

Process, Power and Marine Division

SmartPlant 3D Piping Functions

Management Overview Training



Piping Task

- Very powerful piping modeling environment.
- Feature – Part model allows easy manipulation.
- Integration with SPP&ID and SPI
- Reference data matching with PDS.
- Tool for migration of PDS Piping Specifications.

Hierarchical Data Model

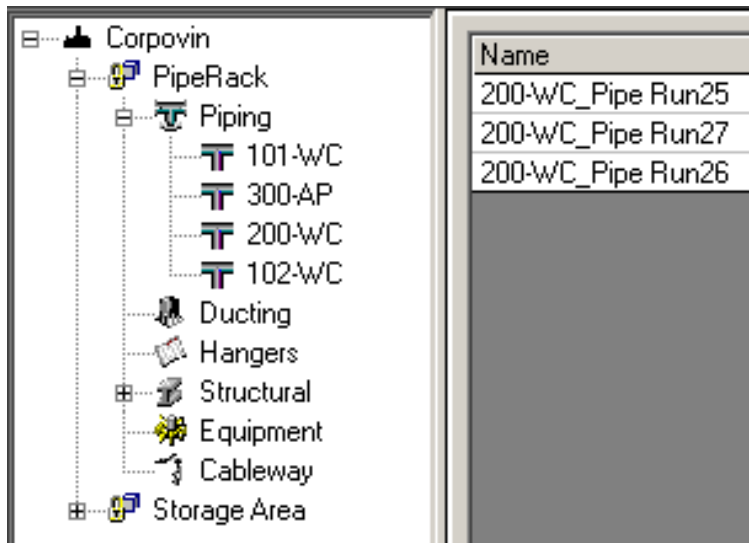
- Piping System
 - Pipeline
 - Pipe Run
 - Pipe Feature
 - Piping Part
 - Port
 - Connection

Design Intent

- Modeling is via features, they generate parts
 - allows dealing with items as ‘design intent’ rather than individual parts

Pipeline

Is a high-level grouping of Pipe Runs that is create in System and Spec Task environment.



The 'New Pipeline Settings' dialog box is shown with the 'Pipeline' tab selected. It contains a table with the following data:

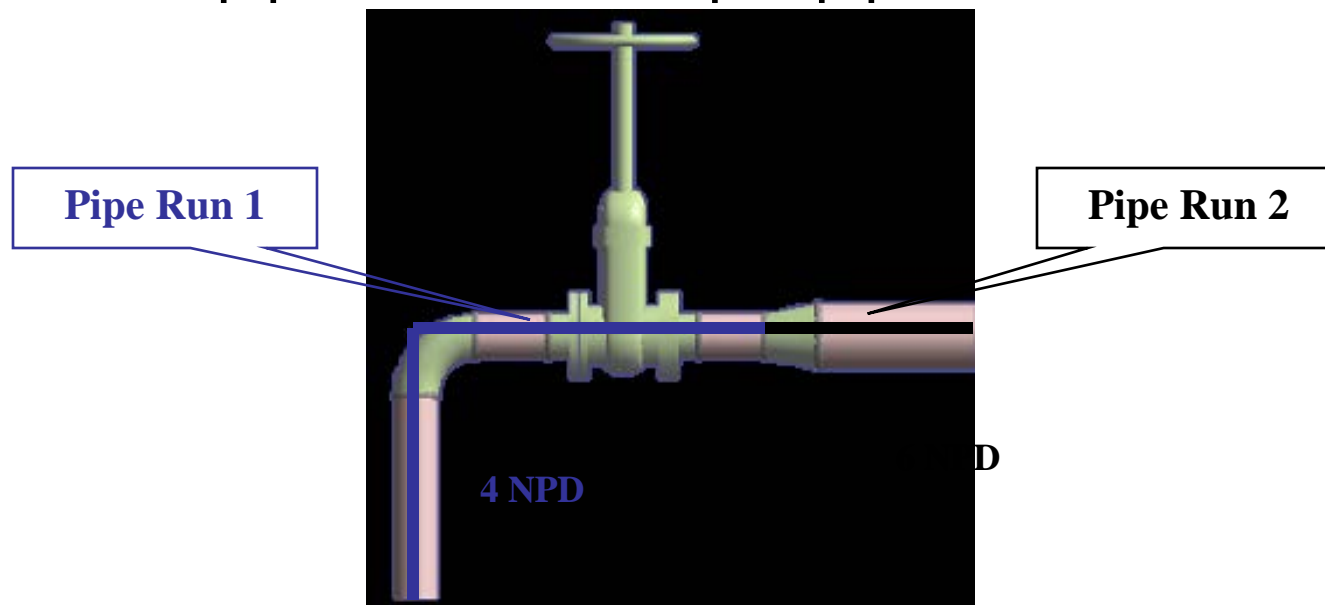
Property	Value
Description	001
Sequence Number	001
Fluid Requirement	Process
Fluid Type	PA

At the bottom of the dialog are 'OK' and 'Cancel' buttons.

Pipe Run

A pipe run identifies one or more path features that share a common pipe specification, flow direction, size, Temperature, Pressure, etc....

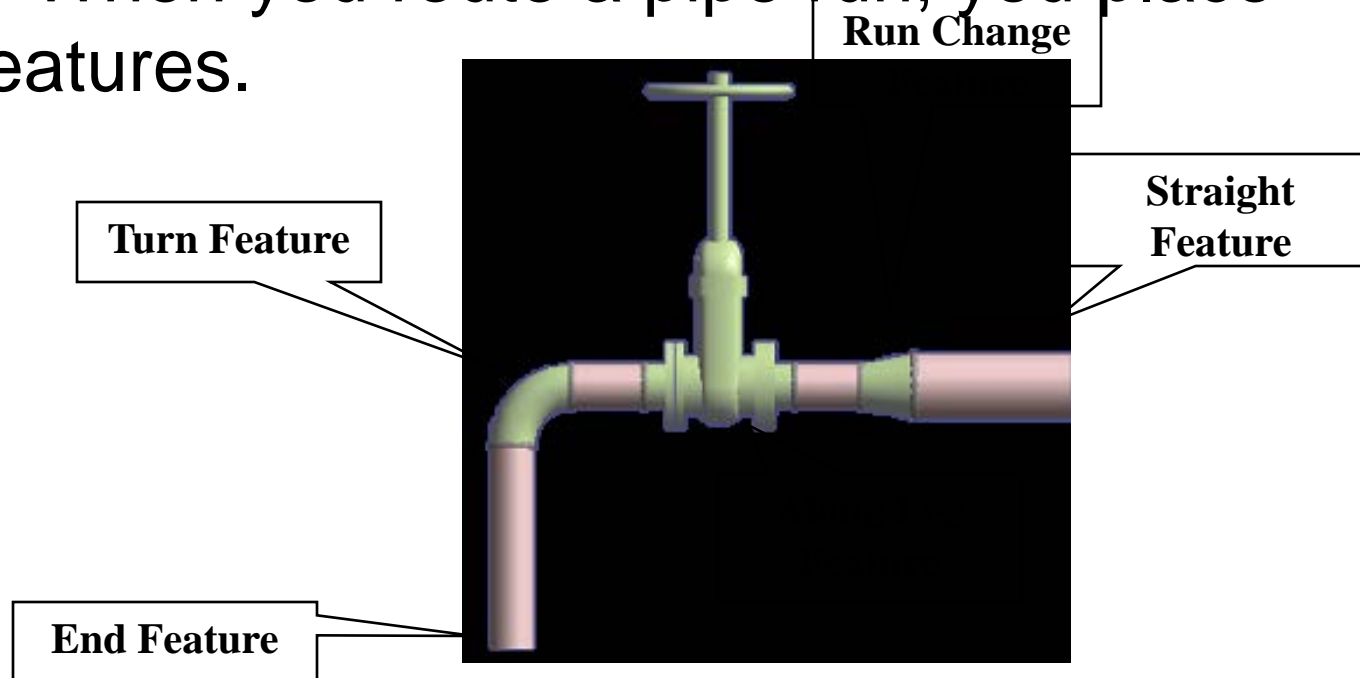
One or more pipe runs make up a pipeline.



Features

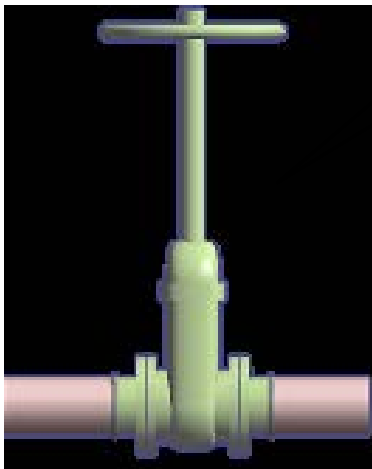
Define the geometry path of the pipe run and your design intent that occur along the path.

When you route a pipe run, you place features.



Parts

are the physical components generated by the feature.



Along Leg
Feature

Parts:

- Mating Flanges
- Gate Valve
- Gaskets/Bolts/Nuts



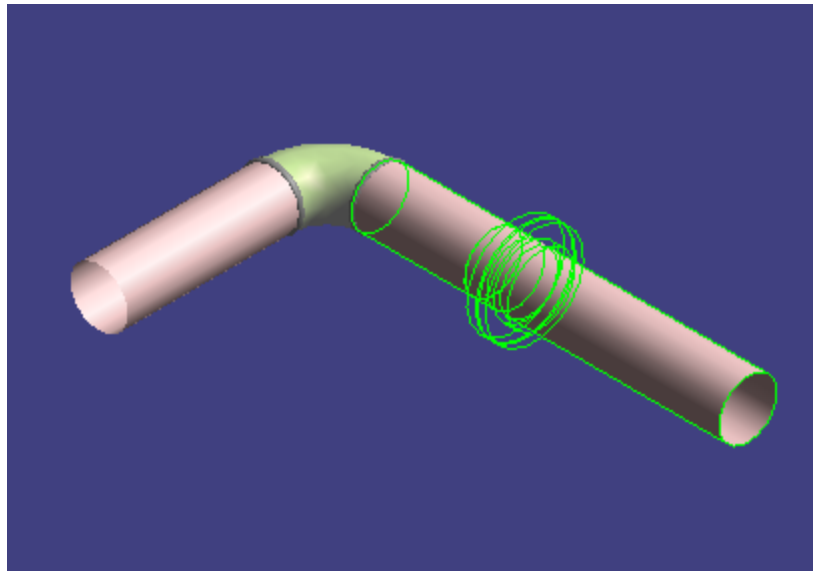
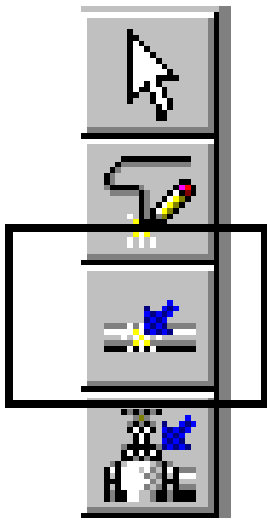
Part: Pipe

Straight
Feature

Turn
Feature

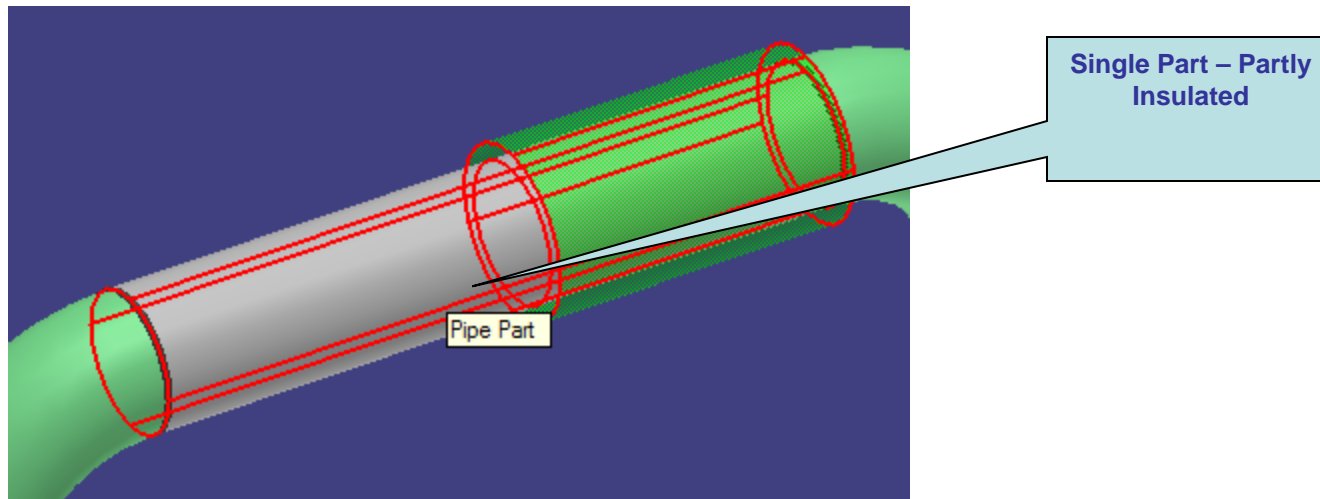
Insert Split command

- The Insert Split command cuts a straight pipe and connects the parts by a weld joint or a takedown joint.



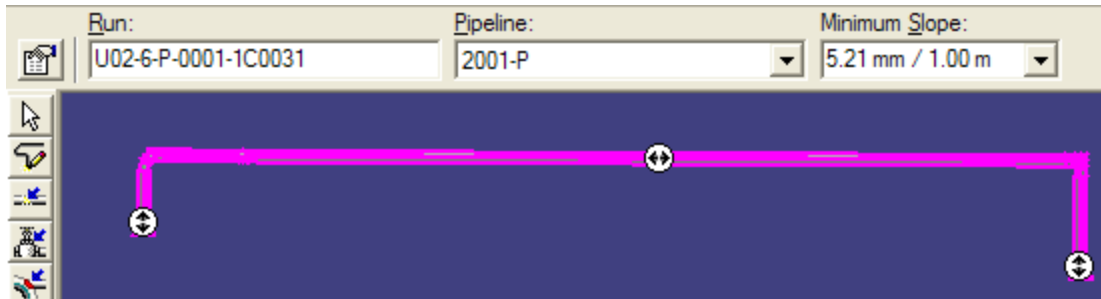
Feature Breaks

- Feature breaks allow assigning insulation/tracing etc to parts of pipes



Sloped Piping

- Sloped piping allows multiple slopes in a single run.



Property	Value
Pipeline	P-269
Name	
Name Rule	DefaultNameRule
Specification	1C0031
Nominal Diameter	8 in
Flow Direction	UNDEFINED
Minimum Slope	40.00 mm / 1.00 m
ScheduleOverride	
Correlation Status	Not correlated

Specify Slope Direction

Are you routing from high point or low point of the sloped Pipe run? Also, the box at bottom should be checked if the run will contain portions that slope up and others that slope down.

☒ High point (run slopes down)
 ☐ Low point (run slopes up)

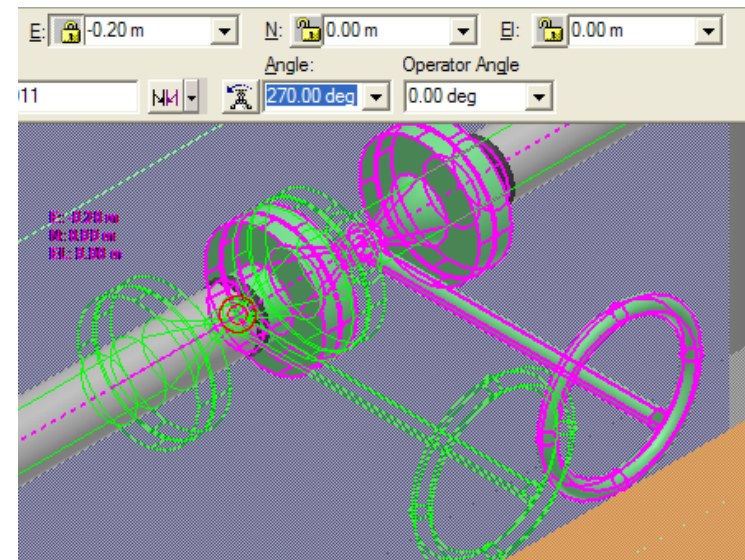
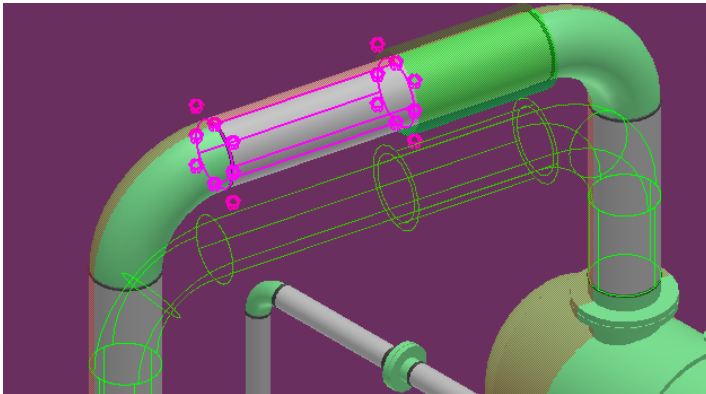
☒ Run contains multiple slope orientation

OK

Cancel

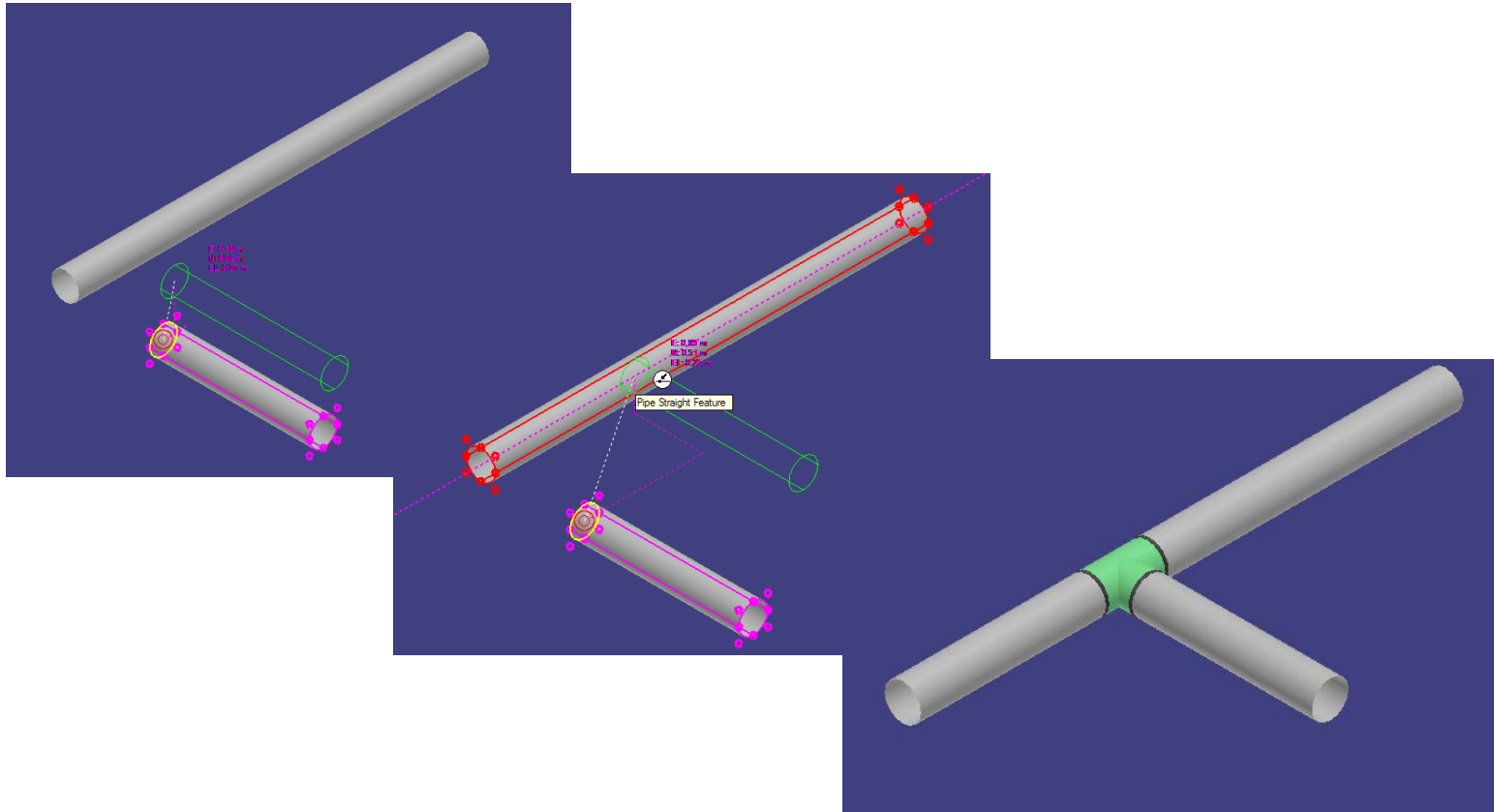
Moving

- Moving is via slip and slide or by precision movements



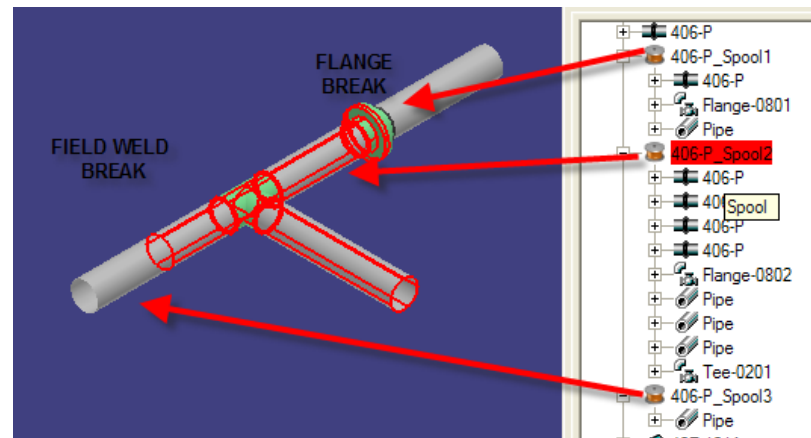
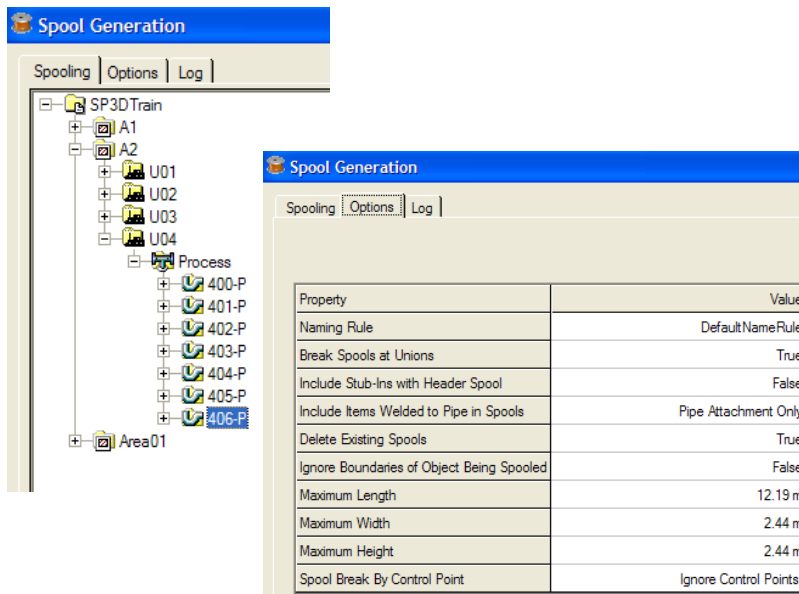
Automatic Reconnect

- Automatic reconnect on move or paste



Spooling

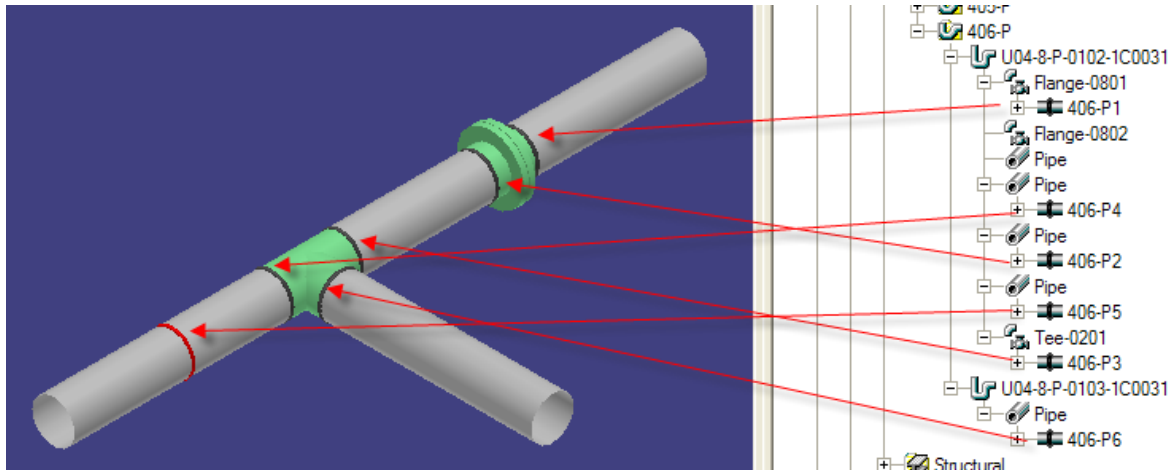
- Spooling functionality – spool by pipeline, or WBS



Sequencing

- Sequencing functionality – weld, spool based on “parent”

Grouping/Sequencing Object Type	Target Object Type	Name Rule	Sequencing Type	Revision Control
Pipeline	Pipe Weld	Keep existing rule	Topology	Retain existing numbers



Grouping

- Grouping functionality
– for easy grouping of pipe parts to WBS items

Automated WBS Creation

Options Log

Property	Value
WBS Automated Creation Rule Name	WBS Iso - Fabrication
Name Rule	Label Name Rule
WBS Grouping Type	Iso Drawing - Fabrication
Create Exclusive WBS Item	True
Query Label	WBS Iso Grouping Query - Fabrication
Discrimination Filter	ALL
WBS Item's Parent	Iso Fabrication
WBS Grouping Rule Type	Group by query and control point
Control Point Subtype	WBS Pipe Break - Fabrication
Maximum Number Of Objects	50
Pull In Associated Items	None
Maintain Existing WBS Items?	True

OK Cancel Save Log