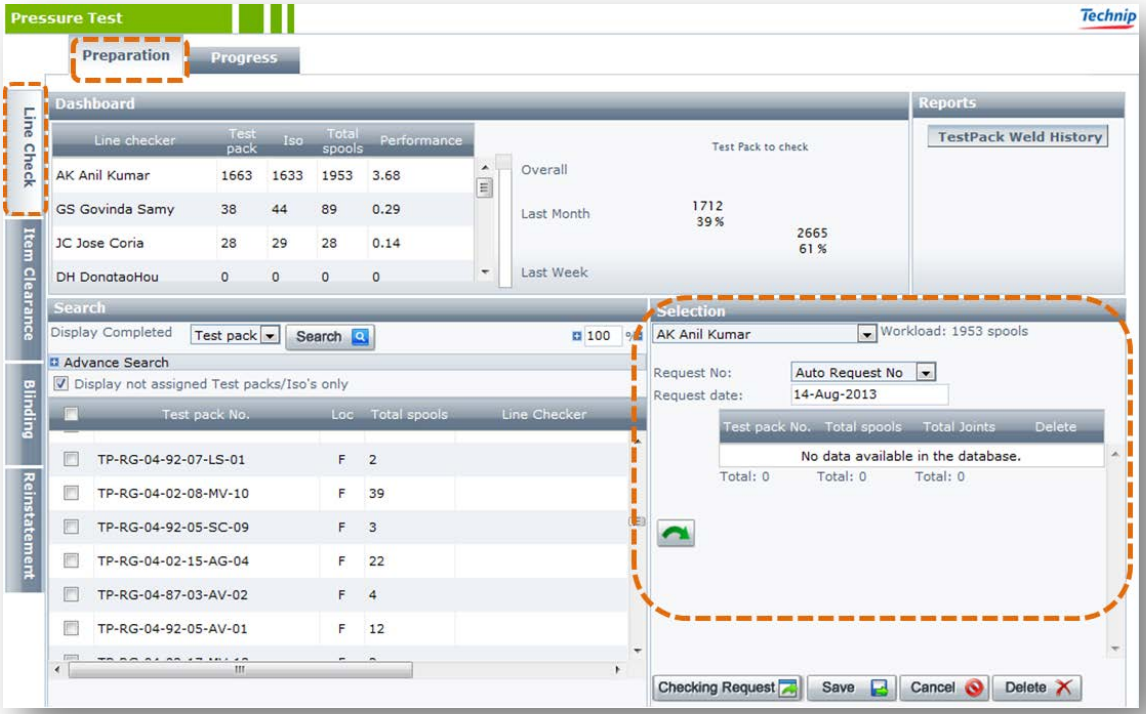
The user can search for the Iso or test pack. The system will display the list of Iso's or test packs which are ready for the line checking based on the criteria

- Spools are supported
- Weld joints are welded

During the search process the user can use the “Advance search” options which will filters based on the selection. The below mentioned are the following categories

- Test pack location
- System and subsystem
- PDS Area
- Area Classification

The user will then select a line checker and assign one or several Iso or test pack to be line checked
The user can generate a checking request, in which these Iso or test pack will be listed.



16.2 Line Check Progress

This module allows the user to update the progress for the line checking activity. Once the assigned test pack is line checking done the user can record the progress.
The user can search for the test pack or Isometric and fill the following details in this screen.

- The item numbering is automatic
- Checking date
- Category (X, Y or Z)
- Localization of the item : isometric and spool
- Punch code
- Description (will come automatically with the punch code, but can be modified)
- Punch done by: Punch originator

Note: Line check completed date is mandatory to proceed for the next step.

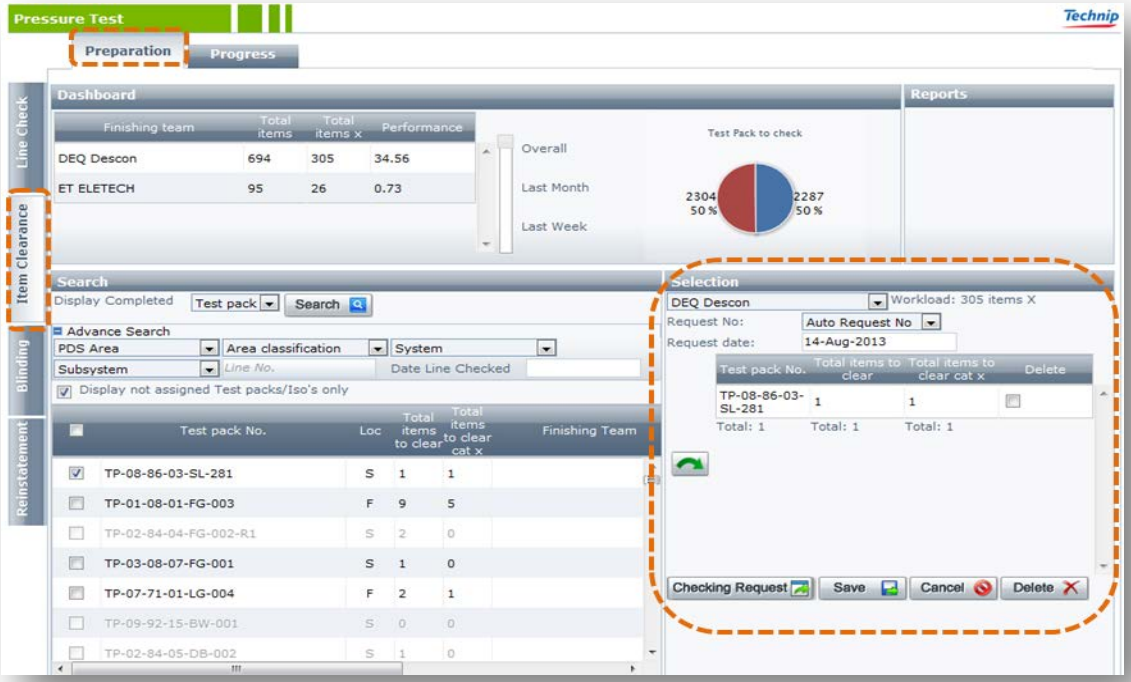
16.3 Item Clearance Preparation

This module allows the user to assign the job for Item clearance to the finishing team. The finishing teams are predefined in the project referential (Refer to Para 3.17).The user can assign the workload in two different levels

- Isometric level
- Test pack level

During the search process the user can use the “Advance search” options which will filters based on the selection. The below mentioned are the following categories

- Test pack location
- System and subsystem
- PDS Area
- Area Classification



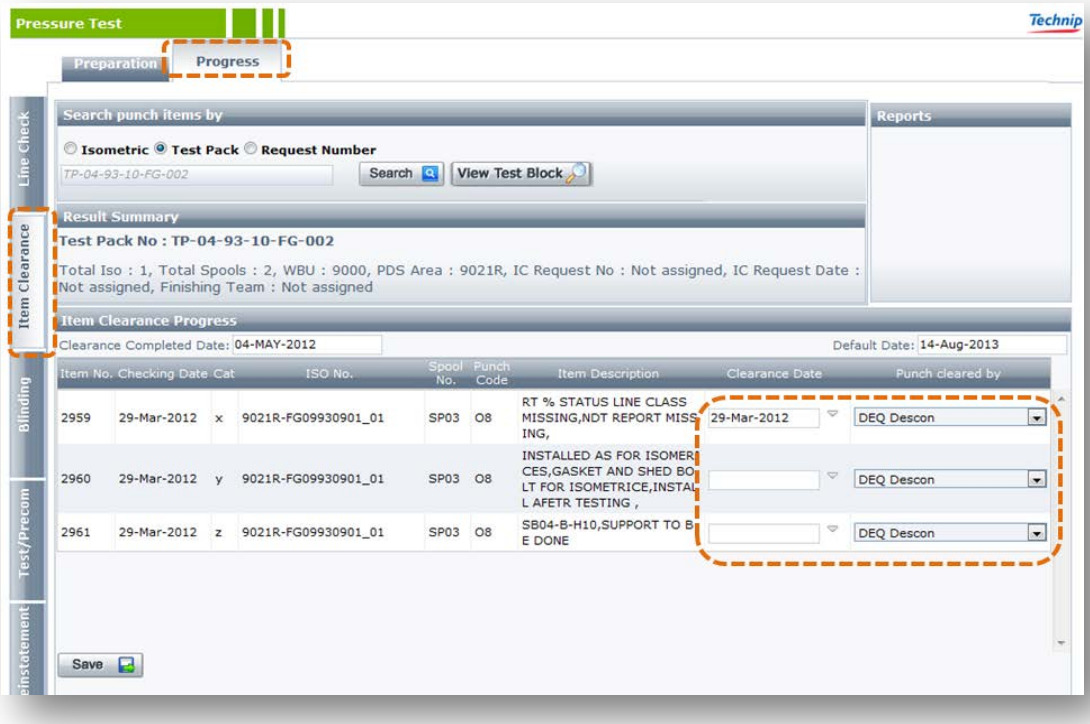
The user will then select a Finishing team and assign one or several Iso or test pack to complete item clearance. The user can generate a Item clearance request, in which these Iso or test pack will be listed.

16.4 Item Clearance Progress

This module allows the user to update the progress for the Item clearance activity. Once the assigned test pack is completed item clearance. The user can record the progress.
The user can search for the test pack or Isometric and fill the following details in this screen.

- Punch item clearance date
- Punch cleared by (finishing team)

Note: Line check completed date is mandatory to proceed for the next step.

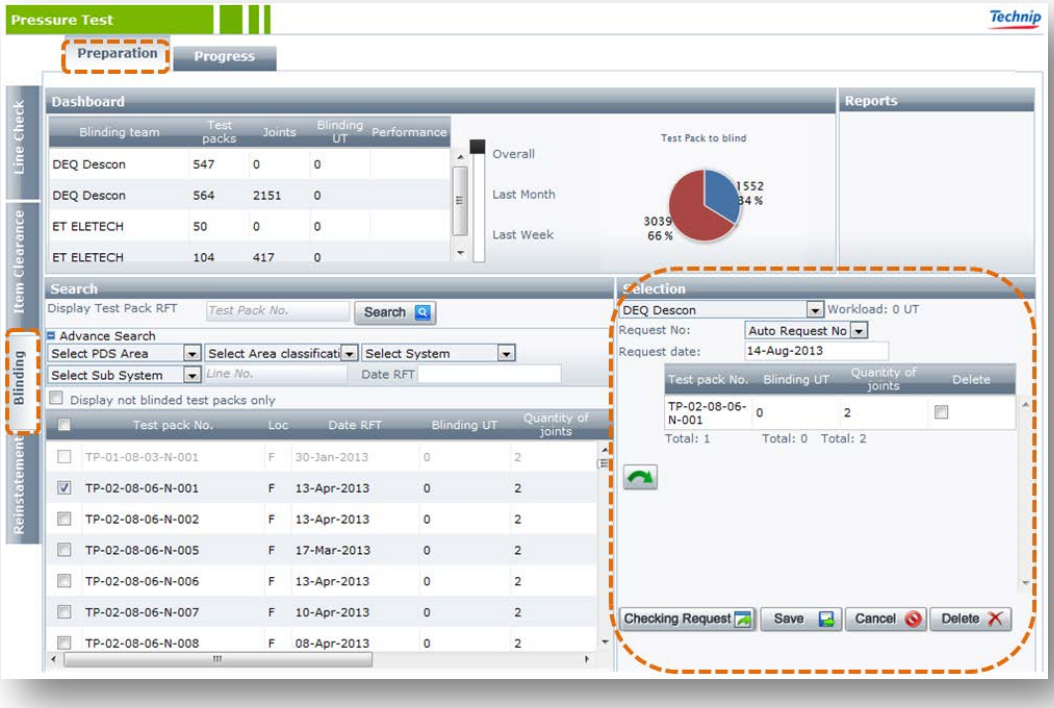


16.5 Blinding Preperation

This module helps the user to assign the blinding activity to the blinding team. The blinding teams are predefined in the project referential (Refer to Para 3.16).
During the search process the user can use the “Advance search” options which will filters based on the selection. The below mentioned are the following categories

- Test pack location
- System and subsystem
- PDS Area
- Area Classification
- Date RFT

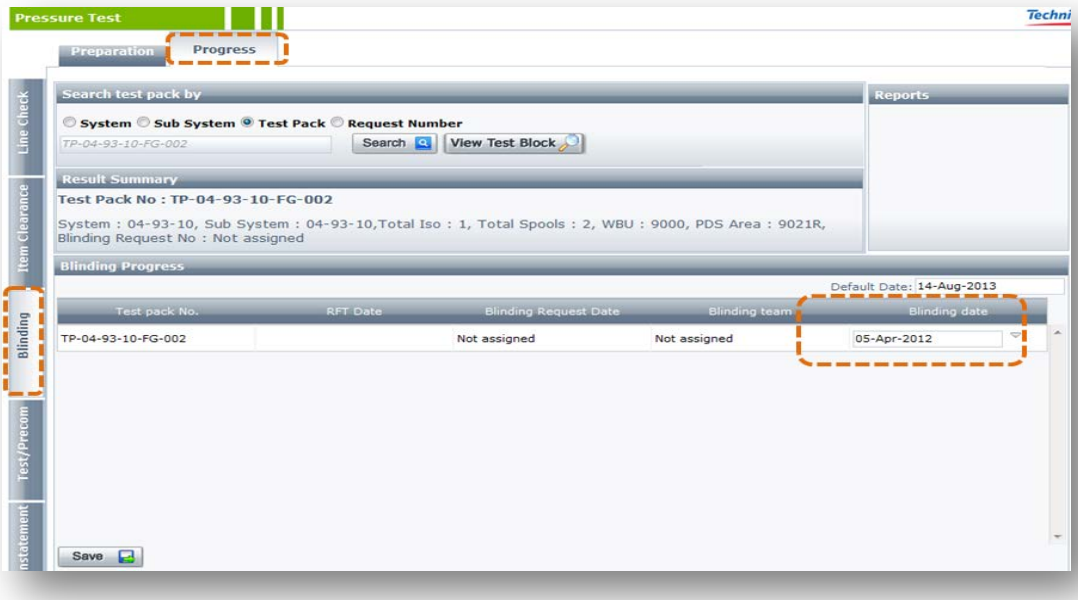
The user can generate a blinding request, in which these test packs will be listed.



16.6 Blinding Progress

This module allows the user to update the progress for the Blinding activity. Once the assigned test packs are blinding done. The user can record the progress.
The user can search for the test pack and fill the following details in this screen.

- Blinding date

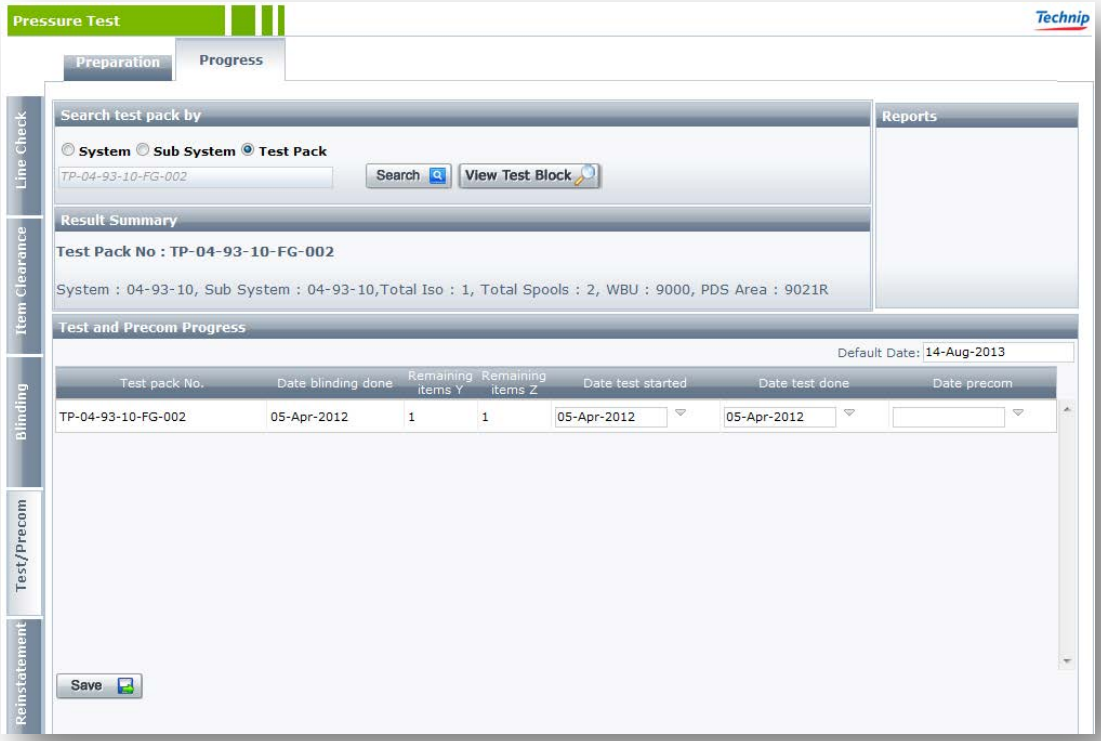


16.7 Testing and Pre commissioning progress

- Easy piping does not manage the preparation of the testing and pre-commissioning. However, the user can enter the dates related to these activities
- Testing start date
- Testing done date
- Pre-commissioning date

The user will search for a test pack using the appropriate search field
These dates are useful to be entered, since it allow to manage the reinstatement activity for the flange joints category Y and Z

- Category Y : reinstatement to be done after testing and before pre-commissioning
- Category Z : reinstatement to be done after pre-commissioning



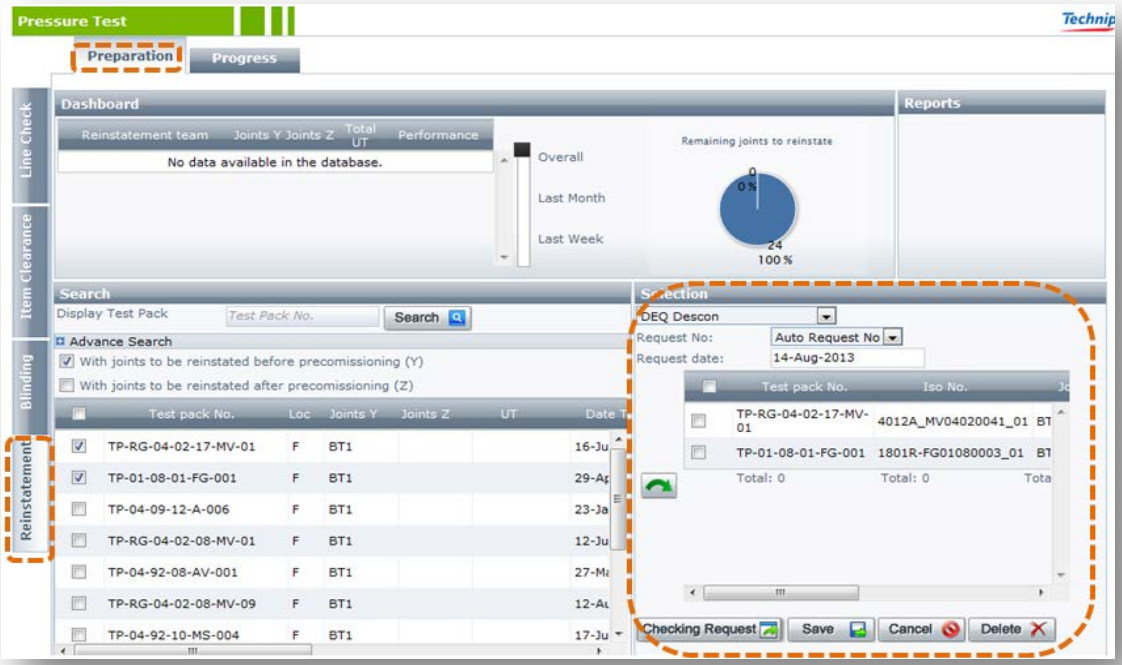
16.8 Reinstatement Preperation

This module allows the user to assign some test packs for the reinstatement to the reinstatement team. The reinstatement teams are predefined in the project referential (Refer to Para 3.18).
The user will search flange joints (test pack wise) in the search section

- Only the flange joints Y belonging to a test pack which has been tested will appear

- Only the flange joints Z belonging to a test pack which has been pre-commissioned will appear

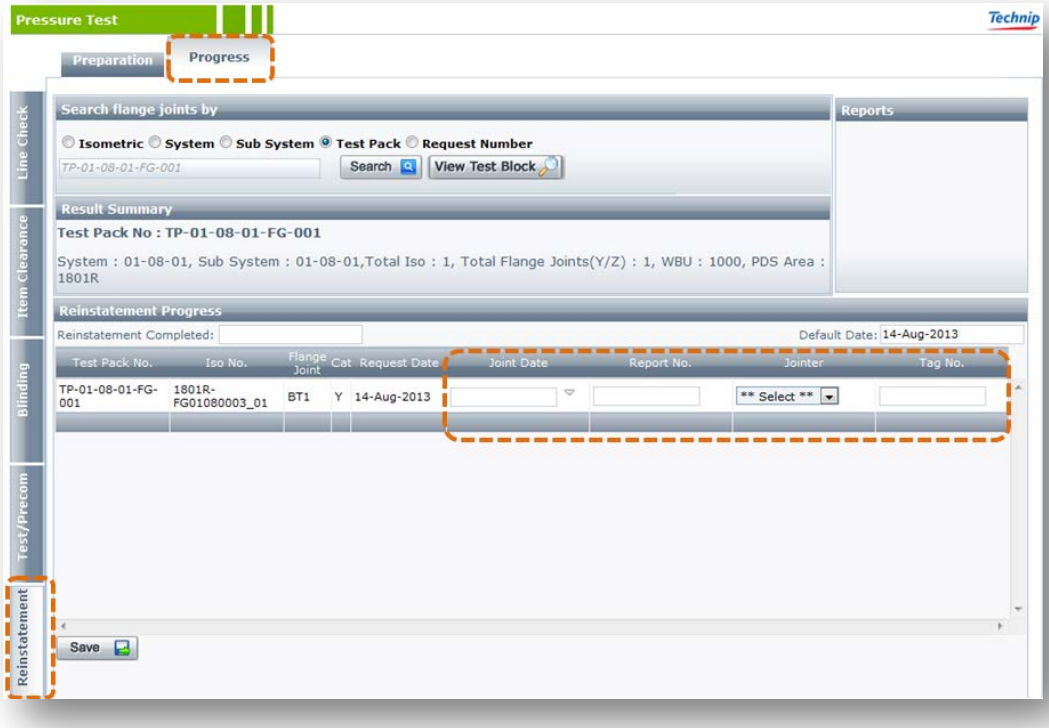
The user will then select reinstatement team and assign one or several flange joint to be reinstated
The user can generate a reinstatement request, in which these flange joints will be listed



16.9 Reinstatement Progress

This module allows the user to update the progress for the reinstatement activity. Once the assigned test packs are reinstatement done. The user can record the progress.
The user will search flange joints (test pack wise) in the search section
The user can search for the test pack and fill the following details in this screen.

- Joint date
- Report number
- Jointer No (The jointer numbers are predefined in the project referential Refer to Para 3.15)
- Tag number



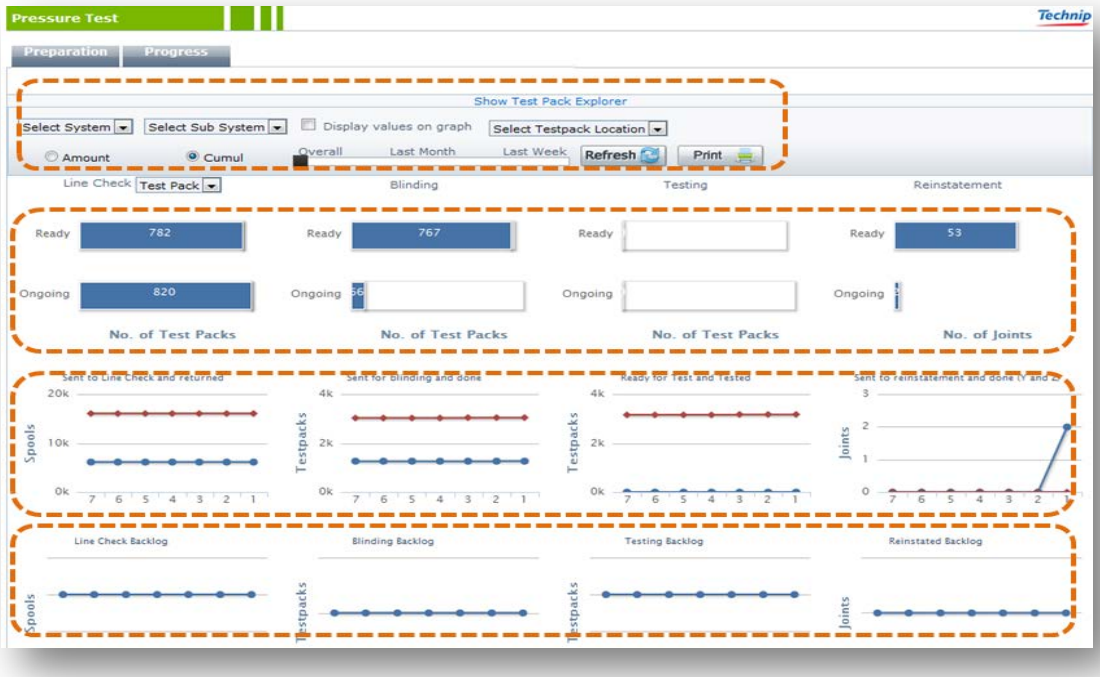
17. TESTPACK HOMEPAGE

The pressure test homepage displays global information regarding the testing activities like Line checking, item clearance, testing and reinstatement
The bargraph shows the quantities for each activities

- What is ready to be done: “ready”
- What has been sent to be done: “ongoing”
- At test pack, isometric or flange joint level

On top of the page, some filters and options are available

- Filters are applied and curves and backlogs



18. TESTPACK EXPLORER

This screen allows the user to access all the information regarding the testing activities in hierarchical levels as follows.
Clicking on a test pack will make appearing some information at the isometric level. Then, clicking on a isometric will make appearing information at spool level

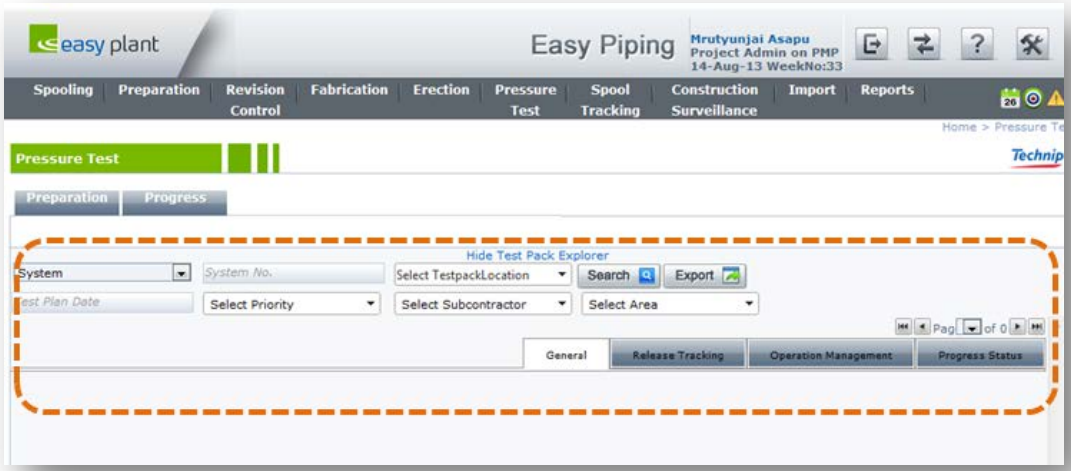
- Test pack level
- Isometric Level
- Spool Level

This screen is organized in 4 different sections as per the test pack follow up and the details are mentioned below

- General
- Release tracking
- Operation Management
- Progress Status

The system will allows the user to see the information based on the below filter also.

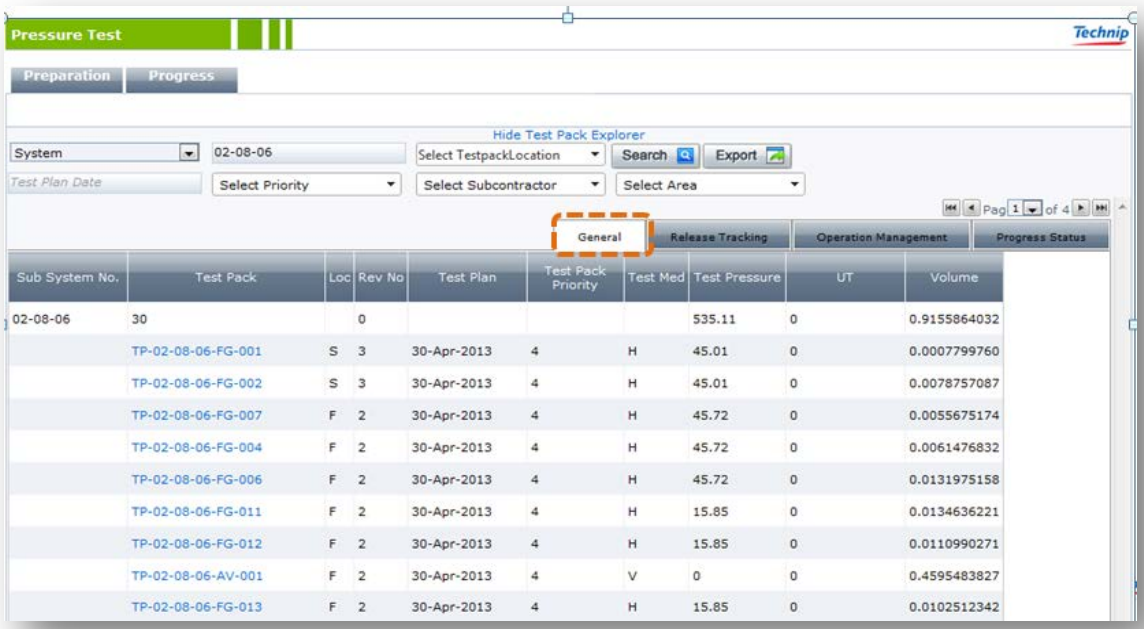
- System No
- Test pack Location
- Area classification
- Subcontractor
- Priority



18.1 General - Testpack Level

This screen allows the user to visualize the general information related to the test pack definition. The below mentioned are the details shown in this screen.

- Subsystem No
- Test pack No
- Test pack Location
- Rev Number (auto generated by the system)
- Test planned date
- Test pack Priority
- Test medium
- Test pressure
- Unit of time
- Volume



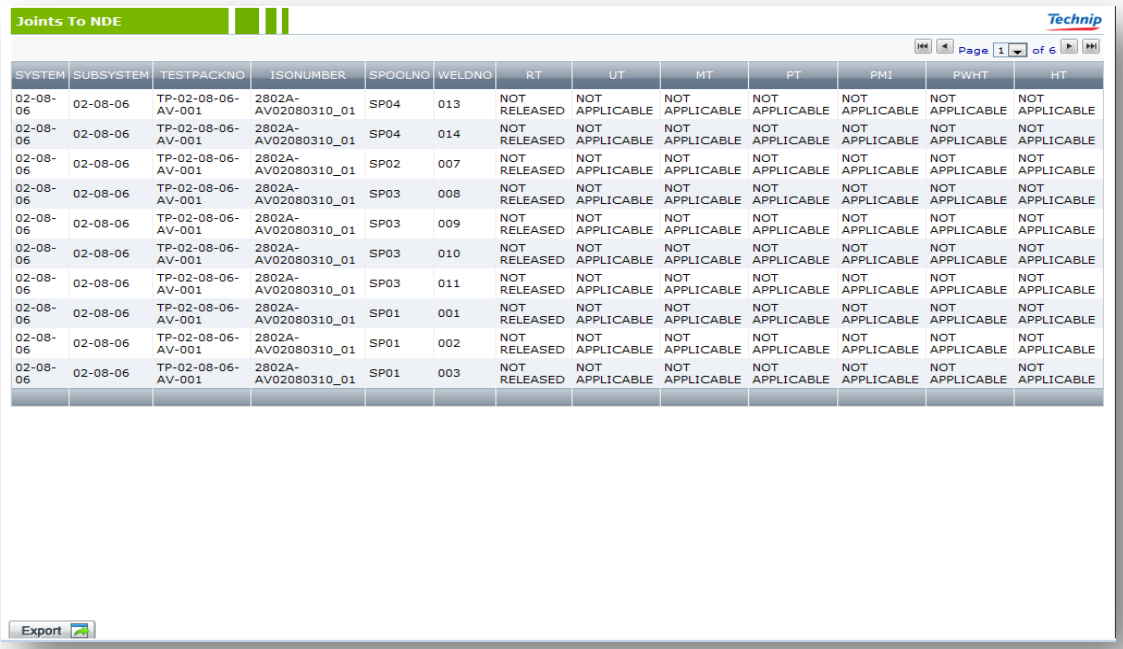
Sub System No.	Test Pack	Loc	Rev No	Test Plan	Test Pack Priority	Test Med	Test Pressure	UT	Volume
02-08-06	30		0				535.11	0	0.9155864032
	TP-02-08-06-FG-001	S	3	30-Apr-2013	4	H	45.01	0	0.0007799760
	TP-02-08-06-FG-002	S	3	30-Apr-2013	4	H	45.01	0	0.0078757087
	TP-02-08-06-FG-007	F	2	30-Apr-2013	4	H	45.72	0	0.0055675174
	TP-02-08-06-FG-004	F	2	30-Apr-2013	4	H	45.72	0	0.0061476832
	TP-02-08-06-FG-006	F	2	30-Apr-2013	4	H	45.72	0	0.0131975158
	TP-02-08-06-FG-011	F	2	30-Apr-2013	4	H	15.85	0	0.0134636221
	TP-02-08-06-FG-012	F	2	30-Apr-2013	4	H	15.85	0	0.0110990271
	TP-02-08-06-AV-001	F	2	30-Apr-2013	4	V	0	0	0.4595483827
	TP-02-08-06-FG-013	F	2	30-Apr-2013	4	H	15.85	0	0.0102512342

18.2 Release Tracking - Testpack Level

This screen displays all the information useful to know whether a test pack is ready for test or not

- Quantity of welded joints which have still to be welded
- Quantity of flange joints which have still to be bolted
- Quantity of welded joints which have still to be NDE tested
- Quantity of isometrics to complete, in order to make the test pack ready for line checking (all spools are supported and welded bolted)
- Quantity of isometrics to be returned from line checking after being assigned in the preparation module
- Quantity of item category X (to be cleared before testing) from line checking still to be cleared
- Quantity of isometrics to be QC released for test (all welded joints are NDE/PWHT released)
- Quantity of isometrics to be Ready For Test (QC released + complete + line check done + all item X cleared)

All the quantity icons are able to click, when the user clicks on the number the system will display a pop up of the particular screen. User can export the list of work to be done.



Joints To NDE

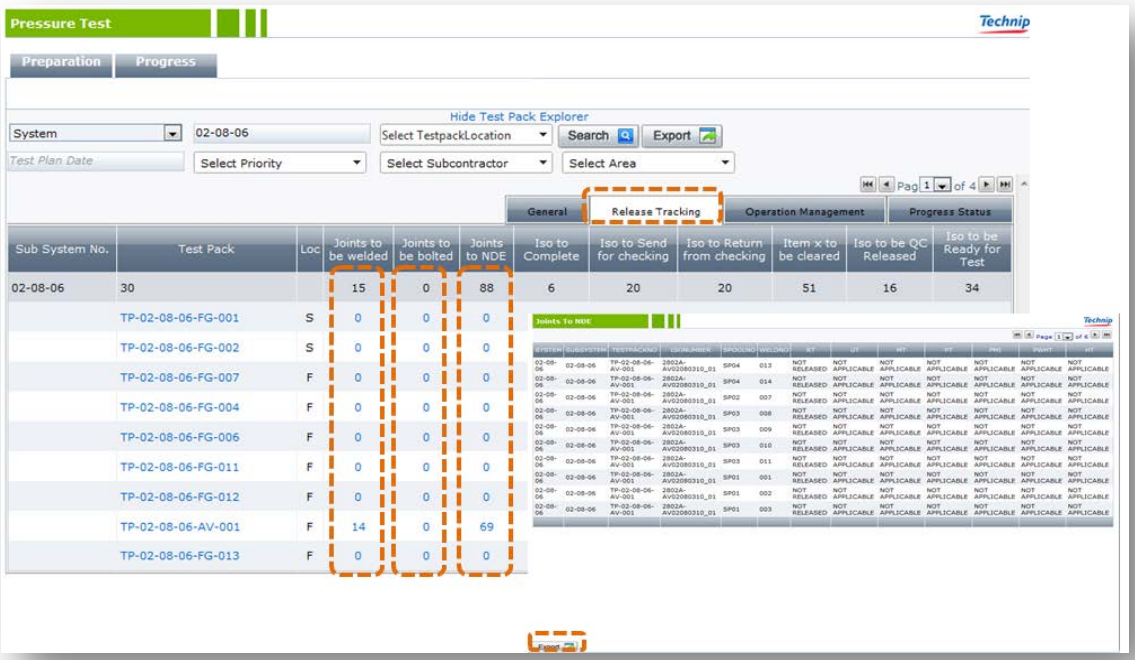
Page 1 of 6

SYSTEM	SUBSYSTEM	TESTPACKNO	ISONUMBER	SPOOLNO	WELDNO	RT	UT	MT	PT	PMI	PWHT	HT
02-08-06	02-08-06	TP-02-08-06-AV-001	2802A-AV02080310_01	SP04	013	NOT RELEASED	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE
02-08-06	02-08-06	TP-02-08-06-AV-001	2802A-AV02080310_01	SP04	014	NOT RELEASED	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE
02-08-06	02-08-06	TP-02-08-06-AV-001	2802A-AV02080310_01	SP02	007	NOT RELEASED	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE
02-08-06	02-08-06	TP-02-08-06-AV-001	2802A-AV02080310_01	SP03	008	NOT RELEASED	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE
02-08-06	02-08-06	TP-02-08-06-AV-001	2802A-AV02080310_01	SP03	009	NOT RELEASED	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE
02-08-06	02-08-06	TP-02-08-06-AV-001	2802A-AV02080310_01	SP03	010	NOT RELEASED	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE
02-08-06	02-08-06	TP-02-08-06-AV-001	2802A-AV02080310_01	SP03	011	NOT RELEASED	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE
02-08-06	02-08-06	TP-02-08-06-AV-001	2802A-AV02080310_01	SP01	001	NOT RELEASED	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE
02-08-06	02-08-06	TP-02-08-06-AV-001	2802A-AV02080310_01	SP01	002	NOT RELEASED	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE
02-08-06	02-08-06	TP-02-08-06-AV-001	2802A-AV02080310_01	SP01	003	NOT RELEASED	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE

Export

Some clickable links are available, in order to reach other easy piping functionality

- Isometric to send for checking : to line check - preparation
- Isometric to return form checking : to line check - progress
- Item x to be cleared : to item clearance - preparation



Pressure Test

Preparation | Progress

Hide Test Pack Explorer

System | 02-08-06 | Select TestpackLocation | Search | Export

Test Plan Date | Select Priority | Select Subcontractor | Select Area

Page 1 of 4

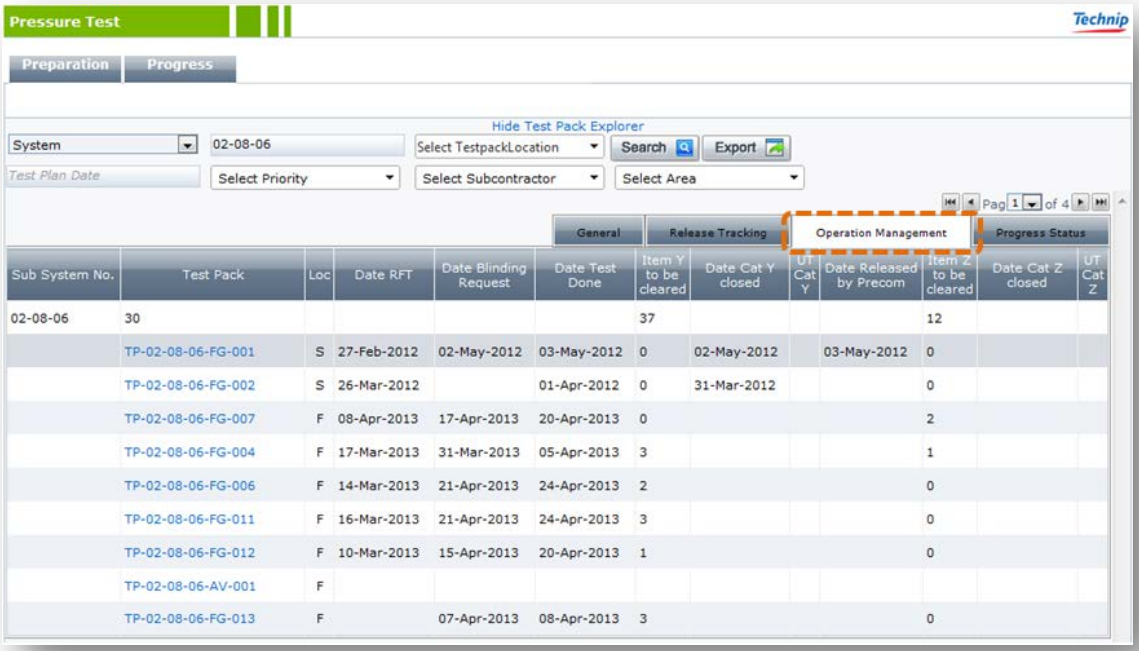
General | Release Tracking | Operation Management | Progress Status

Sub System No.	Test Pack	Loc	Joints to be welded	Joints to be bolted	Joints to NDE	Iso to Complete	Iso to Send for checking	Iso to Return from checking	Item x to be cleared	Iso to be QC Released	Iso to be Ready for Test
02-08-06	30		15	0	88	6	20	20	51	16	34
	TP-02-08-06-FG-001	S	0	0	0						
	TP-02-08-06-FG-002	S	0	0	0						
	TP-02-08-06-FG-007	F	0	0	0						
	TP-02-08-06-FG-004	F	0	0	0						
	TP-02-08-06-FG-006	F	0	0	0						
	TP-02-08-06-FG-011	F	0	0	0						
	TP-02-08-06-FG-012	F	0	0	0						
	TP-02-08-06-AV-001	F	14	0	69						
	TP-02-08-06-FG-013	F	0	0	0						

18.3 Operation Management - Testpack Level

This screen displays all the dates and information regarding the blinding, testing and reinstatement activities

- Date the test pack is ready for test
- Date the test pack is assigned to be blinded
- Date the test is done
- Quantity of items (categories Y and Z) to be cleared, the date when all items are cleared, and the corresponding units of time
- Date pre-commissioning

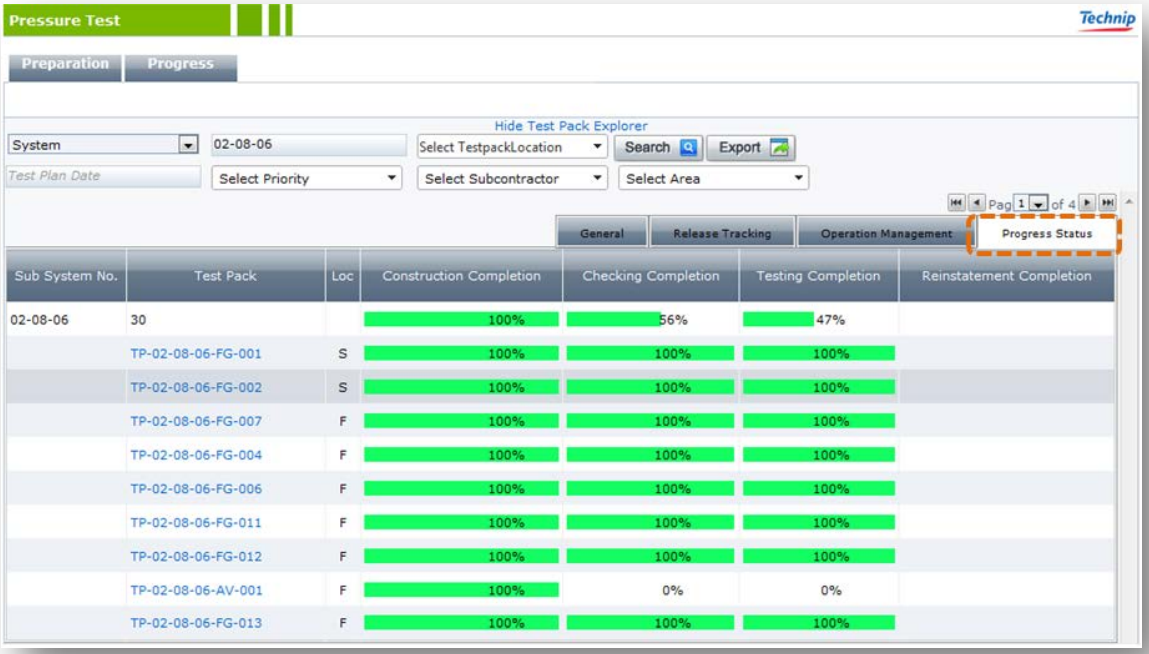


Sub System No.	Test Pack	Loc	Date RFT	Date Blinding Request	Date Test Done	Item Y to be cleared	Date Cat Y closed	UT Cat Y	Date Released by Precom	Item Z to be cleared	Date Cat Z closed	UT Cat Z
02-08-06	30					37				12		
	TP-02-08-06-FG-001	S	27-Feb-2012	02-May-2012	03-May-2012	0	02-May-2012		03-May-2012	0		
	TP-02-08-06-FG-002	S	26-Mar-2012		01-Apr-2012	0	31-Mar-2012			0		
	TP-02-08-06-FG-007	F	08-Apr-2013	17-Apr-2013	20-Apr-2013	0				2		
	TP-02-08-06-FG-004	F	17-Mar-2013	31-Mar-2013	05-Apr-2013	3				1		
	TP-02-08-06-FG-006	F	14-Mar-2013	21-Apr-2013	24-Apr-2013	2				0		
	TP-02-08-06-FG-011	F	16-Mar-2013	21-Apr-2013	24-Apr-2013	3				0		
	TP-02-08-06-FG-012	F	10-Mar-2013	15-Apr-2013	20-Apr-2013	1				0		
	TP-02-08-06-AV-001	F										
	TP-02-08-06-FG-013	F		07-Apr-2013	08-Apr-2013	3				0		

18.4 Progress Status - Testpack Level

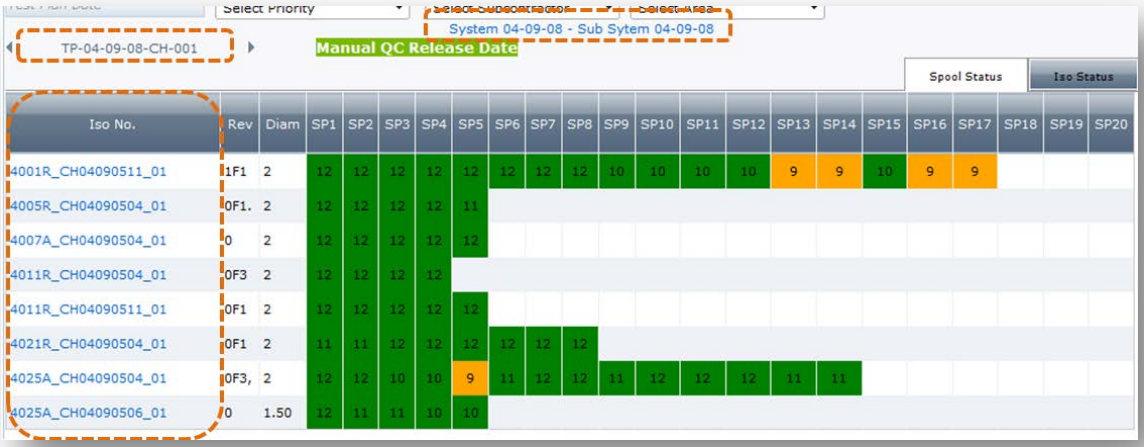
This screen displays the percentage of completion of the test pack

- Construction
- Line checking
- Testing
- Reinstatement



18.5 Spool Status - Isometric Level

- The user can click on a test pack number, in order to access the isometric level
- Two tabs are available at this level : “spool status” and “isometric status”
- To go back to the Higher level, the user has to click on the system – subsystem number
- The user can also scroll between the different test pack of the sub-system using the arrows
- The “spool status” tab displays the current status of the spools belonging to the test pack, at the isometric level
    - A figure identifies the status (example: 12 = Ready For Test)
    - A tool tip is also provided to indicate the status
    - A color coding is done, to quickly identify the level of completion (red, orange and green)



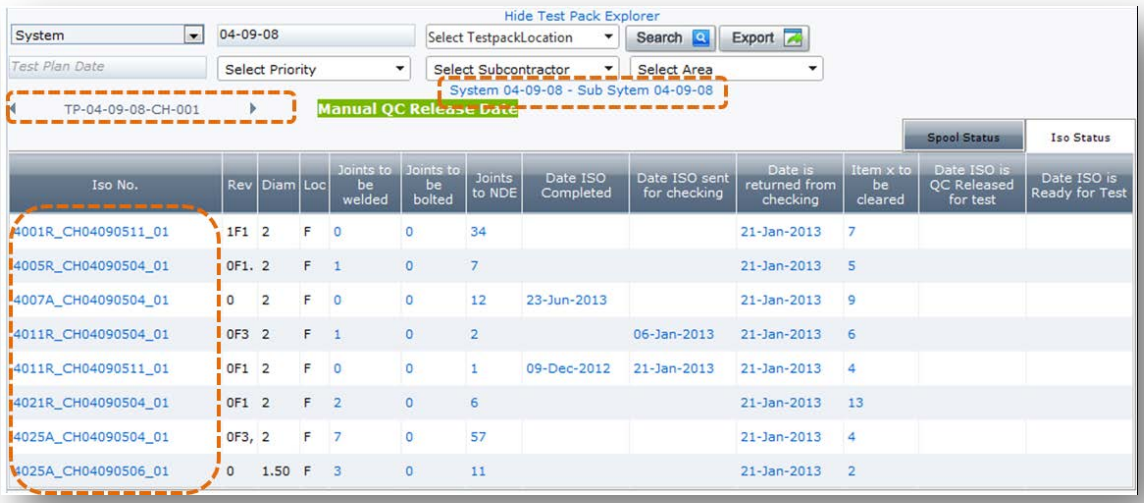
Iso No.	Rev	Diam	SP1	SP2	SP3	SP4	SP5	SP6	SP7	SP8	SP9	SP10	SP11	SP12	SP13	SP14	SP15	SP16	SP17	SP18	SP19	SP20
4001R_CH04090511_01	1F1	2	12	12	12	12	12	12	12	12	10	10	10	10	9	9	10	9	9			
4005R_CH04090504_01	0F1.	2	12	12	12	12	11															
4007A_CH04090504_01	0	2	12	12	12	12	12															
4011R_CH04090504_01	0F3	2	12	12	12	12																
4011R_CH04090511_01	0F1	2	12	12	12	12	12															
4021R_CH04090504_01	0F1	2	11	11	12	12	12	12	12	12												
4025A_CH04090504_01	0F3,	2	12	12	10	10	9	11	12	12	11	12	12	12	11	11						
4025A_CH04090506_01	0	1.50	12	11	11	10	10															

18.6 Isometric Status - Isometric Level

In this screen the system displays information related to isometrics belonging to the test pack

- Date when the isometric is completed (all spools are supported and welded bolted)
- Date when the isometric is assigned for line checking
- Date when isometric is returned from line checking (punch list entry)
- Quantity of item category X to be cleared
- Quantity of welded joints still to be welded
- Quantity of flange joints still to be bolted
- Quantity of welded joints still to be NDE tested
- Date the isometric is QC released for test (all welded joints are NDE/PWHT released)
- Date the isometric is Ready For Test (QC released + complete + line check done + all item X cleared)

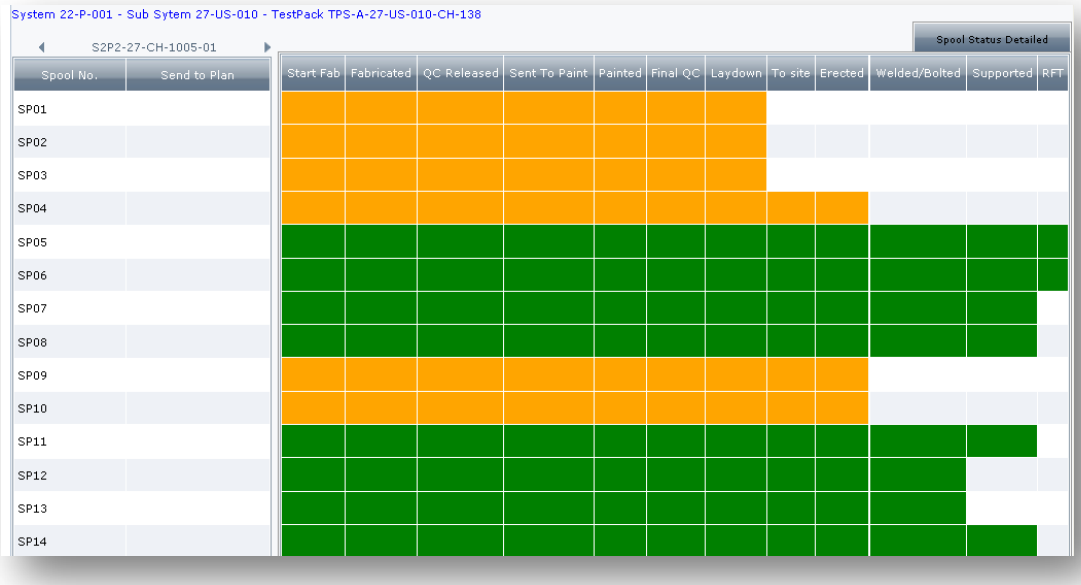
Note: All these information are not based on the isometric itself, but on the spools that really belong to the selected test pack



Iso No.	Rev	Diam	Loc	Joints to be welded	Joints to be bolted	Joints to NDE	Date ISO Completed	Date ISO sent for checking	Date is returned from checking	Item x to be cleared	Date ISO is QC Released for test	Date ISO is Ready for Test
4001R_CH04090511_01	1F1	2	F	0	0	34			21-Jan-2013	7		
4005R_CH04090504_01	0F1.	2	F	1	0	7			21-Jan-2013	5		
4007A_CH04090504_01	0	2	F	0	0	12	23-Jun-2013		21-Jan-2013	9		
4011R_CH04090504_01	0F3	2	F	1	0	2		06-Jan-2013	21-Jan-2013	6		
4011R_CH04090511_01	0F1	2	F	0	0	1	09-Dec-2012	21-Jan-2013	21-Jan-2013	4		
4021R_CH04090504_01	0F1	2	F	2	0	6			21-Jan-2013	13		
4025A_CH04090504_01	0F3,	2	F	7	0	57			21-Jan-2013	4		
4025A_CH04090506_01	0	1.50	F	3	0	11			21-Jan-2013	2		

18.7 Spool Status – Spool Level

- The user can also click on a isometric number, in order to access the spool level
- To go back to the upper level, the user has to click on the system – subsystem – test pack number
- The user can also scroll between the different isometrics of the test pack using the arrows
- The “spool status detailed” tab displays the detailed current status of the spools belonging to the test pack, and the selected isometric
- The status of each spool is detailed
- A color coding is done, to quickly identify the level of completion (red, orange and green)



19. FLANGE MANAGEMENT

This module helps the user to manage the bolt torquing and tensioning activities related to the flange connections. The flange management is interrelated to the test packages.
Main functionalities of flange management are as follows:

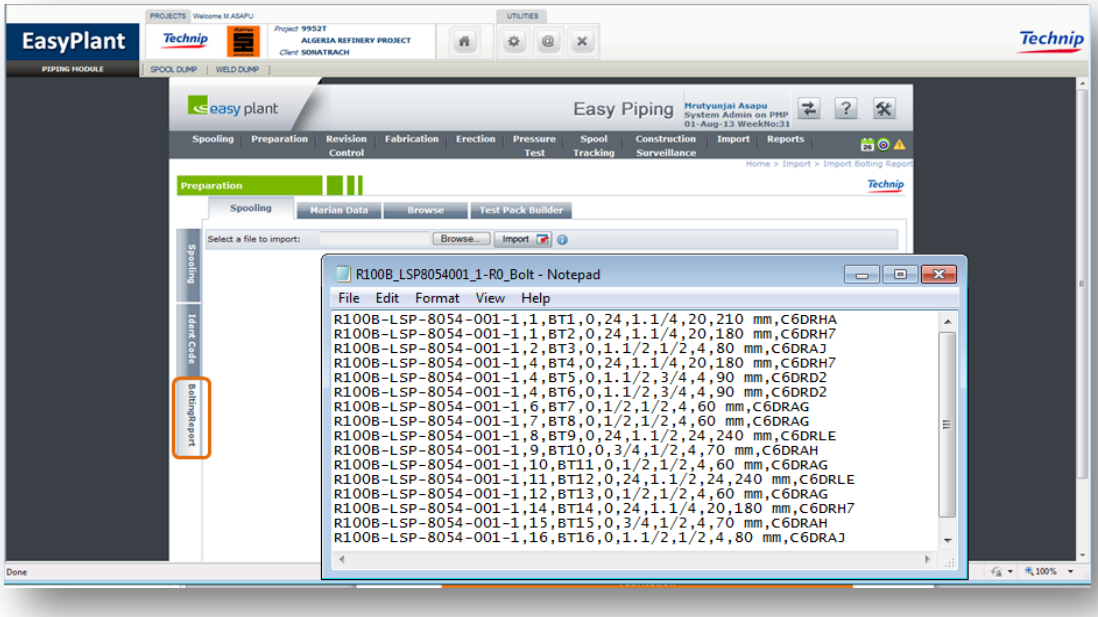
- Numbering and quantifying works.
- Identify joints to be performed before test or after test and so the requirements of permanent or temporary gasket for the jointing.
- Identify method of tightening required.
- Define torquing values.
- Records execution progress and traceability if required.
- Calculating estimations of number of jointing to forecast and anticipate the required resources
- Editing the torquing program and all reports necessary for backlog tracking
- Compiling records of jointing, jointers, in order to edit history sheet for test packs (if required)

The flange management functions in different stages as follows

- Import bolting report data
- Revision management and flange browse
- Progress import of bolting

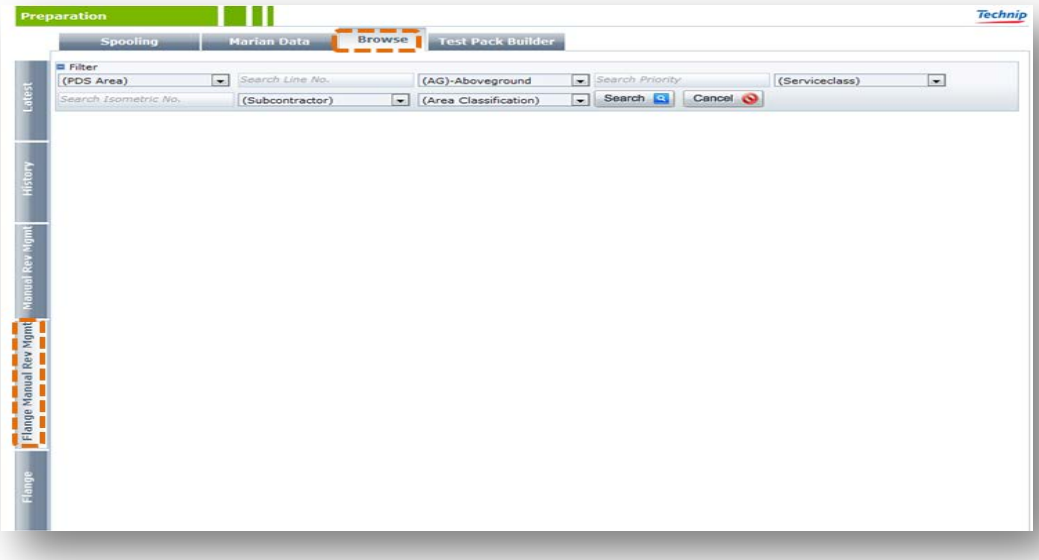
19.1 Import Bolting Report Data

A dedicated screen in Easy piping is handling the import process, in which the user will browse to select the file to be imported, the file will strictly following the agreed template, otherwise, Easy piping will not be able to interpret the file and import the data appropriately
Easy piping will show the imported data in a preview pane before doing the actual import to the database. At this point, Easy Piping will validate the data, and alert the user if inconsistencies are reported. The user will check the consistency of the data and will chose to proceed.
Importing rules are:
• Easy piping will validate whether the Spool data (including revision) that is being imported already exists in the database. If not, the import process will notify the user that corresponding weld sum data does not exist and invite the user to import it.
• Diameter size that will be provided in fractional format will be converted to decimal format by the system. For ex: The acceptable format in the import file for fractional numbers is 2.1/2. This will be read by the system as 2.5.
• The value of the “BT No.” should be always starting with BT characters. Example: BT1 or BT21.
• All the columns in the imported text file will be stored as ‘text’ in the database, except for the “Diam” and “Qty” column; the value will be stored as a ‘number’.
• Easy piping will validate whether the flange rating for the imported joint exist in the rating referential by checking the rating and diam, otherwise an error message will appear.

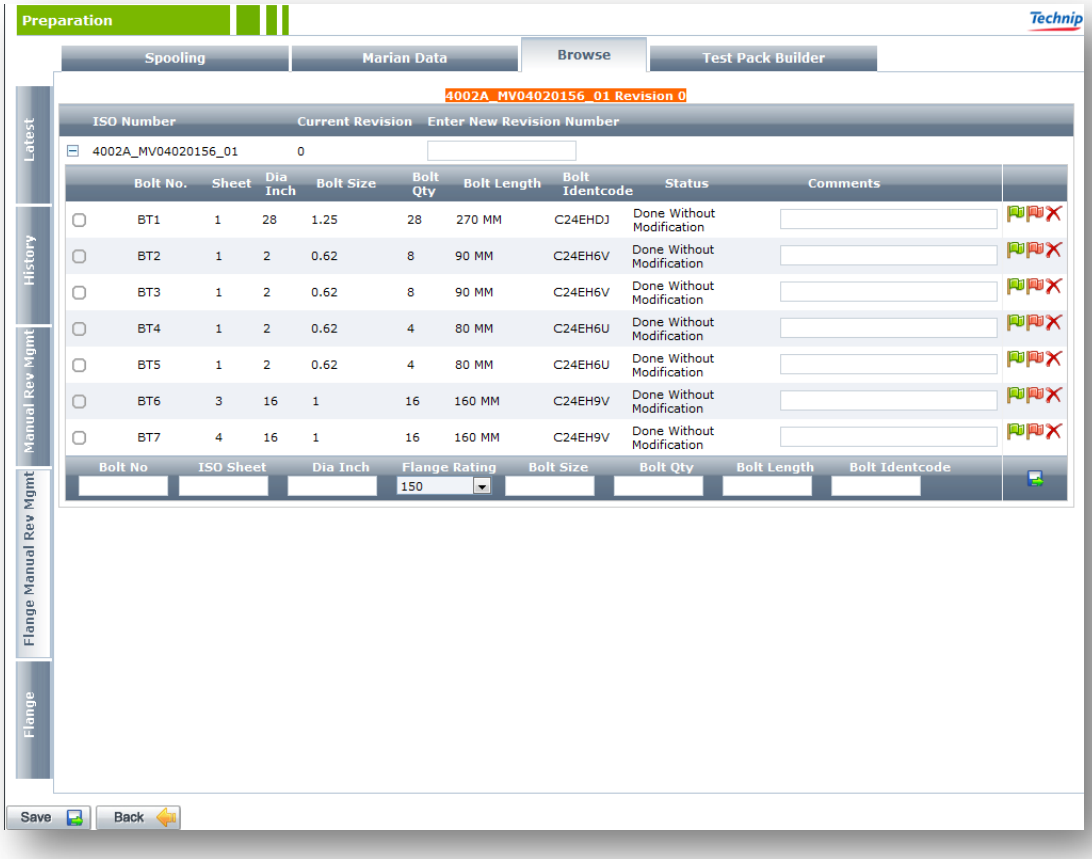


19.2 Flange Manual Revision Management

The “Flange Manual Revision Management” module allows the user to do Flange Revision management manually. This Flange Revision management will happen without getting revised ‘Bolting Report’ (txt) file from SPOOLGEN.
A separate screen is available for this module, which comes under ‘Preparation’ menu, and ‘Browse’ tab and sub-tab named as ‘Flange Manual Revision Management’.



When the user click on the search button, a list of Isometrics will be displayed in a grid that satisfies the search criteria.
From Search list user can select an Isometric for manual revision management. By selecting any one of the Isometric, system will redirect to Flange manual revision management page.

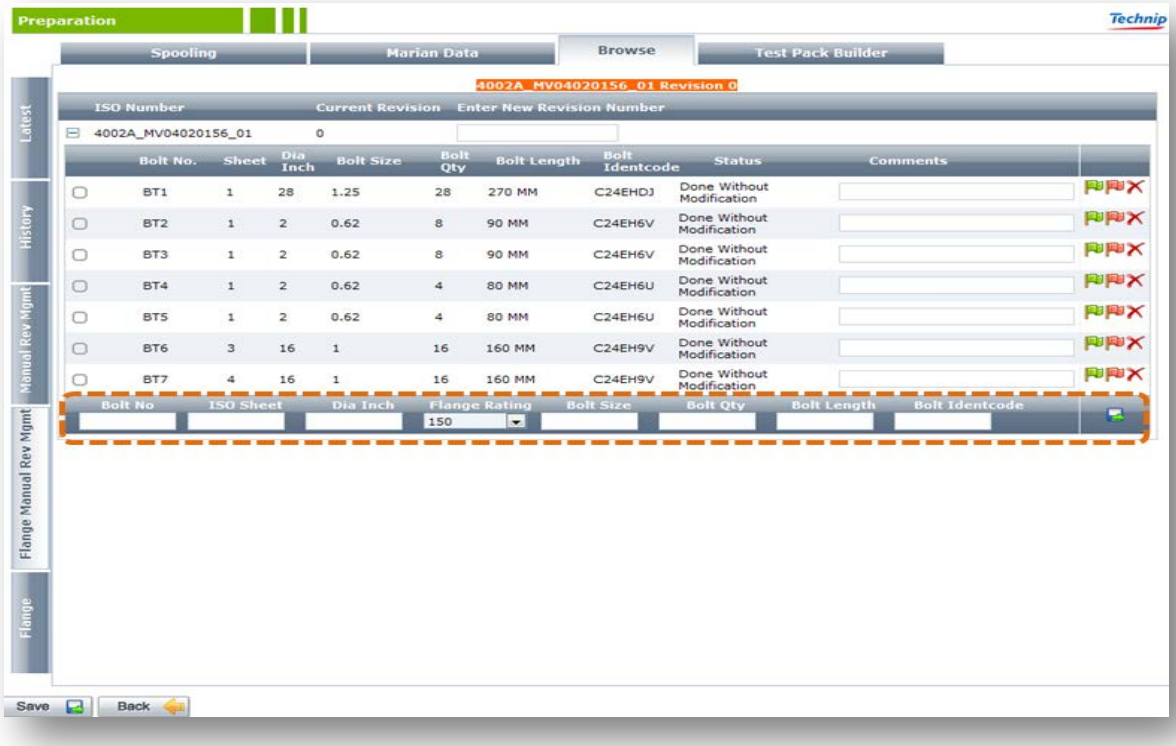


By default all the Flange joint status is ‘Done without Modification’. The progress information will either be copied to the newer revision of the Flange or not, as explained in the table below:

	Status	Action
	Not Done	The user will select this value if there is no progress information. No action to be taken in this case, the newer version of the spool will remain empty, same applies to the weld
	Cancelled	The user will select this value if the spool has been cancelled. No action to be taken in this case, the spool will not appear in the newer revision.
	Done, but revised w/o modification	This value refers to Spools which are fabricated in the older revision, but the newer version of the spool hasn’t changed, so the progress information of the older revision will be copied to the newer revision. Weld progress information of the older revision will also be copied to welds in the newer revision. The ‘Spool Revision No.’ will remain the same.

Note:

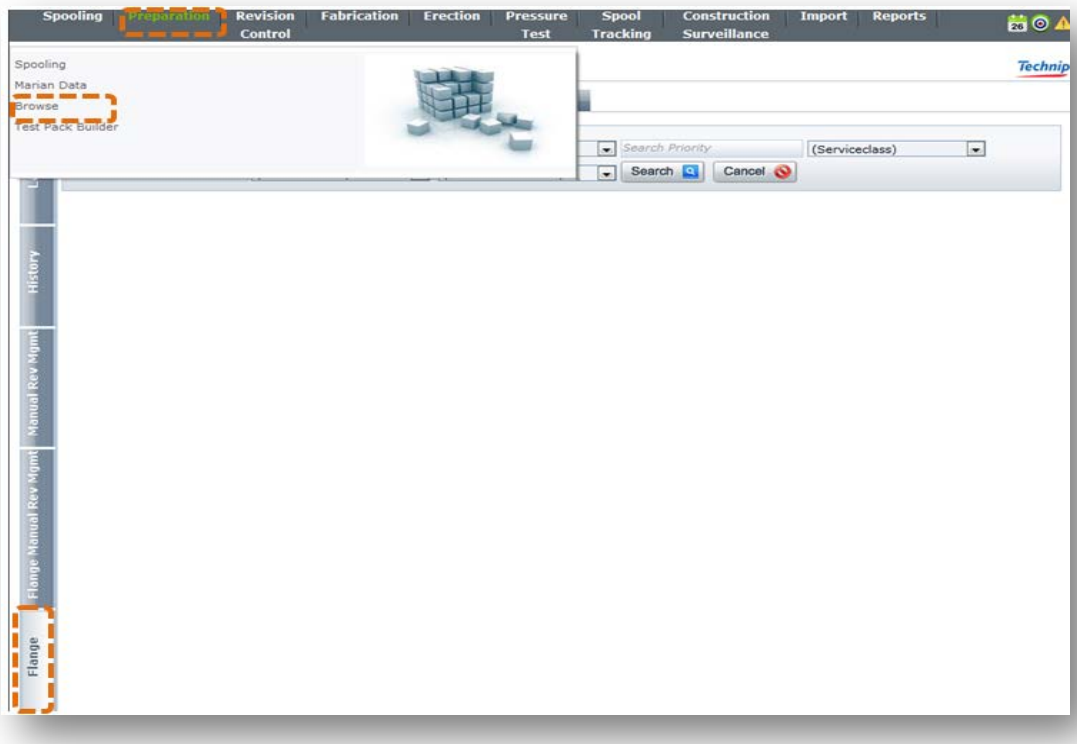
- In the below screen, all the fields are mandatory, the user have to fill all the details.
- The value of the “Bolt No.” should have minimum three characters. Example: BT01
- Bolt No should start with ‘BT’.
- PSMS will check whether there are duplicate Flange joints (same Bolt no.). If duplicates exist, an error message will appear against the particular Flange joint.
- Dia inch, Bolt Size and BoltQty accept only numeric values, otherwise system will validate.



Save Flange Manual Rev Management:
Before save, user has to enter the new revision number the specific ISO. If the entered ISO Revision number is already exists system will discard the revision number then user has to enter new revision number accordingly.

19.2.1 Browse Flange

This module allows the user to navigate in a hierarchical manner between the Isometrics and flange joints and the user can also edit some information in the same screen. This sub module comes under “Preparation Module”

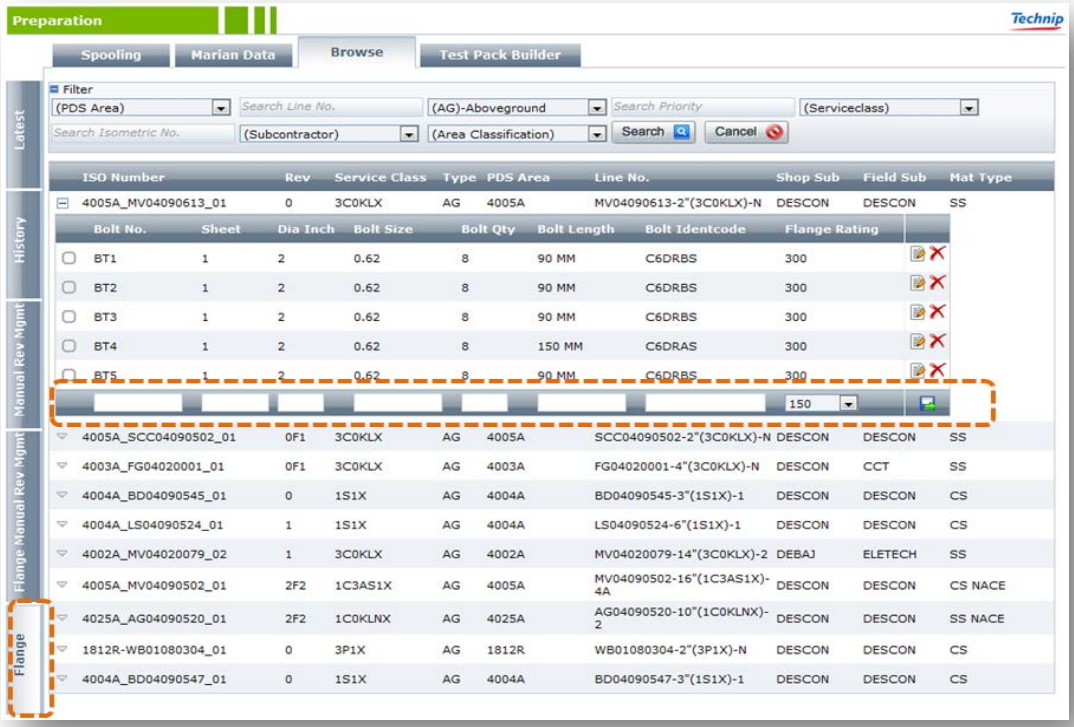


The user can search for the different search criteria options as mentioned below.

- PDS Area
- Line No.
- ISO No.
- Priority
- Type
- Service Class
- Subcontractor
- Area classification

The search results will be displayed in a hierarchical format starting from the ISO, the user can select to expand and explore a specific ISO, in which the child Flange joints will appear.
In this screen the user can add more than one Flange joint to the ISO. When the user is adding the Flange joint has to follow some validation rules as follows.

- In the below screen, all the fields are mandatory, the user have to fill all the details.
- The value of the “Bolt No.” should have minimum three characters. Example: BT01
- Bolt No should start with ‘BT’.
- PSMS will check whether there are duplicate Flange joints (same Bolt no.). If duplicates exist, an error message will appear against the particular Flange joint.
- Dia inch, Bolt Size and BoltQty accept only numeric values, otherwise system will validate.



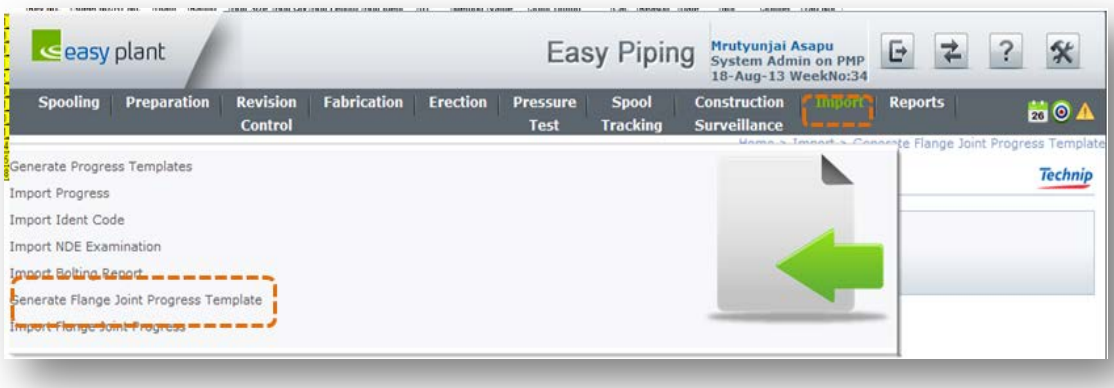
19.2.2 Flange Joint Progress Template

The flange joint progress can be updated in the easy piping with two methods.

- Flange joint progress Import Method
- Flange joint progress input method.

The flange joint progress template helps the user to import the Flange joint progress. This template is also used to link the test packs to the flange joints for the relevant Isometrics.

The user can download the template from the import module.



PMP - Flange Joint Progress Template

PDS Area: ALL ·line No: Search Line No. Area Classification: ALL
ISO No.: Search Isometric No. ·ontracto: ALL
Type: (AG)-Aboveground ·e Class: ALL

Test Pack	Iso Number	Rev No.	Sheet No.	BT No.	Diam	Rating	Bolt Size	Bolt Qty	Bolt Length	Bolt Ident	UT	Joint Method	Jointing Value	Joint Timing	Cat.	Reason	Joint Date	Report Nbr	Jointer	Tag Nbr
TP-08-02-01-CV-001	1801R-CV01060001_01	3	1	BT1	2	150	0.62	4	90 MM	C31JKDD		Manual					06-Mar-2010	B002	BT-13	001
TP-03-08-03-FG-001	1801R-FG01080003_01	0F2	1	BT1	24	150	1.25	20	180 MM	C31JKKV	12.35	Torquing		Before Precom	Y	Test blind				
TP-03-08-03-FG-001	1801R-FG01080003_01	0F2	1	BT1	24	150	1.25	20	180 MM	C31JKKV	12.35	Torquing		Before Precom	Y	Test blind				
TP-01-09-10-LO-006	1802A-LO01080801_01	1F1	1	BT1	3	150	0.62	4	100 MM	CBJC452		Manual					10-Feb-2010	TP-001	BT-40	T-001
TP-01-09-10-LO-006	1802A-LO01080802_01	1	1	BT1	6	150	0.75	8	110 MM	CBJC469		Manual					10-Feb-2010	TP-001	BT-40	T-001
TP-02-05-11-SV-007	1810A-SV01020950_01	1	1	BT1	20	900	2	20	430 MM	CBJC4TP	15.675	Torquing		Before Precom	Y	Test blind				
TP-09-03-01-FG-002	1812R-FG01080651_01	1	1	BT1	24	150	1.25	20	450 MM	C31JKLN	3.25	Torquing		After precom	Z	NA				
TP-03-09-11-SV-001	2810A-SV02020950_01	1	1	BT1	20	900	2	20	430 MM	CBJC4TP	4.125	Torquing		After precom	Z	NA				
TP-01-06-02-FG-002	2812R-FG02080651_01	1	1	BT1	24	150	1.25	20	450 MM	C31JKLN	3.25	Torquing		After precom	Z	NA				
TP-11-08-21-AG-009	4005R_AG04090544_01	2F1	1	BT1	40	150	1	44	180 MM	C24EH9X	5.25	Torquing	360	Before pressure Test	X	NA				
TP-11-08-21-AG-009	4005R_AG04090545_01	1	1	BT1	34	150	0.88	40	200 MM	C24EH8G	4.5	Torquing	255	Before pressure Test	X	NA				
TP-11-08-21-AG-009	4006A_AG04090528_01	1	1	BT1	40	150	1	44	240 MM	C6DREX	5.25	Torquing	450	Before pressure Test	X	NA				

The above template consists several parameters as mentioned below.

- Test Pack
- Iso No (Read only field)
- Rev (Read only field)
- Sheet No. (Read only field)
- BT No (Read only field)
- Diam : (Read only field)
- Rating :(Editable)
- Bolt size : (Read only field)
- Bolt ident (Read only field)
- Bolt qty : (Read only field)
- Bolt Length (Read only field)
- UT: (Read only field)(UT calculation will do at the time of export (Dynamic). Using this formula**: UT = Reference point quantity x coef Diam x Coef Rating x Coef Punch**)

  Note: If coef punch is null (That means it is not defined) then the UT value is Null.
- Jointing method: can be only as per project referential.
- Jointing value : editable
- Joint period: can be only as per project definition table: for example Before Test / Before PMC / After PMC
- Joint Category: can be only as per project definition table : for example X, Y, Z
- Reason can be only as per project definition table.

The following are the joint progress along with their data types:

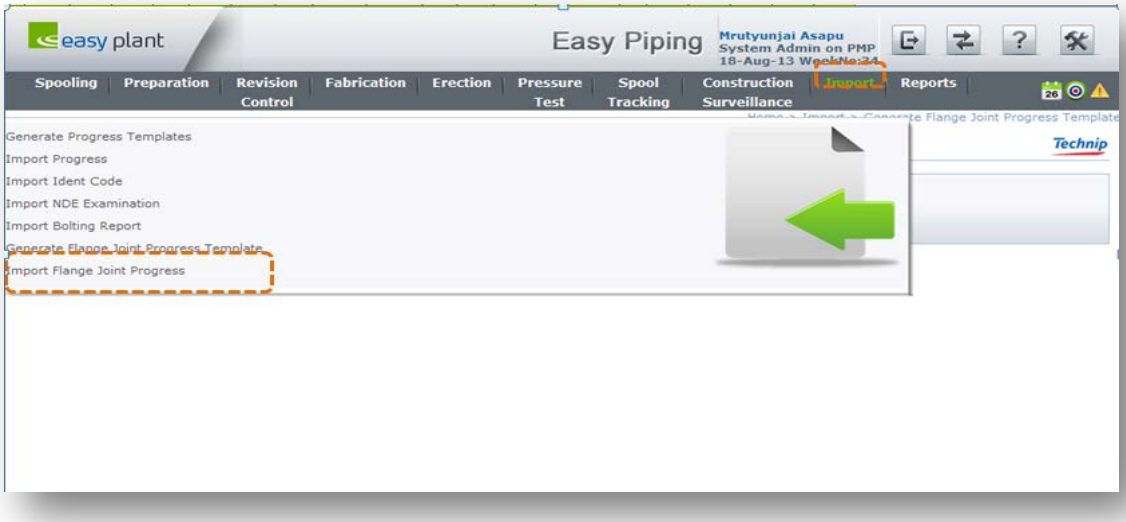
- Joint date : date format (dd-MMM-yyyy)

- Report Nbr
- Jointer (Drop down)
- Tag nbr

In case a joint has 2 or more progress records, records will be displayed by one or more additional line.

19.2.3 Flange joint progress import method

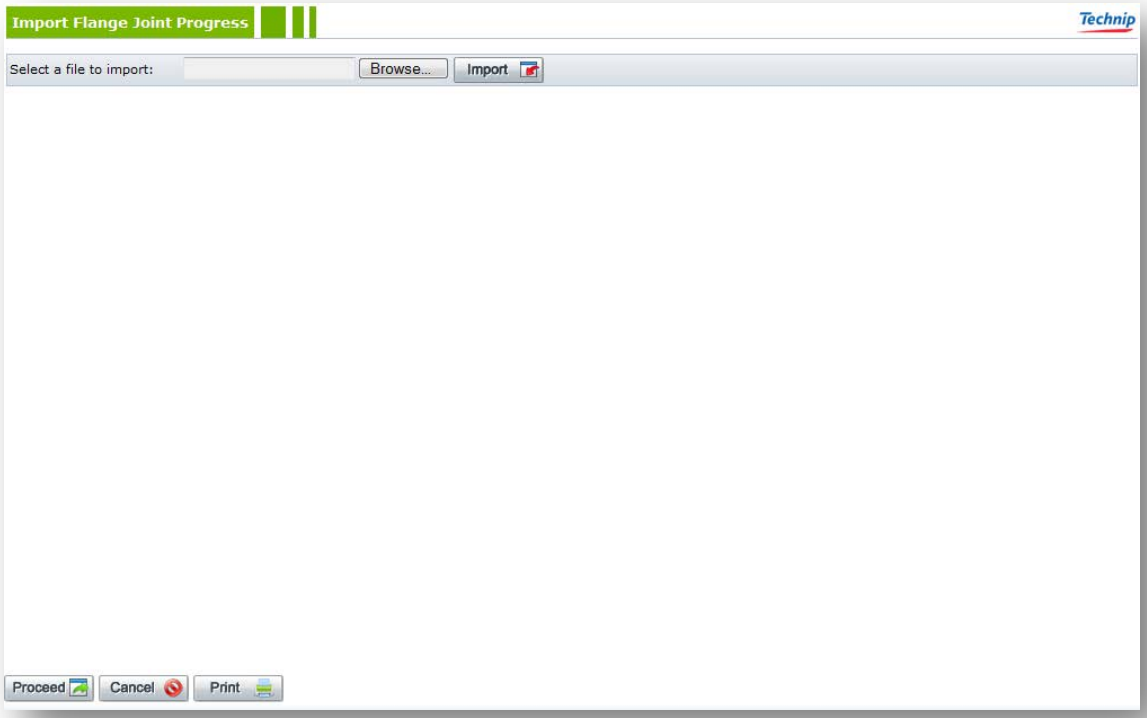
The user can import the progress from the "Import module" The user can update the template with the relevant information and import from this screen



The user can use the Icon Browse... and select the file and use the icon Import to import all the progress information into Easy Piping.

Note:

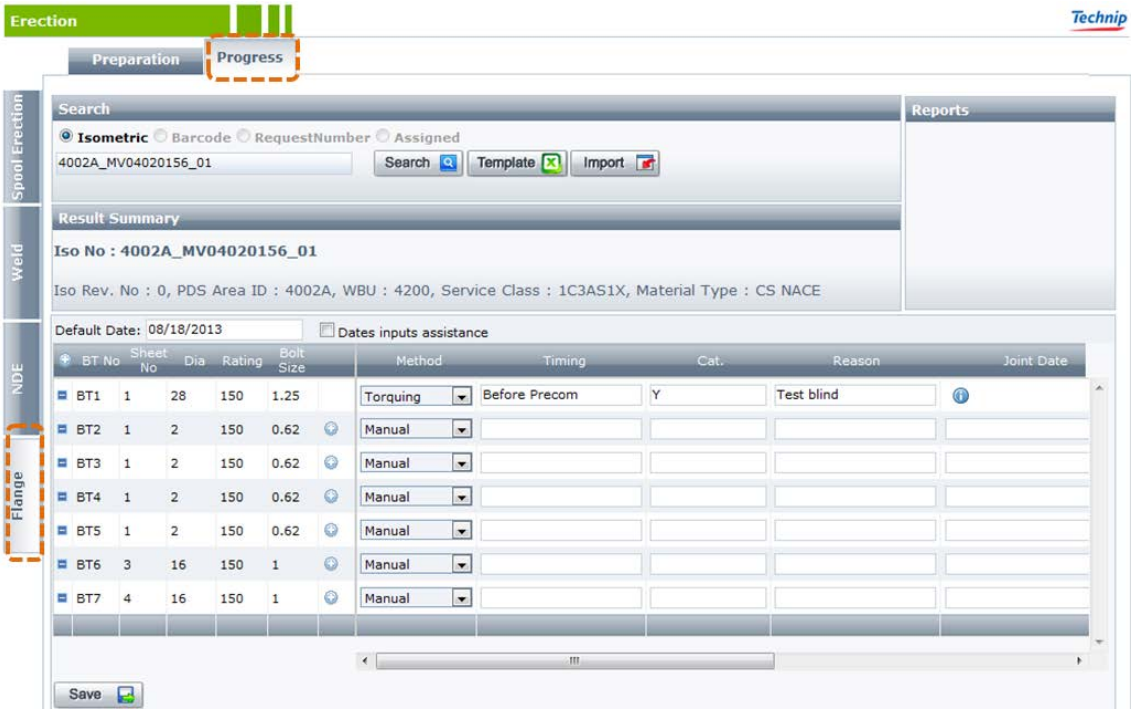
- The progress data in the excel sheet will always supersede progress data in the database. Meaning that if there was a conflict between the data in the excel sheet and the actual data in PSMS, that particular cell will be highlighted in yellow. The user will have to confirm the changes and proceed the import if he wishes. The data in the system will be overwritten with the new data on confirmation.
- Import of flange joints which are not defined will be rejected by the system
- Jointing method column and Jointing value column should have values as per Torquing requirements project referential.
- Joint period column should have values as per project definition table: for example Before Test / Before PMC / After PMC
- Punch column should have values as per project definition table: for example X, Y, Z.
- Reason column can have alphanumeric values. should have values as per project definition table For example NA, Test blind, vent point, drain point, blowing point.
- Joint date column should have the following date format (dd-MMM-yyyy).
- Report Nbr can have alphanumeric values. No validations.
- Jointer column can have values that are defined in the Jointer referential.
- Tag nbr can have alphanumeric values. No validations.



19.2.4 Flange joint progress input method

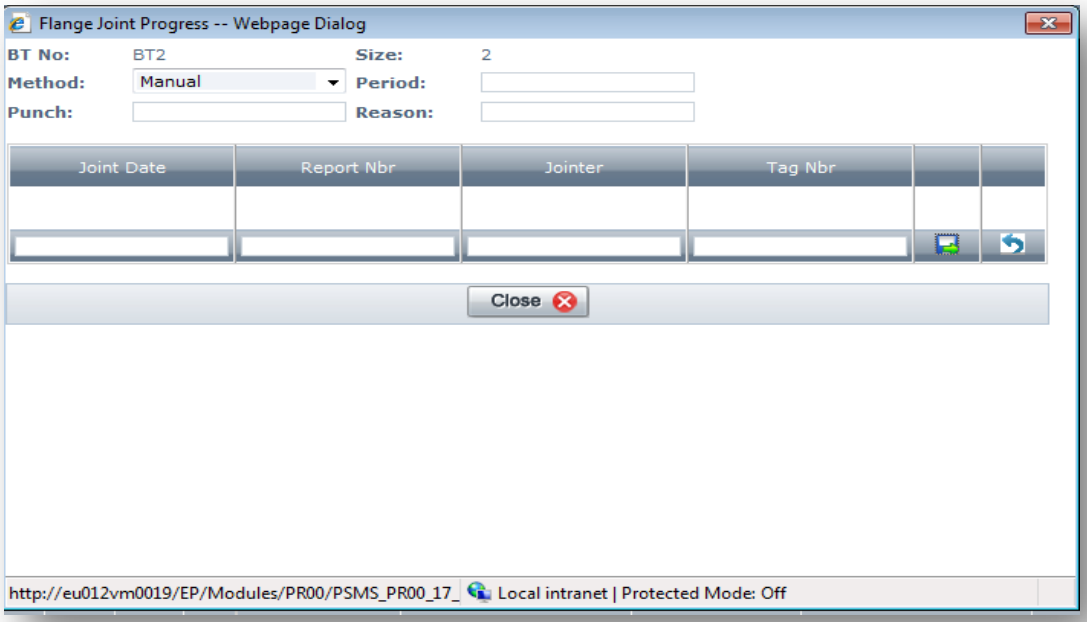
The flange joint progress screen comes under the spool erection module. In this screen the user can search for a particular Isometric and the system will display all the flange joints related to the isometric. If the user has defined some parameters like Jointing method, category and reasons for a particular flange joint initially, he can edit the information in this screen. The Flange joint information details to be shown are:

- Jointing method: can be only as per project referential.
- Joint period: can be only as per project definition table: for example Before Test / Before PMC / After PMC
- Joint Category: can be only as per project definition table: for example X, Y, Z
- Reason can be only as per project definition table.
- Joint date : date format (dd-MMM-yyyy)
- Report Nbr
- Jointer (Drop down)
- Tag nbr

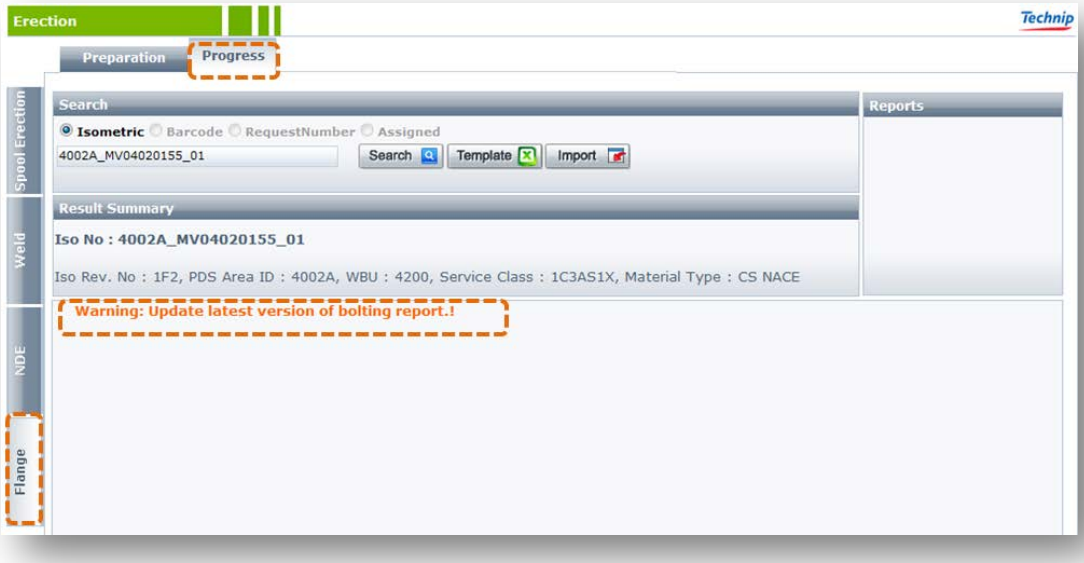


If the Flange joint is progressed by only 1 Jointer, then the user can enter the progress details in the same screen.

If the flange joint is progressed by 2 jointers, the system will display an icon ( ) in each and every row. The user can click on this icon, the system will display a pop up where user can update the progress.

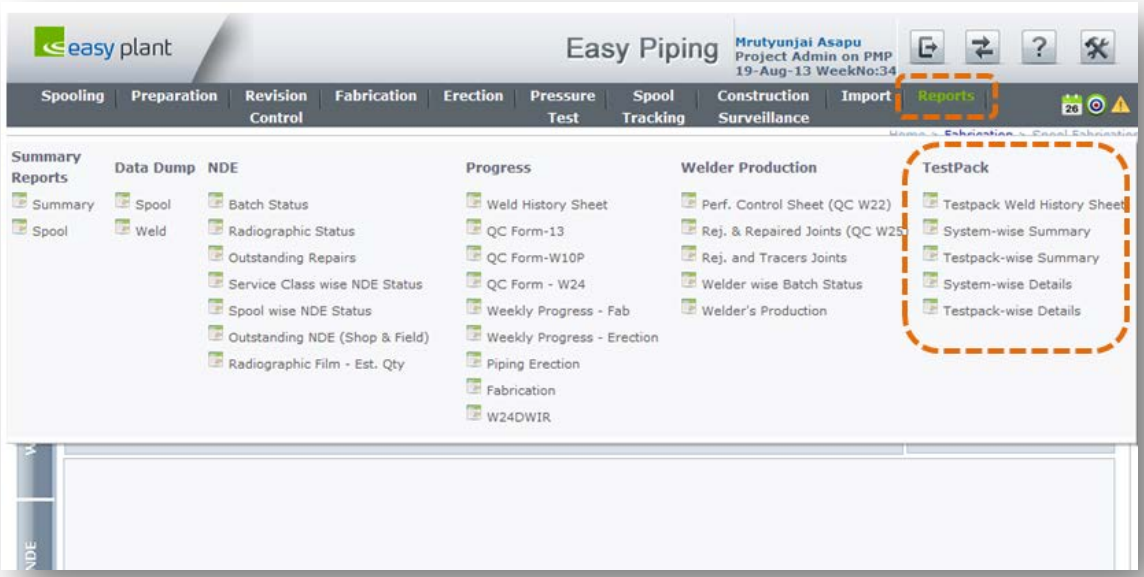


Note:
When the user opens the erection progress screen, the system will check if the rev number of the corresponding spool is matching with the rev number of flange data related. Otherwise, the system will disable the “flange joint progress” grid and will display a warning message to the user.



20. TESTPACK MANGEMENT REPORTS

In Easy piping the user can generate the reports for the test pack status. The below Image shows the location of the reports



9833N_361_Test_Pack_Weld_History_She

This report will provide the weld history of all the spools related to the selected test pack.

System-wise_Summary_Report.xls

This report will provide the status of the test packs on a system level for the entire project. The user can select either system or sub system.

Testpack-wise_Summary_Report.xls

This report will provide the status of each test pack with the construction and testing information.

System-wise_Details_Report.xls

This report will provide the status of system completion including the construction and test pack status.

Testpack-wise_Details_Report.xls

This report will provide the information of each test pack and punch items also.