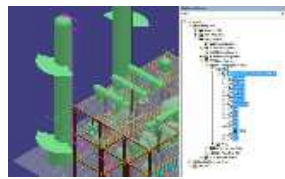# UniversalReporter
Use Case 1: Create Smart 3D piping MTO summary report

CHALLENGE

It is always a challenge to create a piping MTO report where all components are listed and summarised (per area, unit and/or pipeline system) with the appropriate associations to pipe run, area, unit etc.

WORKFLOW STEPS

1. Extract data from the source application by using your own filter

2. View data in **UniversalReporter**

Area	Unit	Pipeline	Commodity Type	First Size Schedul	Industry Commodit	Npd 1	Npd Un	SUM_(of)	Quantity	Short Material Descriptio	Spec Name
NOT-											
A2	U01	1002-P	E90LR	S-STD	MCMZZBOZZAAE	6.00	in	3.00	pcs	90 deg LR elbow, S-STD,	1C0031
A2	U01	1002-P	PIPE	S-STD	PAAZZBOZZABA	6.00	in	18194.80	mm	Pipe, S-STD, BE, ASTM-	1C0031
A2	U01	1002-P	Shop weld			6.00	in	9.00	pcs	Shop weld	1C0031
A2	U01	1002-P	T	S-STD	MDJZZBOZZAAE	6.00	in	1.00	pcs	Tee, S-STD, BE, ASTM-	1C0031
A2	U02	2001-P	E90LR	S-STD	MCMZZBOZZAAE	6.00	in	4.00	pcs	90 deg LR elbow, S-STD,	1C0031
A2	U02	2001-P	FWN	Undefined	FAAAHDCZZAAD	8.00	in	2.00	pcs	Flange, CL150, RFFE/BE	1C0031
A2	U02	2001-P	PIPE	S-STD	PAAZZBOZZABA	6.00	in	16491.20	mm	Pipe, S-STD, BE, ASTM-	1C0031
A2	U02	2001-P	REDC	S-STD	MBCZZBOZZAAE	8.00	in	2.00	pcs	Concentric reducer, S-ST	1C0031
A2	U02	2001-P	Shop weld			6.00	in	12.00	pcs	Shop weld	1C0031
A2	U02	2001-P	Spiral wound, one		GMAHACABXBEP	6.00	in	2.00	pcs	Gasket, CL150, 0.125" th	1C0031

3. Create piping MTO summary report using a report template which includes built-in summary functions

Piping Material Take-OFF

Area System	Unit System	Pipeline System	Commodity Type	First Size Schedule	Industry Commodity Code	Quantity	[pcs/mm]	Short Material Description	Spec Name
A2	U01	1002-P							
			E90LR	S-STD	MCMZZBOZZAAEADCZZUS	3.00	pcs	90 deg LR elbow, S-STD, BE, ASTM-A	1C0031
			PIPE	S-STD	PAAZZBOZZABAABOAAZZUS	18194.80	mm	Pipe, S-STD, BE, ASTM-A53-B Type S	1C0031
			Shop weld			9.00	pcs	Shop weld	1C0031
			T	S-STD	MDJZZBOZZAAEADCZZUS	1.00	pcs	Tee, S-STD, BE, ASTM-A234-WPB, AS	1C0031
A2	U02	2001-P							
			E90LR	S-STD	MCMZZBOZZAAEADCZZUS	4.00	pcs	90 deg LR elbow, S-STD, BE, ASTM-A	1C0031
			FWN	Undefined	FAAAHDCZZAADABQZZUS	2.00	pcs	Flange, CL150, RFFE/BE, ASTM-A105,	1C0031
			PIPE	S-STD	PAAZZBOZZABAABOAAZZUS	16491.20	mm	Pipe, S-STD, BE, ASTM-A53-B Type S	1C0031

SOLUTION

- **3D ReportAdapter** adds the hierarchy information to the pipe parts, so **UniversalReporter** is able to use the relation to pipeline, area, unit etc. for grouping the output
- This type of report gives you a quick - up to date - overview of the material used in your plant

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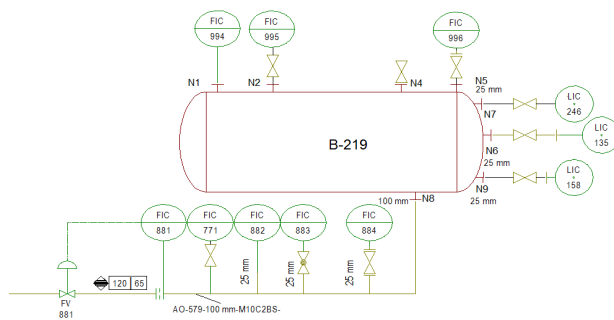
Engineered Efficiency

UniversalReporter
Use Case 2: Create SmartPlant P&ID instrument lists

CHALLENGE

It is always a challenge to create an instrument list with the appropriate connections to equipment or pipe runs due to the fact that the information is stored in different areas in the database

WORKFLOW STEPS

1. Extract data from the source application including the connectivity and process data information.

2. View data in **UniversalReporter** (check instrument connections and additional parameters)

Item Tag	Equipment_Tag	Nozzle_Tag	ConnectedPipeRu	ConnectedPipeRunDN	PipeRun_DesignMaxPress	PipeRun_DesignMaxTemp
FE-881			01579-AO	100 mm	120 psi	65 F
FIC-771			01579-AO	100 mm	120 psi	65 F
FIC-881			01579-AO	100 mm	120 psi	65 F
FIC-882			01579-AO	25 mm	120 psi	65 F
FIC-883			01579-AO	25 mm	120 psi	65 F
FIC-884			01579-AO	25 mm	120 psi	65 F
FIC-994	B-219	N1				
FIC-995	B-219	N2				
FIC-996	B-219	N5				

3. Create instrument list report

			Instrument List			caXperts
Item Tag	**Equipment Tag**	**Nozzle Tag**	**PipeRun Tag**	**PipeRun DN**	**PipeRun DMP**	**PipeRun DMT**
FE-881			01579-AO	100 mm	120 psi	65 F
FIC-771			01579-AO	100 mm	120 psi	65 F
FIC-881			01579-AO	100 mm	120 psi	65 F
FIC-882			01579-AO	25 mm	120 psi	65 F
FIC-883			01579-AO	25 mm	120 psi	65 F
FIC-884			01579-AO	25 mm	120 psi	65 F
FIC-994	B-219	N1				
FIC-995	B-219	N2				
FIC-996	B-219	N5				

SOLUTION

- The **PID ReportAdapter** adds the connectivity information to the offline instruments so that the connection to equipments, piperuns etc. is available for reporting
- This type of report is very useful for downstream applications like SmartPlant Instrumentation.

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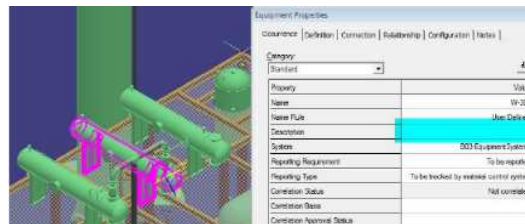
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Engineered Efficiency

UniversalReporter
Use Case 3: Update Smart 3D equipment data

CHALLENGE

Data is stored in different locations/departments each having the ownership of parts of the data. Data must be imported in a controlled process to the Smart 3D application.

WORKFLOW STEPS
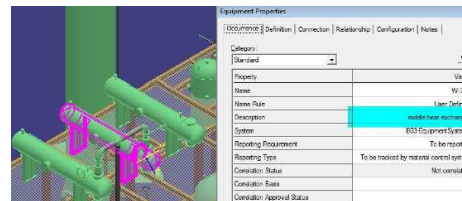
1. Extract data from Smart 3D using **3D ReportAdapter**

2. Receive Excel report from other department, including additional information

3. Import additional data from the Excel sheet to **UniversalReporter**

4. Write imported data back to Smart 3D

SOLUTION

- **UniversalReporter** allows importing of external data available in the familiar Microsoft Excel interface; the data can be from any other application or build up manually
- In addition **UniversalReporter** is able to creates its own Excel reports, to allow persons not having access to Smart 3D to enhance and change 3D data

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UniversalReporter
Use Case 4: Update process data for P&ID

CHALLENGE

Data is stored in different locations/departments each having the ownership of parts of the data. Data must be imported in a controlled process to the SmartPlant P&ID application.

WORKFLOW STEPS

1. Extract data from the source application

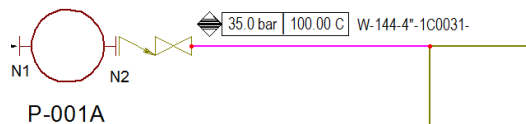| Item Tag	Fluid Code	Design Max Press	Design Max Temp	Piping Materials Class	Drawing Name
05139-W	W			1C0031	Po Wa
05140-W	W			1C0031	Po Wa
05144-W	W			1C0031	Po Wa
05183-W	W			1C0031	Po Wa
05276-W	W			1C0031	Po Wa
05367		5 bar	10 C		Po Wa
05375-W	W	6 bar	60 C	M10C2ES	Po Wa

2. As Process Engineer add / modify technical parameters

Item Tag	Fluid Code	Design Max Press	Design Max Temp	Piping Materials Class	Drawing Name
05139-W	W	20 bar	200 C	1C0031	Po Wa
05140-W	W	20 bar	200 C	1C0031	Po Wa
05144-W	W	35 bar	100 C	1C0031	Po Wa
05183-W	W	35 bar	80 C	1C0031	Po Wa
05276-W	W	36 bar	81 C	1C0031	Po Wa
05367		5,5 bar	10,5 C		Po Wa
05375-W	W	6 bar	60 C	M10C2ES	Po Wa

3. Import the modified reports into **UniversalReporter**

Item Tag NOT-NULL	Fluid Code	Old Value_(of)_De	Design Max Press Changed Values	Old Value_(of)_De	Design Max Temp	Piping Materials
05139-W	W		20 bar		200 C	1C0031
05140-W	W		20 bar		200 C	1C0031
05144-W	W		35 bar		100 C	1C0031
05183-W	W		35 bar		80 C	1C0031
05276-W	W		36 bar		81 C	1C0031
05367		5 bar	5,5 bar	10 C	10,5 C	
05375-W	W	100 psi	6 bar	99F	60 C	M10C2ES

4. Write the changes to SmartPlant P&ID

SOLUTION

- **UniversalReporter** allows modification of source data using the familiar Microsoft Excel interface; the data can be modified by users from different departments each adding their part of information and then imported into **UniversalReporter**
- The changes towards the Smartplant P&ID application are traced in a history file (history logging)
- In addition:
  - Verification steps ensure all changes are applied correctly (for example check of codelist values)
  - Restricted data cannot be changed
  - Changes are propagated to connected objects as defined in the rules
  - Changed data is reflected in labels on the corresponding SmartPlant P&ID documents

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