Base Load Power Hub (BLPH)

60% 3D Model Review Report

Document Number: 123A90-DDL-PP-RE-70009

Document Class: 2

Rev.	Date	Description	Prepared	Reviewed	Approved
01	16/07/2024	Accepted for Construnction (AFC)	MMA	CBO	DLO
00	07/03/2024	Issue for Review (IFR)	MMA	CBO	DLO

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Table of Contents

Sh.	DESCRIPTION	REVISIONS							
		00	01						
1	Cover	X	X						
2	Table of contents	X	X						
3	Attendance list	X	X						
4	Attendance list	X	X						
5	Action Item Register	X	X						
6	Action Item Register	X	X						
7	MR60-TAG01	X	X						
8	MR60-TAG02	X	X						
9	MR60-TAG03	X	X						
10	MR60-TAG04	X	X						
11	MR60-TAG05	X	X						
12	MR60-TAG06	X	X						
13	MR60-TAG07	X	X						
14	MR60-TAG08	X	X						
15	MR60-TAG09	X	X						
16	MR60-TAG10	X	X						
17	MR60-TAG11	X	X						
18	MR60-TAG12	X	X						
19	MR60-TAG13	X	X						
20	MR60-TAG14	X	X						
21	MR60-TAG15	X	X						
22	MR60-TAG16	X	X						
23	MR60-TAG17	X	X						
24	MR60-TAG18	X	X						
25	MR60-TAG19	X	X						
26	MR60-TAG20	X	X						
27	MR60-TAG21	X	X						
28	MR60-TAG22	X	X						
29	MR60-TAG23	X	X						
30	MR60-TAG24	X	X						
31	MR60-TAG25	X	X						
32	MR60-TAG26	X	X						
33	MR60-TAG27	X	X						
34	MR60-TAG28	X	X						
35	MR60-TAG29	X	X						
36	MR60-TAG30	X	X						
37	MR60-TAG31	X	X						
38	MR30-TAG03	X	X						
39	MR30-TAG07	X	X						
40	MR30-TAG08	X	X						
41	MR30-TAG12	X	X						
42	MR30-TAG13	X	X						
43	MR30-TAG16	X	X						
44	MR30-TAG18	X	X						
45	MR30-TAG19	X	X						
46	MR30-TAG21	X	X						
47	MR30-TAG25	X	X						
48	MR30-TAG26	X	X						

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GENERAL NOTES

1. Legend

Priority Class 1: need CPY review for approval and closure
Priority Class 2: can be closed by engineering

2. Reference document

Base Load Power Hub (BLPH) - Plot Plan - Lower & Upper deck	123A90-DDL-PP-DL-70070	rev.01
Base Load Power Hub (BLPH) - Plot Plan - Below Lower deck	123A90-DDL-PP-DL-70071	rev.01
Base Load Power Hub (BLPH) - Plot Plan - Elevation looking north & East	123A90-DDL-PP-DL-70072	rev.01
BLPH P&ID - General Notes	123A90-DDL-PR-PID-80009	rev.01
BLPH P&ID - Piping Symbology	123A90-DDL-PR-PID-80010	rev.01
BLPH P&ID - Instrumentation Symbology	123A90-DDL-PR-PID-80042	rev.01
BLPH P&ID - Electrolyser Package	123A90-DDL-PR-PID-80011	rev.01
BLPH P&ID - Fuel cell Package	123A90-DDL-PR-PID-80012	rev.01
BLPH P&ID - Hydrogen Storage Vessels Header (INLET)	123A90-DDL-PR-PID-80013	rev.01
BLPH P&ID - Hydrogen Storage Vessels Header (OUTLET)	123A90-DDL-PR-PID-80014	rev.01
BLPH P&ID - Hydrogen Storage Vessel A	123A90-DDL-PR-PID-80015	rev.01
BLPH P&ID - Hydrogen Storage Vessel B	123A90-DDL-PR-PID-80016	rev.01
BLPH P&ID - Hydrogen Storage Vessel C	123A90-DDL-PR-PID-80017	rev.01
BLPH P&ID - Hydrogen Storage Vessel D	123A90-DDL-PR-PID-80018	rev.01
BLPH P&ID - Hydrogen Storage Vessel E	123A90-DDL-PR-PID-80019	rev.01
BLPH P&ID - Hydrogen Storage Vessel F	123A90-DDL-PR-PID-80020	rev.01
BLPH P&ID - Sea Water intake System Sh. 1	123A90-DDL-PR-PID-80021	rev.01
BLPH P&ID - Sea Water intake System Sh.2	123A90-DDL-PR-PID-80022	rev.01
BLPH P&ID - Water Treatment plant Sh.1	123A90-DDL-PR-PID-80023	rev.01
BLPH P&ID - Water Treatment plant Sh.2	123A90-DDL-PR-PID-80024	rev.01
BLPH P&ID - Water Disposal Sh.1	123A90-DDL-PR-PID-80025	rev.01
BLPH P&ID - Water Disposal Sh.2	123A90-DDL-PR-PID-80026	rev.01
BLPH P&ID - Instrument Air & Nitrogen Package	123A90-DDL-PR-PID-80027	rev.01
BLPH P&ID - Hydrogen Vent Header	123A90-DDL-PR-PID-80028	rev.01
BLPH P&ID - Hydrogen Vent Drum	123A90-DDL-PR-PID-80029	rev.01
BLPH P&ID - Instrument Air distribution Header	123A90-DDL-PR-PID-80041	rev.01
Escape Routes, Fire Fighting, Life Saving Equipment and Safety Equipment Layouts Drawings - Lower deck	123A90-DDL-SAF-DL-30025	rev.00
Escape Routes, Fire Fighting, Life Saving Equipment and Safety Equipment Layouts Drawings - Lower deck	123A90-DDL-SAF-DL-30026	rev.00
Main equipment including CPI	Received First supplier data	
Primary steel & secondary steel	IFR/AFC	
Ele & Instru Cable Routing	Preliminary study	

3.Attachment

Attachment 1 - P&IDs Markup

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ATTENDANCE LIST

CROSSWIND	Base Load Power Hub (BLPH) 3D Model Review 60%	ROSETTI MARINO

Attendance List			
Project Name: Base Load Power Hub (BLPH) PROJECT	Date: 05/03/2024	Location: Rosetti Marino (MI)	
Name	Discipline	Company	Signature
ALESSANDRO BALLARDIN	PSL	TECON	
ANTONIO CASTELLO	STRUCTURES	TECON	
CARLA PRATOLUN	PIPING	ROSETTI	
DANILO LO STORTO	PDM	ROSETTI	
STEPHEN BREMNER	Project + PDM	CW	
Dominik Szwajda	BLPH PM	CW	
CLAUDIA GIUNCHI	PE	ROSETTI	
Maria Kalogera	Innovations PM	CW (Part-time)	
HAMANT PATEL	PROCESS	CW/KBR	
CIRO IMPRADICE	PROCESS	ROSETTI	
Jeroen van Loon	construction	CW	
MARCEL VEEN	STRUCTURAL	CW	
ANDREA MADESCHI	ELECTRICAL	ROSETTI	
VITTORIO RAMPONI	ELECTRICAL	ROSETTI	
LOREDANA CALABRESE	INSTRUM.	ROSETTI	
WOLMER BORGH *	CONSTR. MAN.	ROSETTI	∝
CHRISTIAN ROLLINO *	MEC	INCICO	∝
ENRICO PROVASI *	ELE	INCICO	∝

ATTENDANCE LIST

CROSSWIND	Base Load Power Hub (BLPH) 3D Model Review 60%	ROSETTI MARINO

Attendance List			
Project Name: Base Load Power Hub (BLPH) PROJECT	Date: 05/03/2024	Location: Rosetti Marino (MI)	
Name	Discipline	Company	Signature
FRANCESCO BEFAZIO *	I&C	INCA CO	✓
FRANCESO GEMMA *	ELE	INCA CO	✓
FRANCESCO MARTUCCI *	ELE	INCA CO	✓
KEN ROSE *	ELECTRICAL	CW-KBR	✓
NICOLAS LE BRUN *	H&E	CW	✓
ANTHONY IVESON *	COMMISSIONING	ROS	✓
MARZIO MAGNI *	PIPING	INCA CO	✓
PAUL KYLE *	MECH/PIP	CW - KBR	✓
SARA BESSEGATO *	PM	INCA CO	✓
TIRSO SUAREZ *	COMM/OPER.	CW	✓
ALESSANDRO SUTTO *	ELE/BESS	CW	✓
PHILIP ROBINSON *	E&I/INSTR.	KBR - CW	✓
PAUL VAN ROSSUM *	TECH. SAFETY	CW	✓
CAROLINA CABACCIOLO *	TECH. SAFETY	ROS	✓
HINA ARSHAD	TECH. SAFETY	ROS	

* CONNECTED BY REMOTE

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CROSSWIND

BLPH - 60% 3D MODEL REVIEW
ACTION ITEM REGISTER

ROSETTI MARINO

DATE: 16/07/2024

ITEM		COMMENTS						CLOSE OUT		COMMENT STATUS		REMARKS
S.No	Snapshot No.	Platform / Location	System / Equipment / Component	Description	Priority Class	Date	Responsible Discipline	Description	Action By	Open/ Closed	Closed On	
1	MR60 TAG-01	Transition Piece	Brine caissons	To show sleeves of caissons	Class 2	5-Mar-24	STRU	Caissons have been modeled	STRU	CLOSED	21-Jun-24	
2	MR60 TAG-02	Transition Piece	Monopile	To model the handrail	Class 2	5-Mar-24	STRU	Handrail has been modeled	STRU	CLOSED	9-Jul-24	
3	MR60 TAG-03	Transition Piece	Existing service platform	To provide portable CPY Crane	Class 1	5-Mar-24	CPY	Temp Crane has not been modeled since with the fixed crane any thing can be lifted on the platform.	ROS	CLOSED	9-Jul-24	
4	MR60 TAG-04	Transition Piece	Waste Water Tank	Define drain connection for waste water tank	Class 1	5-Mar-24	CPY	Drain configuration has been defined by ROS: 3" ball valve with blind flange has been provided in accordance with the latest revision of the P&IDs.	ROS	CLOSED	1-Jul-24	CPY: Drain connection during maintenance activities is part of RM scope. If RM has not yet determined the final drainage connection, CPY proposes to have two valves and a temporary blank flange.
5	MR60 TAG-05	Transition Piece	Internal ring Transition Piece	CPY to decide on locking mechanism	Class 1	5-Mar-24	CPY	Contractor will decide one of the three proposed solution that will be purchased by door vendor.	STRU	CLOSED	1-Jul-24	CPY proposal is to use the same design as for the HNK CW WTG door (Siemens Gamesa, ref to below screenshot) where a padlock is on the external of door for locking purpose. 1. A LOTO procedure to be defined and implemented to ensure nobody is accidentally locked in. 2. Locking device on the handrail to be included to keep and latch the door open, ref to the samples "2". 3. A soft closing mechanism on door to be included, ref to sample "3".
6	MR60 TAG-06	Transition Piece	Internal ring Transition Piece	Update the structure (delete all opening)	Class 2	5-Mar-24	STRU	Opening has been modeled	STRU	CLOSED	21-Jun-24	
7	MR60 TAG-07	Transition Piece	Internal ring Transition Piece	Delete internal rings and put handrails	Class 2	5-Mar-24	STRU	Handrails have been modeled	STRU	CLOSED	21-Jun-24	
8	MR60 TAG-08	Transition Piece	Internal ring Transition Piece	Update the ladder with final configuration agreed with CPY	Class 2	5-Mar-24	STRU	The ladder is shown in its final configuration	STRU	CLOSED	21-Jun-24	
9	MR60 TAG-09	General Note	All Platform	Check the handrails gap in all platform	Class 2	5-Mar-24	STRU	Handrails gap removed	STRU	CLOSED	1-Jul-24	
10	MR60 TAG-10	Lower deck	Lower deck	Location of WTW gate to be chosen	Class 1	5-Mar-24	STRU	The positions of both gates have been defined	STRU	CLOSED	21-Jun-24	
11	MR60 TAG-11	Upper deck	Electrolyser package	CPY to confirm the battery limit location for the electrolyser package	Class 1	5-Mar-24	CPY	Battery limits location has been confirmed.	CPY	CLOSED	5-Jul-24	
12	MR60 TAG-12	Lower deck	Bess 01	Clash to be solved	Class 2	5-Mar-24	ELE/INS	Cabletray clashes are solved	CPY	CLOSED	5-Jul-24	
13	MR60 TAG-13	Lower deck	TR 100AD1	Move the cable tray under the local control panels	Class 2	5-Mar-24	ELE	Cabletray has been moved under local control panels	ELE	CLOSED	12-Jun-24	
14	MR60 TAG-14	Upper deck	Electrolyser package	Re-arrange the location of electrical and instrumentation JB & Cable trays	Class 2	5-Mar-24	ELE/INS	Eletrical JB and Cabletray have been re-arranged	ELE/INS	CLOSED	21-May-24	
15	MR60 TAG-15	Upper deck	Hydrogen Tanks Platform	Solve clash between FIRE&GAS and lighthing	Class 2	5-Mar-24	ELE	Lighting position has been modified to avoid clash with Fire&gas	ELE	CLOSED	7-May-24	

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BLPH - 60% 3D MODEL REVIEW
ACTION ITEM REGISTER

ROSETTI MARINO

DATE: 16/07/2024

ITEM		COMMENTS						CLOSE OUT		COMMENT STATUS		REMARKS
S.No	Snapshot No.	Platform / Location	System / Equipment / Component	Description	Priority Class	Date	Responsible Discipline	Description	Action By	Open/ Closed	Closed On	
16	MR60 TAG-16	Upper deck	Hydrogen Tanks Platform	Solve clash between cable tray and handrail	Class 2	5-Mar-24	ELE	Cabletray position has been modified to avoid clash with Handrail	ELE	CLOSED	18-Apr-24	
17	MR60 TAG-17	Upper deck	Fuel Cell	To verify if the thickness of the CPI container is able to Hilti Fixing	Class 2	5-Mar-24	CPY	Thickness of the Ballard's container is able to the fixing.	ELE	CLOSED	7-May-24	CPY: Ballard accepts the fixing informally via email on the 16th of May to CPY. RM to update the formal TQ accordingly for Ballard's final acceptance.
18	MR60 TAG-18	Lower deck	Liferaft	Solve the clash between liferaft and handrail	Class 2	5-Mar-24	STRU	Clash solved	STRU	CLOSED	5-Jul-24	
19	MR60 TAG-19	Transition Piece	Transition Piece Internal ring	To model the splice box based on CPY information	Class 2	5-Mar-24	INS	Splice Box modeled.	INS	CLOSED	7-May-24	
20	MR60 TAG-20	Lower deck	CPI Container WT Container	To model secondary cable trays for CPI container and water treatment	Class 2	5-Mar-24	INS	Instrument secondary cable trays modeled for all CPI and Sea Water Treatment Container.	INS	CLOSED	5-Jul-24	
21	MR60 TAG-21	Lower deck	Hydrogen Tanks Platform	To provide removable grating in order to cover the open space	Class 2	5-Mar-24	PIP	Space around the nozzles has been enclosed with removable grating	PIP	CLOSED	5-Jul-24	
22	MR60 TAG-22	Upper deck	Hydrogen Tanks	To model the flow meter (valid for all vessels)	Class 2	5-Mar-24	PIP	The Flow meter has been modeled based according to the vendor drawing received.	PIP	CLOSED	5-Jul-24	
23	MR60 TAG-23	Upper deck	PV-055A Valve PV-055B Valve	To update the model according to the P&ID (PV-055A is installed on the main pipe)	Class 2	5-Mar-24	PIP	The valves have been updated according to the P&ID.	PIP	CLOSED	5-Jul-24	
24	MR60 TAG-24	Upper deck	HY-023 Line	To check valves numbers	Class 2	5-Mar-24	PIP	The valve numbers have been checked and corrected	PIP	CLOSED	5-Jul-24	
25	MR60 TAG-25	Upper deck	Hydrogen Vent	To update the vent according to the vendor details	Class 2	5-Mar-24	PIP	The H2 Vent has been updated according to Vendor drawing received	PIP	CLOSED	5-Jul-24	
26	MR60 TAG-26	Lower deck	Nitrogen System	To update the arrangement and replace the manual valves with instrument valves	Class 2	5-Mar-24	PIP	The routing has been updated and the manual valves have been replaced with automatic valves	PIP	CLOSED	7-May-24	
27	MR60 TAG-27	Lower deck	Electrolyser package N-151 Line	Move the check valve NRV-019 close to the electrolyser connection	Class 2	6-Mar-24	PIP	The check valve NRV-019 has been moved closer to the new Electrolyser connection point	PIP	CLOSED	12-Jun-24	
28	MR60 TAG-28	Monopile	Brine caissons	To extend the end of pipes -5m below the L.A.T.	Class 2	6-Mar-24	PIP	The end of pipe has been extended 1m into the brine caisson	PIP	CLOSED	16-Jun-24	
29	MR60 TAG-29	Lower deck	WT Package	Line 1"-CI-043-01CP-E Delete all valves	Class 2	6-Mar-24	PIP	The valves have been deleted and the Line 1"-CI-043-01CP-E routing has been updated	PIP	CLOSED	16-Jun-24	
30	MR60 TAG-30	Lower deck	WT Package	To model sample connection for sea water (MV-214/MV-215)	Class 2	6-Mar-24	PIP	The sample connection has been modelled	PIP	CLOSED	18-Apr-24	
31	MR60 TAG-31	Lower deck	WT Package	Line 1"-DM-156-01SS-N to extend the end of line overboard	Class 2	6-Mar-24	PIP	The line has been deleted	PIP	CLOSED	16-Jun-24	
Open points from 30% Model Review												

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CROSSWIND

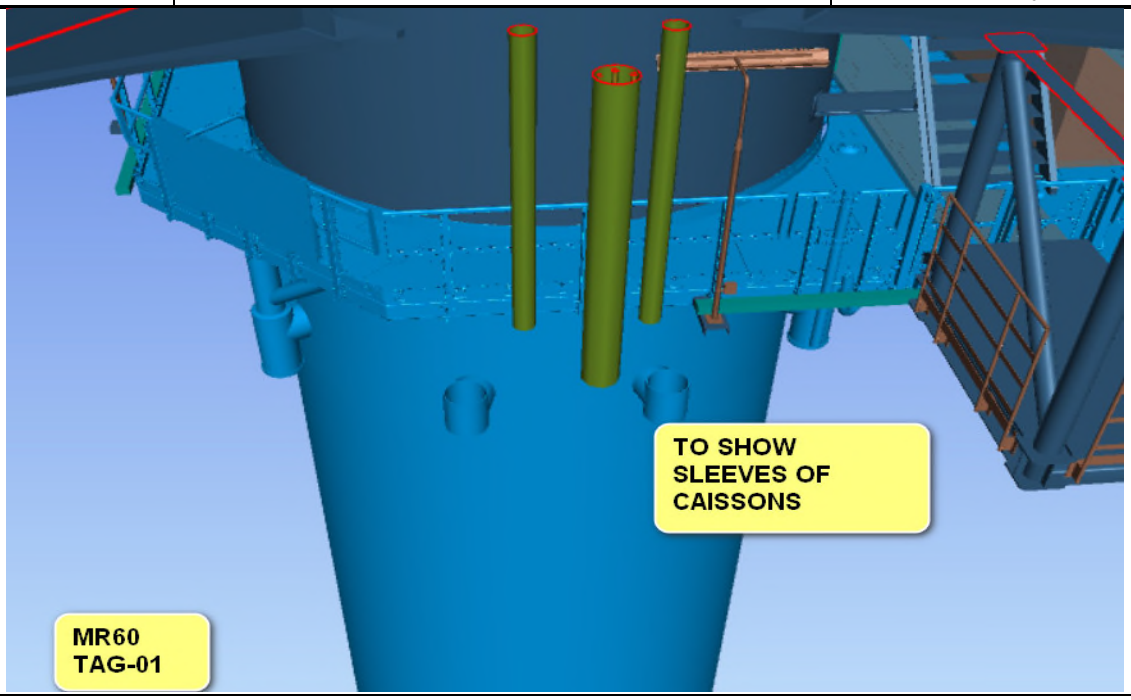
BLPH - 60% 3D MODEL REVIEW
ACTION ITEM REGISTER

ROSETTI MARINO

DATE: 16/07/2024

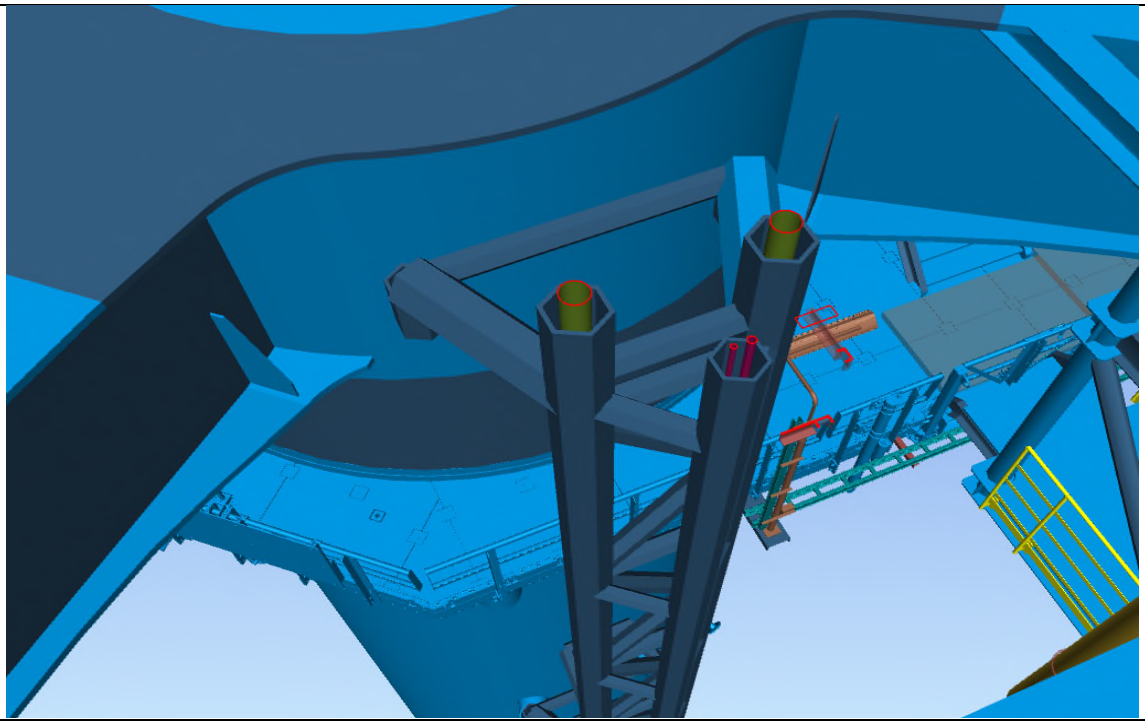
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S.No	Snapshot No.	Platform / Location	System / Equipment / Component	Description	Priority Class	Date	Responsible Discipline	Description	Action By	Open/ Closed	Closed On	
32	BLPH-03 (30%MR)	Transition Piece	Internal ring Transition Piece	Ladder to be shown to connect platform. Hanging point to be shown for evacuations means.	Class 1	12-Dec-23	STRU	Ladder provided	STRU	CLOSED	21-Jun-24	
33	BLPH-07 (30%MR)	Monopile	Ladder from/to supply vessel	Anchor point for existing winch to be shown.	Class 2	12-Dec-23	STRU			OPEN		Action postponed to 90%MR
34	BLPH-08 (30%MR)	Lower deck	Gate	To provide gate on the south side.	Class 2	12-Dec-23	STRU	Refer to Close-out TAG 10	STRU	CLOSED	21-Jun-24	
35	BLPH-12 (30%MR)	Upper deck	Electrolyser package	Distance between service platform and Elogen package to be confirmed.	Class 1	12-Dec-23	CPY	The distance between the Electrolyser package and walkway platform has been increased	CPY	CLOSED	21-Jun-24	
36	BLPH-13 (30%MR)	Upper deck	Electrolyser package	3D dimension of Electrolyser package to be confirmed by CPY.	Class 1	12-Dec-23	CPY	Electrolyser package dimensions confirmed	CPY	CLOSED	21-Jun-24	
37	BLPH-16 (30%MR)	Upper deck	Electrolyser package	Oxygen vent to be shown in Elogen 3D package.	Class 1	12-Dec-23	CPY	Oxygen vent shown	CPY	CLOSED	21-Jun-24	
38	BLPH-18 (30%MR)	Lower deck	Bess containers	Bess containers to be updated.	Class 1	12-Dec-23	CPY	Bess containers updated	CPY	CLOSED	16-May-24	
39	BLPH-19 (30%MR)	Lower deck	Bess containers	Vent duct to be modelled.	Class 2	12-Dec-23	HVAC	Vent duct are not provided since F&G detectors above the containers have been added	ROS	CLOSED	16-May-24	
40	BLPH-21 (30%MR)	Upper deck	Crane	Crane and lifting details to be finalysed.	Class 1	12-Dec-23	MEC	Crane has been provided	MEC	CLOSED	12-Jul-24	
41	BLPH-25 (30%MR)	Transition Piece	Manhole Transition Piece	CPY to confirm requirements to have gas sample point before to enter inside TP.	Class 1	12-Dec-23	CPY			OPEN		Action postponed to 90%MR
42	BLPH-26 (30%MR)	Monopile	Internal ring Transition Piece	CPY to confirm if this is considered confined space.	Class 1	12-Dec-23	CPY			OPEN		Action postponed to 90%MR

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ACTION

To show sleeves of caissons

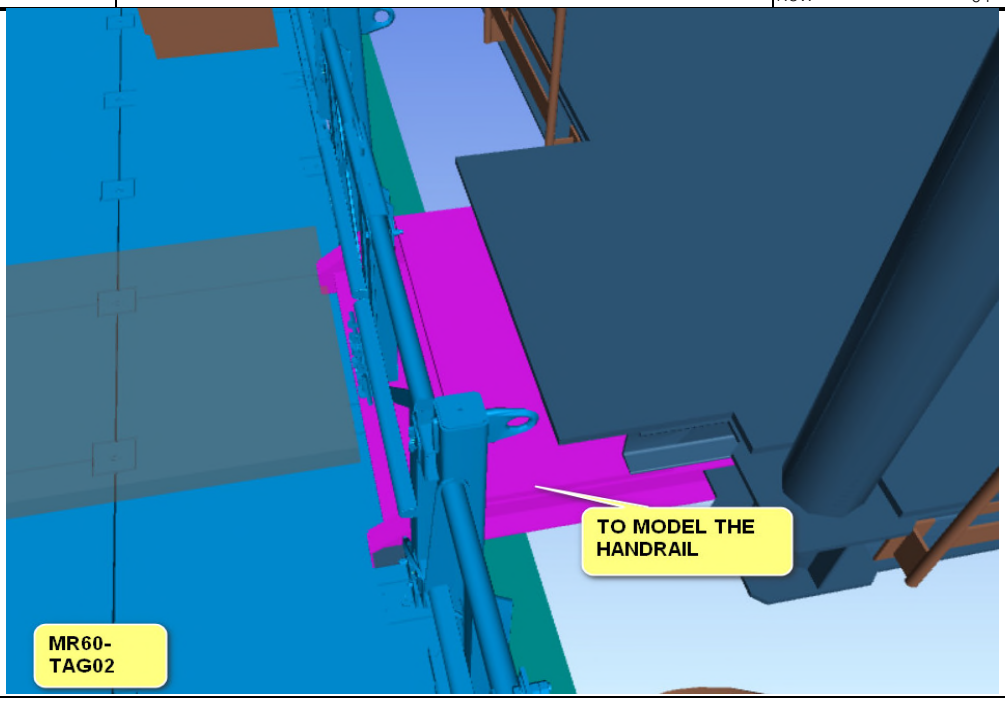


CLOSE-OUT

Caissons have been modeled

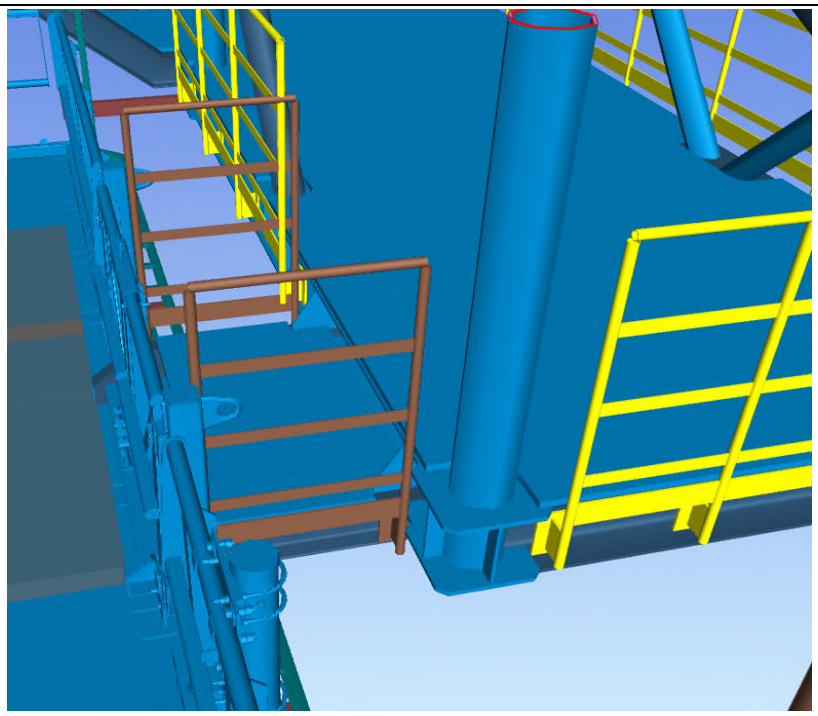
MR60-TAG01

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ACTION

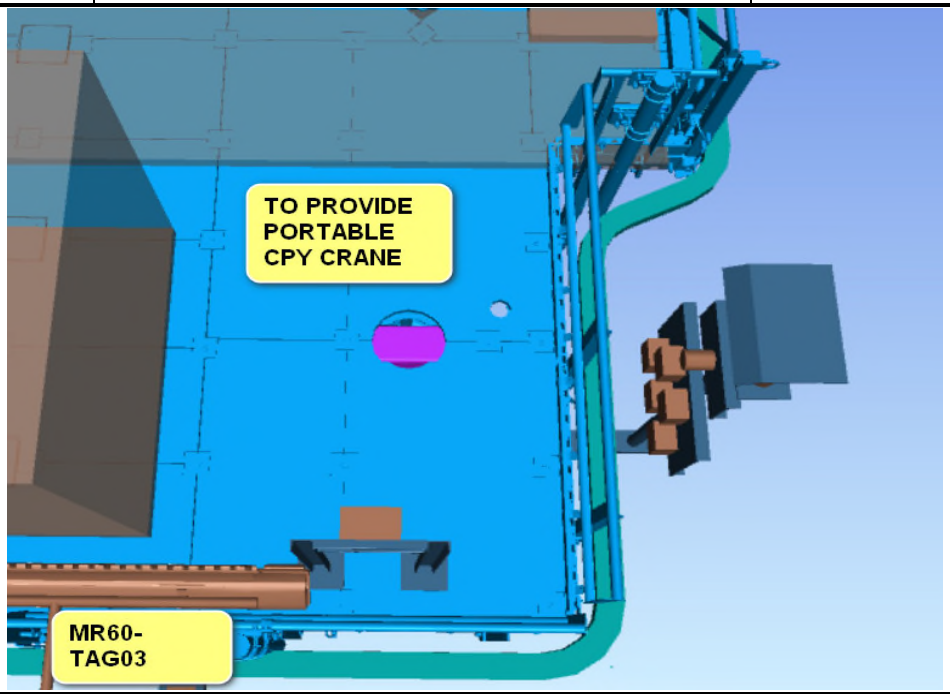
To model the handrail



CLOSE-OUT

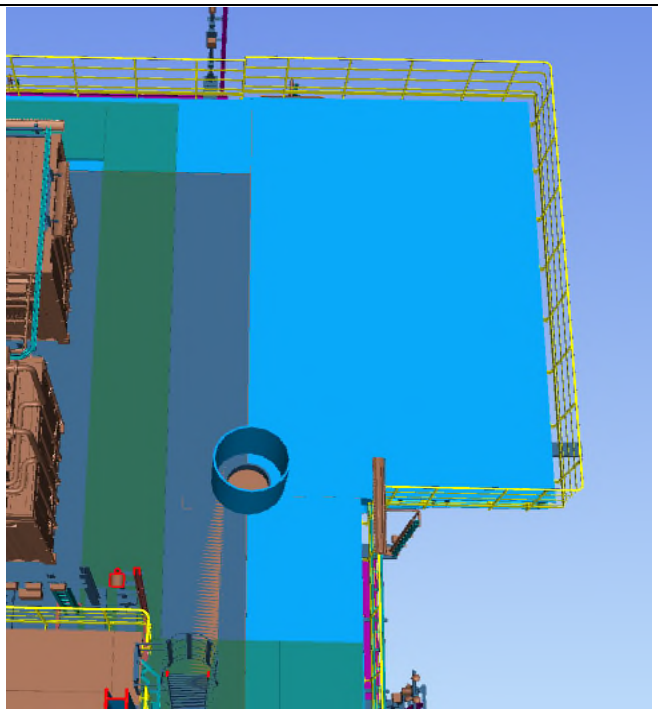
Handrail has been modeled

MR60-TAG02



ACTION

To provide portable CPY Crane

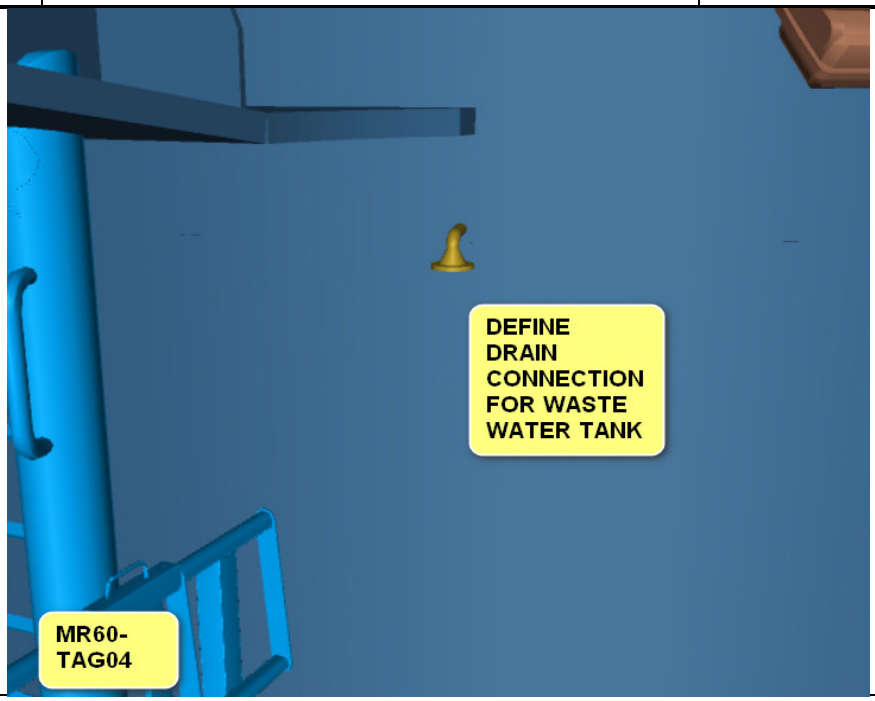


CLOSE-OUT

Temp Crane has not been modeled since with the fixed crane any thing can be lifted on the platform.

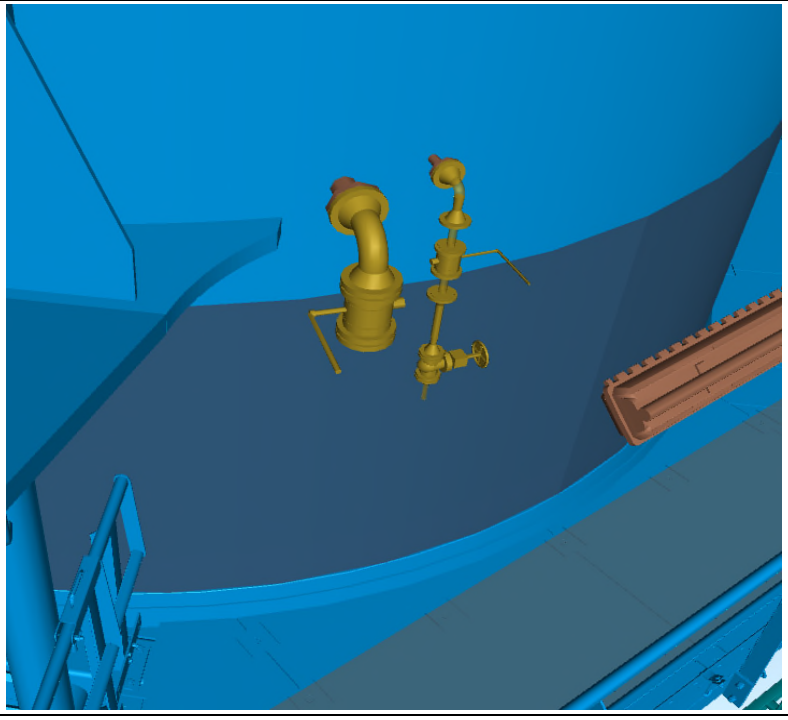
MR60-TAG03

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ACTION

Define drain connection for waste water tank

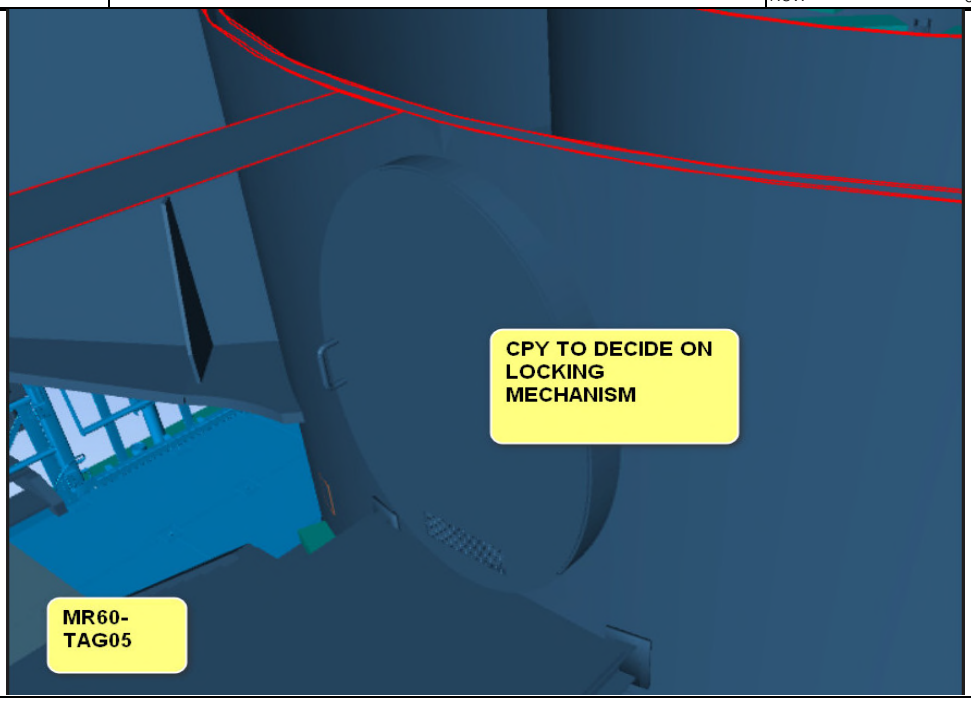


CLOSE-OUT

Drain configuration has been defined by ROS: 3" ball valve with blind flange has been provided in accordance with the latest revision of the P&IDs.

MR60-TAG04

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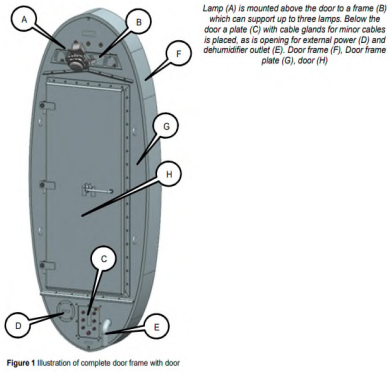
ACTION

CPY to decide on locking mechanism

(27/05/2024) CPY proposal is to use the same design as for the HNK CW WTG door (Siemens Gamesa, ref to below screenshot) where a padlock is on the external of door for locking purpose.

1. A LOTO procedure to be defined and implemented to ensure nobody is accidentally locked in.

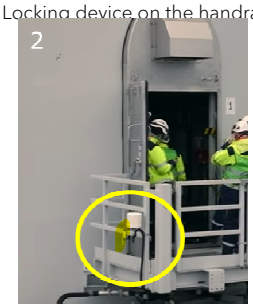




Lamp (A) is mounted above the door to a frame (B) which can support up to three lamps. Below the door a plate (C) with cable glands for minor cables is placed, as is opening for external power (D) and dehumidifier outlet (E). Door frame (F), Door frame plate (G), door (H)

Figure 1 Illustration of complete door frame with door

2. Locking device on the handrail to be included to keep and latch the door open, ref to the samples "2"





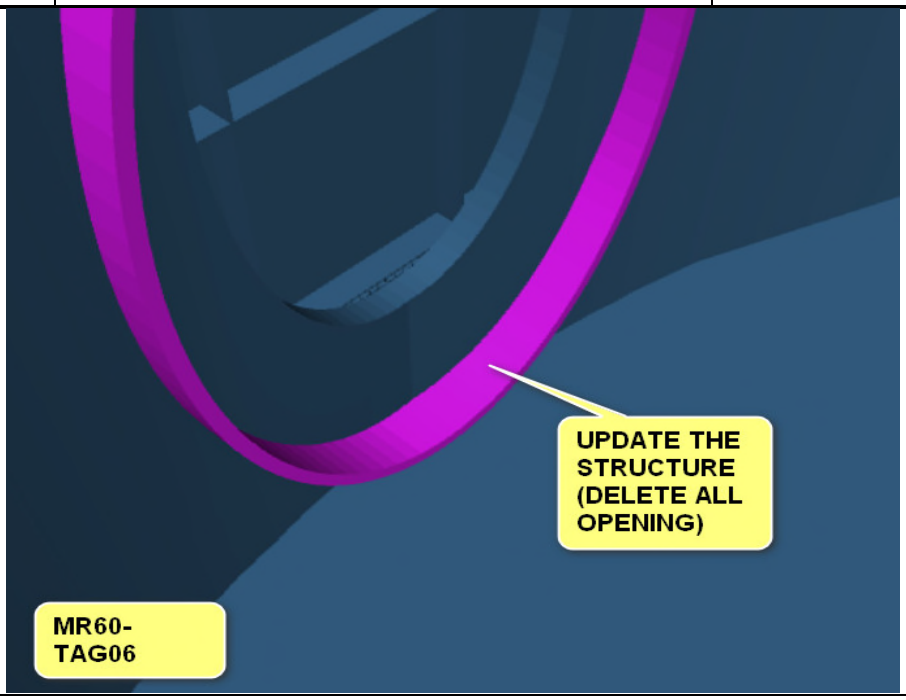
3. A soft closing mechanism on door to be included, ref to sample "3"

CLOSE-OUT

Contractor will decide one of the three proposed solution that will be purchased by door vendor.

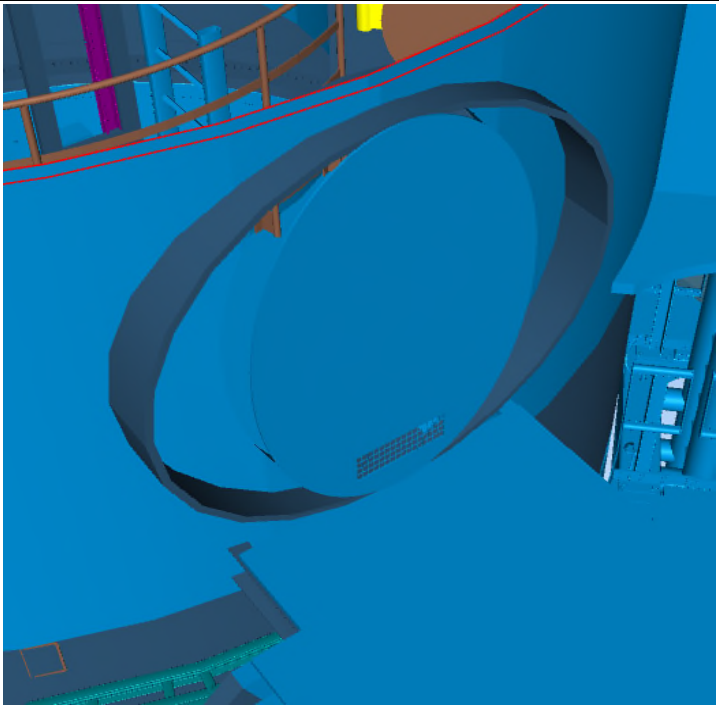
MR60-TAG05

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ACTION

Update the structure (delete all opening)

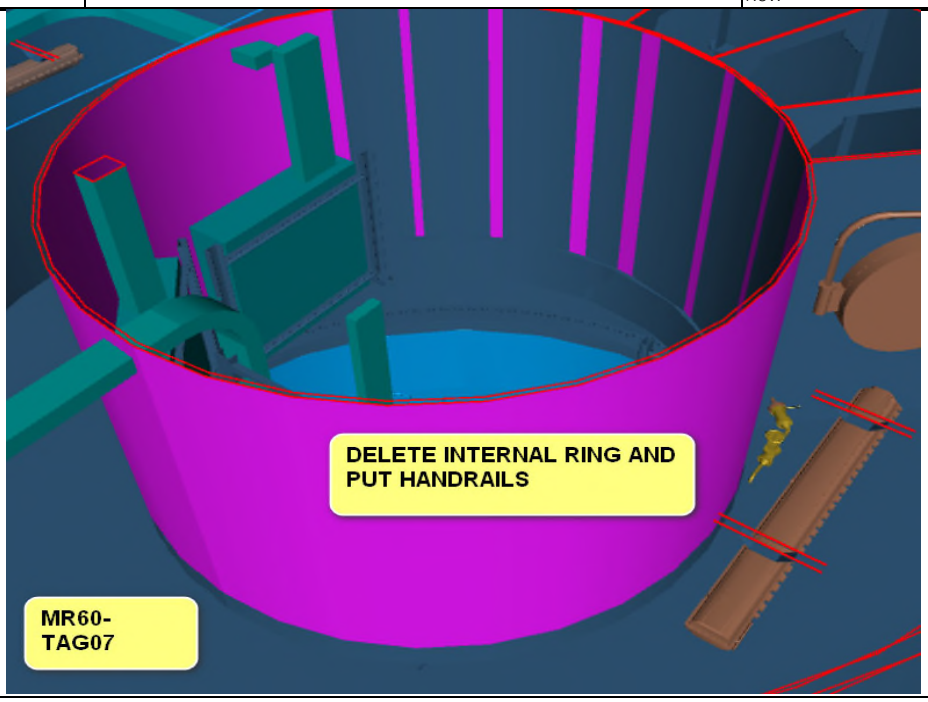


CLOSE-OUT

Opening has been modeled

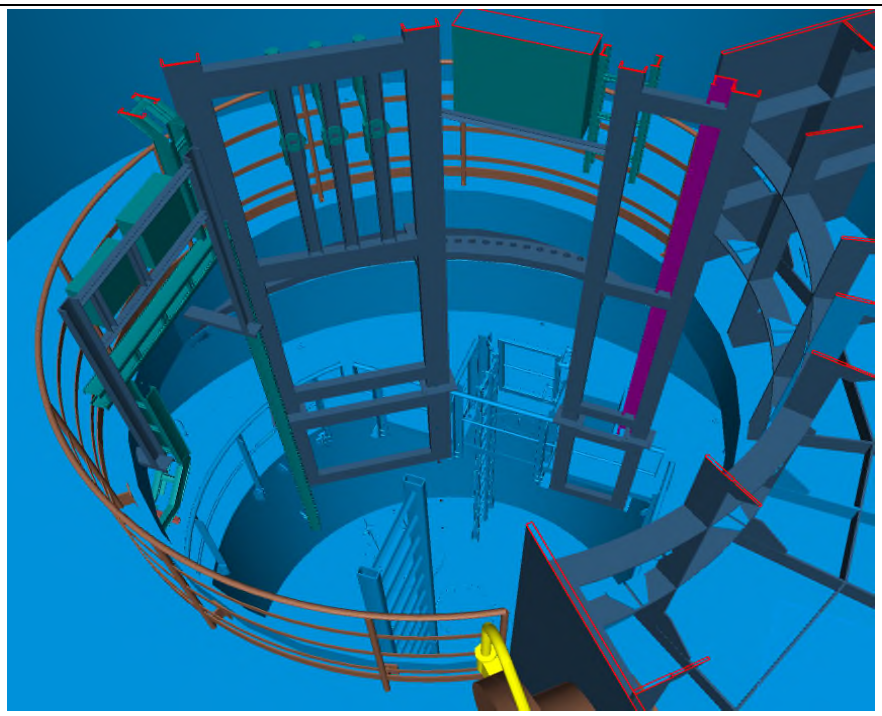
MR60-TAG06

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ACTION

Delete internal rings and put handrails

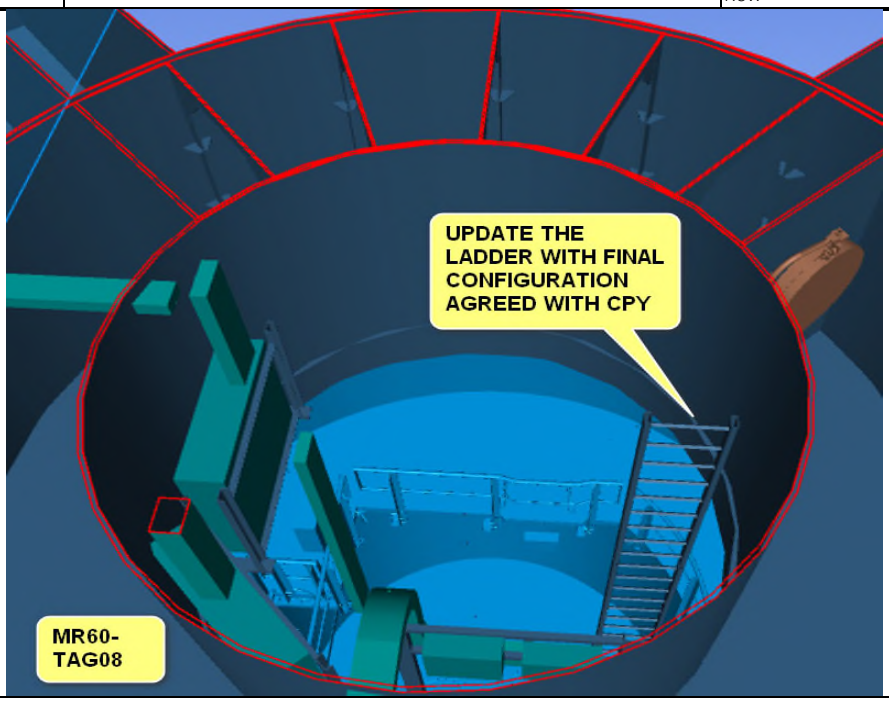


CLOSE-OUT

Handrails have been modeled

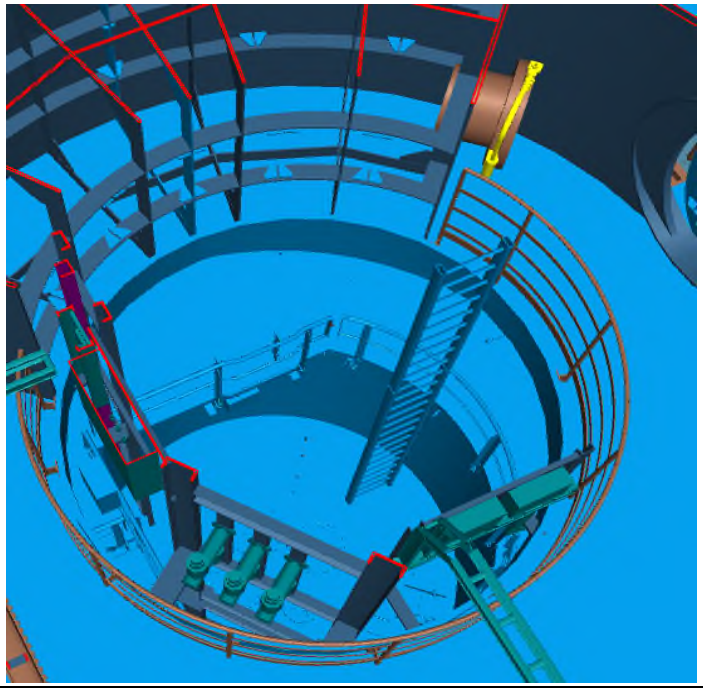
MR60-TAG07

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ACTION

Update the ladder with final configuration agreed with CPY

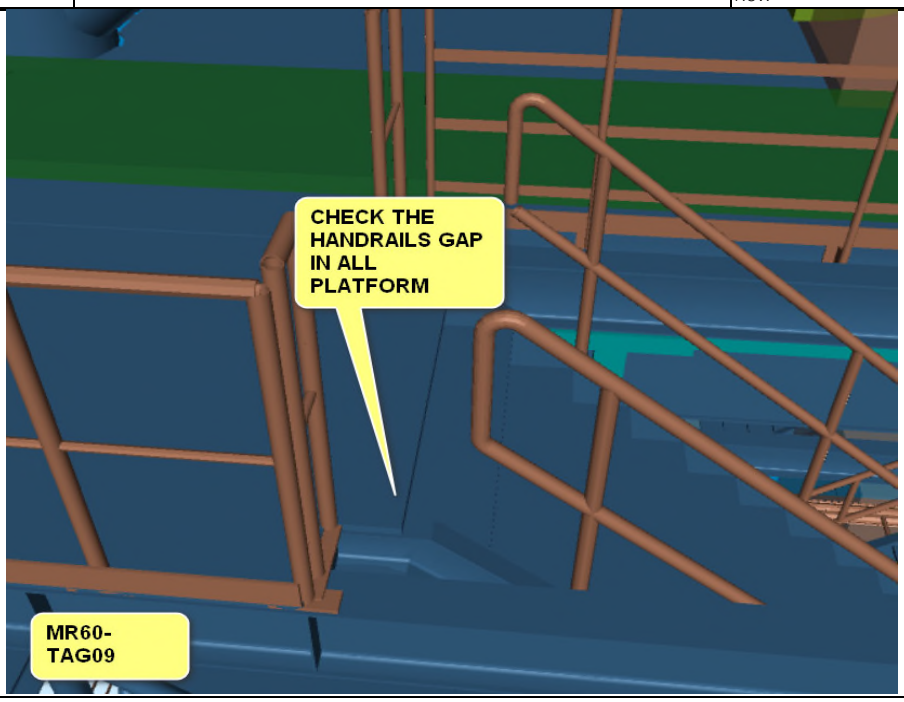


CLOSE-OUT

The ladder is shown in its final configuration

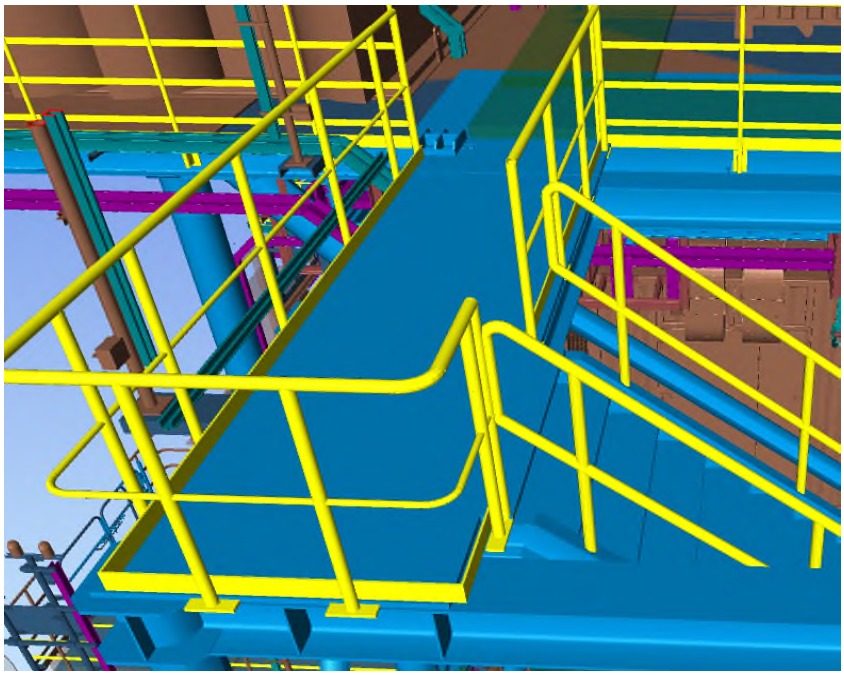
MR60-TAG08

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ACTION

Check the handrails gap in all platform



CLOSE-OUT

Handrails gap removed

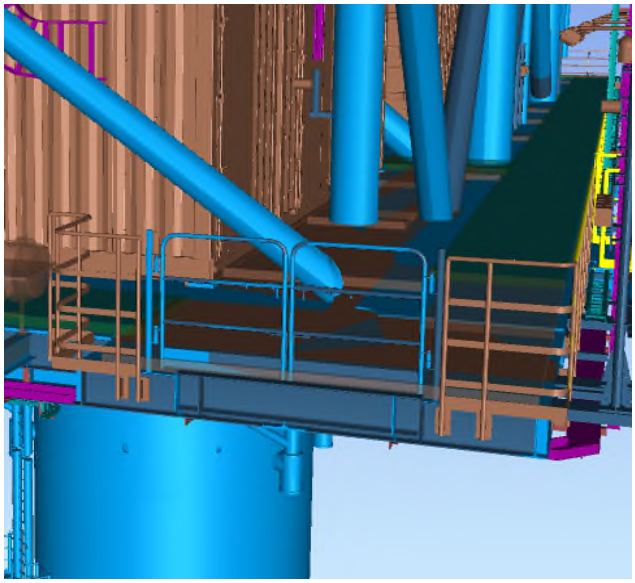
MR60-TAG09

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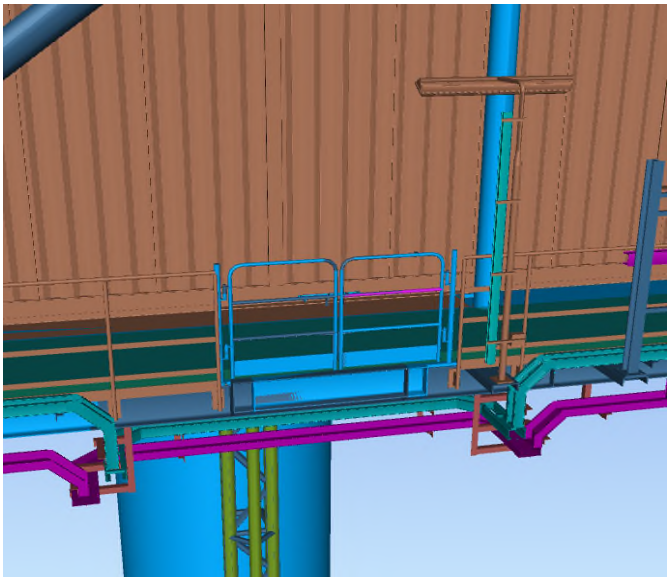


ACTION

Location of WTW gate to be chosen



Gate on north side



Gate on south side

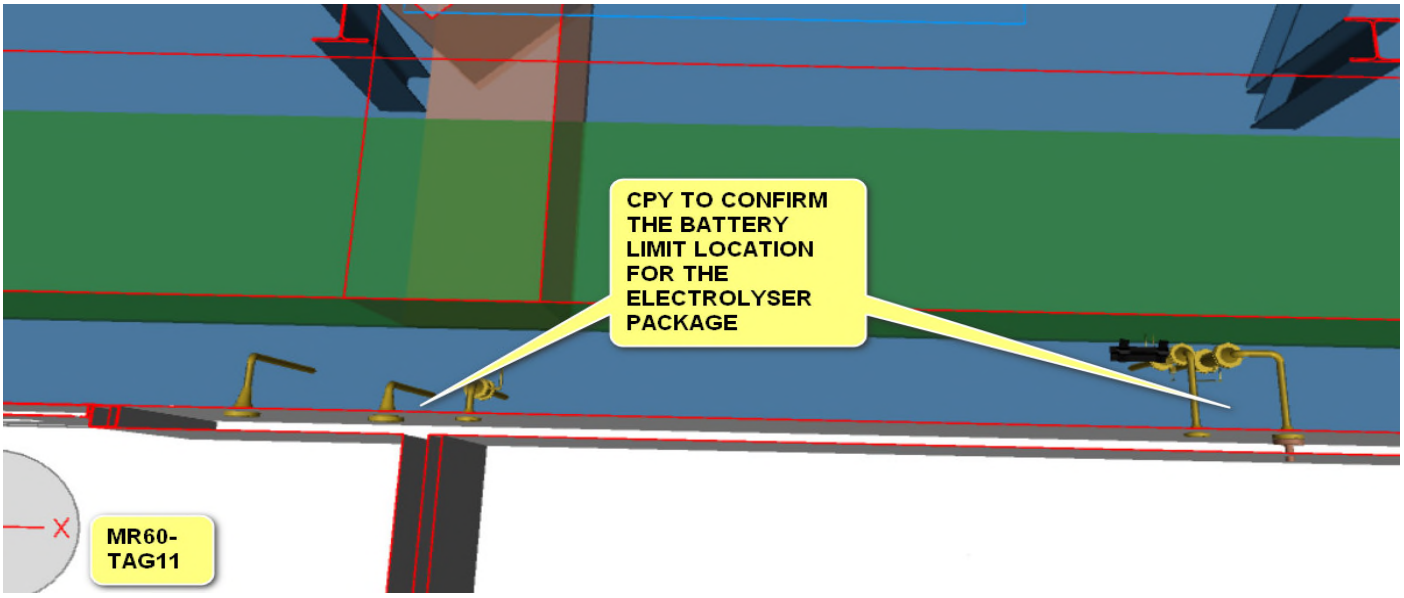
CLOSE-OUT

The positions of both gates have been defined

MR60-TAG10

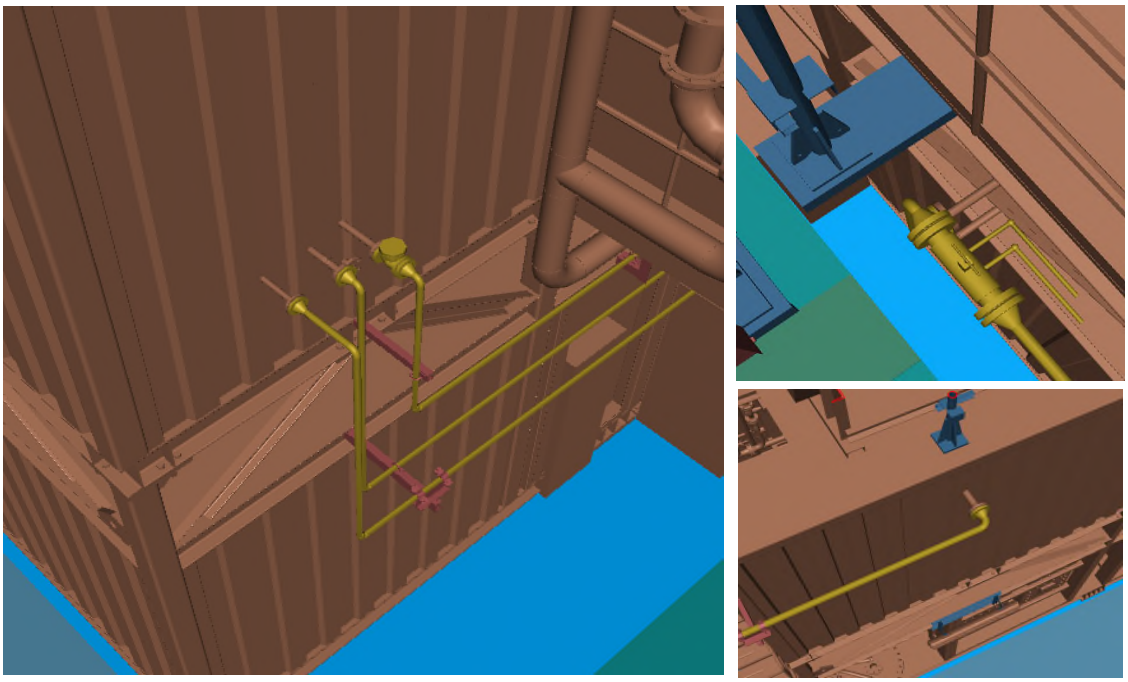
ù

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ACTION

CPY to confirm the battery limit location for the electrolyser package

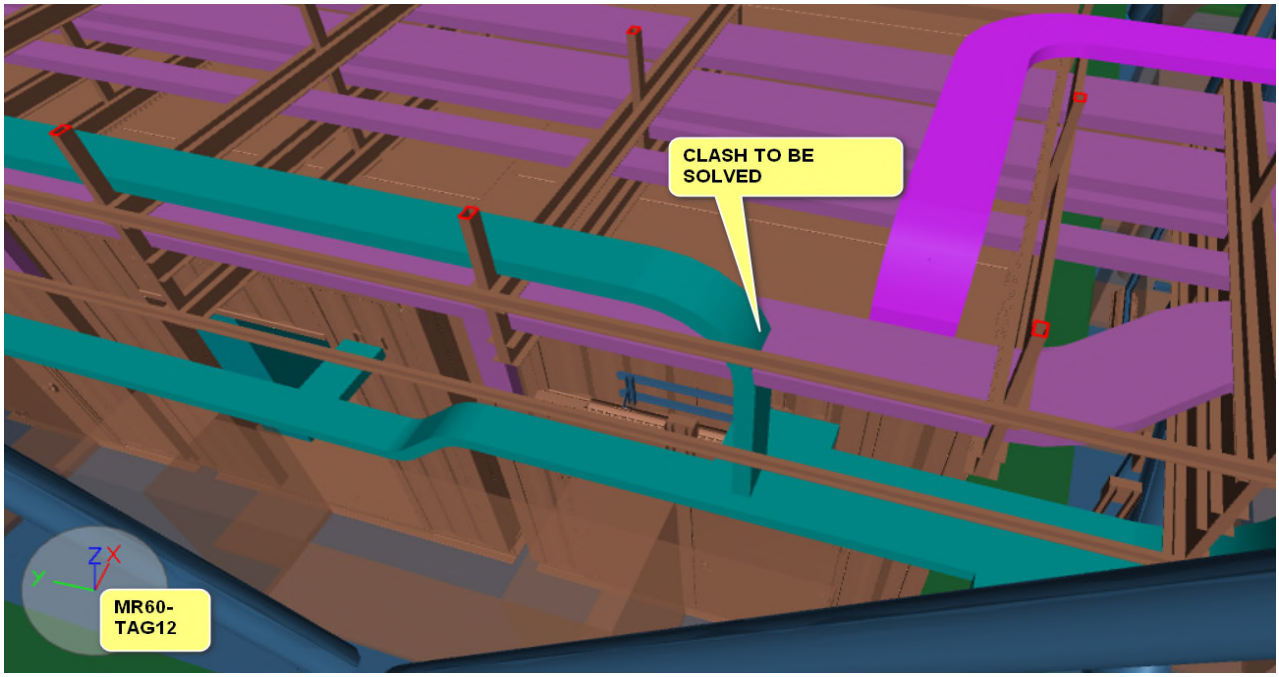


CLOSE-OUT

Battery limits location has been confirmed.

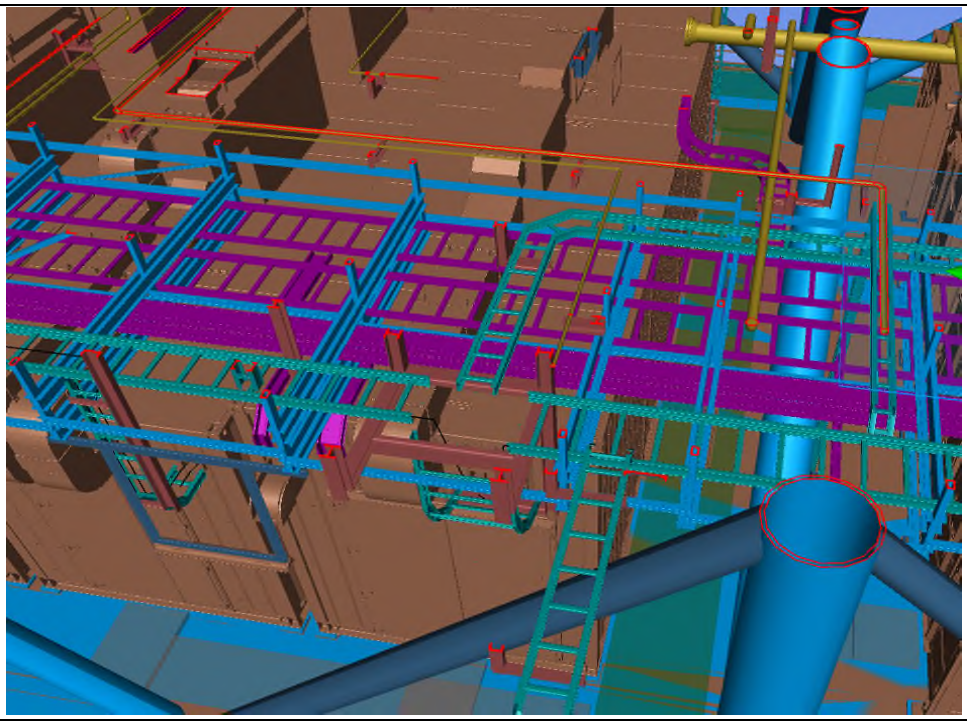
MR60-TAG11

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ACTION

Clash to be solved

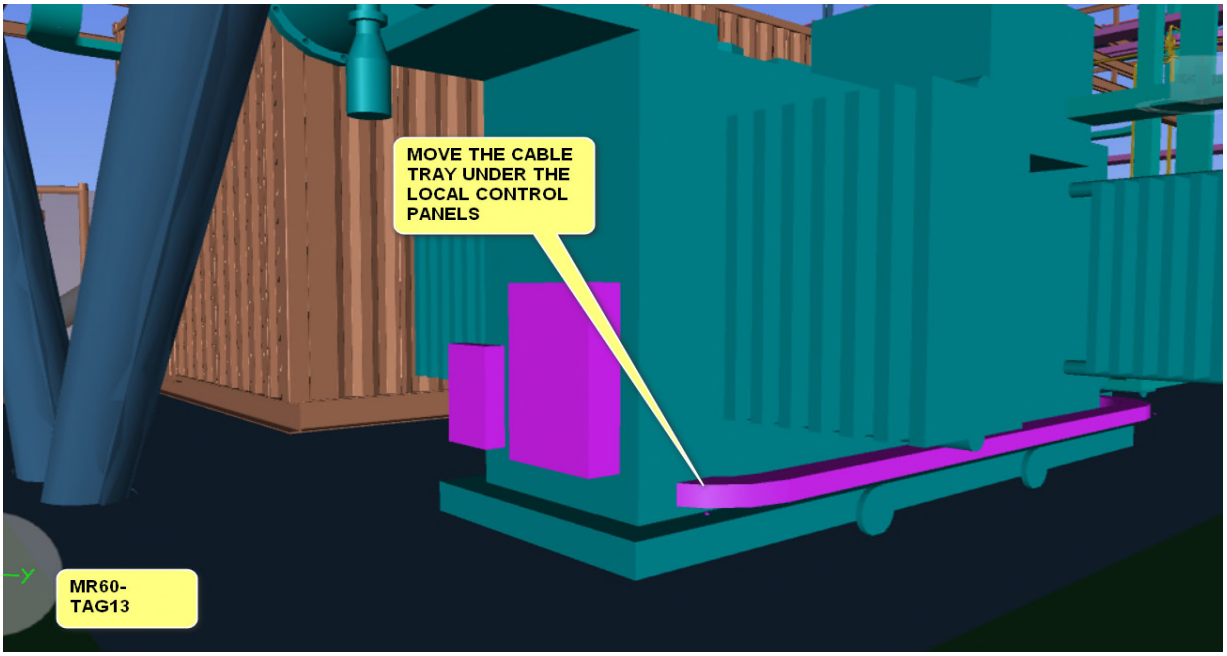


CLOSE-OUT

Cabletray clashes are solved

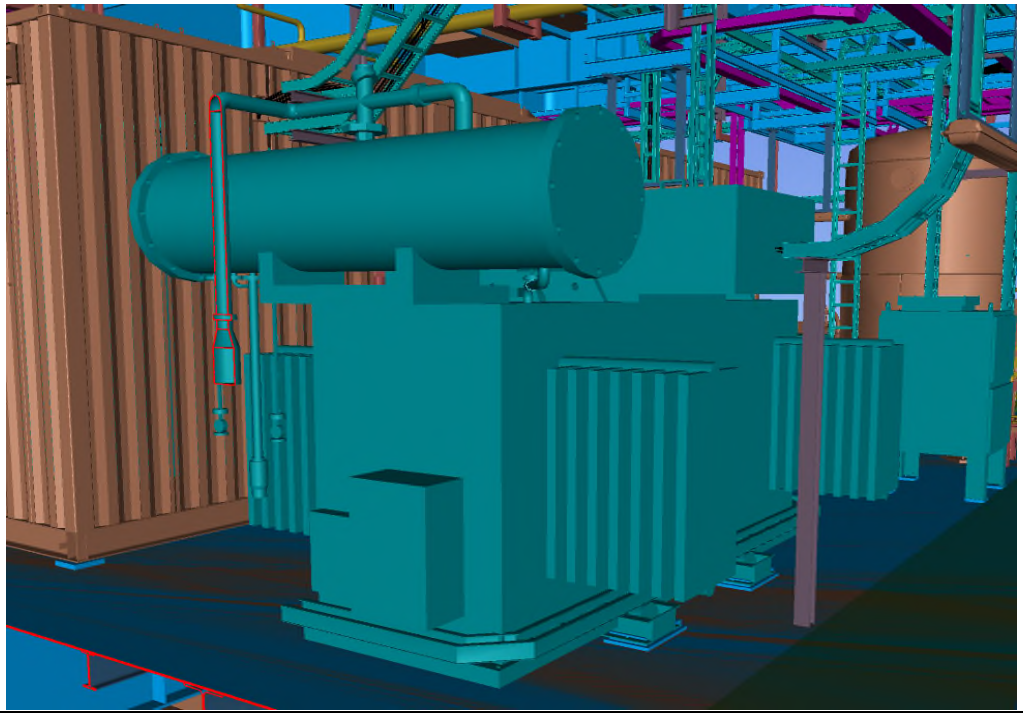
MR60-TAG12

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ACTION

Move the cable tray under the local control panels

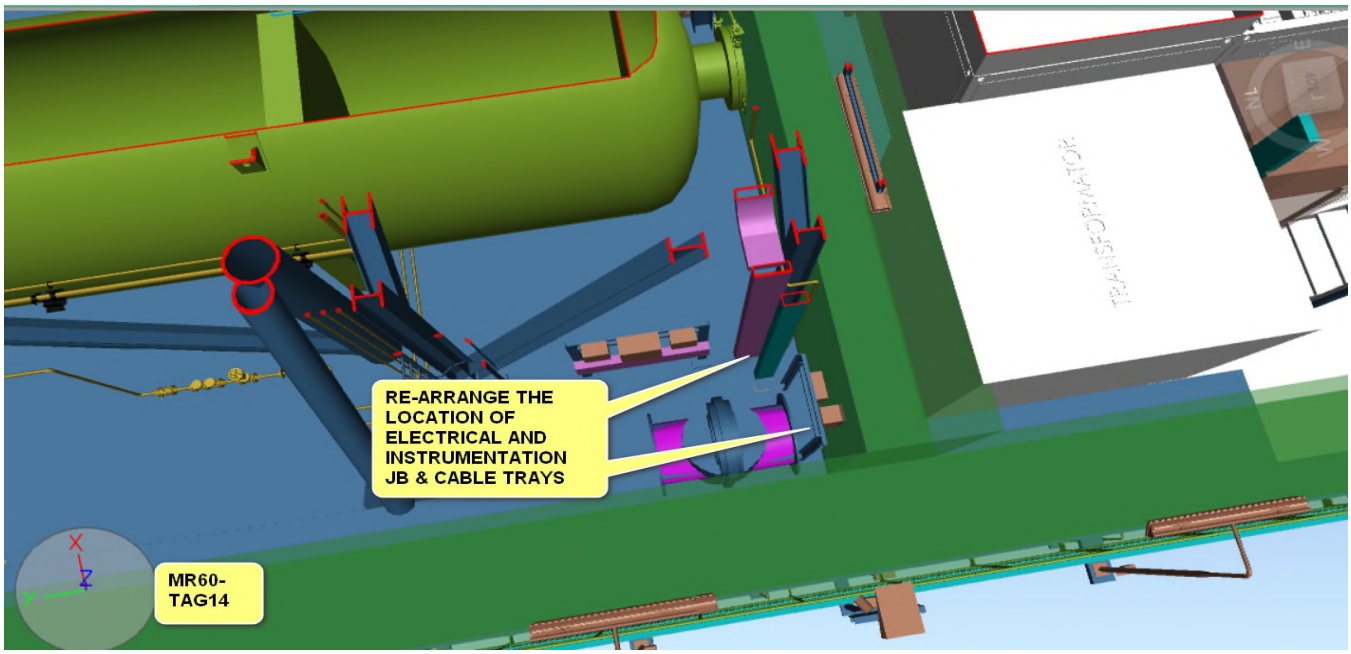


CLOSE-OUT

Cabletray has been moved under local control panels

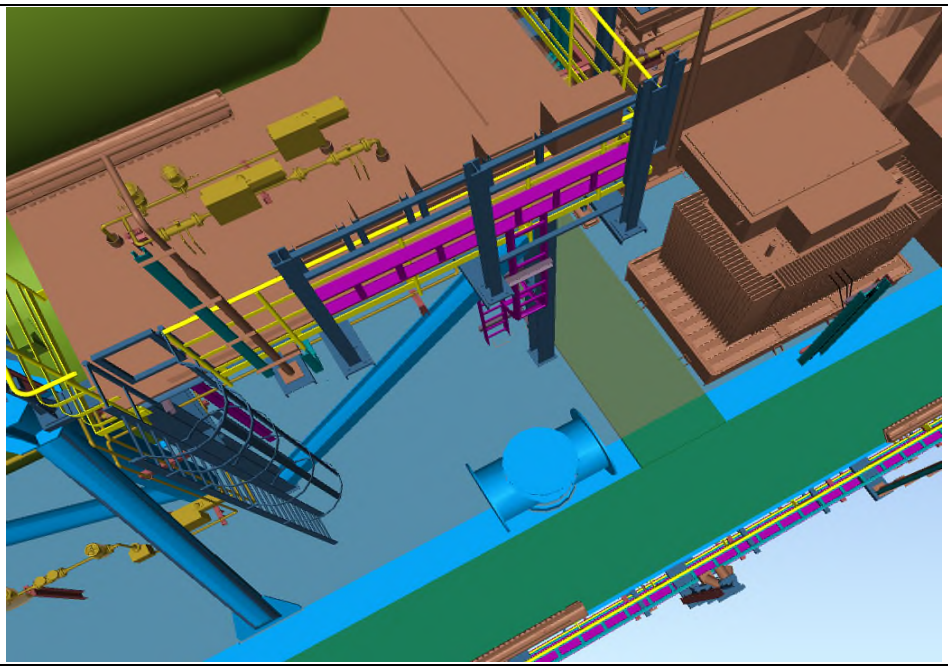
MR60-TAG13

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ACTION

Re-arrange the location of electrical and instrumentation JB & Cable trays

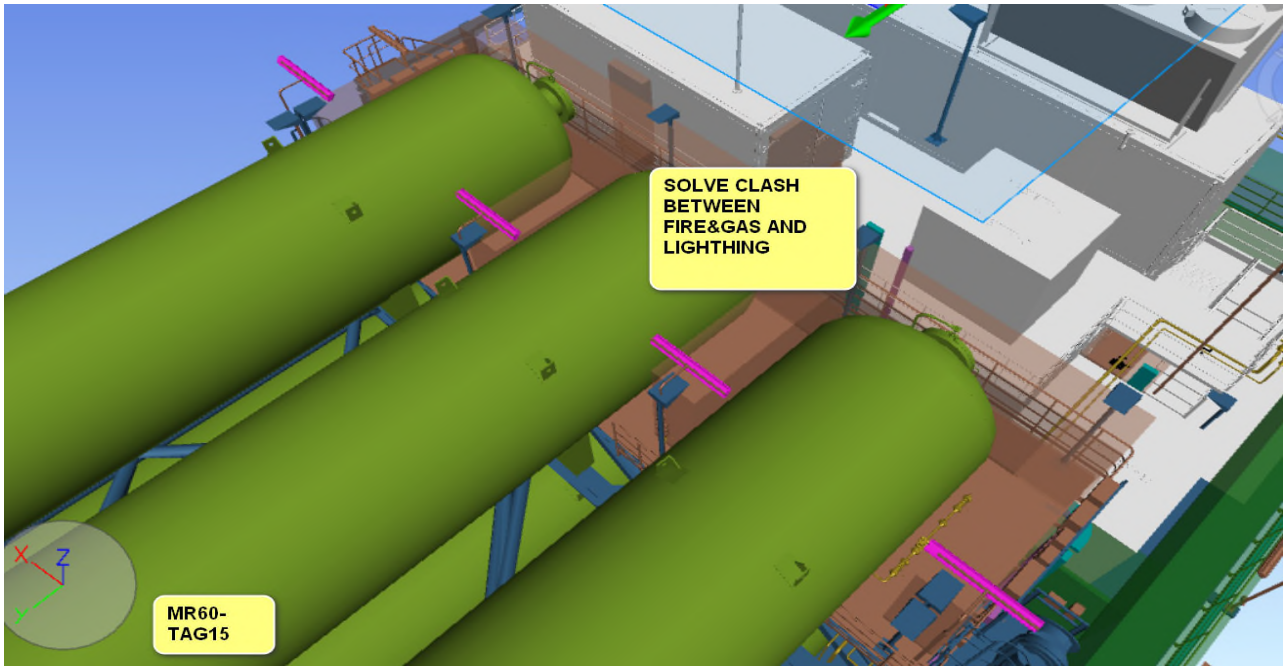


CLOSE-OUT

Eletrical JB and Cabletray have been re-arranged

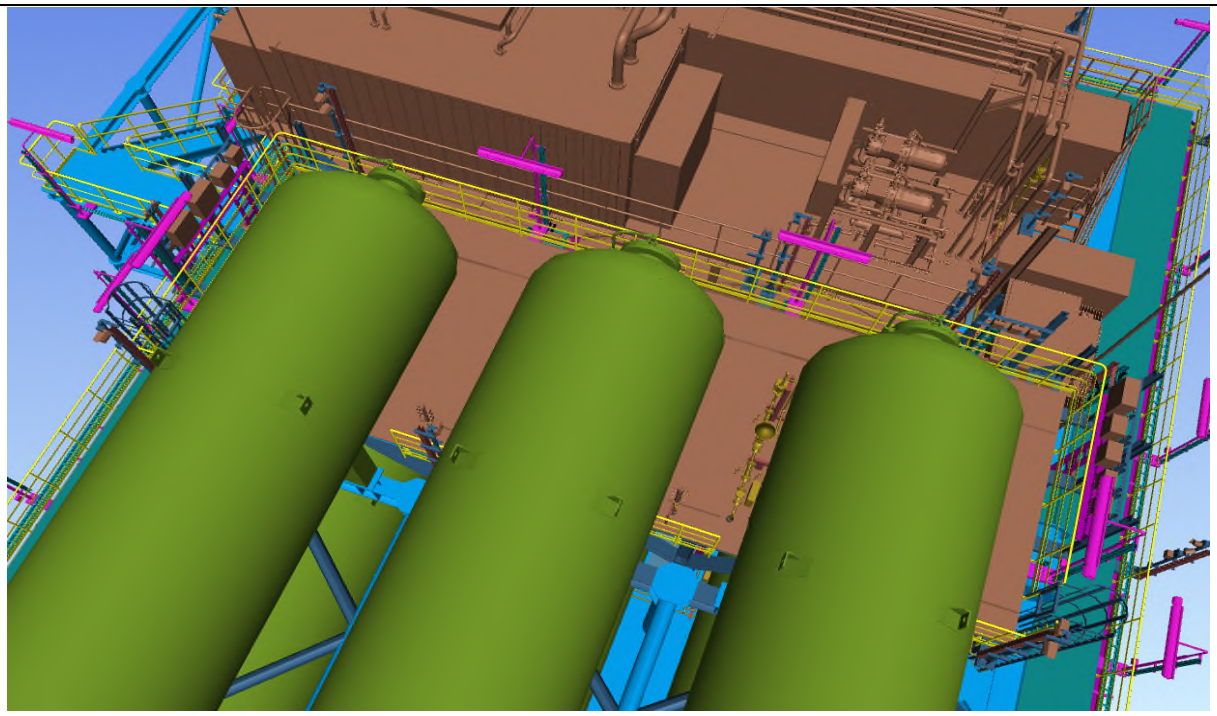
MR60-TAG14

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ACTION

Solve clash between FIRE&GAS and lighthing



CLOSE-OUT

Lighting position has been modified to avoid clash with Fire&gas

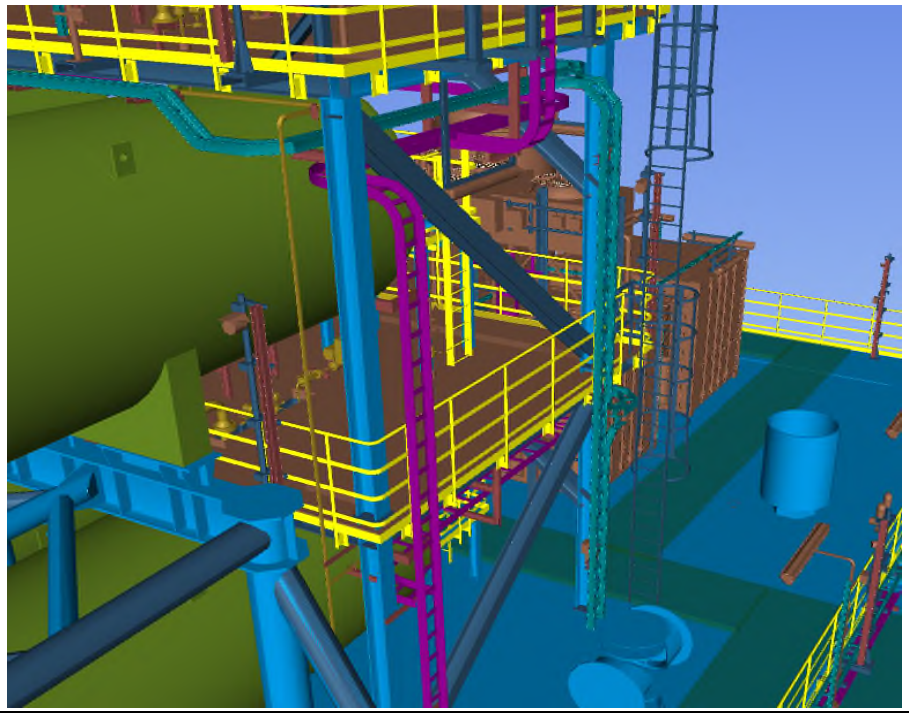
MR60-TAG15

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ACTION

Solve clash between cable tray and handrail

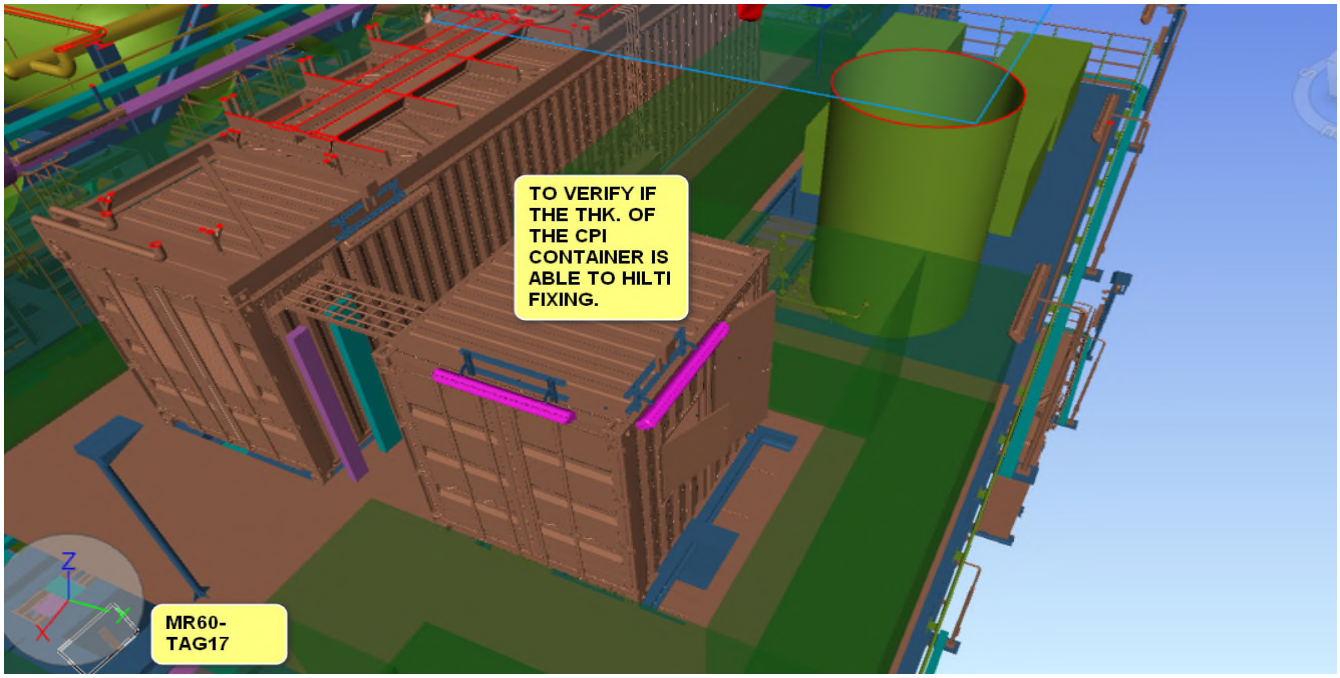


CLOSE-OUT

Cabletray position has been modified to avoid clash with Handrail

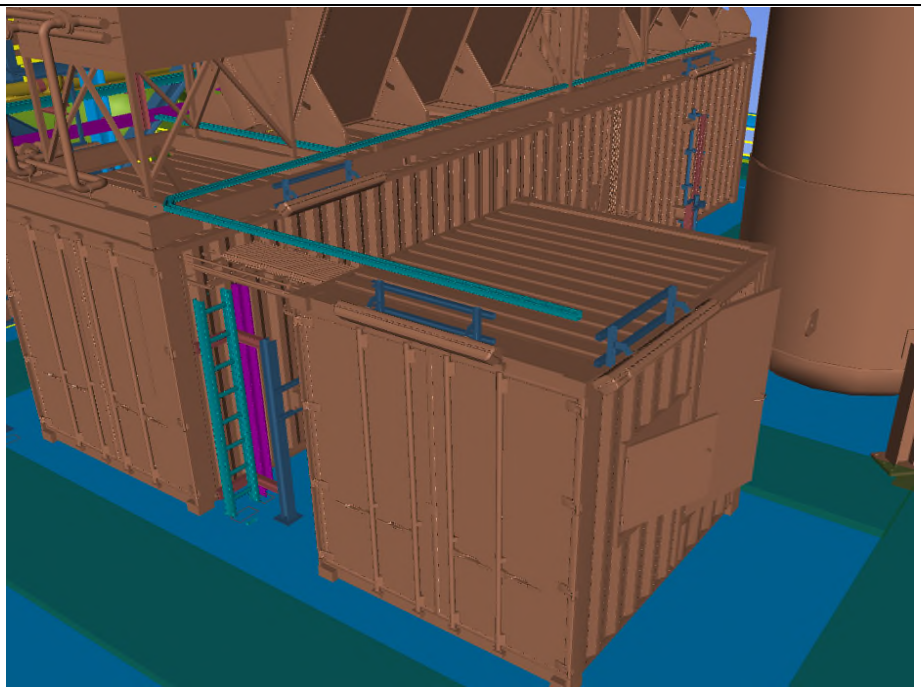
MR60-TAG16

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ACTION

To verify if the thickness of the CPI container is able to Hilti Fixing

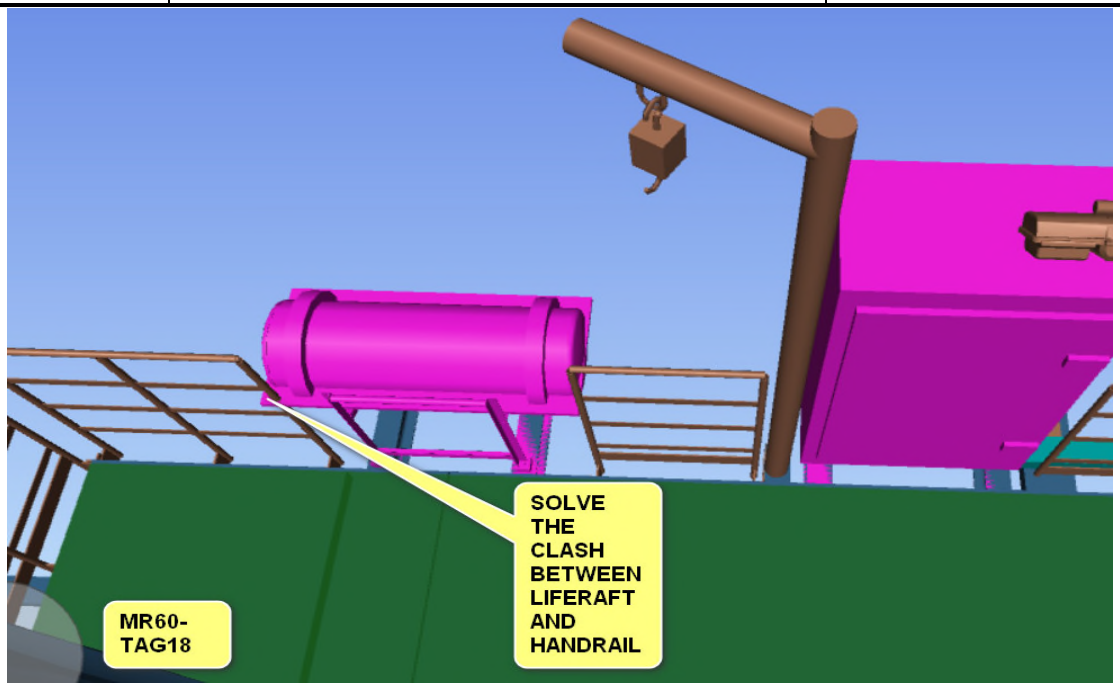


CLOSE-OUT

Thickness of the Ballard's container is able to the fixing.

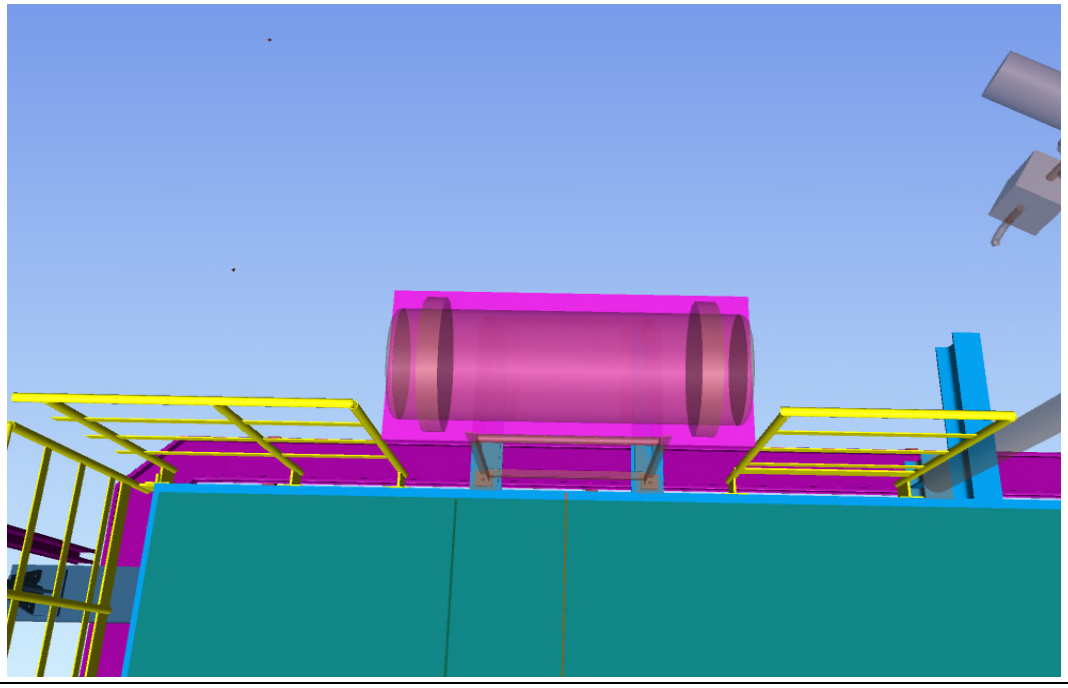
MR60-TAG17

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ACTION

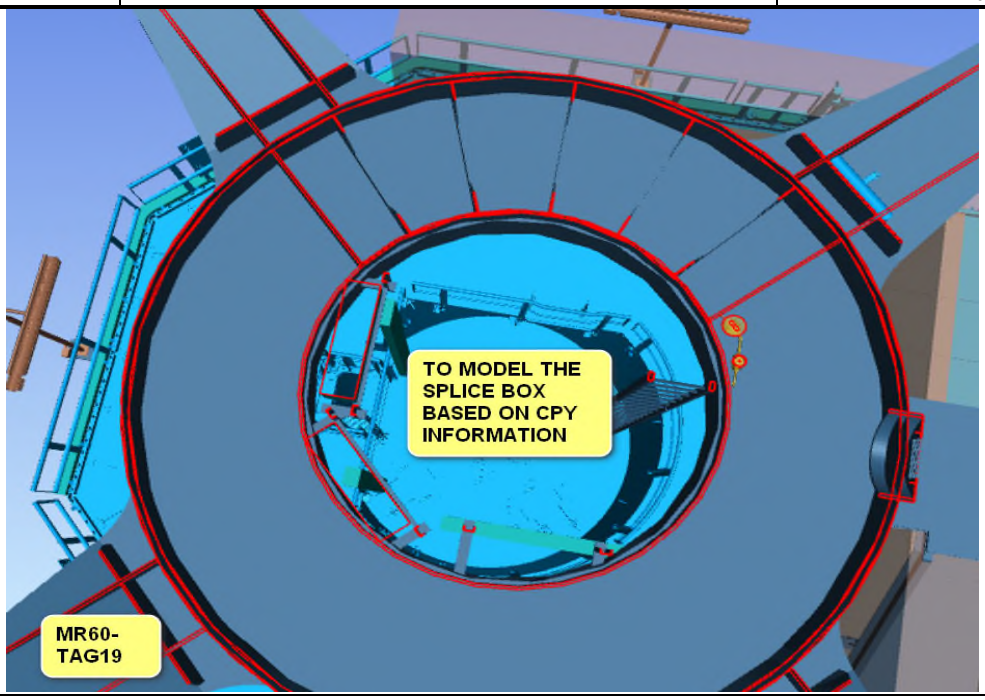
Solve the clash between liferaft and handrail



CLOSE-OUT

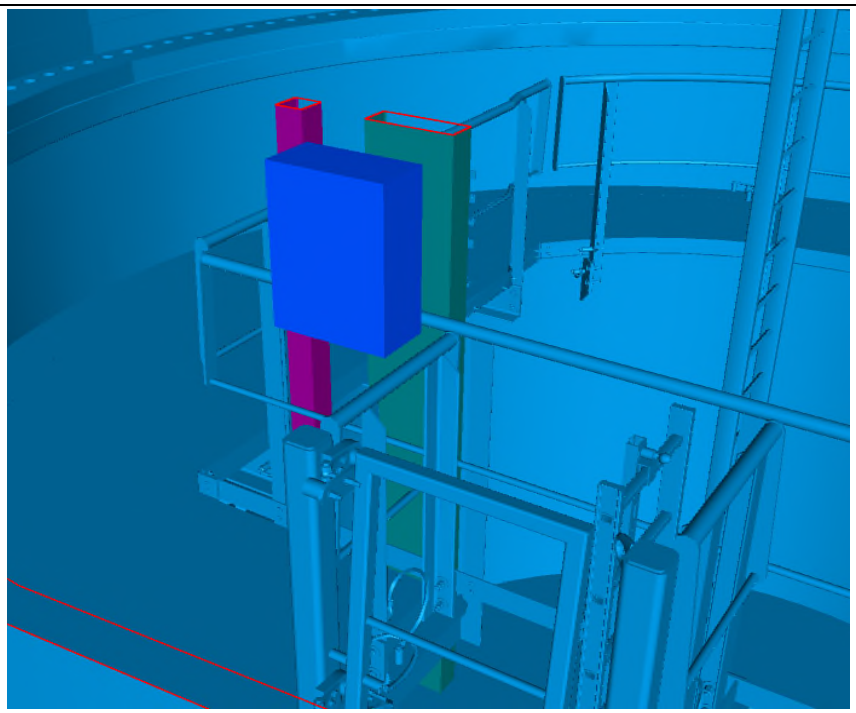
Clash solved

MR60-TAG18



ACTION

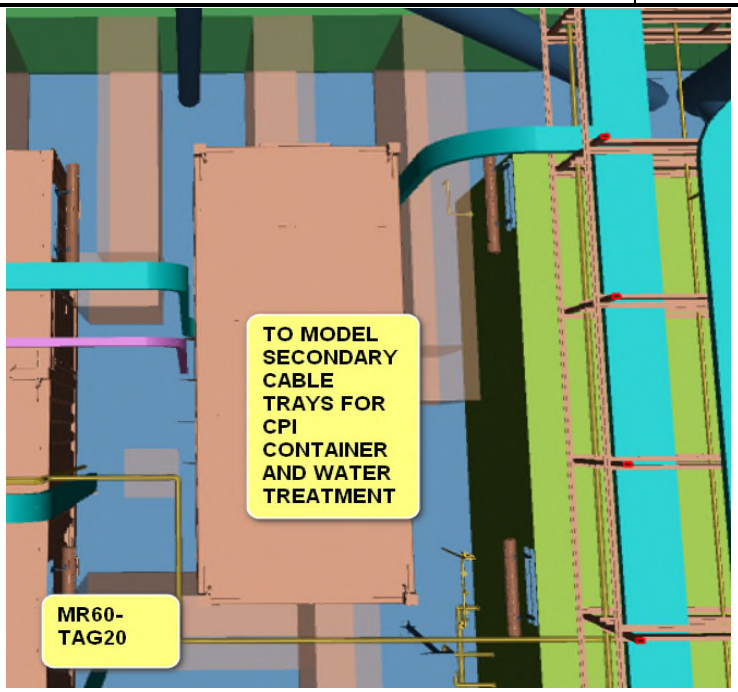
To model the splice box based on CPY information



CLOSE-OUT

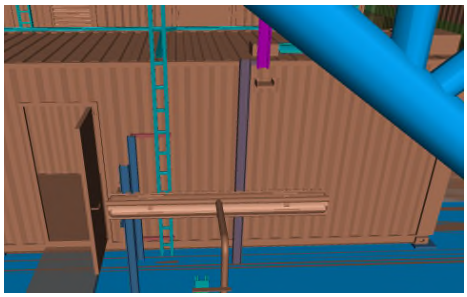
Splice Box modeled.

MR60-TAG19

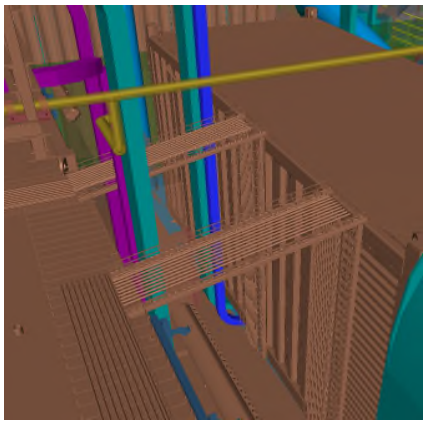


ACTION

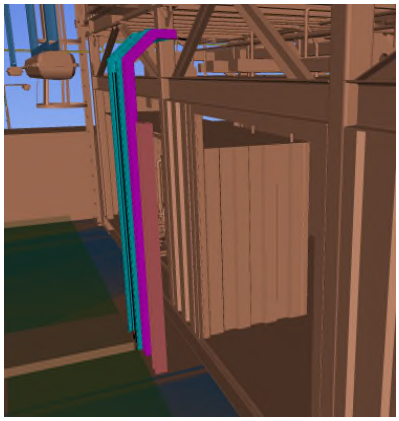
To model secondary cable trays for CPI container and water treatment



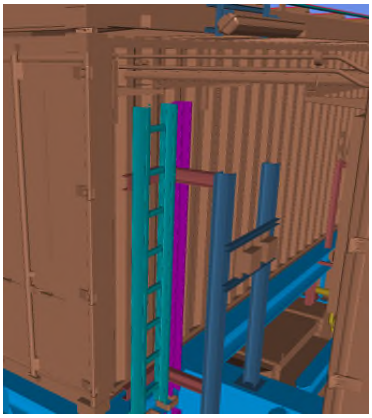
Water treatment package



BESS



Electrolyzer



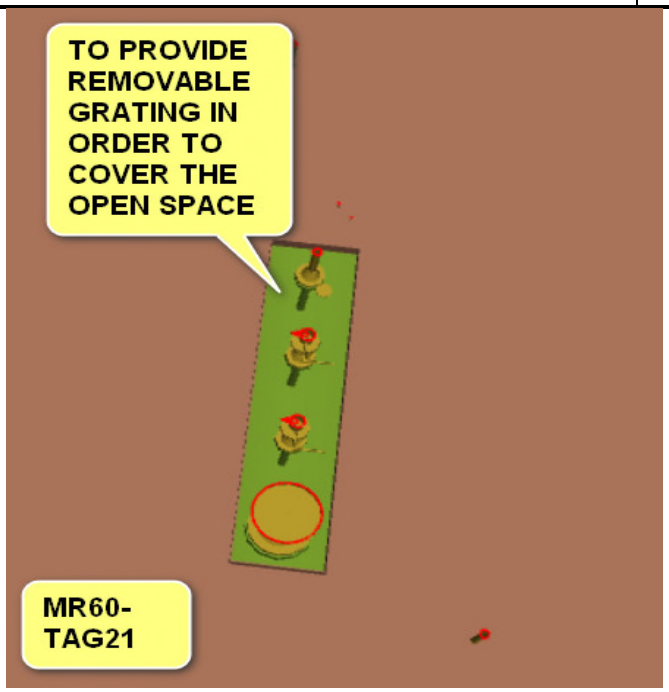
Fuel Cell

CLOSE-OUT

Instrument secondary cable trays modeled for all CPI and Sea Water Treatment Container.

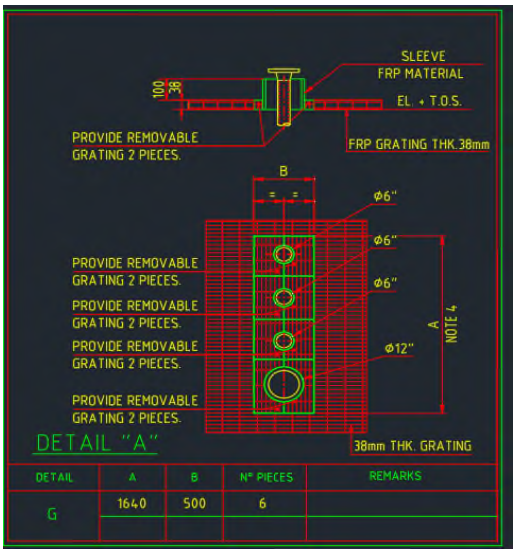
MR60-TAG20

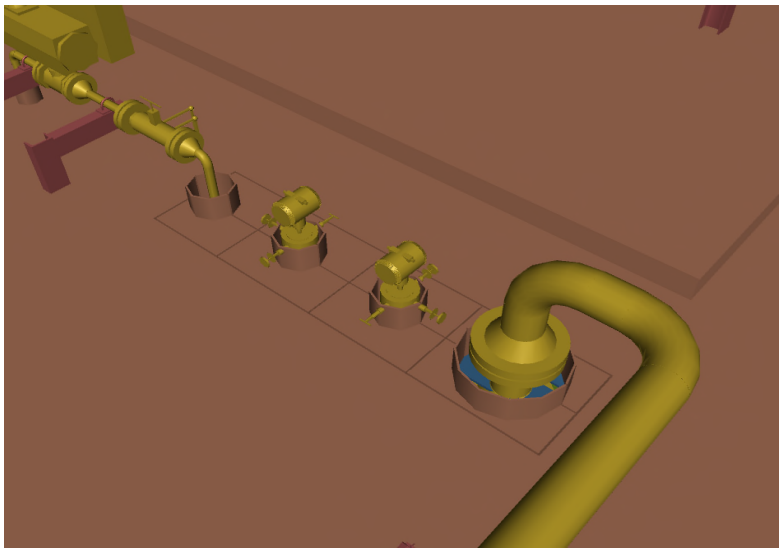
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ACTION

To provide removable grating in order to cover the open space



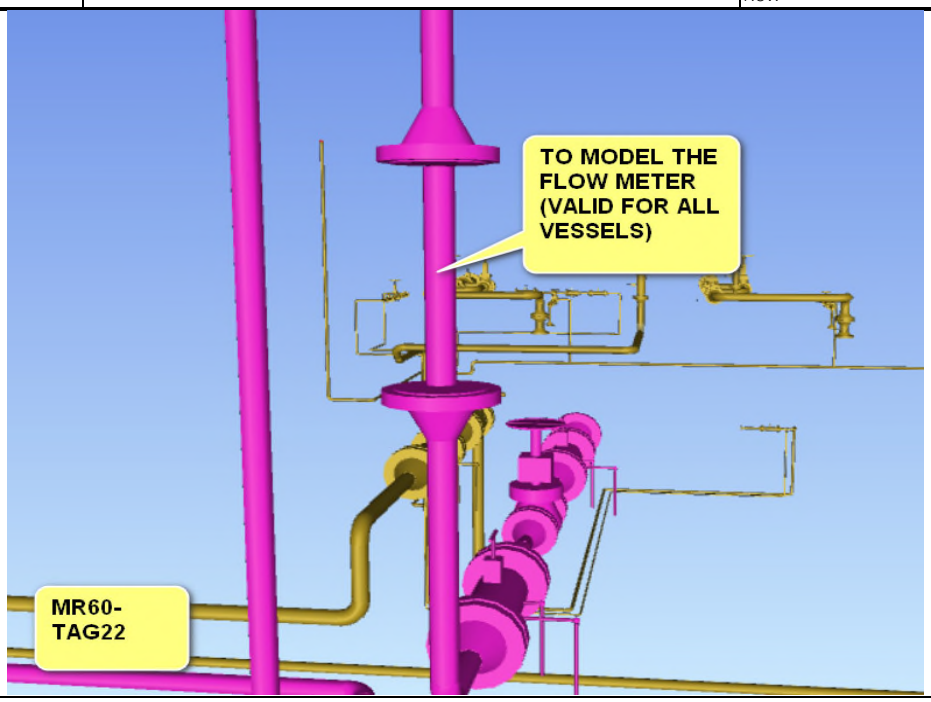


CLOSE-OUT

Space around the nozzles has been enclosed with removable grating

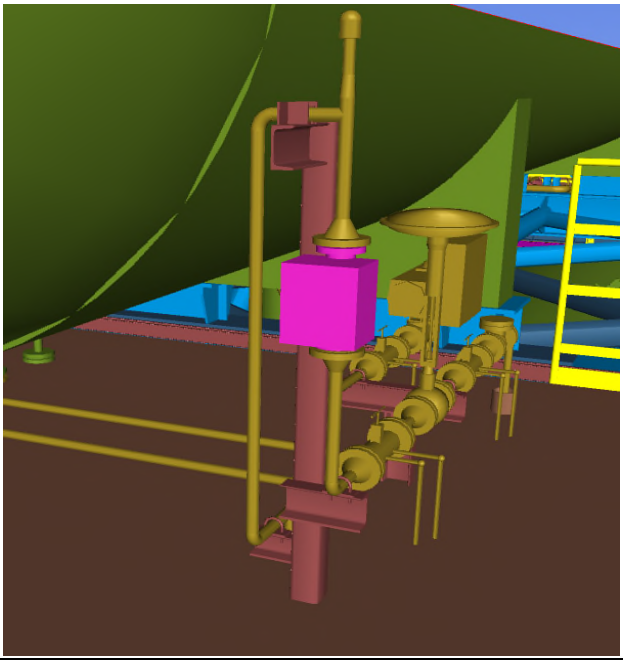
MR60-TAG21

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ACTION

To model the flow meter (valid for all vessels)

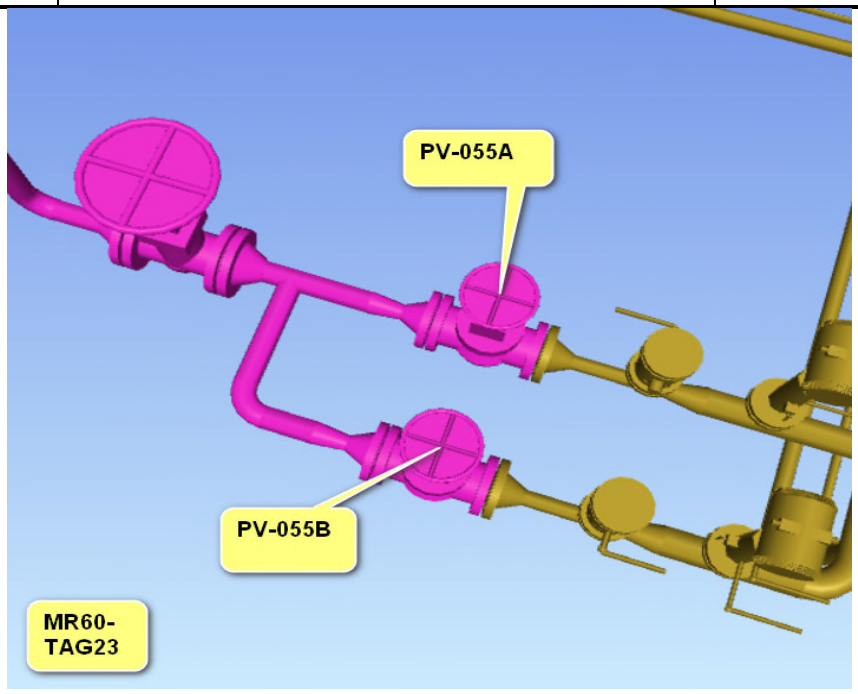


CLOSE-OUT

The Flow meter has been modeled based according to the vendor drawing received.

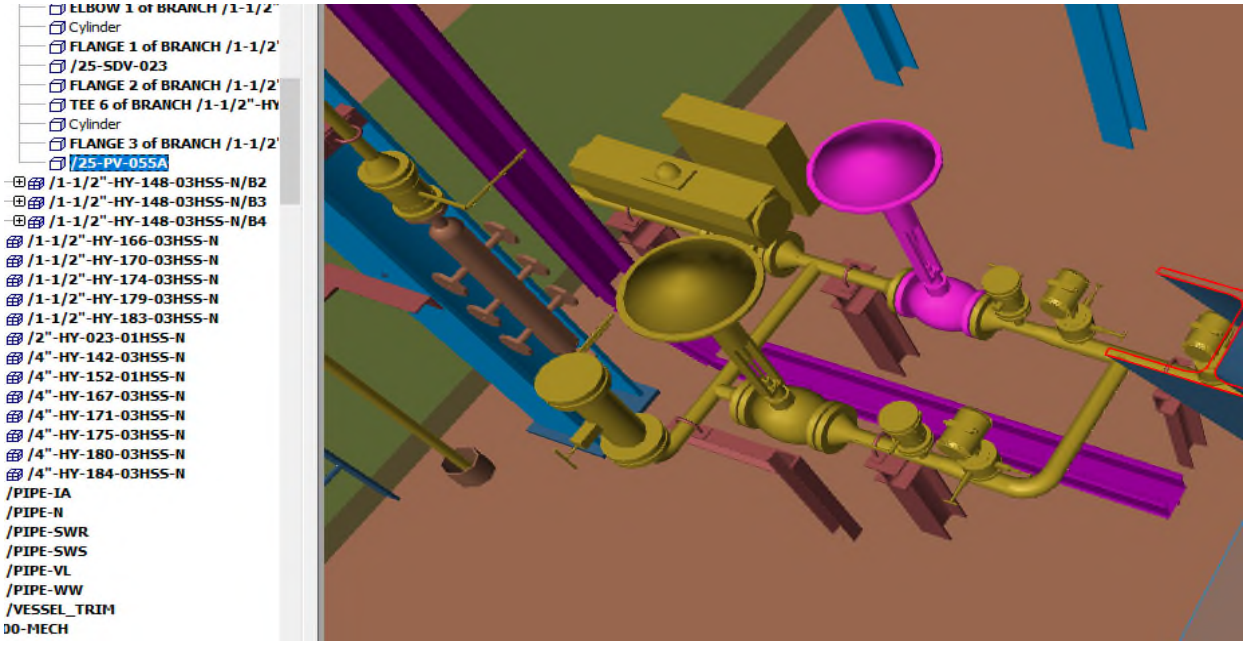
MR60-TAG22

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ACTION

To update the model according to the P&ID (PV-055A is installed on the main pipe)

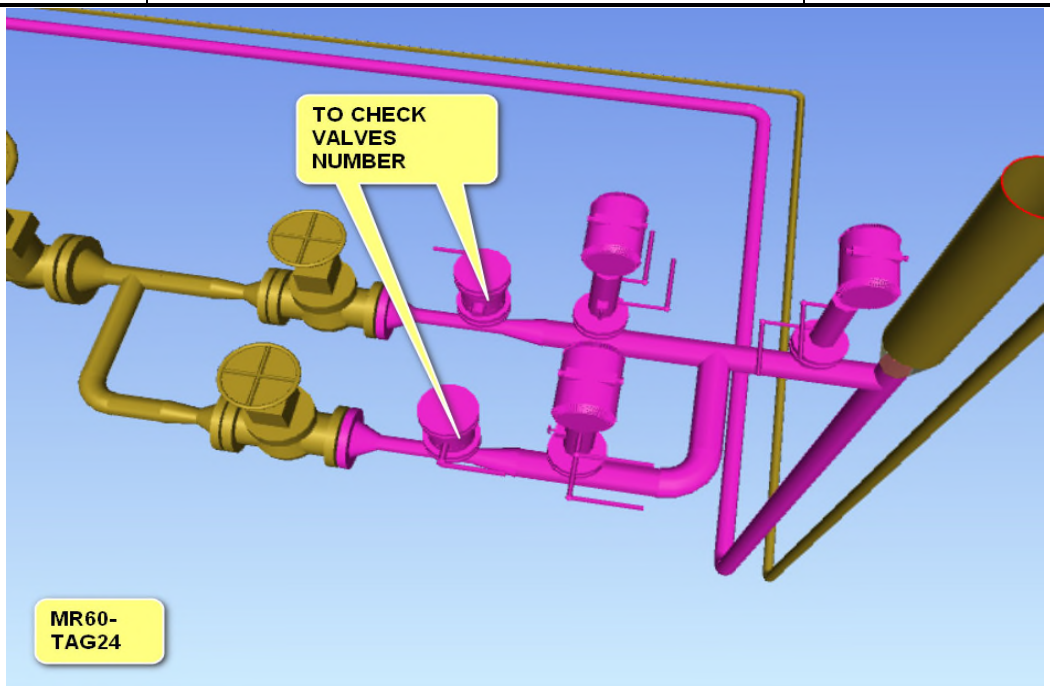


CLOSE-OUT

The valves have been updated according to the P&ID.

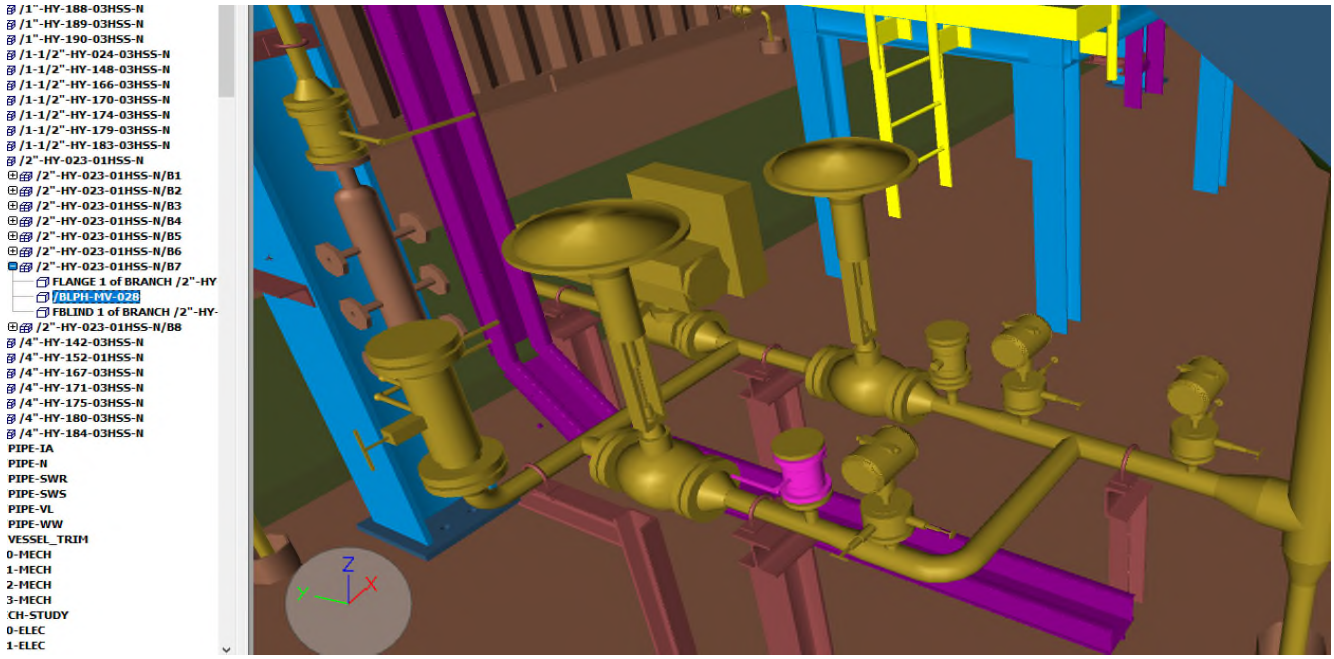
MR60-TAG23

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ACTION

To check valves numbers

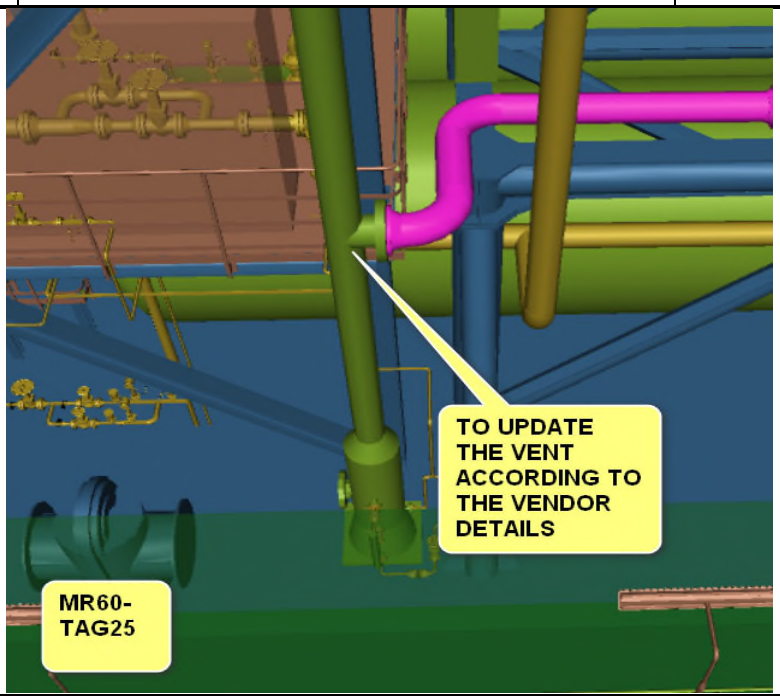


CLOSE-OUT

The valve numbers have been checked and corrected

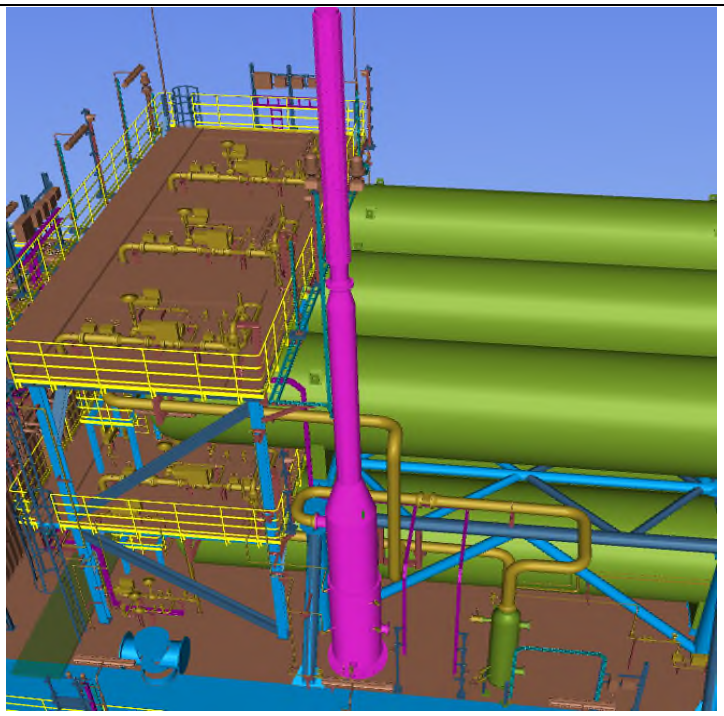
MR60-TAG24

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ACTION

To update the vent according to the vendor details

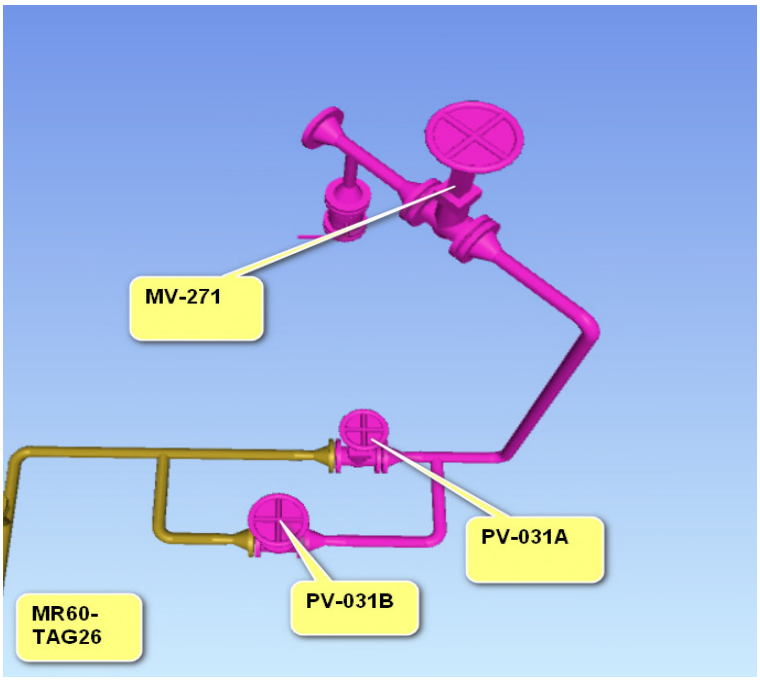


CLOSE-OUT

The H2 Vent has been updated according to Vendor drawing received

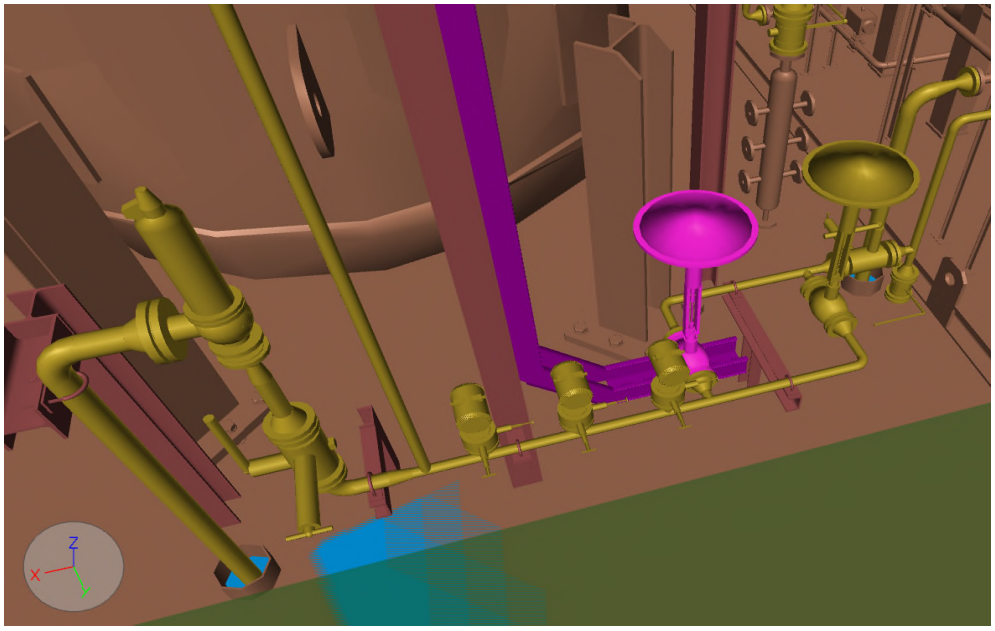
MR60-TAG25

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ACTION

To update the arrangement and replace the manual valves with instrument valves

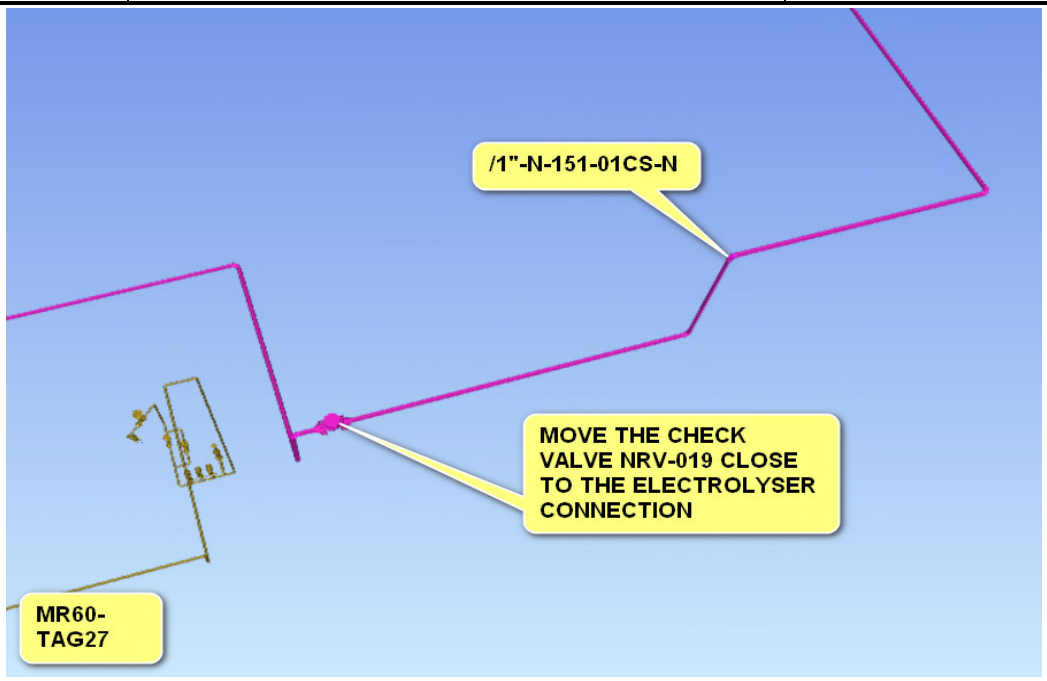


CLOSE-OUT

The routing has been updated and the manual valves have been replaced with automatic valves

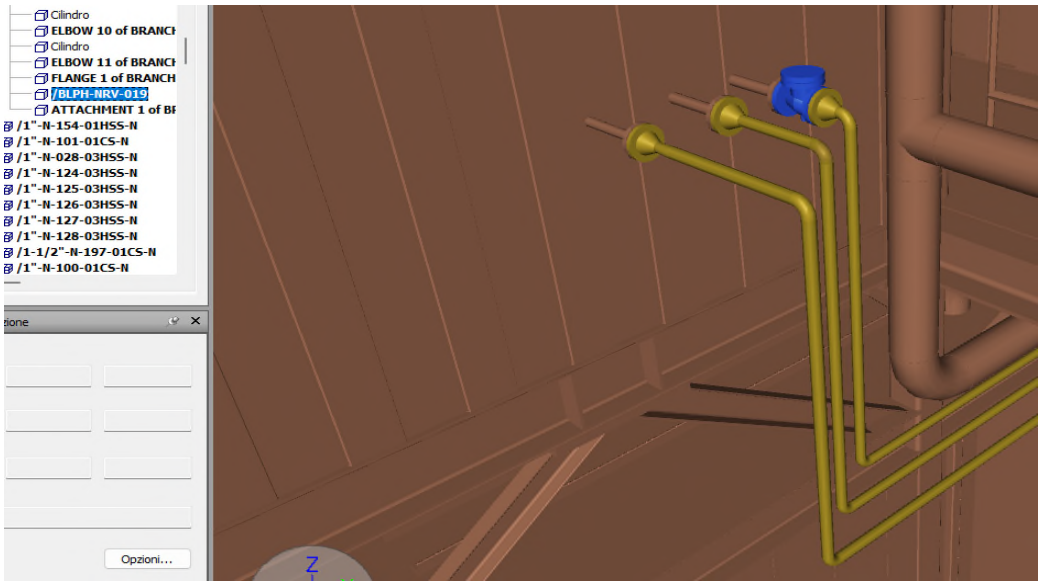
MR60-TAG26

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ACTION

Move the check valve NRV-019 close to the electrolyser connection

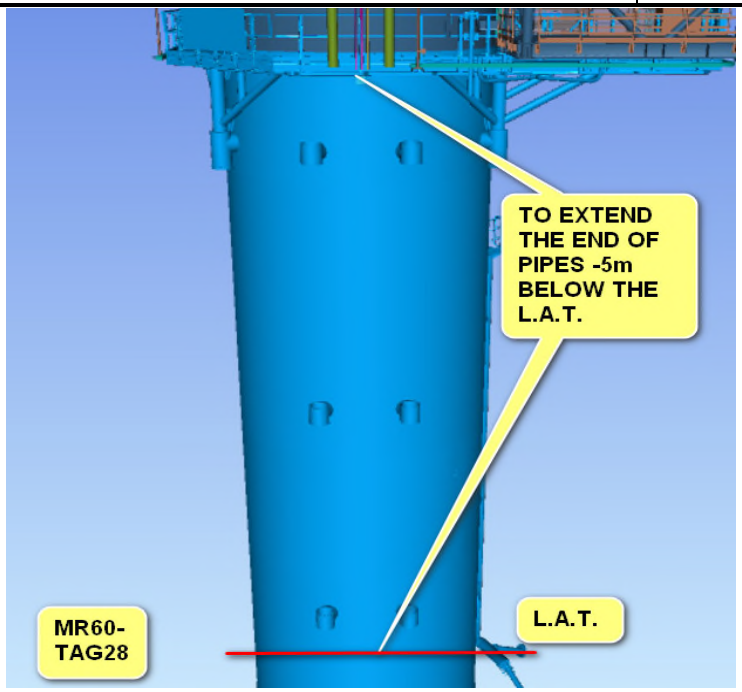


CLOSE-OUT

The check valve NRV-019 has been moved closer to the new Electrolyser connection point

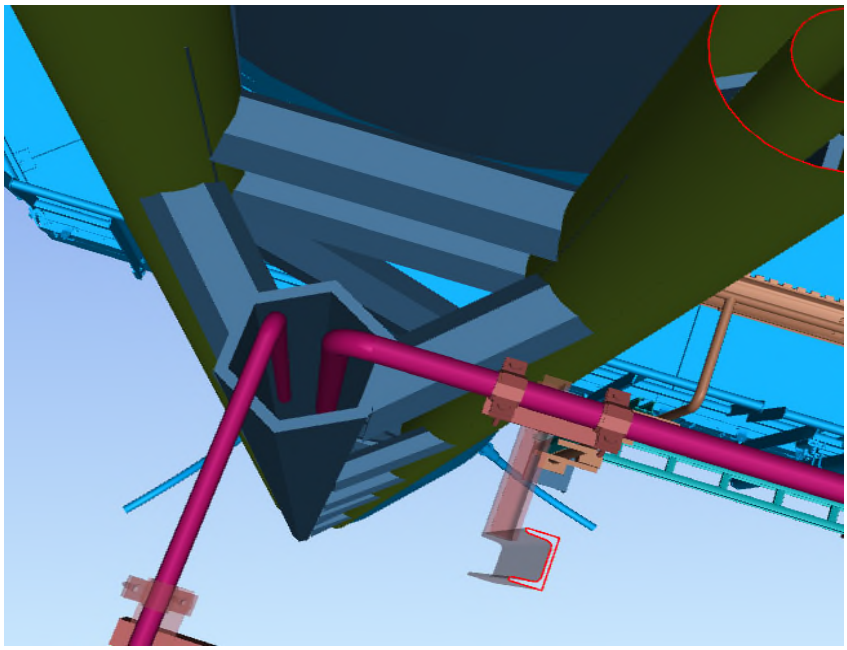
MR60-TAG27

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ACTION

To extend the end of pipes -5m below the L.A.T.

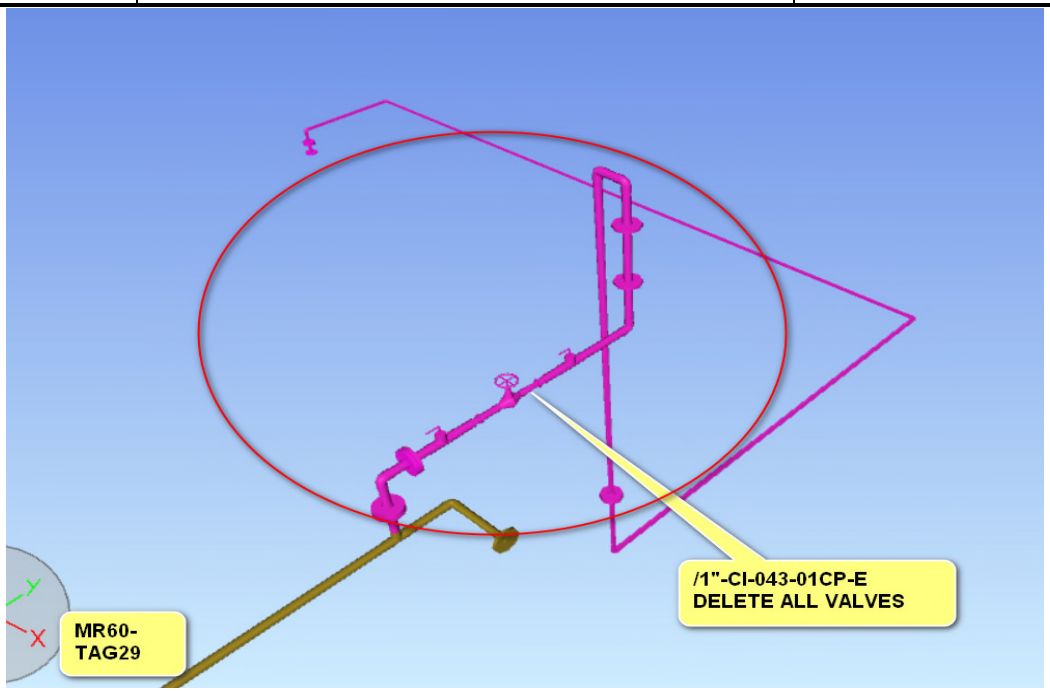


CLOSE-OUT

The end of pipe has been extended 1m into the brine caisson

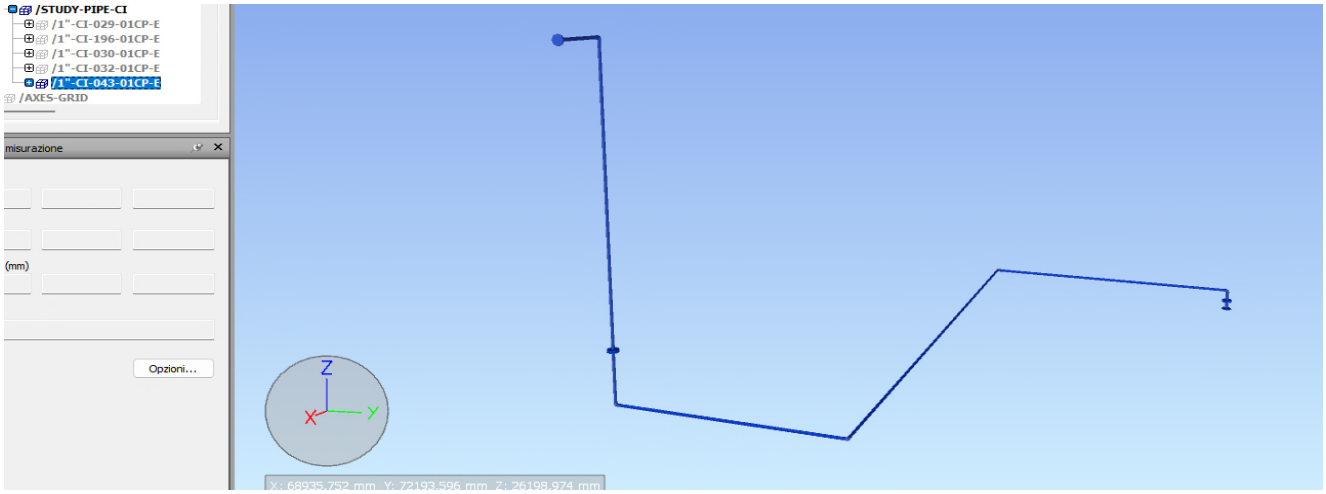
MR60-TAG28

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ACTION

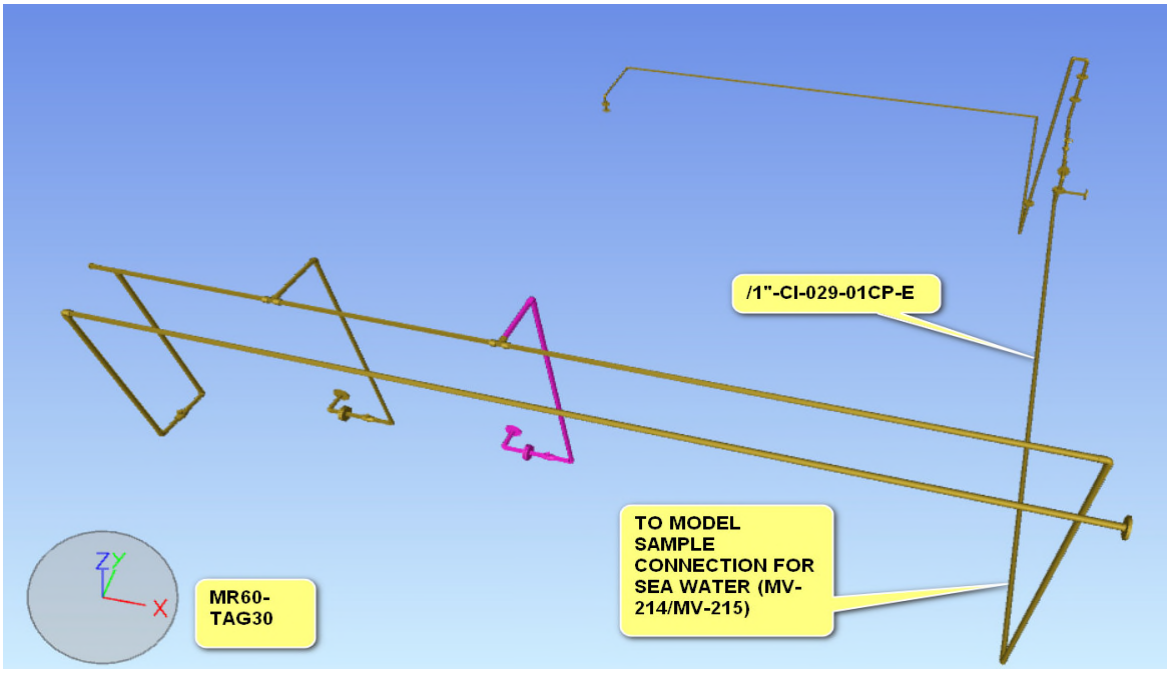
Line 1"-CI-043-01CP-E Delete all valves



CLOSE-OUT

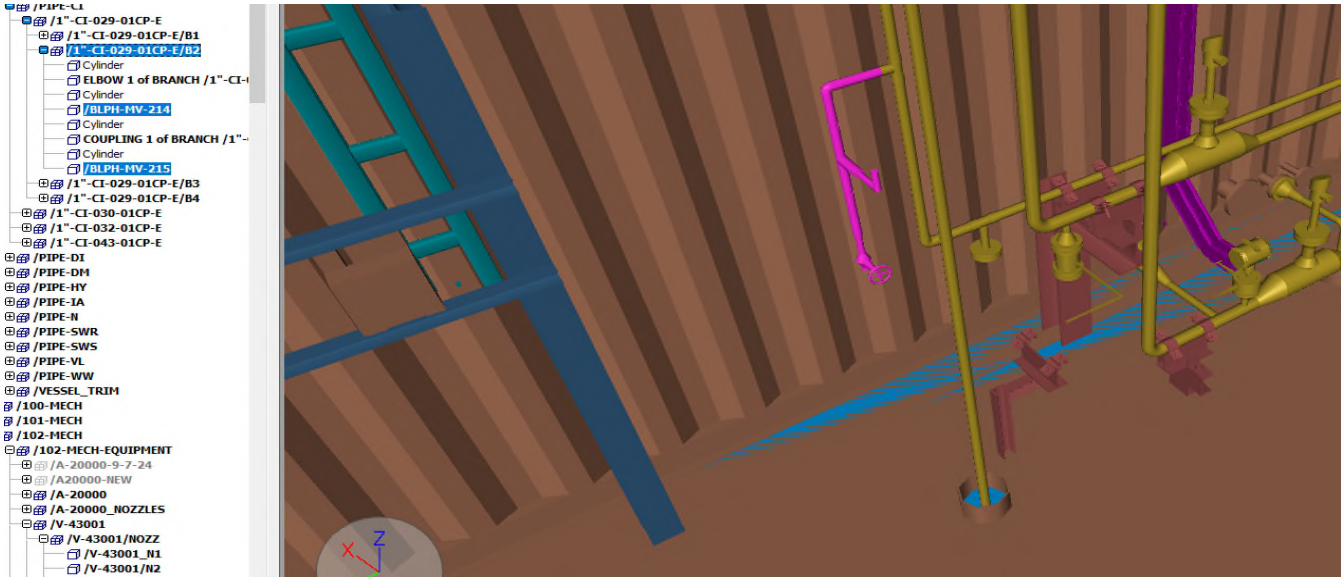
The valves have been deleted and the Line 1"-CI-043-01CP-E routing has been updated

MR60-TAG29



ACTION

To model sample connection for sea water (MV-214/MV-215)

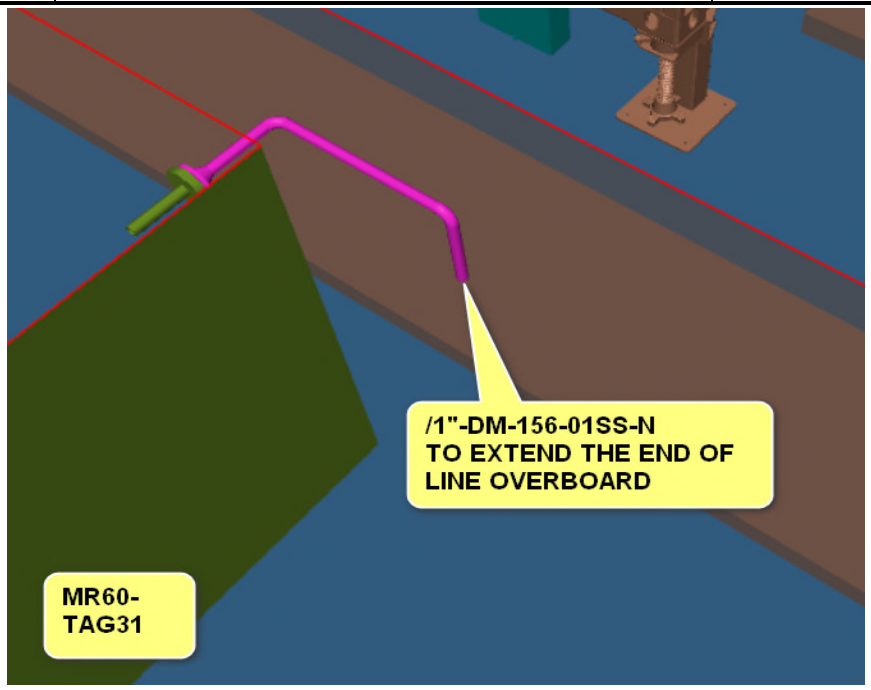


CLOSE-OUT

The sample connection has been modelled

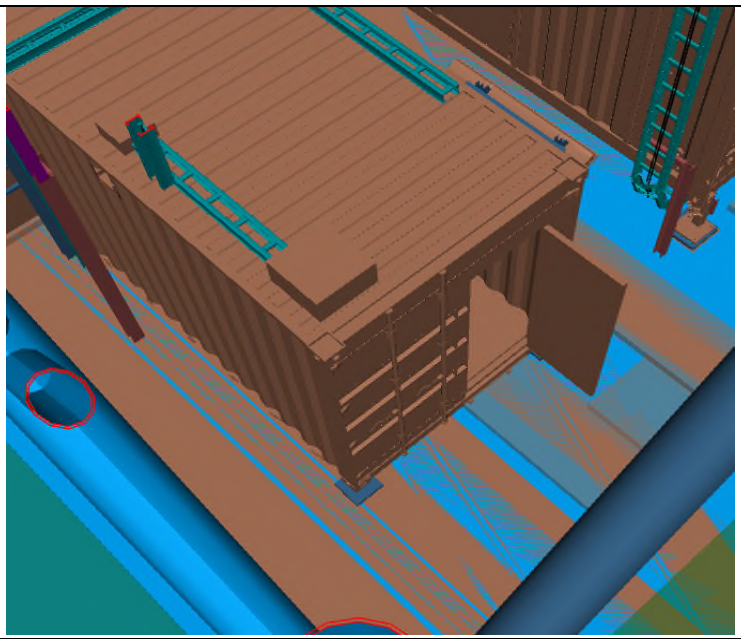
MR60-TAG30

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ACTION

CPY to confirm if this is considered confined space.

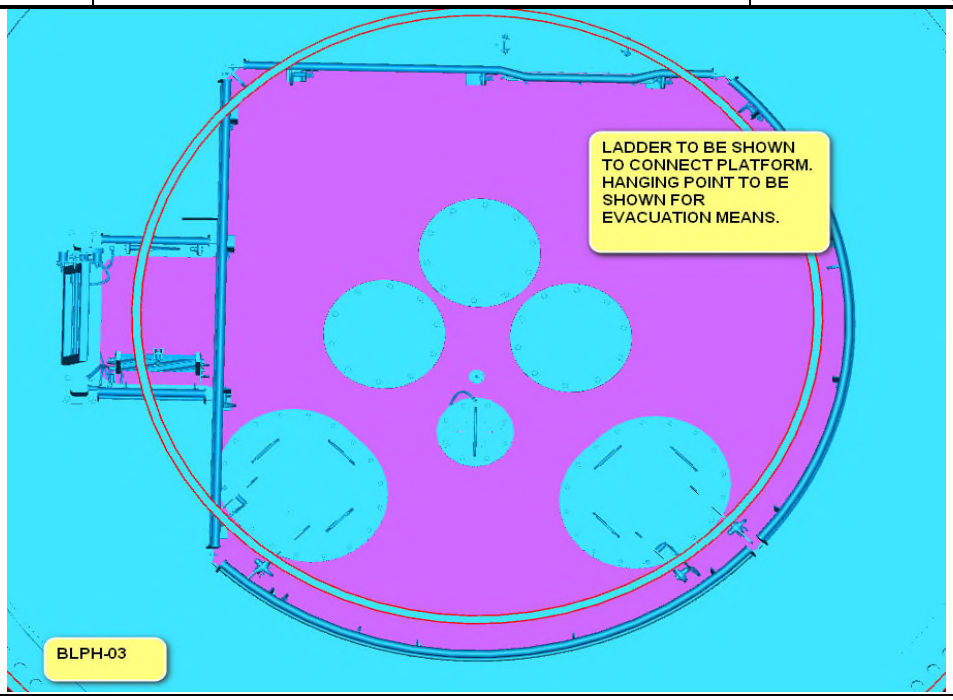


CLOSE-OUT

The line has been deleted

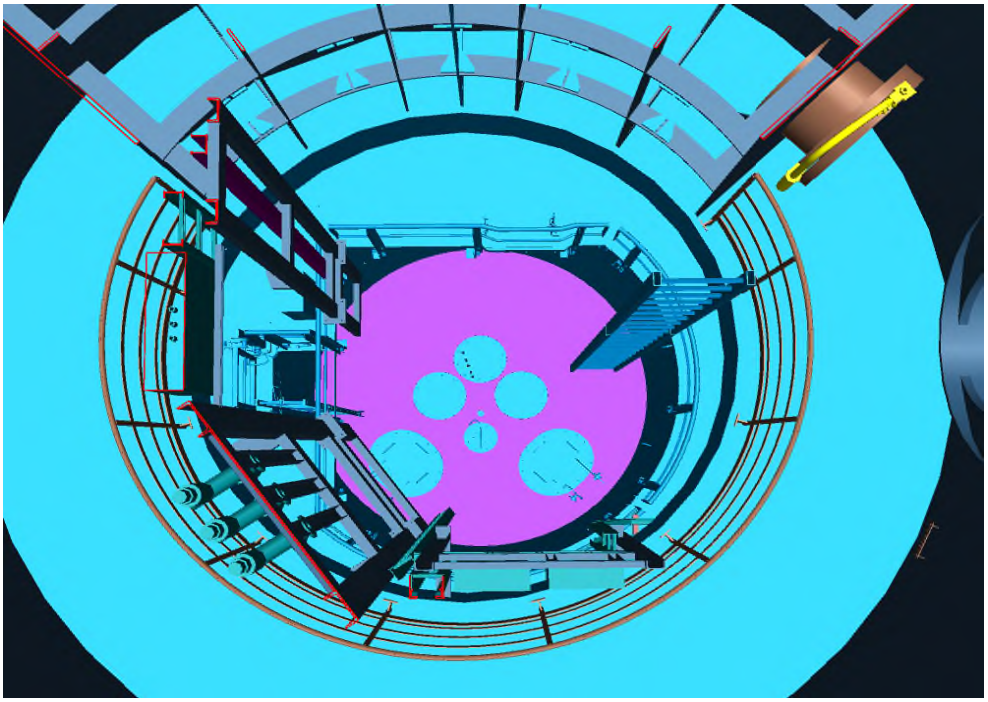
MR60-TAG31

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ACTION

Ladder to be shown to connect platform. Hanging point to be shown for evacuations means.



CLOSE-OUT

Ladder provided

MR60-TAG03

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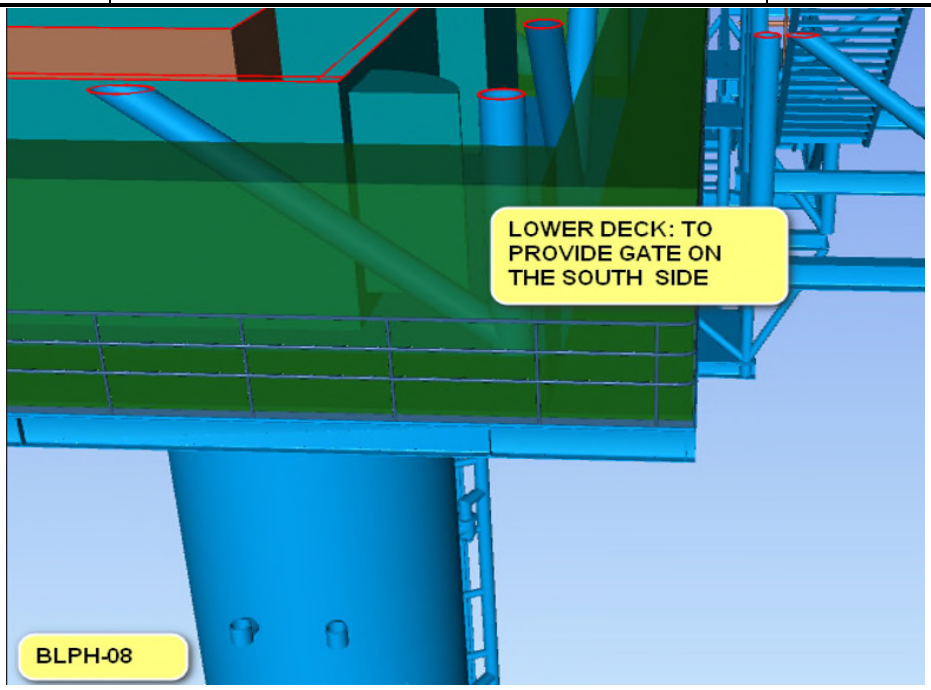
ACTION

Anchor point for existing winch to be shown.

CLOSE-OUT

Action postponed to 90%MR

MR30-TAG07



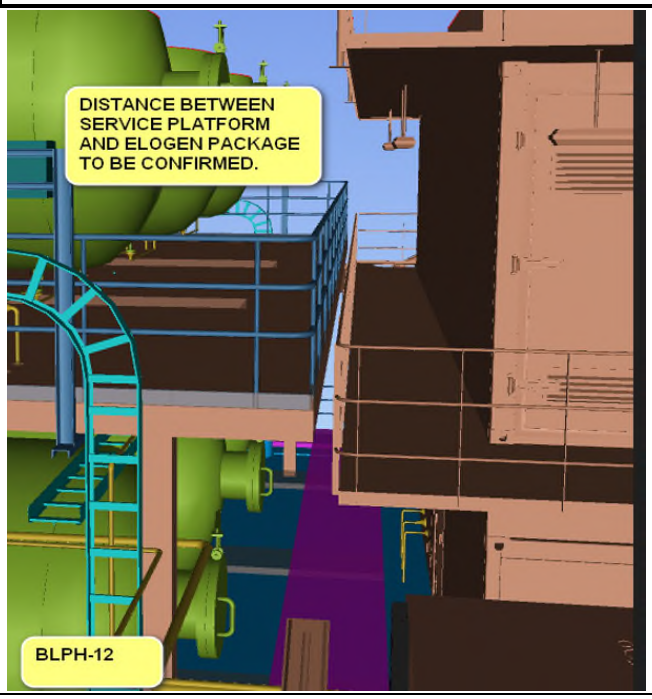
ACTION

To provide gate on the south side.

CLOSE-OUT

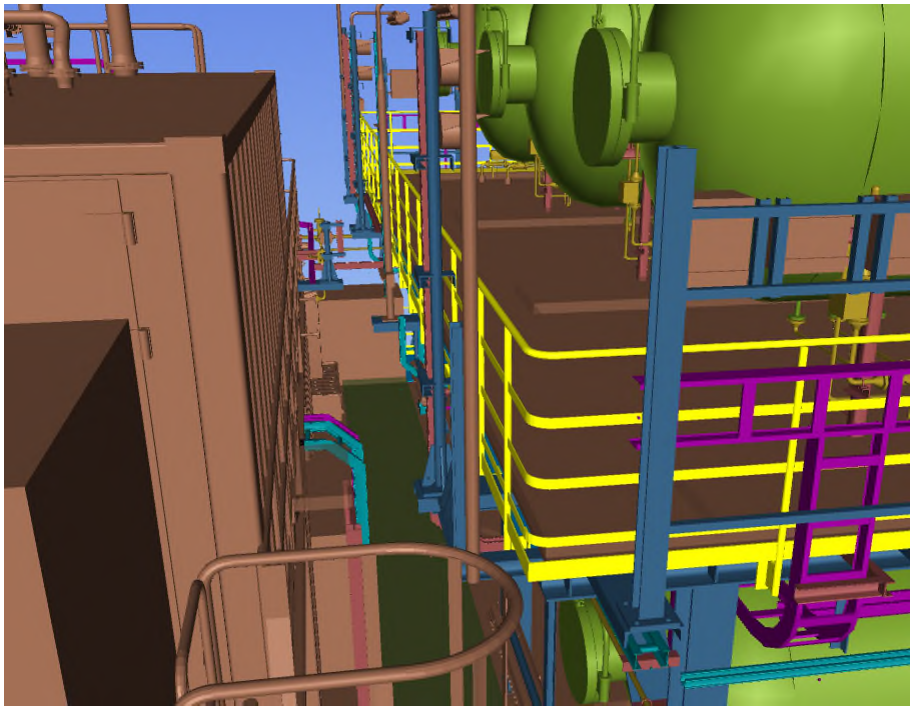
Refer to Close-out TAG 10

MR30-TAG08



ACTION

Distance between service platform and Elogen package to be confirmed.

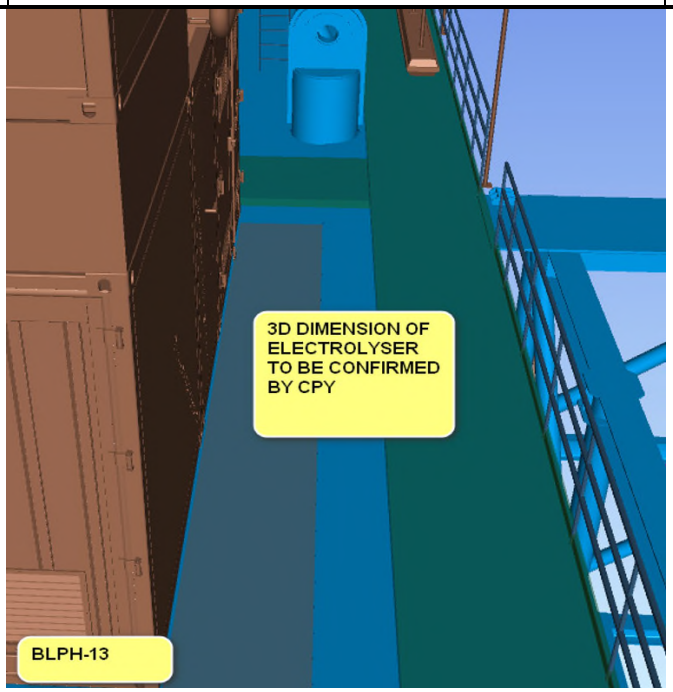


CLOSE-OUT

The distance between the Electrolyser package and walkway platform has been increased

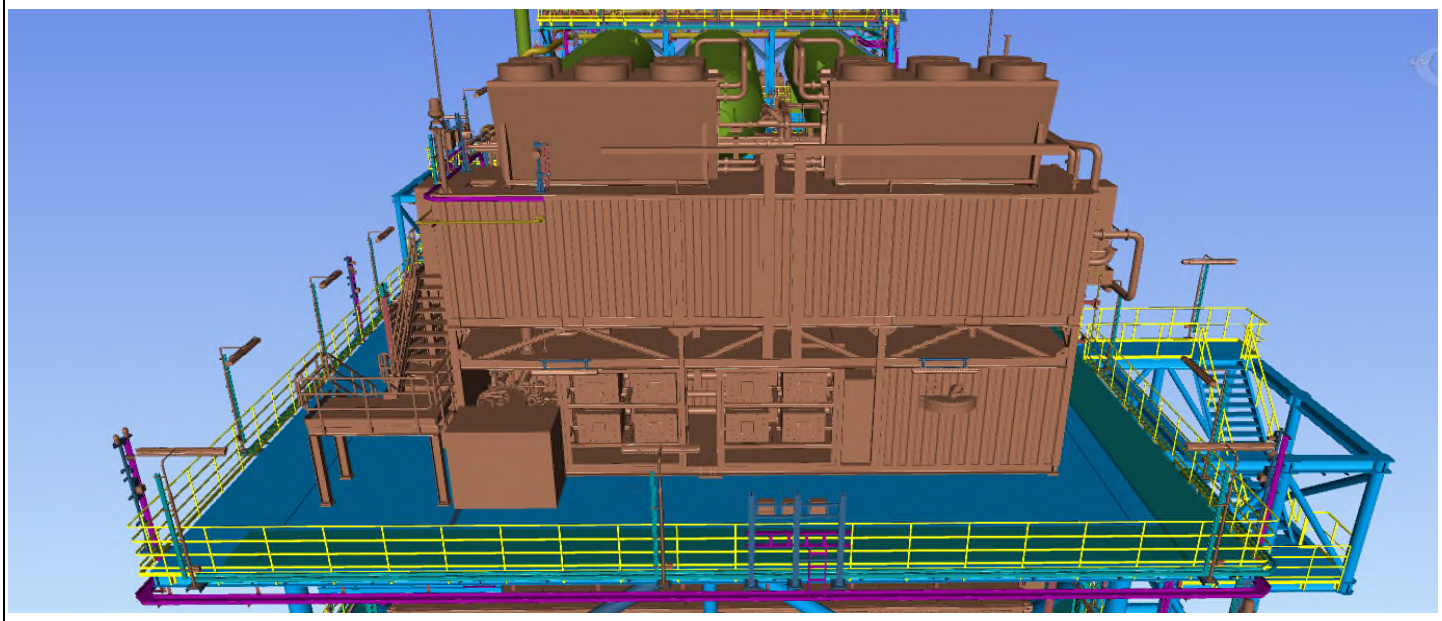
MR30-TAG12

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ACTION

3D dimension of Electrolyser package to be confirmed by CPY.

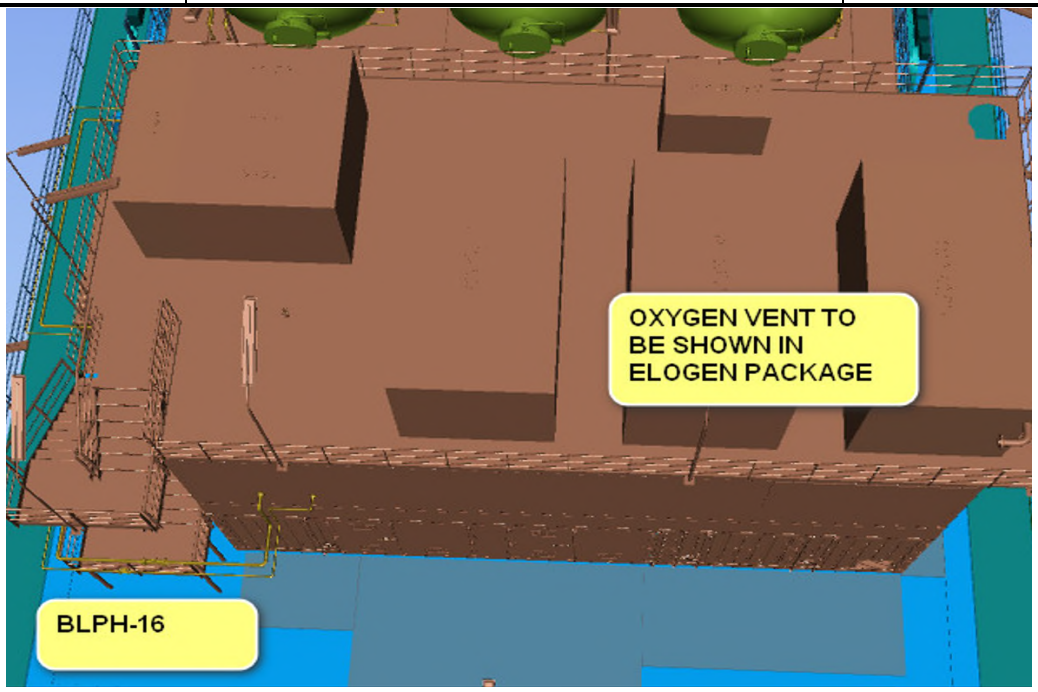


CLOSE-OUT

Electrolyser package dimensions confirmed

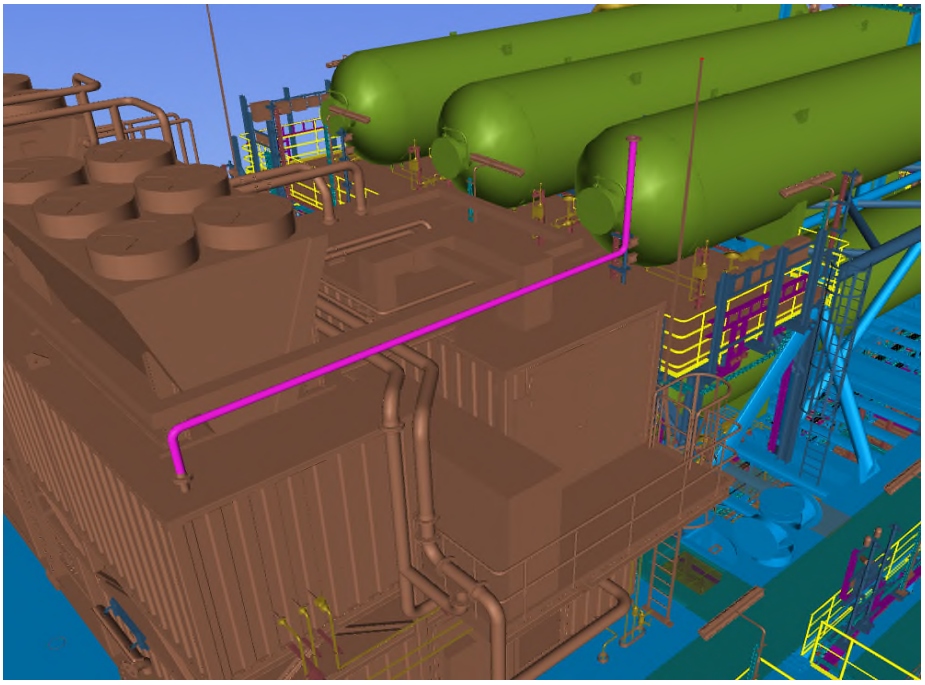
MR30-TAG13

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ACTION

Oxygen vent to be shown in Elogen 3D package.

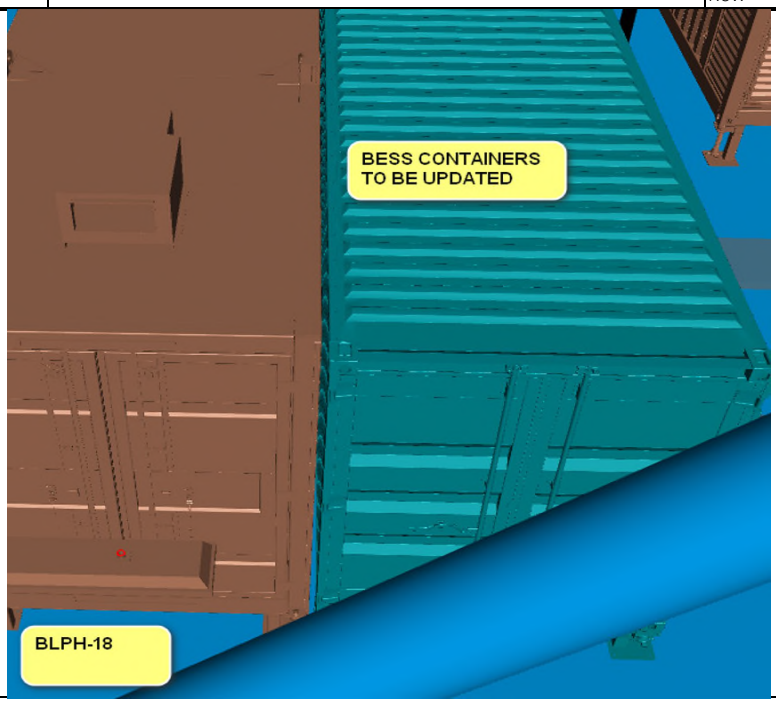


CLOSE-OUT

Oxygen vent shown

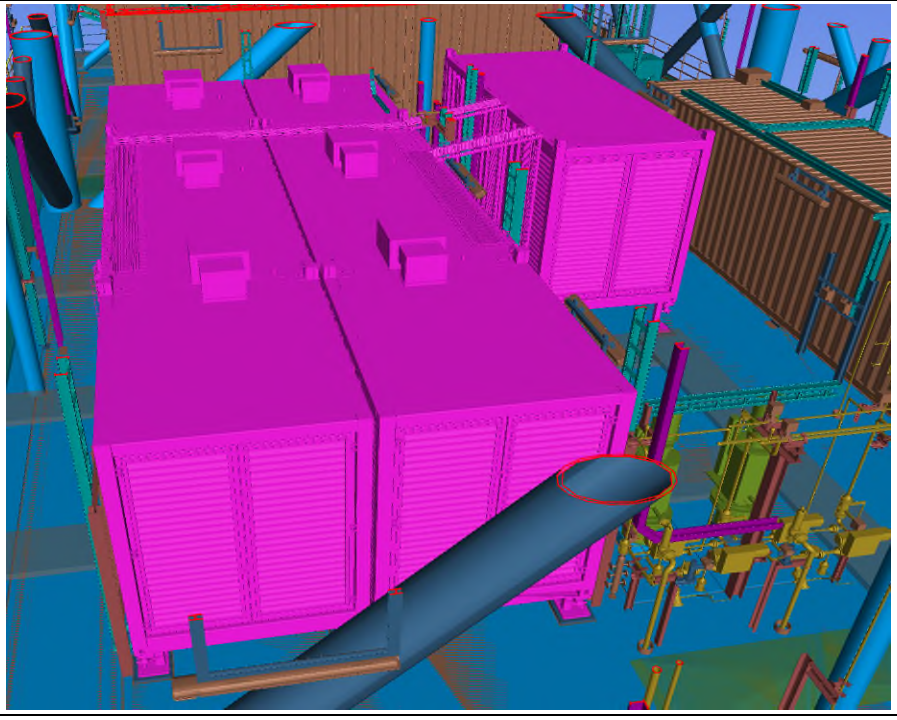
MR30-TAG16

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ACTION

Bess containers to be updated.

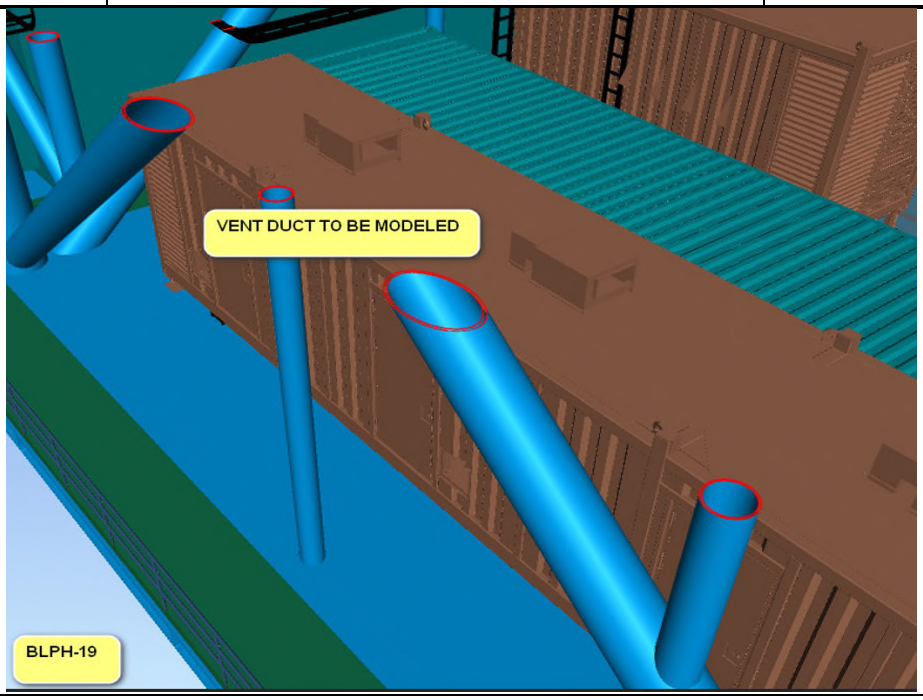


CLOSE-OUT

Bess containers updated

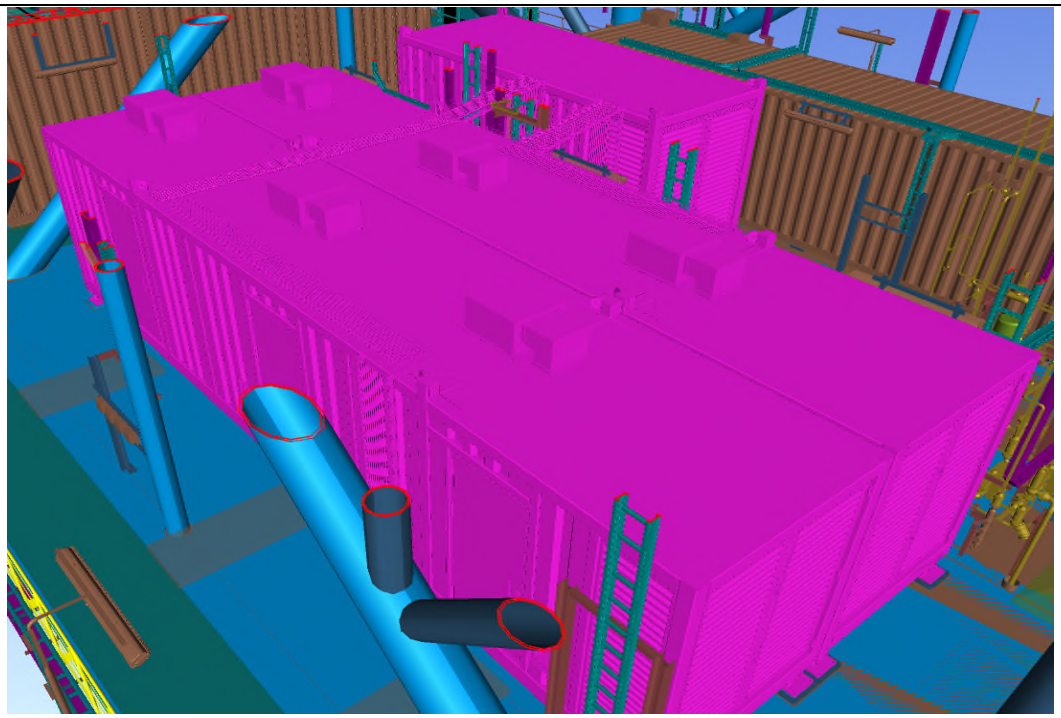
MR30-TAG18

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ACTION

Vent duct to be modelled.

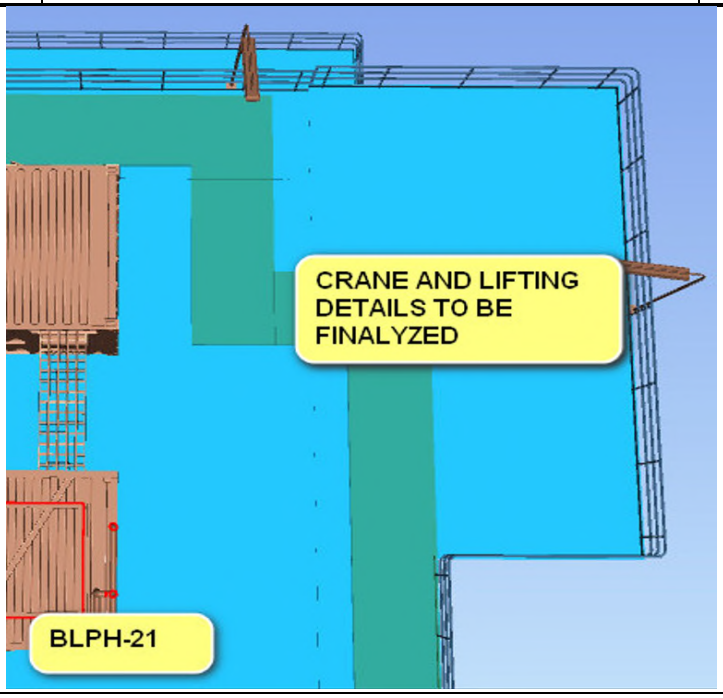


CLOSE-OUT

Vent duct are not provided since F&G detectors above the containers have been added

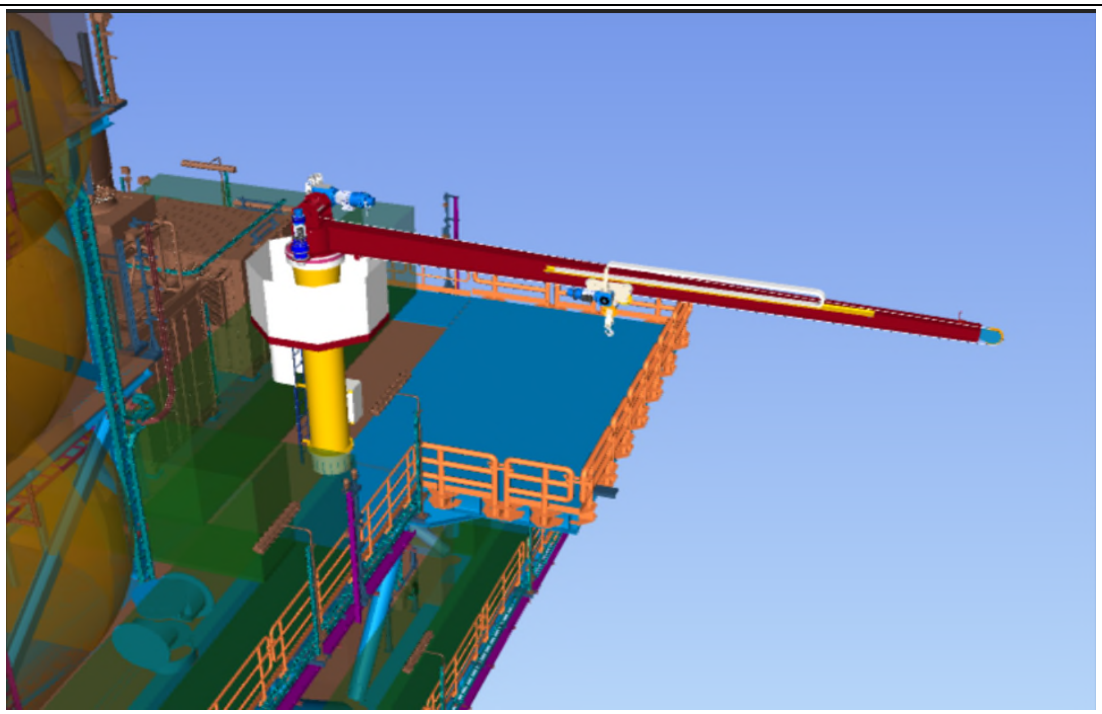
MR30-TAG19

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ACTION

Crane and lifting details to be finalyzed.

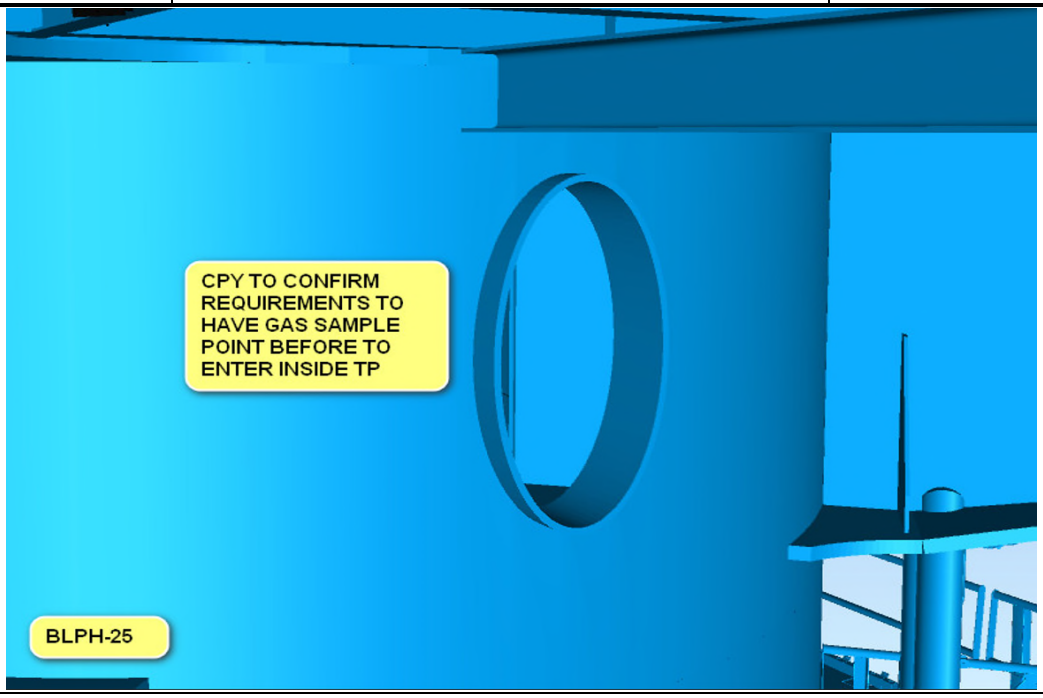


CLOSE-OUT

Crane has been provided

MR30-TAG21

This document undergoes an issuance cycle within EDMS "Fusionlive".
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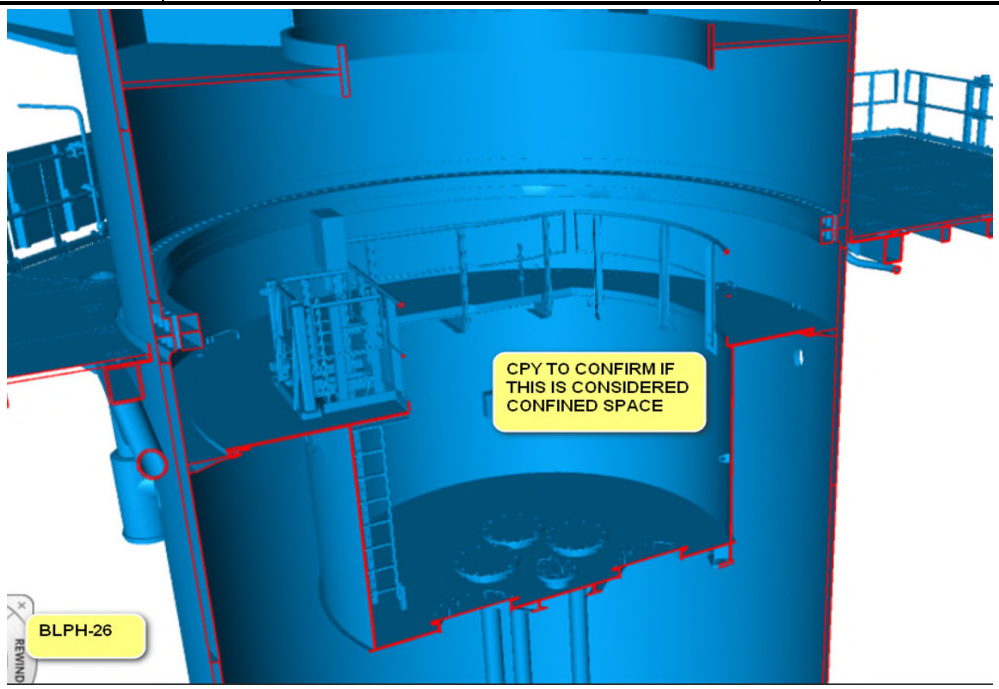
ACTION

CPY to confirm requirements to have gas sample point before to enter inside TP.

CLOSE-OUT

Action postponed to 90%MR

MR30-TAG25



ACTION

CPY to confirm if this is considered confined space.

CLOSE-OUT

Action postponed to 90%MR

MR30-TAG26

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DRAWING NO. DRAWING_NO.

REV. REV

GENERAL NOTES

1. ALL VENTS AND DRAINS SHOWN BY THE FOLLOWING SYMBOLS REPRESENT A 3/4" VALVE.

   EXCEPT AS NOTED.

   VENT/DRAIN
   WITH BLIND FLANGE

2. ALL VALVED CONNECTION TO ATMOSPHERE IN PROCESS SERVICE WILL BE PLUGGED OR BLIND FLANGED.
3. HIGH POINT VENTS AND LOW POINT DRAINS USED FOR HYDROTEST PURPOSES ONLY ARE PROVIDED BUT ARE NOT SHOWN ON P&Ids.
4. FOR GENERAL PIPING REQUIREMENTS SEE THE RELEVANT DESIGN SPECIFICATION.
5. DEFINITIONS:

   SLOPE → ELEVATION CHANGES ARE CONSTANTLY DOWNWARD ONLY, NO POCKETS ARE PERMITTED. SPECIFIC SLOPES REQUIRED ARE SHOWN BY SYMBOLS.

   WHERE NO GRADIENT IS SHOWN IT IS ASSUMED THAT THE MINIMUM PREFERED GRADIENT OF 1:100 IS USED.

   I / X

   WHERE X HAS UNITS THE SAME AS I

   GRAVITY DRAINING ELEVATION CHANGES ARE DOWNWARD ONLY. NO POCKETS ARE PERMITTED.

6. INLET LINES TO PRESSURE RELIEF DEVICES EXCEEDING 15 m IN LENGTH OR HAVING MORE THAN TWO ELBOWS, UNLESS OTHERWISE NOTED, MUST BE APPROVED BY PROCESS ENGINEERING.
7. ALL CLOSED PRESSURE RELIEF VALVE DISCHARGE LINES SHALL BE FREE DRAINING FROM THE PRESSURE RELIEF VALVE TO THE TOP OF THE DISCHARGE HEADER. EACH LINE IS TO BE CHECKED FOR A DOWNWARD SLOPE AFTER CONSTRUCTION.
8. ALL PRESSURE RELIEF VALVES DISCHARGING TO ATMOSPHERE AT SAFE LOCATION SHALL CONFORM TO THE RELEVANT DESIGN SPECIFICATION.
9. FOR UNSPARED PRESSURE RELIEVING DEVICES, WHEN AN INLET BLOCK VALVE IS PROVIDED BETWEEN A VESSEL AND ITS PRESSURE RELIEVING DEVICE OR WHEN A DISCHARGE BLOCK VALVE IS PROVIDED BETWEEN A PRESSURE RELIEVING DEVICE AND A COMMON DISCHARGE HEADER, THE BLOCK VALVE SHALL BE ARRANGED SO THAT IT CAN BE LOCKED OR SEALED OPEN. UNDER NO CONDITION SHALL A DISCHARGE BLOCK VALVE BE CLOSED, WHILE THE VESSEL IS IN OPERATION, BEFORE THE INLET BLOCK VALVE IS CLOSED. THE OWNER ASSUMES RESPONSIBILITY FOR ADMINISTRATIVE CONTROL OF THESE VALVES IN STRICT ACCORDANCE WITH ASME SECTION VIII, APPENDIX M.
10. SPACE AND ACCESS IS REQUIRED FOR ON-LINE SET-POINT VERIFICATION (OLSPV) OF ALL PSV's.
11. WHEN PIPE STRAINERS ARE INDICATED, THE STRAINER BODY, SCREEN AND SIZE OF OPENINGS ARE AS SPECIFIED BY THE RELEVANT SPECIFICATION.
12. FOR PRESSURE RELIEF VALVE AND RUPTURE DISC DISCHARGING TO ATMOSPHERE 6 MM WEEP HOLES ARE PROVIDED AT LOW POINTS OF THE DISCHARGE LINES (01)
13. REDUCERS IN PRESSURE RELIEF VALVE INLET OR OUTLET PIPING SHALL BE MINIMUM DISTANCE FROM THE PRESSURE RELIEF VALVES.
14. DOCUMENTED ADMINSTRATIVE PROCEDURES SHALL ENSURE THAT WHENEVER SELECTED EQUIPMENT ITEMS (FOR EXAMPLE, EXCHANGERS OR FILTERS) ARE ISOLATED FOR MAINTENANCE, THEY SHALL BE VENTED AND DRAINED IMMEDIATELY.
15. LOCAL START-STOP SWITCH AT THE MOTOR ARE NOT SHOWN. DCS START-STOP FUNCTIONS ARE SHOWN AS REQUIRED.
16. TSO FOR A CONTROL VALVE WILL RESULT IN CLASS V MINIMUM SHUT OFF. ON-OFF VALVES WILL MEET API598.
17. OWNER AND ROSETTI MARINO CONTRACTOR SHALL DESIGN THE SAFETY INSTRUMENTED SYSTEM (SIS) IN ACCORDANCE WITH APPLICABLE PROCESS INDUSTRY STANDARDS, SUCH AS ISA S84, IEC 61511 AND IEC 61508. OWNER AND ROSETTI MARINO CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR DEVELOPING AND IMPLEMENTING THE SAFETY INSTRUMENTED FUNCTIONS (SIF) AND PERFORMING SAFETY INTEGRITY LEVEL (SIL) DETERMINATION TO ALL SAFETY INSTRUMENTED FUNCTIONS IN ACCORDANCE WITH OWNER'S RISK MANAGEMENT POLICY. (01)
18. DELETED. (01)
19. THE OWNER IS RESPONSIBLE FOR ESTABLISHING ADMINISTRATIVE CONTROLS AND PROCEDURES OF USE OF ANY SHUTDOWN SYSTEM BYPASS FEATURES FOR TESTING OR MAINTENANCE OF THE SYSTEM. ANY PROCESS INTERLOCK OF SAFETY INTEGRITY LEVEL SIL-3 SHALL NOT BE BYPASSED UNDER ANY CIRCUMSTANCES.
20. ALL THERMOWELL CONNECTIONS ARE FLANGED CONNECTIONS UNLESS OTHERWISE NOTED.
21. DELETED. (01)

LINE SERVICE

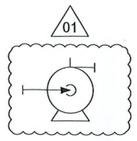
AV	ATMOSPHERIC VENT
CB	CONCENTRATED BRINE
CI	CHEMICAL INJECTION
DI	DEIONISED WATER
DM	DEMINERALIZED WATER
HY	HYDROGEN
IA	INSTRUMENT AIR
N	NITROGEN GAS
SWR	SEA WATER RETURN
SWS	SEA WATER SUPPLY
VL	LP VENT
WW	WASTE WATER

ABBREVIATIONS

ATM.	ATMOSPHERE
BDV	BLOWDOWN VALVE
BRS	BIRDSCREEN
CCS	CENTRAL CONTROL SERVICE
DIFF.	DIFFERENTIAL
DWG	DRAWING
ESD	EMERGENCY SHUTDOWN
FB	FULL BORE
FC	FAIL CLOSED ON LOSS OF MOTIVE POWER OR SIGNAL
FO	FAIL OPEN ON LOSS OF MOTIVE POWER OR SIGNAL
FGS	FIRE & GAS SYSTEM
GVC	GOOSENECK VENT
HH	HIGH HIGH ALARM TRIP
H	HIGH ALARM
ID	INSIDE DIAMETER
IA	INSTRUMENT AIR
L	LOW ALARM
LIP	LOCKED IN PLACE
LL	LOW LOW ALARM AND TRIP
LO	LOCKED OPEN
LP	LOW PRESSURE
M	ELECTRIC MOTOR
MCC	MOTOR CONTROL CENTER
NC	NORMALLY CLOSED
NNF	NORMALLY NO FLOW (01)
NO	NORMALLY OPEN
NPS	NOMINAL PIPE SIZE
PSV	PRESSURE SAFETY VALVE
P/T	PRESSURE/TEMPERATUE
RO	RESTRICTION ORIFICE
RS	REMOVABLE SPOOL
SAM	SAMPLE CONNECTION
SP	SPECIALITY PIPING ITEM
SPB	SPECTACLE BLIND
STR	STRAINER
TSO	TIGHT SHUT-OFF
T/T	TANGENT TO TANGENT
VB	VORTEX BREAKER

EQUIPMENT

PUMPS

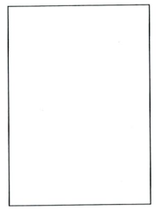


CENTRIFUGAL PUMP



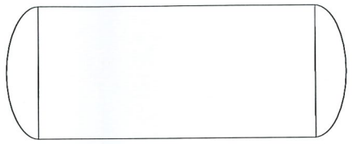
LIFT INLINE

STORAGE TANK



TANK

VESSEL



HORIZONTAL VESSEL (01)

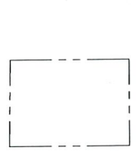
MISCELLANEOUS



MOTOR

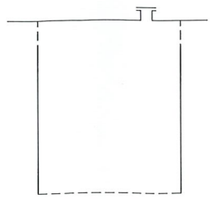


MOTOR



PACKAGE ITEM

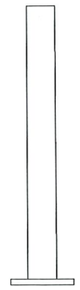
OTHERS



CAISSON



CAISSON



VENT STACK

NOTES

1. FOR PIPING AND INSTRUMENTATION SYMBOLOGY, SEE DRAWINGS: 123A90-DDL-PR-PID-80010 AND 123A90-DDL-PR-PID-80042 RESPECTIVELY. (01)

Attachment 1
123A90-DDL-PP-RE-70009_01_ATT.1

WORK COPY
HR Go/o
5/3/24

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
GENERAL NOTES

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80009		SHEET 001 / REV. 01

File Name : DRAWING_NO.

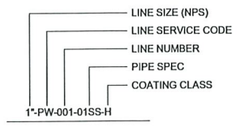
DRAWING NO. DRAWING_NO.

REV. REV

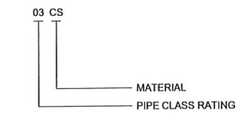
PIPING SYMBOLS

- PRIMARY PIPING
- SECONDARY PIPING
- INSULATED PIPING
- E — ELECTRICALLY HEAT TRACED PIPING

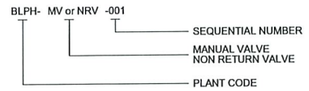
LINE NOMENCLATURE



PIPING SPECIFICATION (NOTE 4)



VALVE IDENTIFICATION CODE



PIPE CLASS RATING

01	CLASS 150# ACCORDING TO ASME B31.3
03	CLASS 300# ACCORDING TO ASME B31.3
06	CLASS 600# ACCORDING TO ASME B31.3
01H	CLASS 150# ACCORDING TO ASME B31.12
03H	CLASS 300# ACCORDING TO ASME B31.12

MATERIAL

CS	CARBON STEEL
SS	STAINLESS STEEL
SD	SUPER DUPLEX STAINLESS STEEL
GRP	GLASS REINFORCED PLASTIC

△01

INSULATION CLASS

H	HEAT CONSERVATION
P	PERSONNEL PROTECTION
E	ELECTRICALLY HEAT TRACED
N	NOT INSULATED (PAINTED)

PIPING CONNECTORS

DRAWING CONTINUATION ARROW

CONNECTOR NUMBER — DWG NUMBER — TO/FROM EQUIPT NO. — △01

△01

3RD PARTY BATTERY LIMIT

CONTRACTOR | SUPPLIER

TIE-IN LABEL

TP 100

INSTRUMENTATION CONNECTOR

DRAWING CONTINUATION ARROW

CONNECTOR NUMBER — DWG NUMBER — TO/FROM INSTRUMENT NO. — △01

△01

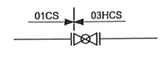
VALVES, CONTROL VALVES AND RELIEF VALVES

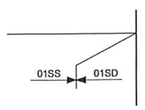
SYMBOL	DESCRIPTION
	CHECK VALVE
	GLOBE VALVE
	BUTTERFLY VALVE
	NEEDLE VALVE
	BALL VALVE
	ANGLE VALVE
	GATE
	3-WAY
	PRESSURE RELIEF VALVE
DB	DOUBLE BLOCK AND BLEED VALVE
SB	SINGLE BLOCK AND BLEED VALVE
	SINGLE BLOCK AND BLEED VALVE (MONOFLANGE)
	DOUBLE BLOCK AND BLEED VALVE (MONOFLANGE)

PIPING SEGMENT BREAKS & LABELS

PIPE SPEC BREAK

INDICATES CHANGE PIPE SPEC





SPECIALTY LABELS



0001 = SP SEQUENCE NO.

FITTINGS

- FLANGE
- CAP
- CONCENTRIC REDUCER
- △01 ECCENTRIC REDUCER
- HOSE CONNECTION

SPECIALTY ITEMS

BRS		BIRD SCREEN
STR		Y-TYPE STRAINER
	RS	REMOVABLE SPOOL
SAM	S	SAMPLE CONNECTION (SAM) SAMPLE STATION NOTE 3
GVC		GOOSENECK VENT W/MESH NOTE 3
RO		RESTRICTION ORIFICE NOTE 3
SPS		SPECTACLE BLIND (BOTTOM CIRCLE DENOTES NORMAL POSITION)
VB		VORTEX BREAKER NOTE 2
△01 MV		AIR RELEASE VALVE

EQUIPMENT NOZZLE CONNECTIONS

- FLANGED NOZZLE
- C — FLANGED NOZZLE ON SIDE OF VESSEL
- MW — MANWAY
- MANWAY

INSTRUMENT LABELS



PRV SIZE (INLET, ORIFICE, OUTLET)

SET PRESSURE

ACTUATORS

- DIAPHRAGM ACTUATOR
- SINGLE/DOUBLE ACTING CYLINDER ACTUATOR
- S — SINGLE SOLENOID ACTUATOR
- S — OFF-LINE 3-WAY SOLENOID VALVE WITH SINGLE ACTUATOR

INSTRUMENT SIGNAL LINES

△01

- INSTRUMENT TO PROCESS
- ELECTRIC
- PNEUMATIC
- SOFTWARE OR CCS LINK

PRIMARY INLINE ELEMENT SYMBOLS

- VARIABLE AREA METER
- ULTRASONIC
- △01 DIAPHRAGM SEAL WITH CAPILLARY

OTHER INSTRUMENTATION

- INSTRUMENT COMPONENT LABEL SYMBOL WITH NO DATA
- 10 PV 100A — 10 = UNIT NUMBER; P = MEASURED VARIABLE CODE; V = INSTRUMENT TYPE MODIFIER; 100 = INSTRUMENT SEQUENCE NUMBER; A = SUFFIX
- FV / 2" / FO — CONTROL VALVE LABEL; CONTROL VALVE WITH NOMINAL DIAMETER AND FAIL ACTION LABEL
- FIC — HH ALARM HIGH HIGH LABEL; H ALARM HIGH LABEL; L ALARM LOW LABEL; LL ALARM LOW LOW LABEL
- FT / M — IF PRIMARY ELEMENT HAS INTEGRAL TRANSMITTER SHOW FT INSTEAD OF FE INSIDE OF TAG

INSTRUMENT OR FUNCTION SYMBOLS

- FIELD MOUNTED INSTRUMENT
- INSTRUMENT MOUNTED ON CENTRAL CONTROL ROOM PANEL
- DCS DISPLAY ACCESSIBLE TO OPERATOR
- CRITICAL INTERLOCK

NOTES

1. FOR GENERAL NOTES AND INSTRUMENTATION SIMBOLOGY SEE DRAWINGS: 123A90-DDL-PR-PID-80009 AND 123A90-DDL-PR-PID-80042 RESPECTIVELY.
2. ITEMS ARE SHOWN UNDER SPECIALTY ITEMS FOR SYMBOLOGY REFERENCE ONLY. ITEMS ARE NOT SP ITEMS.
3. ITEMS ARE NOT SPECIALTY ITEMS UNLESS OTHERWISE SPECIFIED.
4. PIPE SPECIFICATION AND PIPING MATERIAL CLASS INDEX AS PER PIPE MATERIAL CLASSES (DOC. N. 123A90-DDL-PP-SP-70000) △01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
PIPING SYMBOLOGY

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80010	SHEET 001	REV. 01

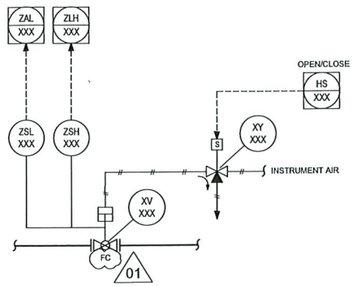
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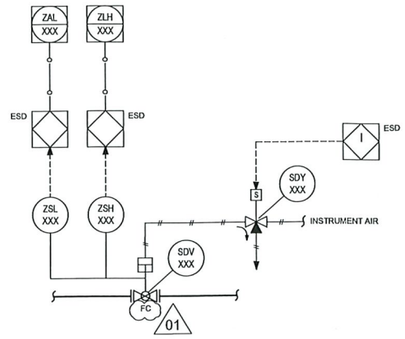
REV. 00

TYPICAL INSTRUMENTATION VALVE

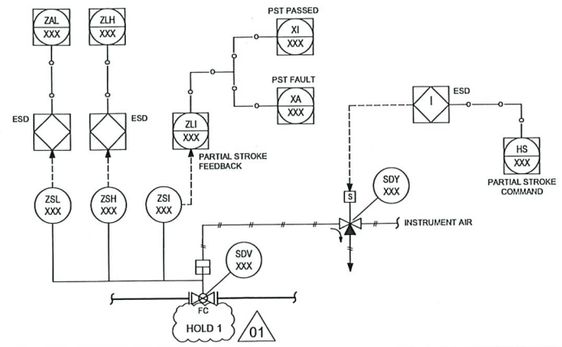
TYP.1 (XV - ON OFF VALVES)



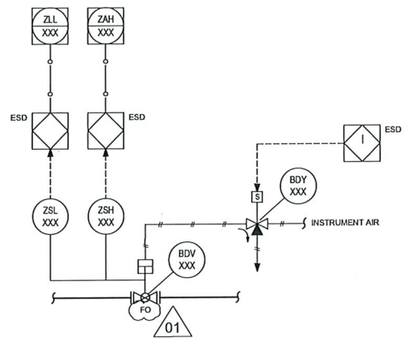
TYP.2 (SDV - SAFETY NO CRITICAL VALVES)



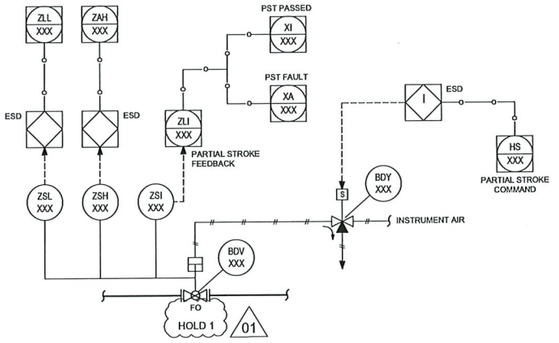
TYP.3 (SDV - SAFETY CRITICAL VALVES WITH PARTIAL STROKE)



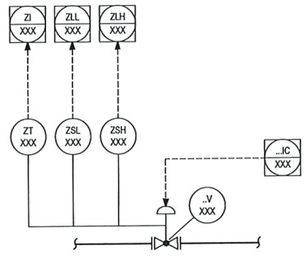
TYP.4 (BDV - SAFETY NO CRITICAL VALVES)



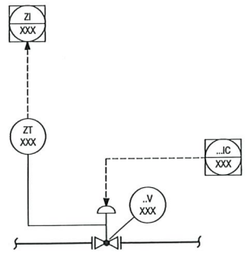
TYP.5 (BDV - SAFETY CRITICAL VALVES WITH PARTIAL STROKE)



TYP.6 (CONTROL VALVES - CRITICAL) 01



TYP.7 (CONTROL VALVES - NOT CRITICAL)



INSTRUMENT SYMBOLOGY DEFINITION

MEANINGS OF IDENTIFICATION LETTERS
THIS TABLE APPLIES TO THE FUNCTIONAL IDENTIFICATION OF INSTRUMENTS

	FIRST- LETTER		SUCCEEDING-LETTER		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
C				CONTROL	
E			SENSOR (PRIMARY ELEMENT) ELEMENT		
F	FLOW RATE	RATIO (FRACTION)			
G			GLASS VIEWING DEVICE		
H	HAND				HIGH
I			INDICATE		
L	LEVEL				LOW
O			ORIFICE, OPEN		
P	PRESSURE, VACUUM				
R		RELIEF			
S		SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
V				VALVE, DAMPER, LOUVER	
X	UNCLASSIFIED				
Y				AUXILIARY DEVICES	
Z	POSITION DIMENSION				

01

NOTE: FOR FURTHER EXPLANATORY NOTES, REFER TO ANSI/ISA-5.1

NOTES

1. FOR GENERAL NOTES AND PIPING SYMBOLOGY SEE DRAWINGS: 123A90-DDL-PR-PID-80009 AND 123A90-DDL-PR-PID-80010.
2. DELETED. 01

HOLDS

1. THE TYPICAL WILL BE CONFIRMED. 01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTIMARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
INSTRUMENTATION SYMBOLOGY

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80042		SHEET 001 / REV. 01

File Name :

DRAWING NO. DRAWING_NO.

REV. REV

A-20000
ELECTROLYSER PACKAGE

DUTY: 2.5 MW
DESIGN PRESSURE: 40 barg
DESIGN TEMPERATURE: 80 °C
H2 GENERATING CAPACITY: 500 Nm3/H

01

2"-VL-003-01HSS-N

123A90-DDL-PR-PID-80028
TO HYDROGEN VENT HEADER

TP 009 — 2" — SB — BLPH-MV-002 FB-LO

C

CONTRACTOR | SUPPLIER

123A90-DDL-PR-PID-80013
FROM HYDROGEN STORAGE VESSEL HEADER (INLET)

A-20000
ELECTROLYZER PACKAGE

NOTE 1, 5

TP 006 — BLPH-MV-003 — DB — LO — 1"

B

1"-HY-007-03HSS-N

123A90-DDL-PR-PID-80013
TO HYDROGEN STORAGE VESSEL HEADER (INLET)

123A90-DDL-PR-PID-80024
FROM UV WATER FILTER

E — 1"-DM-001-01SS-E — TP 001 — BLPH-MV-001 — SB — 1" — A

123A90-DDL-PR-PID-80027
FROM NITROGEN SYSTEM

1"-N-151-01CS-N — TP 046 — BLPH-NRV-019 — 1" — D — NOTE 6

123A90-DDL-PR-PID-80041
FROM IA DISTRIBUTION HEADER

1"-IA-191-01SS-N — TP 047 — BLPH-MV-210 — 1" — I

F — TP 004 — 2" x 1"

E — TP 005 — 2" x 1"

1"-DM-005-01CS-H

123A90-DDL-PR-PID-80025
TO BRINE DISCHARGE CAISSON

NNF — 1"-WW-004-01CS-H

123A90-DDL-PR-PID-80026
TO WASTE WATER TANK

NOTES

1. PACKAGE SUPPLIED WITH POWER FROM THE BLPH ELECTRICAL SYSTEM.
2. DELETED.
3. DELETED.
4. DELETED.
5. ELECTROLYSER PACKAGE INCLUDES AN OXYGEN VENT LINE WHICH IS IN THE SCOPE OF SUPPLY OF THE ELECTROLYSER PACKAGE UP TO THE ATMOSPHERE. NO PHYSICAL INTERFACE IS PRESENT BETWEEN ELECTROLYSER PACKAGE AND CONTRACTOR ON THIS LINE.
6. AN ISOLATION VALVE DOWNSTREAM THE CHECK VALVE NRV-019 IS PROVIDED WITHIN THE PACKAGE A-20000.

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
ELECTROLYSER PACKAGE

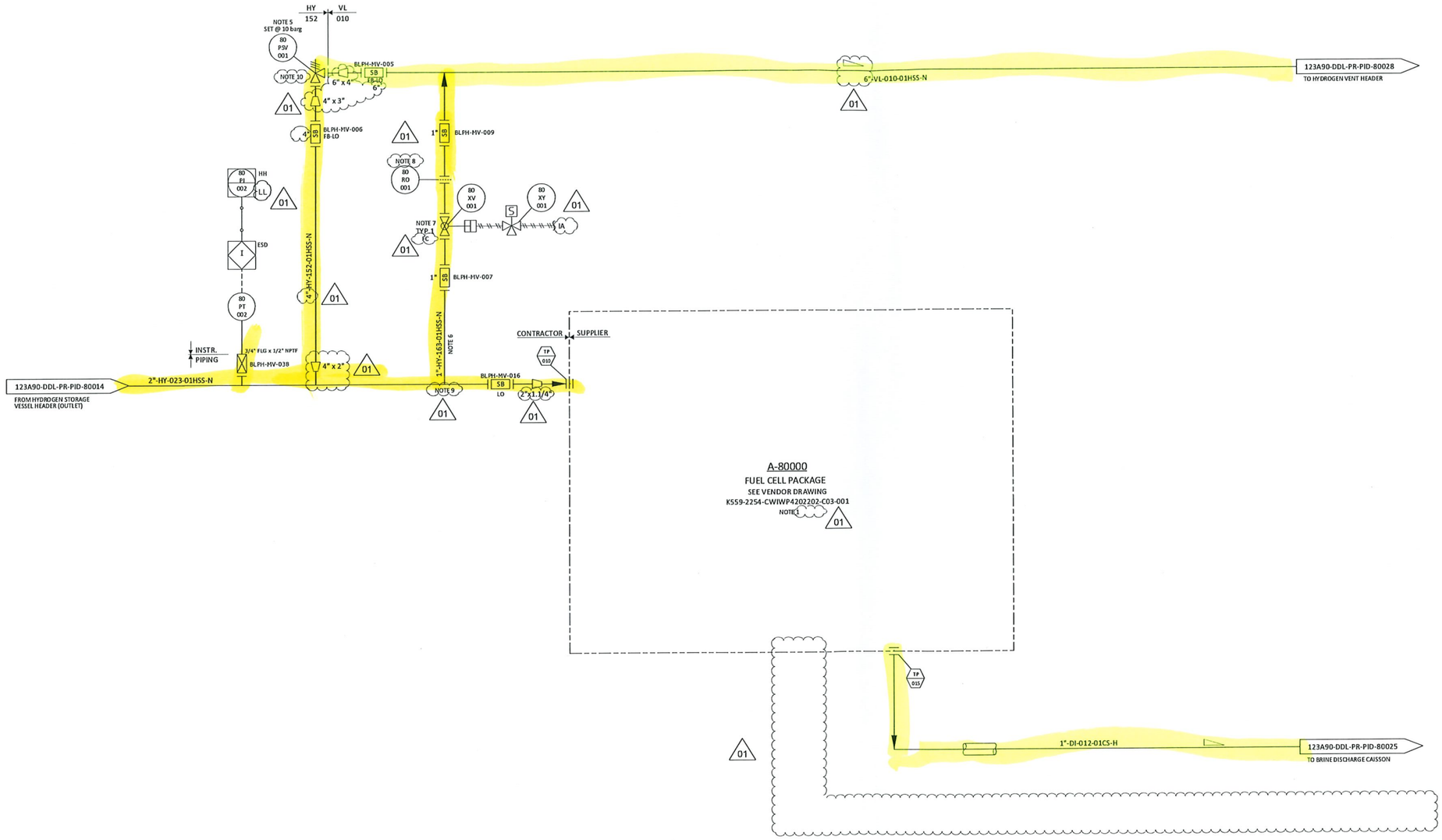
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80011		SHEET 001 / REV. 01

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

A-80000
FUEL CELL PACKAGE
DUTY: 1 MW



A-80000
FUEL CELL PACKAGE
SEE VENDOR DRAWING
K559-2254-CWIWP4202202-C03-001
NOTE 1
01

NOTES

1. THE VENDOR PACKAGE WILL CONTAIN AIR INTAKE AND EXHAUST, SUITABLY SAFEGUARDED AND SEPARATED.
2. DELETED.
3. DELETED.
4. DELETED

01

5. ONE UNINSTALLED SPARE PSV SHALL BE AVAILABLE.
6. LINE REQUIRED FOR PURGING OF PIPING WORK.
7. TIGHT SHUT-OFF VALVE.
8. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
9. LINE 1"-HY-163-01HSS-N WILL BE LOCATED AS CLOSE TO THE PACKAGE AS POSSIBLE TO ENSURE COMPLETE PURGING OF THE LINE.
10. 80PSV001 SIZED FOR CV FAILURE OF UPSTREAM CONTROL VAVE 25PV055A/B.

01

HOLDS

1. DELETED.
2. DELETED.

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

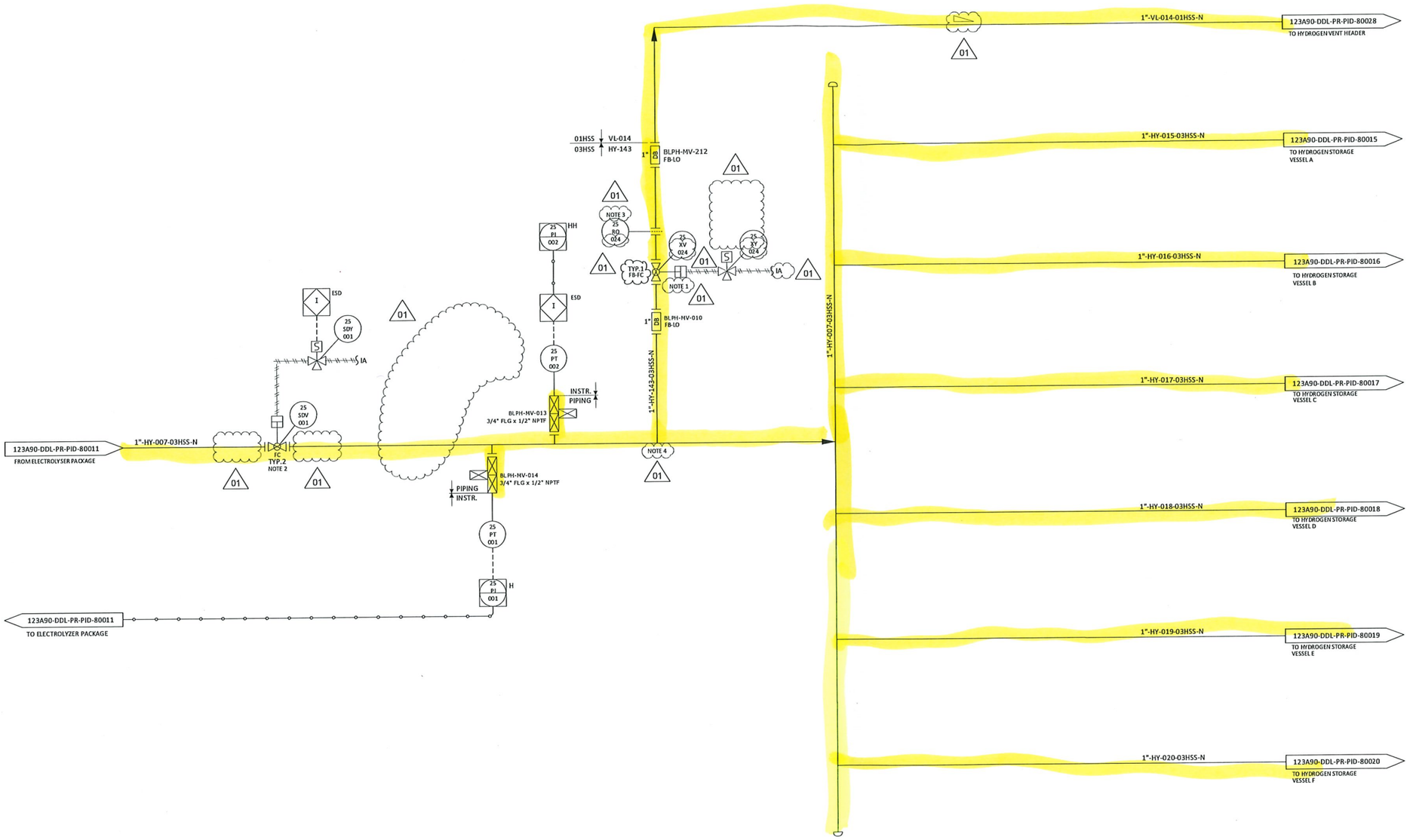
TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
FUEL CELL PACKAGE

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE	
A1	DRAWING NO. 123A90-DDL-PR-PID-80012		SHEET 001	REV. 01

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV



NOTES

1. TIGHT SHUT OFF XV.
2. NECESSARY CONTROL SYSTEM SOFTWARE SHALL BE INCLUDED TO SUPPORT ADVACED VALVE CONTROL, PARTIAL STROKE TESTING AND DIAGNOSTICS FOR ANY SAFETY CRITICAL ON/OFF VALVES. THESE APPLICATION SHALL BE IDENTIFIED BY HAZOP AND LOPA EVALUATION IF PARTIAL STROKE TESTING WILL BE REQUIRED:
   THE "TYP. 3" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 2" FOR SDV
   THE "TYP. 5" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 4" FOR BDV.
3. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
4. PIPING CONNECTION TO 25-XV-003 SHALL BE AS CLOSE TO THE MANIFOLD AS POSSIBLE, TO ENSURE COMPLETE PURGING OF FEED LINE.

01

HOLDS

1. DELETED. 01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

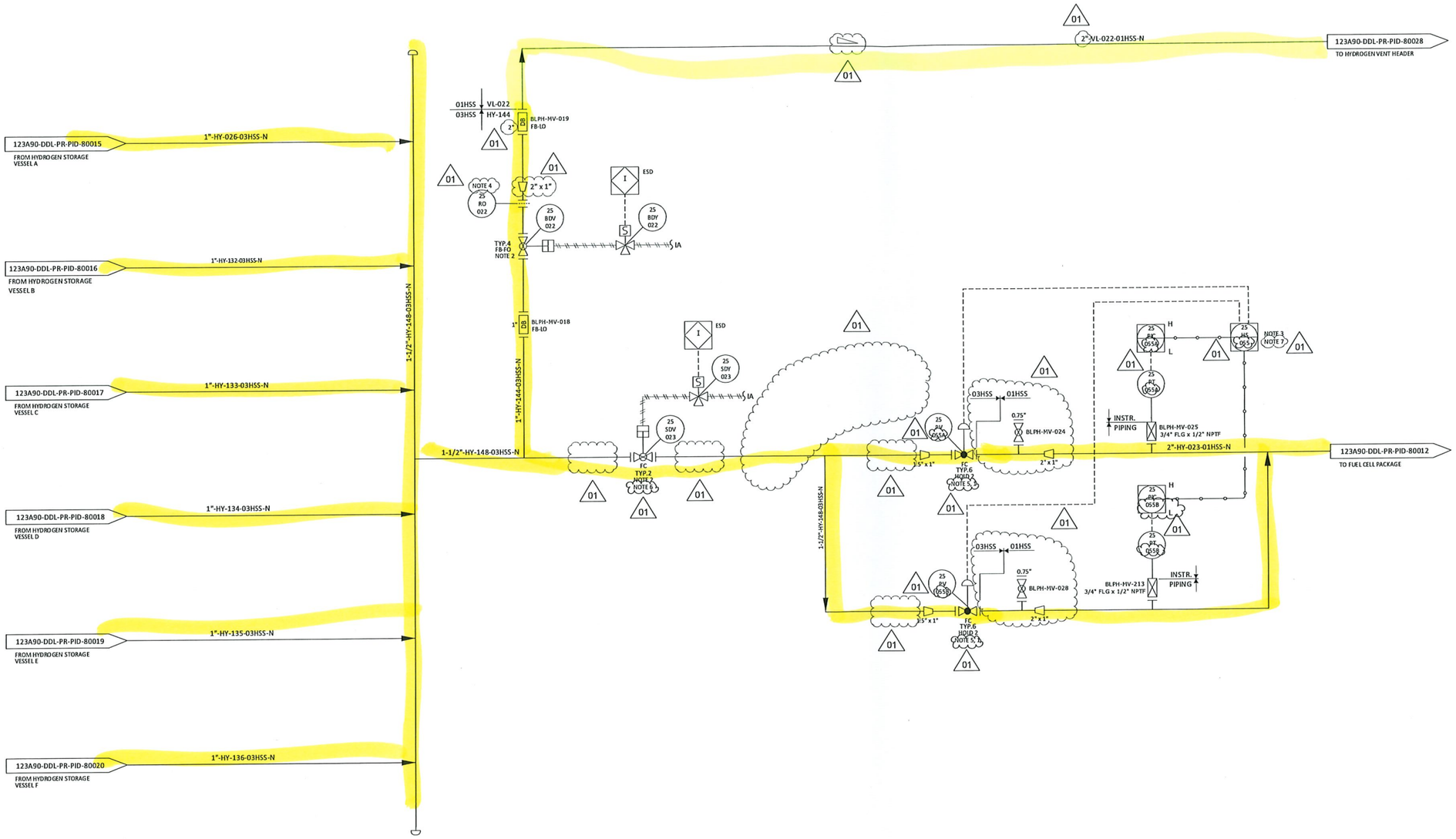
TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSELS HEADER (INLET)

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80013	SHEET 001	REV. 01

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV



NOTES

1. DELETED.
2. NECESSARY CONTROL SYSTEM SOFTWARE SHALL BE INCLUDED TO SUPPORT ADVACED VALVE CONTROL, PARTIAL STROKE TESTING AND DIAGNOSTICS FOR ANY SAFETY CRITICAL ON/OFF VALVES. THESE APPLICATION SHALL BE IDENTIFIED BY HAZOP AND LOPA EVALUATION IF PARTIAL STROKE TESTING WILL BE REQUIRED:
   THE "TYP. 3" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 2" FOR SDV
   THE "TYP. 5" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 4" FOR BDV
3. HAND SELECTOR TO ALLOW THE OPERATOR TO SELECT THE CONTROL LOOP (REMOTELY).
4. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
5. SOFTWARE INTERLOCK PREVENTS OPENING OF THE CONTROL VALVES 25-PV-055A/B IN CASE FUEL CELL PACKAGE (A-80000) IS NOT RUNNING.
6. SDV VALVE 25-SDV-023 TO BE INSTALLED AS CLOSE AS POSSIBLE TO THE CONTROL VALVES 25-PV-055A/B.
7. HS INCLUDES SOFTWARE INTERLOCK TO PREVENT BOTH VALVES TO BE ONLINE SIMULTANEOUSLY. SOFTWARE INTERLOCK PREVENTS VALVE 25PV055B TO OPEN IF VALVE 25PV055A IS NOT CLOSED.

01

HOLDS

1. DELETED.
2. CONTROL VALVE SIZE (BY VENDOR).

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSELS HEADER (OUTLET)

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE	
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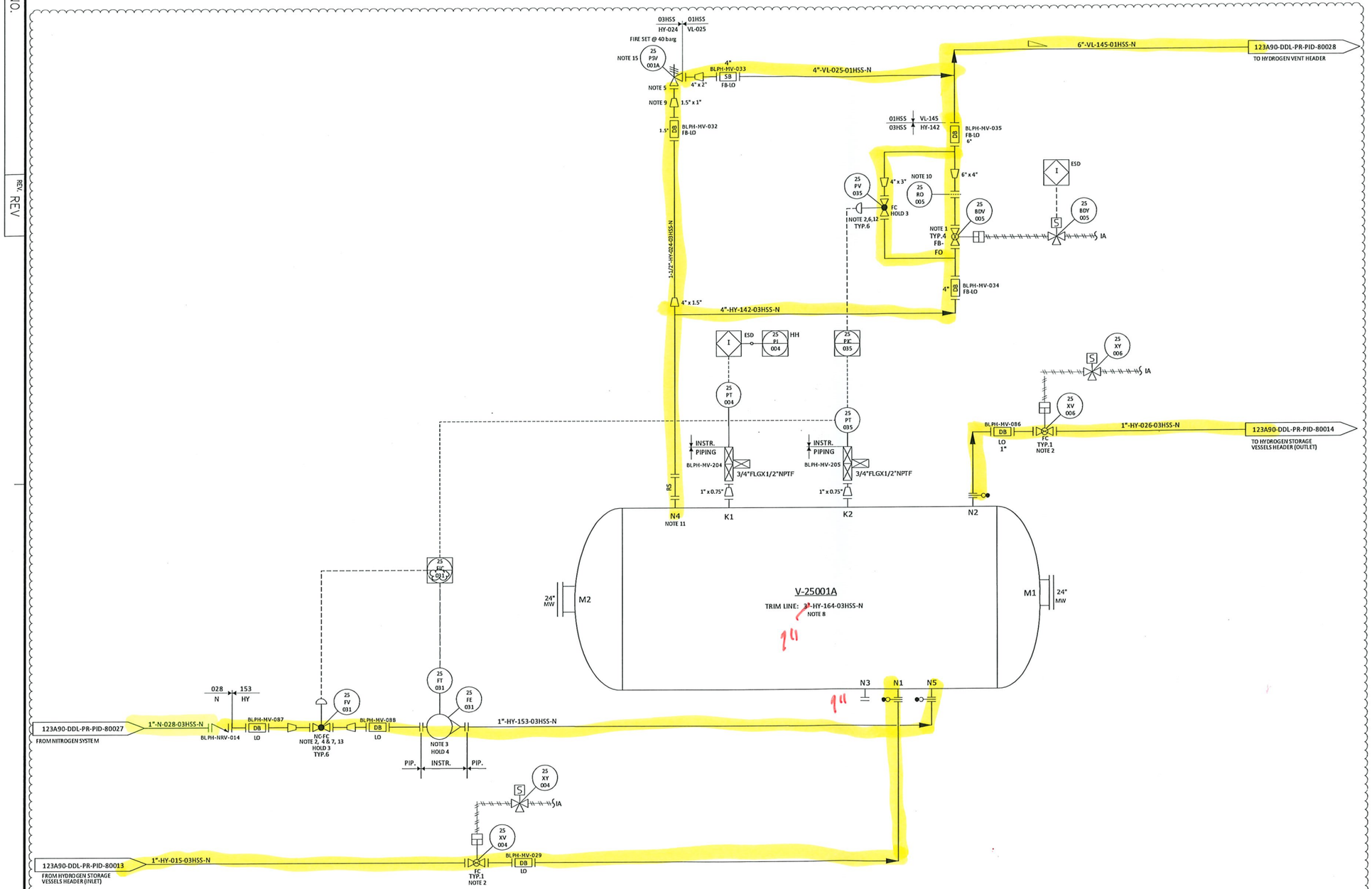
DRAWING NO. DRAWING_NO.

REV. REV

V-25001 A

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg /AMB



01

NOTES

1. NECESSARY CONTROL SYSTEM SOFTWARE SHALL BE INCLUDED TO SUPPORT ADVACED VALVE CONTROL, PARTIAL STROKE TESTING AND DIAGNOSTICS FOR ANY SAFETY CRITICAL ON/OFF VALVES. THESE APPLICATION SHALL BE IDENTIFIED BY HAZOP AND LOPA EVALUATION IF PARTIAL STROKE TESTING WILL BE REQUIRED:
   THE "TYP. 3" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 2" FOR SDV
   THE "TYP. 5" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 4" FOR BDV
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
4. NITROGEN CONTROL VALVE (25-FV-001), CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE.
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN.

01

8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25PV035 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION. CONTROL VALVE 25PV035 IS USED ONLY IN CASE OF VESSEL PURGING.
13. SOFTWARE INTERLOCK TO PREVENT 25FV031 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION.
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25PV035 HAS FAILED TO CLOSE.
15. 25PSV001A SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED.

01

3. CONTROL VALVE SIZE (BY VENDOR).
4. MULTIVARIABLE FLOWMETERS REQUIRE 7 DIAMETERS STRAIGHT LENGHT UPSTREAM AND 5 DIAMETERS STRAIGHT LENGHT DOWNSTREAM (TO BE CONFIRMED BY VENDOR).

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL A

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80015		SHEET 001 / REV. 01

File Name : FILE_NAME

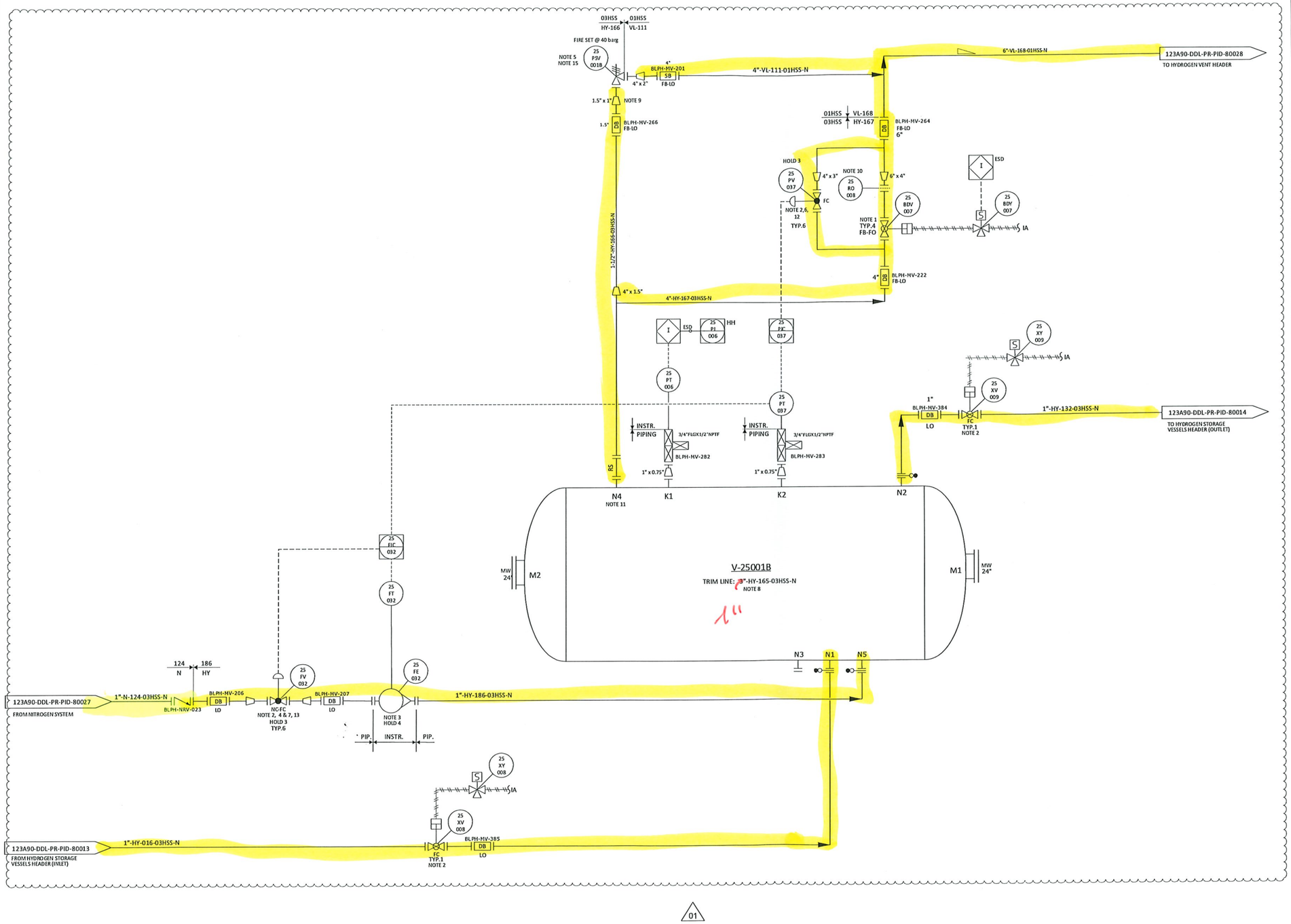
DRAWING NO. DRAWING_NO.

REV. REV

V-25001_B

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg / AMB



01

NOTES

1. NECESSARY CONTROL SYSTEM SOFTWARE SHALL BE INCLUDED TO SUPPORT ADVACED VALVE CONTROL, PARTIAL STROKE TESTING AND DIAGNOSTICS FOR ANY SAFETY CRITICAL ON/OFF VALVES. THESE APPLICATION SHALL BE IDENTIFIED BY HAZOP AND LOPA EVALUATION IF PARTIAL STROKE TESTING WILL BE REQUIRED:
   THE "TYP. 3" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 2" FOR SDV
   THE "TYP. 5" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 4" FOR BDV
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
4. NITROGEN CONTROL VALVE (25-FV-001), CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE.
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN. 01
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25PV037 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION. CONTROL VALVE 25PV037 IS USED ONLY IN CASE OF VESSEL PURGING.
13. SOFTWARE INTERLOCK TO PREVENT 25FV032 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION.
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25PV037 HAS FAILED TO CLOSE.
15. 25PSV001B SIZED FOR FIRE.

HOLDS

1. DELETED. 01
2. DELETED.
3. CONTROL VALVE SIZE (BY VENDOR).
4. MULTIVARIABLE FLOWMETERS REQUIRE 7 DIAMETERS STRAIGHT LENGHT UPSTREAM AND 5 DIAMETERS STRAIGHT LENGHT DOWNSTREAM (TO BE CONFIRMED BY VENDOR). 01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL B

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE	
A1	DRAWING NO. 123A90-DDL-PR-PID-80016		SHEET 001	REV. 00

File Name : FILE_NAME

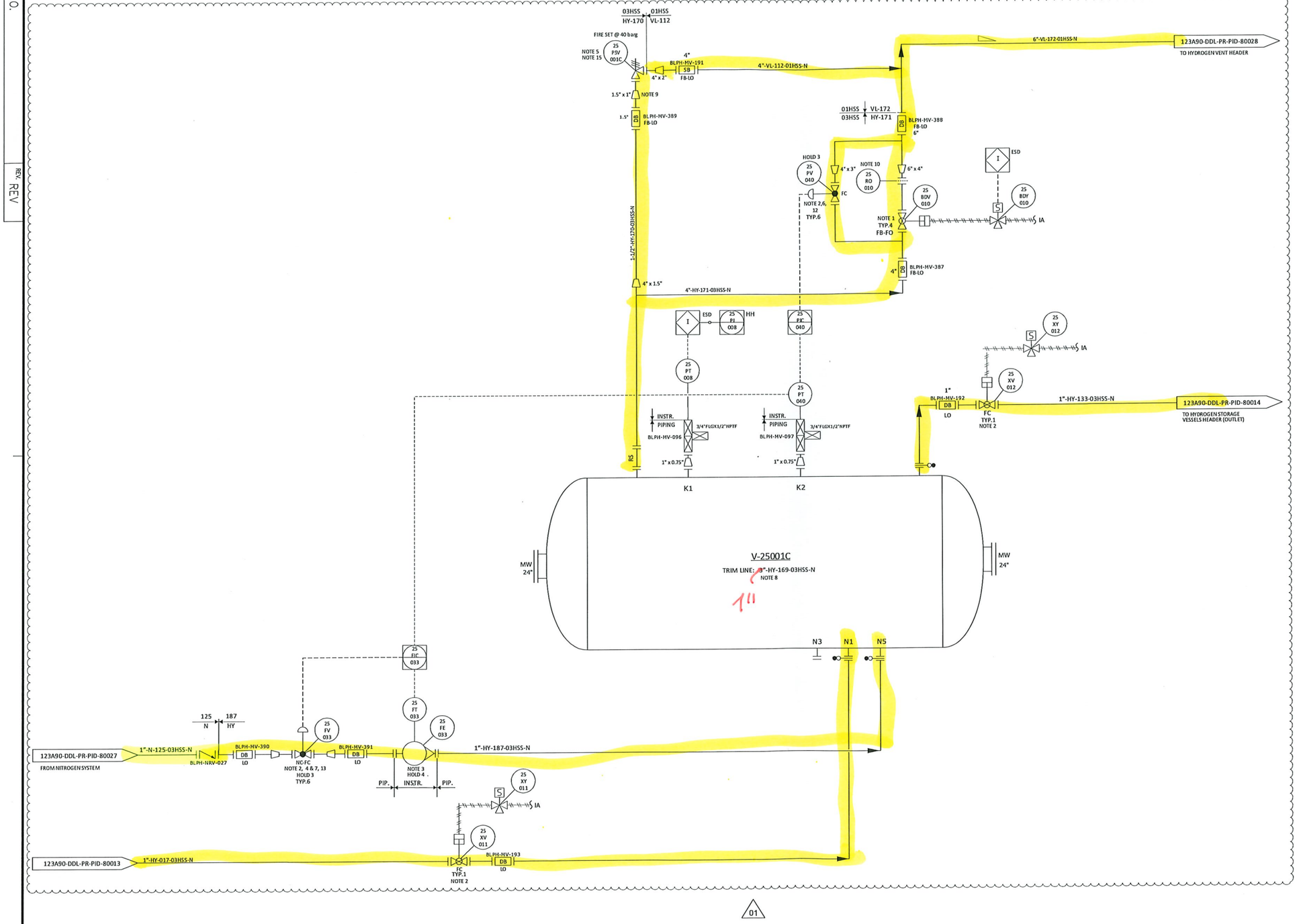
DRAWING NO. DRAWING_NO.

REV. REV

V-25001 C

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg / AMB



01

NOTES

1. NECESSARY CONTROL SYSTEM SOFTWARE SHALL BE INCLUDED TO SUPPORT ADVACED VALVE CONTROL, PARTIAL STROKE TESTING AND DIAGNOSTICS FOR ANY SAFETY CRITICAL ON/OFF VALVES. THESE APPLICATION SHALL BE IDENTIFIED BY HAZOP AND LOPA EVALUATION IF PARTIAL STROKE TESTING WILL BE REQUIRED:
   THE "TYP. 3" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 2" FOR SDV
   THE "TYP. 5" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 4" FOR BDV
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
4. NITROGEN CONTROL VALVE (25-FV-001), CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE.
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN. 01
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25PV040 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION. CONTROL VALVE 25PV040 IS USED ONLY IN CASE OF VESSEL PURGING.
13. SOFTWARE INTERLOCK TO PREVENT 25FV033 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25PV040 HAS FAILED TO CLOSE.
15. 25PSV001C SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED. 01
3. CONTROL VALVE SIZE (BY VENDOR).
4. MULTIVARIABLE FLOWMETERS REQUIRE 7 DIAMETERS STRAIGHT LENGHT UPSTREAM AND 5 DIAMETERS STRAIGHT LENGHT DOWNSTREAM (TO BE CONFIRMED BY VENDOR).

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL C

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80017		SHEET 001 / REV. 01

File Name : FILE_NAME

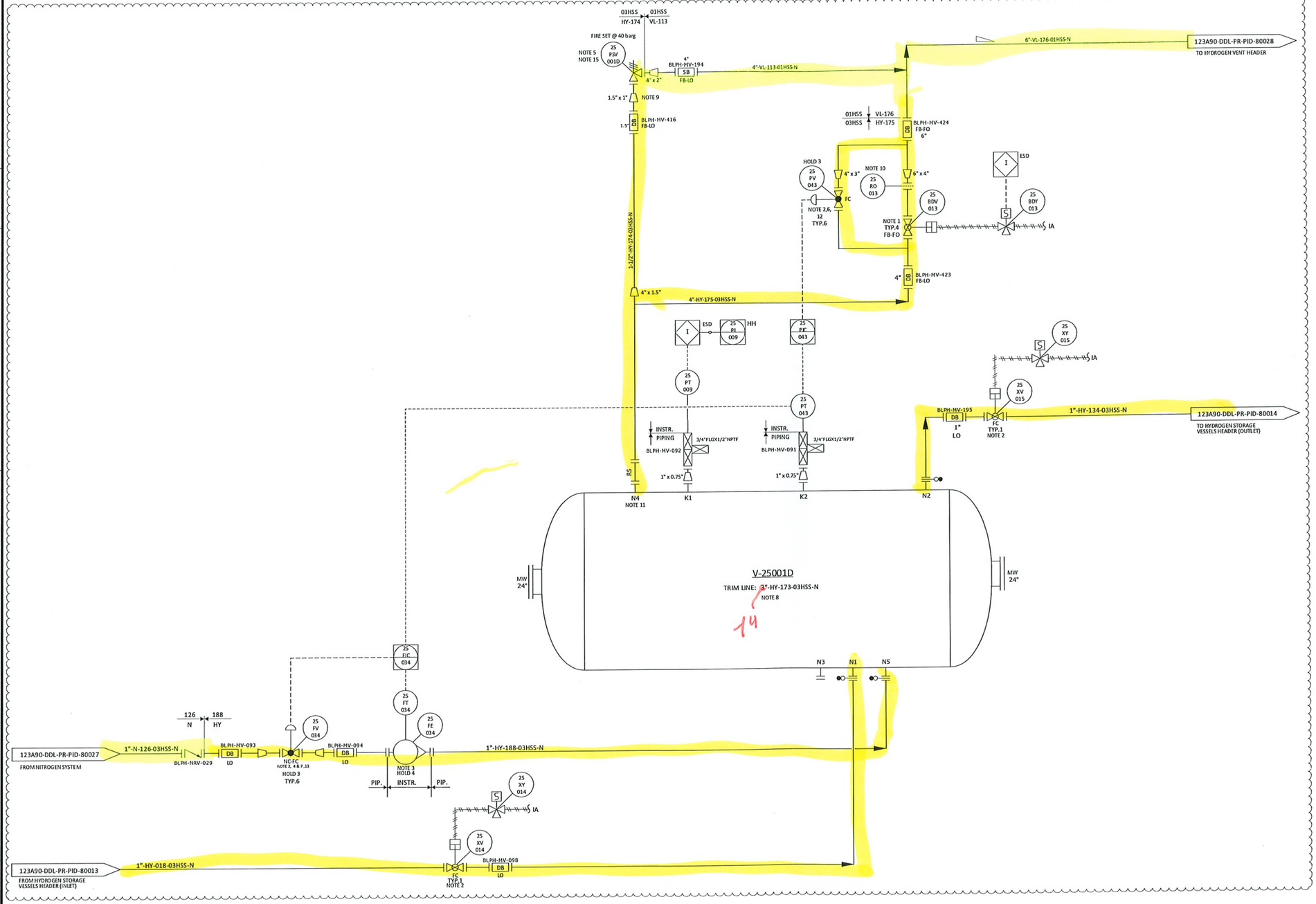
DRAWING NO. DRAWING_NO.

REV. REV

V-25001 D

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg / AMB



01

NOTES

1. NECESSARY CONTROL SYSTEM SOFTWARE SHALL BE INCLUDED TO SUPPORT ADVACED VALVE CONTROL, PARTIAL STROKE TESTING AND DIAGNOSTICS FOR ENY SAFETY CRITICAL ON/OFF VALVES. THESE APPLICATION SHALL BE IDENTIFIED BY HAZOP AND LAPA EVALUATION IF PARTIAL STROKE TESTING WILL BE REQUIRED:
   THE "TYP. 3" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 2" FOR SDV
   THE "TYP. 5" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 4" FOR BDV
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
4. NITROGEN CONTROL VALVE (25-FV-001), CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE.
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN. 01
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25PV043 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION. CONTROL VALVE 25PV043 IS USED ONLY IN CASE OF VESSEL PURGING
13. SOFTWARE INTERLOCK TO PREVENT 25FV034 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25PV043 HAS FAILED TO CLOSE.
15. 25PSV001D SIZED FOR FIRE.

HOLDS

1. DELETED. 01
2. DELETED.
3. CONTROL VALVE SIZE (BY VENDOR).
4. MULTIVARIABLE FLOWMETERS REQUIRE 7 DIAMETERS STRAIGHT LENGHT UPSTREAM AND 5 DIAMETERS STRAIGHT LENGHT DOWNSTREAM (TO BE CONFIRMED BY VENDOR).

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL D

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80018		SHEET 001 / REV. 01

File Name : FILE_NAME

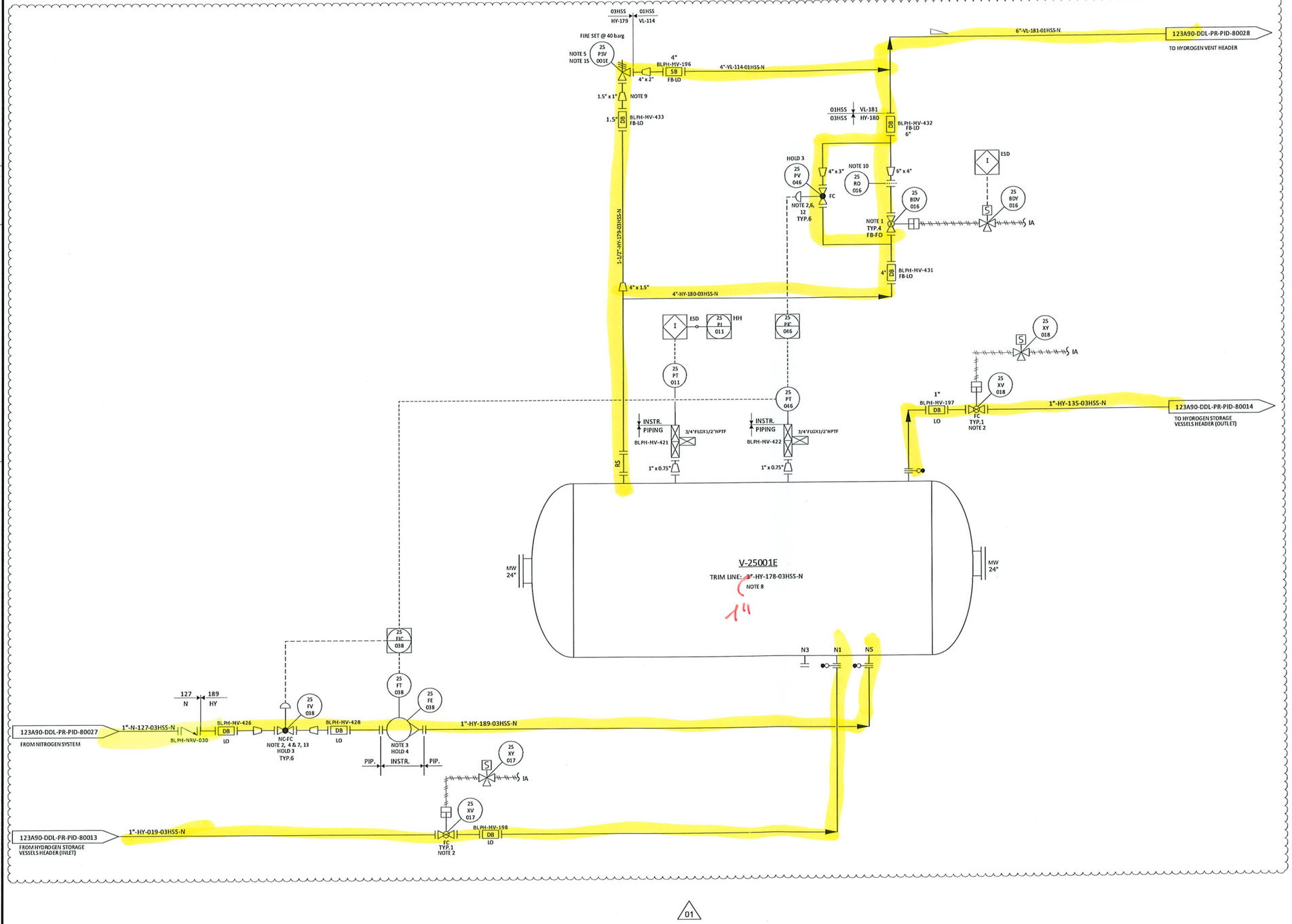
DRAWING NO. DRAWING_NO.

REV. REV

V-25001 E

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg / AMB



01

NOTES

1. NECESSARY CONTROL SYSTEM SOFTWARE SHALL BE INCLUDED TO SUPPORT ADVACED VALVE CONTROL, PARTIAL STROKE TESTING AND DIAGNOSTICS FOR ENY SAFETY CRITICAL ON/OFF VALVES. THESE APPLICATION SHALL BE IDENTIFIED BY HAZOP AND LAPA EVALUATION IF PARTIAL STROKE TESTING WILL BE REQUIRED:
   THE "TYP. 3" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 2" FOR SDV
   THE "TYP. 5" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 4" FOR BDV
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
4. NITROGEN CONTROL VALVE (25-FV-001), CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE.
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN.

01

8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027".
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25PV046 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION. CONTROL VALVE 25PV046 IS USED ONLY IN CASE OF VESSEL PURGING
13. SOFTWARE INTERLOCK TO PREVENT 25FV038 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25PV046 HAS FAILED TO CLOSE.
15. 25PSV001E SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED.

01

3. CONTROL VALVE SIZE (BY VENDOR).
4. MULTIVARIABLE FLOWMETERS REQUIRE 7 DIAMETERS STRAIGHT LENGHT UPSTREAM AND 5 DIAMETERS STRAIGHT LENGHT DOWNSTREAM (TO BE CONFIRMED BY VENDOR).

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL E

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE	
A1	DRAWING NO. 123A90-DDL-PR-PID-80019		SHEET 001	REV. 01

File Name - FILE_NAME

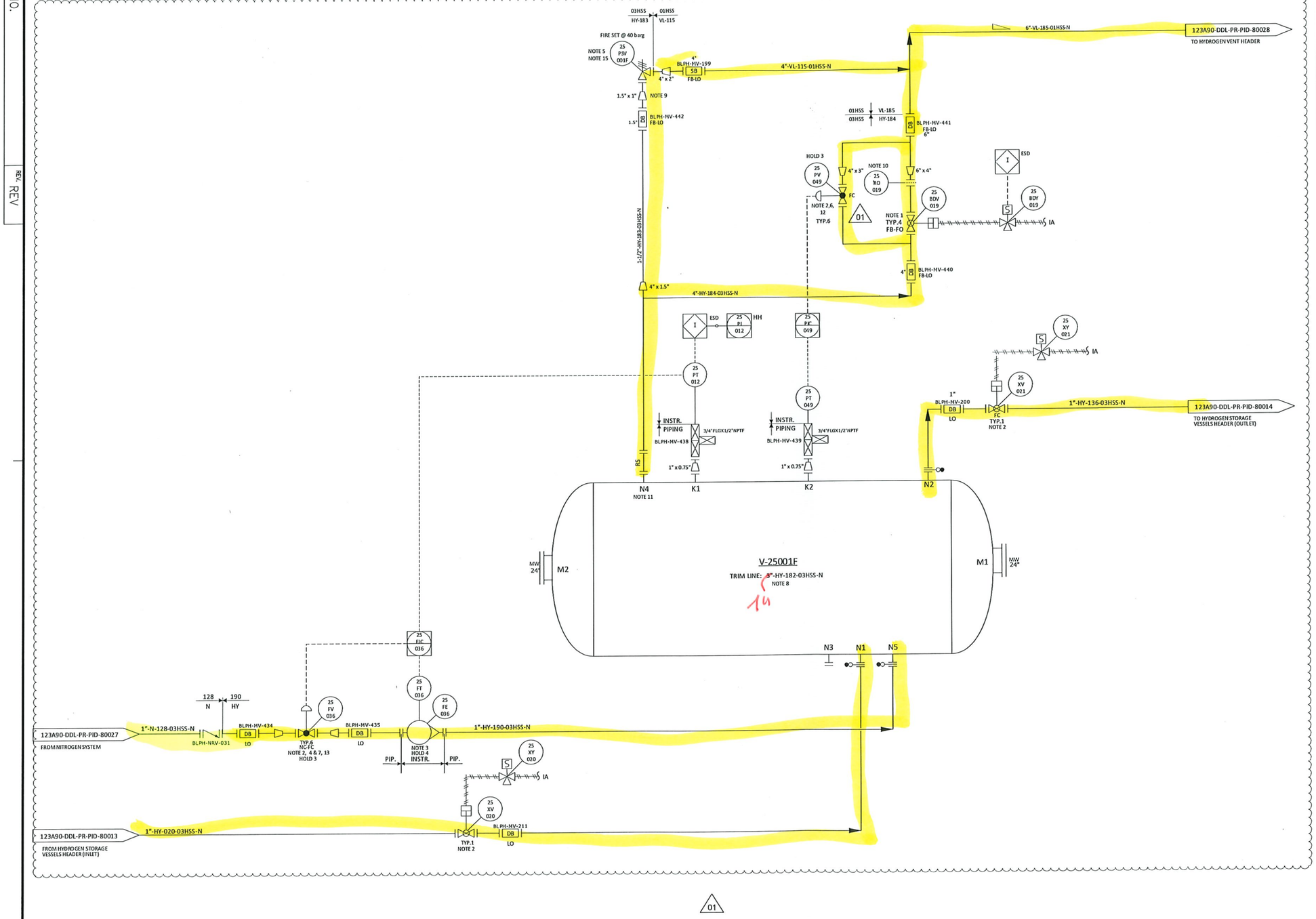
DRAWING NO. DRAWING_NO.

REV. REV

V-25001_F

HYDROGEN STORAGE VESSEL

SIZE : 2800 mm (ID) X 15500 mm (L T/T)
DESIGN P/T : 40 barg / -10 / 80 °C
MATERIAL : CARBON STEEL
OPERATING P/T : 30 barg / AMB



01

NOTES

1. NECESSARY CONTROL SYSTEM SOFTWARE SHALL BE INCLUDED TO SUPPORT ADVACED VALVE CONTROL, PARTIAL STROKE TESTING AND DIAGNOSTICS FOR ENY SAFETY CRITICAL ON/OFF VALVES. THESE APPLICATION SHALL BE IDENTIFIED BY HAZOP AND LAPA EVALUATION IF PARTIAL STROKE TESTING WILL BE REQUIRED:
   THE "TYP. 3" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 2" FOR SDV
   THE "TYP. 5" SHALL BE CONSIDERED INSTEAD THE ACTUAL "TYP. 4" FOR BDV
2. TIGHT SHUT OFF VALVE.
3. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
4. NITROGEN CONTROL VALVE (25-FV-001), CAN NOT OPEN UNTIL THE PRESSURE WITHIN THE VESSEL IS BELOW THE NITROGEN SUPPLY PRESSURE.
5. ONE COMMON UNINSTALLED SPARE PSV FOR ALL VESSELS.
6. FOR PULSE PRESSURE PURGING OF VESSEL WITH HYDROGEN.
7. FOR FLOW PURGING OF VESSEL WITH NITROGEN.

01

8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 STORAGE, DOC. N. "123A90-DDL-MAC-DS-50027.
9. REDUCERS TO BE INSTALLED AS CLOSE TO PSV AS POSSIBLE.
10. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "RELIEF, VENT AND BLOWDOWN REPORT" DOC. N. "123A90-DDL-PR-RE-80030".
11. NOZZLE N4 TO BE INSTALLED AT MINIMUM DISTANCE FROM TANGENT LINE OF THE VESSEL (ON THE OPPOSITE SIDE OF N5 NOZZLE).
12. SOFTWARE INTERLOCK TO PREVENT 25PV049 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION. CONTROL VALVE 25PV049 IS USED ONLY IN CASE OF VESSEL PURGING.
13. SOFTWARE INTERLOCK TO PREVENT 25FV036 BEING OPENED OUTSIDE OF A PURGE CYCLE OPERATION
14. A TIMER ALARM ON THE H2 PRESSURIZATION SECTION OF THE PURGE CYCLE IN THE CONTROL LOGIC IS PROVIDED TO DETERMINE IF THE PURGE VALVE 25PV049 HAS FAILED TO CLOSE.
15. 25PSV001F SIZED FOR FIRE.

HOLDS

1. DELETED.
2. DELETED.

01

3. CONTROL VALVE SIZE (BY VENDOR).
4. MULTIVARIABLE FLOWMETERS REQUIRE 7 DIAMETERS STRAIGHT LENGHT UPSTREAM AND 5 DIAMETERS STRAIGHT LENGHT DOWNSTREAM (TO BE CONFIRMED BY VENDOR).

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR HAZOP (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN STORAGE VESSEL F

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE	
A1	DRAWING NO. 123A90-DDL-PR-PID-80020		SHEET 001	REV. 00

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

P-50001 A/B
SEA WATER LIFT PUMPS
POWER : 1.6 KW
FLOW : 4 m3/h
DESIGN P/T : 17.7 bars (HOLD 5) / 80°C
DIFF. PRESSURE : 15.0 bars
MATERIAL : 25% Cr SDSS

B-50013 A/B
SEA WATER LIFT PUMPS
CAISSONS
SIZE : 305 mm (ID) x 27308 mm (H)
MATERIAL : CS + EA

123A90-DDL-PR-PID-80022
ELECTRO-CHLORINATION UNIT

1"-CI-029-01CP-E

3/4" BLPH-MV-214
3/4"x1/2" 1/2"
CONC. RED. BLPH-MV-215

1"-CI-196-01CP-E
BLPH-MV-223
50 FV 003
50 FIC 003
HOLD 1, 3
TYP.7 FO
BLPH-MV-224
50 FT 003
50 FE 003
NOTE 4 HOLD 4
BLPH-NRV-025
01CP
01SD

1-1/2"-SWS-035-01SD-E
123A90-DDL-PR-PID-80022
SEA WATER COARSE FILTER PACKAGE

BLPH-MV-043 SB 1.1/2"
1-1/2"-SWS-031-01SD-E

BLPH-MV-050 SB 1.1/2"
1-1/2"-SWS-033-01SD-E

50 FV 001
50 FIC 001
1" BLPH-MV-041
HOLD 1, 3
TYP.7 FO
1" BLPH-MV-042
50 FT 001
50 FE 001
NOTE 4 HOLD 4
BLPH-NRV-007
50 PI 001
50 PT 001
INSTR. PIPING
2" 2"x1.5"
BLPH-MV-464
1.1/2" BLPH-NRV-004
50 XV 001
50 XV 002
NOTE 5
NOTE 3
FC TYP.1
3/4" BLPH-MV-044
50 RO 001
NOTE 7
1"-SWS-146-01SD-E

50 FV 002
50 FIC 002
1" BLPH-MV-216
HOLD 1, 3
TYP.7 FO
1" BLPH-MV-217
50 FT 002
50 FE 002
NOTE 4 HOLD 4
BLPH-NRV-024
50 PI 002
50 PT 002
INSTR. PIPING
2" 2"x1.5"
BLPH-MV-465
1.1/2" BLPH-NRV-008
50 XV 003
50 XV 004
NOTE 5
NOTE 3
FC TYP.1
3/4" BLPH-MV-054
50 RO 002
NOTE 7
1"-SWS-147-01SD-E

START/ STOP 50 HS 001
RUNNING/ STOPPED 50 XI 001
AUTO START READY 50 XI 002
TRIPPED/ FAULT 50 XA 001
SHUTDOWN ALARM 50 XA 002
ESD
START/ STOP 50 HS 002
RUNNING/ STOPPED 50 XI 003
AUTO START READY 50 XI 004
TRIPPED/ FAULT 50 XA 003
SHUTDOWN ALARM 50 XA 004
ESD

SP 0043
SP 0044
SP 0033
1"-SWS-222-01SD-E
BLPH-MV-048
SP 0034
1"-SWS-221-01SD-E
BLPH-MV-051

MCC
M
RS
1"-CI-030-01CP-E
1"-CI-032-01CP-E

LOWER DECK: +23.310 m
TOP OF CAISSON: +21.808 m
HOLD 2
SUCTION
NOTE 1 & 2
PUMP RETENTION BARS
EL: 5.500 m

P-50001A
B-50013A
NOTE 6

P-50001B
B-50013B
NOTE 6

NOTES

1. SEAWATER LIFT PUMPS ARE RATED 2 X 100%
2. AUTO START OF DESIGNATED STANDBY PUMP ON LOSS OF RUNNING STATUS AND DISCHARGE LOW PRESSURE ALARM OF DUTY PUMP.
3. VALVE TO BE OPENED WHEN PUMP IS OFFLINE TO DOSE CAISSON WITH TREATED SEAWATER TO PREVENT BIOLOGICAL GROWTH.
4. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
5. SOFTWARE INTERLOCK PREVENTS PUMPS FROM STARTING UNLESS DISCHARGE XV IS FULLY CLOSED.
6. CAISSONS ARE OPEN TOPPED.
7. FOR ORIFICE DIAMETER REFERENCE SHALL BE MADE TO "123A90-DDL-IN-DS-40054 - TECHNICAL DATASHEET FOR RESTRICTION ORIFICE".

HOLDS

1. CONTROL VALVE SIZE (BY VENDOR)
2. CAISSON DIAMETER IS IN HOLD. WILL BE FIXED WHEN ACTUAL PUMP DIMENSION INFORMATION IS AVAILABLE FROM VENDOR.
3. CONTROL LOOP IS IN HOLD. DEPENDING ON TYPE OF ELECTRO-CHLORINATION PUMPS.
4. MULTIVARIABLE FLOWMETERS REQUIRE 7 DIAMETERS STRAIGHT LENGHT UPSTREAM AND 5 DIAMETERS STRAIGHT LENGHT DOWNSTREAM (TO BE CONFIRMED BY VENDOR).
5. DESIGN PRESSURE PENDING FROM VENDOR INFORMATION

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
SEA-WATER INTAKE SYSTEM SHEET 1

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80021	SHEET 001	REV. 01

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

A-50003
SEA WATER COARSE FILTER PACKAGE
CAPACITY : 3 m³/h

A-50002
ELECTRO-CHLORINATION PACKAGE
DOSING CAPACITY : 6 m³/h

WATER TREATMEN PACKAGE HOLD 6

CONTRACTOR | SUPPLIER

SUCTION 50 PI 003 | DISCHARGE 50 PI 004 | COMMON ALARM 50 XA 005 | MCC DEVICE COMMS FAIL 50 XI 005 | AVAILABLE STATUS 50 XI 006 | RUN/STOP STATUS 50 XI 007 | SHUTDOWN STATUS 50 XI 008 | SHUTDOWN ALARM 50 XA 006 | ESD

1"-SWR-149-01SD-H
123A90-DDL-PR-PID-80025
TO BRINE DISCHARGE CAISSON

FOR CONTINUATION SEE DOC N. 123A90-DDL-PR-PID-80023

50 FIC 005A
NOTE 5
50 HS 005
50 FIC 005B
50 FV 005A
50 FT 005A
50 FE 005A
NOTE 4 HOLD 4
FC TYP 7 HOLD 1
PIP. INSTR. PIP.

123A90-DDL-PR-PID-80023
TO ULTRA FILTRATION UNIT

TP 023
1-1/2"-SWS-037-01SD-E
E
BLPH-NRV-026
3/4"
BLPH-MV-246

50 FT 005B
50 FV 005B
50 FE 005B
1.1/2"

123A90-DDL-PR-PID-80025
TO 50-TD-002
50 TI 001
50 TT 001
50 TE 001
1.1/2"
TP 017
E 4"x1.1/2" 4"x1.1/2"
ECC. RED. ECC. RED.
123A90-DDL-PR-PID-80021
FROM SEA WATER LIFT PUMP
1-1/2"-SWS-035-01SD-E
BLPH-MV-241 3/4"
TP 018
123A90-DDL-PR-PID-80041
FROM IA DISTRIBUTION HEADER
1"-IA-192-01SS-N
1" BLPH-MV-242

A-50003
SEA WATER COARSE FILTER PACKAGE
SEE VENDOR DIAGRAM DOC. NUMBER HOLD 3
HOLD 2

1"-SWS-036-01SD-E
E
TP 022
BLPH-NRV-011
BLPH-MV-061 0.75"

SUCTION 50 PI 005 | DISCHARGE 50 PI 006 | COMMON ALARM 50 XA 007 | MCC DEVICE COMMS FAIL 50 XI 009 | AVAILABLE STATUS 50 XI 010 | RUN/STOP STATUS 50 XI 011 | SHUTDOWN STATUS 50 XI 012 | SHUTDOWN ALARM 50 XA 008 | ESD

A-50002
ELECTRO-CHLORINATION PACKAGE
SEE VENDOR DIAGRAM DOC. NUMBER HOLD 3
HOLD 2, 5
NOTE 1

CONTRACTOR | SUPPLIER

TP 026
1"-CI-029-01CP-E
E
1" BLPH-MV-062
123A90-DDL-PR-PID-80021
TO SEA WATER LIFT PUMP AND LIFT PUMP CAISSONS
FOR CONTINUATION SEE DOC N. 123A90-DDL-PR-PID-80023
1"-CI-043-01CP-E
123A90-DDL-PR-PID-80026
TO WASTE WATER TANK

SUPPLIER | CONTRACTOR

TP 019
TP 020
TP 024
TP 025
1"-WW-131-01CP-H
1"-SWR-044-01CP-H
NNF
01CP
01CS
1"-SWR-045-01CS-H
123A90-DDL-PR-PID-80025
TO BRINE DISCHARGE CAISSON
NNF
1"-WW-038-01CS-H
123A90-DDL-PR-PID-80026
TO WASTE WATER TANK

NOTES

1. DESIGNED FOR CONTINUOUS DOSING OF THE SEAWATER SUPPLY AND INTERMITTENT DOSING OF THE RUNNING SEAWATER AND STAND-BY SEAWATER LIFT PUMP CAISSONS.
2. DELETED.
3. DELETED. 01
4. VARIABLE AREA FLOWMETER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
5. HAND SELECTOR TO ALLOW THE OPERATOR TO SELECT THE CONTROL LOOP (REMOTELY).

HOLDS

1. CONTROL VALVE SIZING (BY VENDOR).
2. CONTROL INTERFACES SHOWN FOR THE PACKAGES ARE IN HOLD UNTIL ALL DETAILS ARE PROVIDED BY THE RESPECTIVE VENDORS AND CONFIRMED VALVE SIZING (BY VENDOR).
3. VENDOR DOCUMENT NUMBER.
4. MULTIVARIABLE FLOWMETERS REQUIRE 7 DIAMETERS STRAIGHT LENGHT UPSTREAM AND 5 DIAMETERS STRAIGHT LENGHT DOWNSTREAM (TO BE CONFIRMED BY VENDOR).
5. H2 VENT LINE FROM THE PACKAGE A-50002 IS IN HOLD, DEPENDING BY THE SELECTED TECHNOLOGY THAT WILL PRODUCE HYPOCHLORITE SOLUTION.
6. WATER TREATMENT SYSTEM DESIGN TO BE CONFIRMED BY VENDOR. 01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND | ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
SEA-WATER INTAKE SYSTEM SHEET 2

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80022		SHEET 001 / REV. 01

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

A-50005
ULTRA FILTRATION UNIT
CAPACITY : 2 m³/h

T-50006
FILTERED SEA WATER TANK
SIZE : 1600 mm (ID) x 2500 mm (H T/T)
CAPACITY : 5 m³
DESIGN P/T : ATM / 80°C
MATERIAL : GRP

A-50007
DESALINATION UNIT
CAPACITY : 1 m³/h

WATER TREATMEN PACKAGE HOLD 4

CONTRACTOR SUPPLIER

SUPPLIER CONTRACTOR

50 LV 006A — LC TYP 7 HOLD 1

50 LV 006B — LC TYP 7

NOTE 4

50 HS 006

1"-AV-217-01CS-N

BLPH-HV-105 3/4"

ESD

SUCTION 50 PI 007 | DISCHARGE 50 PI 008 | COMMON ALARM 50 XA 009 | MCC DEVICE COMMS FAIL 50 XI 013 | AVAILABLE STATUS 50 XI 014 | RUN/STOP STATUS 50 XI 015 | SHUTDOWN STATUS 50 XI 016 | SHUTDOWN ALARM 50 XA 010

50 LIC 006A — H L — SP 0035

RS

1-1/2"-SWS-046-01SD-E

PIPING INSTR.

L1 — E — T-50006 — BLPH-HV-267 SB — 50 UT 006A — 1" — X — B — 1"-SWR-155-01SD-N — OVERBOARD

PIPING INSTR.

L2 — E — T-50006 — BLPH-HV-268 SB — 50 UT 006B — 50 LIC 006B — H L

FOR CONTINUATION SEE DOC N. 123A90-DDL-PR-PID-80024

CONTRACTOR SUPPLIER

FOR CONTINUATION SEE DOC N. 123A90-DDL-PR-PID-80022

1-1/2"-SWS-037-01SD-E

TP 028

123A90-DDL-PR-PID-80022
FROM SEA WATER COARSE FILTER PACKAGE

E — BLPH-HV-249 3/4"

A-50005
ULTRA FILTRATION UNIT
SEE VENDOR DIAGRAM DOC. NUMBER HOLD 3
HOLD 2

TP 031 — BLPH-HV-100 3/4"

T-50006
TRIM LINE: 1.5"-SWS-199-01SD-E
NOTE 5

O — RS — BLPH-HV-109 3/4"

50 LI 002 — LL — I — ESD

123A90-DDL-PR-PID-80024
FROM LIC-007A/B

PIPING INSTR.

BLPH-HV-443 1" SB — 1" — SA — L3 — E — 1" — BLPH-HV-444 SB — 50 LT 002

CONC. RED. 1"x1/2"

BLPH-HV-265 1/2"

SAMPLE CONNECTION

M1 — 24" MW — A

FOR CONTINUATION SEE DOC N. 123A90-DDL-PR-PID-80022

TP 029 — TP 030

CONTRACTOR SUPPLIER

BLPH-HV-263

1-1/2"-SWS-049-01SD-H

SUCTION 50 PI 009 | DISCHARGE 50 PI 010 | COMMON ALARM 50 XA 011 | MCC DEVICE COMMS FAIL 50 XI 017 | AVAILABLE STATUS 50 XI 018 | RUN/STOP STATUS 50 XI 019 | SHUTDOWN STATUS 50 XI 020 | SHUTDOWN ALARM 50 XA 012

I ESD

BLPH-MV-110 3/4"

SUPPLIER CONTRACTOR

A-50007
DESALINATION UNIT
SEE VENDOR DIAGRAM DOC. NUMBER HOLD 3
HOLD 2 NOTE 1

CONTRACTOR SUPPLIER — TP 032

1"-SWR-048-01CS-H

FOR CONTINUATION SEE DOC N. 123A90-DDL-PR-PID-80024

TP 033 — TP 034 — TP 035

1"-DM-050-01SS-E

E — BLPH-MV-111 3/4"

1"-WW-051-01CS-H — NNF — 1"-CB-052-01CS-H

123A90-DDL-PR-PID-80024
TO FRESH WATER TANK

1"-SWR-053-01CS-H — NNF

123A90-DDL-PR-PID-80025
TO BRINE DISCHARGE CAISSON

NNF 1"-WW-054-01CS-H

123A90-DDL-PR-PID-80026
TO WASTE WATER TANK

NOTES

1. RELEVANT CHEMICAL DOSING WILL BE CONTAINED WITHIN THE PACKAGE.
2. DELETED.
3. DELETED. 01
4. HAND SELECTOR TO ALLOW THE OPERATOR TO SELECT THE CONTROL LOOP (REMOTELY).
5. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TDS - TANK T-5600 - FILTERED SEAWATER TANK, DOC. N. 123A90-DDL-MAC-DS-50003

01

HOLDS

1. CONTROL VALVE SIZE (BY VENDOR)
2. CONTROL INTERFACES SHOWN FOR THE PACKAGES ARE IN HOLD UNTIL ALL DETAILS ARE PROVIDE BY THE RESPECTIVE VENDORS AND CONFIRMED VALVE SIZING (BY VENDOR).
3. VENDOR DOCUMENT NUMBER.
4. WATER TREATMENT SYSTEM DESIGN TO BE CONFIRMED BY VENDOR.

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE : BLPH PIPING AND INSTRUMENTATION DIAGRAM WATER TREATMENT PLANT SHEET 1

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK | SCALE NTS

DRAWN | CHECKED | APPROVED | DATE

A1 | DRAWING NO. 123A90-DDL-PR-PID-80023 | SHEET 001 | REV. 01

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

T-50008
FRESH WATER TANK NOTE 6 01
SIZE : 1125 mm (ID) x 2200 mm (H T/T)
CAPACITY : 2.2 m3
DESIGN P/T : ATM / 80°C
MATERIAL : GRP
01

P-50009 A/B
FRESH WATER PUMPS
FLOW : 1 m3/h
DIFF. PRESSURE : 4.8 barg
DESIGN P/T : 10 barg / 80°C
INSTALLED POWER : 0.2 KW

S-50010
UV WATER FILTER
CAPACITY : 1 m³/h

01

FOR CONTINUATION SEE DOC N. 123A90-DDL-PR-PID-80023 01

123A90-DDL-PR-PID-80023
TO DESALINATION UNIT

1"-DM-050-01SS-E
123A90-DDL-PR-PID-80023
FROM DESALINATION UNIT

50 HS 007
50 LV 007A
50 LV 007B
FC TYP.7
E

WATER TREATMEN PACKAGE HOLD 5

SUPPLIER CONTRACTOR 01

50 HS 013 NOTE 5 01
50 PV 013A
50 PV 013B
162 161
1"-DM-162-01SS-E
1"-DM-161-01SS-E

50 LIC 007A H L
50 LIC 007B H L
SP 0036
BLPH-HV-121 3/4"
BLPH-HV-122 3/4"
RS
HOLD 4"-AV-218-01CS-N

50 PIC 013B
50 PIC 013A
50 PT 013B
50 PT 013A

PIPING INSTR.
BLPH-HV-445 SB
50 LIT 007A
BLPH-HV-461 SB
50 LIT 007B
L3 L2 L1
1"-DM-156-01SS-N
OVERBOARD
ESD

S-50010
UV WATER FILTER
SEE VENDOR DIAGRAM 01

1"-DM-059-01SS-E
TP 036
BLPH-HV-135 3/4"
TP 038
BLPH-HV-286 3/4" FLG x 1/2" NPTF
BLPH-HV-128 3/4" FLG x 1/2" NPTF
INSTR. PIPING
123A90-DDL-PR-PID-80011
TO ELECTROLYSER PACKAGE
1"-DM-001-01SS-E

T-50008
TRIM LINE: 1"-DM-198-01SS-E

START/ STOP 50 HS 003
RUNNING/ STOPPED 50 XI 021
AUTO START READY 50 XI 022
TRIPPED/ FAULT 50 XA 013
SHUTDOWN ALARM 50 XA 014
BLPH-HV-136 SB
BLPH-NRV-016
50 PI 011 H L
50 PIT 011
3/4" BLPH-HV-137
BLPH-HV-138 3/4" FLG x 1/2" NPTF
1"-DM-060-01SS-E
BLPH-HV-127
BLPH-HV-284 3/4"
CONC. RED. 3/4"x1/2"
BLPH-HV-285 1/2"
SAMPLE CONNECTION

I 50 LL 004
PIPING INSTR.
BLPH-HV-288 SB
BLPH-HV-279 SB
50 LT 004
CONC. RED. 1"x1/2"
BLPH-HV-281 1/2"
SAMPLE CONNECTION

MCC
1"-DM-057-01SS-E
BLPH-HV-132
M1 MW 24"
A
1" BLPH-HV-287
E-01SS N-01CS
1"x1/2" HOLD 1
BLPH-HV-131 1" SB
SP 001A
BLPH-HV-130 1/2"
P-50009A NOTE 1 & 2
1"-DM-058-01SS-E
1"-DM-060-01SS-E
1"-DM-061-01CS-H
BLPH-HV-141 SB
BLPH-NRV-017
50 PI 012 H L
50 PIT 012
INSTR. PIPING
BLPH-HV-139
3/4" FLG x 1/2" NPTF
3/4" BLPH-HV-140

START/ STOP 50 HS 004
RUNNING/ STOPPED 50 XI 023
AUTO START READY 50 XI 024
TRIPPED/ FAULT 50 XA 015
SHUTDOWN ALARM 50 XA 016
ESD
MCC
SP 001B
BLPH-HV-134 SB
BLPH-HV-133 0.5"
P-50009B NOTE 1 & 2
1"x1/2" HOLD 1

SUPPLIER CONTRACTOR 01

NNF 1"-DM-056-01CS-H
123A90-DDL-PR-PID-80025
TO BRINE DISCHARGE CAISSON

FOR CONTINUATION SEE DOC N. 123A90-DDL-PR-PID-80023 01

NOTES

1. FRESH WATER PUMPS ARE RATED 2 X 100%.
2. AUTO START OF DESIGNATED STANDBY PUMP ON LOSS OF RUNNING STATUS OF DUTY PUMP.
3. DELETED.
4. DELETED. 01
5. HAND SELECTOR TO ALLOW THE OPERATOR TO SELECT THE CONTROL LOOP (REMOTELY).
6. FOR DESCRIPTION AND SPECIFICATION OF TANK NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET: DOC. N. 123A9-DDL-MAC-DS-50004.
7. LOGIC FOR CONTROL OF P50009A/B THAT PREVENTS SIMULTANEOUS RUNNING OF A AND B PUMPS IS PROVIDED.

01

HOLDS

1. SUCTION AND DISCHARGE NOZZLE SIZE TO BE CONFIRMED BY VENDOR.
2. CONTROL INTERFACES SHOWN FOR THE PACKAGES ARE IN HOLD UNTIL ALL DETAILS ARE PROVIDE BY THE RESPECTIVE VENDORS AND CONFIRMED VALVE SIZING (BY VENDOR).
3. VENDOR DOCUMENT NUMBER.
4. VENT LINE SIZE.
5. WATER TREATMENT SYSTEM DESIGN TO BE CONFIRMED BY VENDOR..

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
WATER TREATMENT PLANT SHEET 2

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80024	SHEET 001	REV. 01

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

123A90-DDL-PR-PID-80022
FROM 50-TI-001

123A90-DDL-PR-PID-80011
FROM ELECTROLYZER PACKAGE
1"-DM-005-01CS-H

123A90-DDL-PR-PID-80012
FROM FUEL CELL PACKAGE
1"-DI-012-01CS-H

123A90-DDL-PR-PID-80022
FROM SEA WATER COARSE FILTER PACKAGE AND ELECTRO-CHLORINATION PACKAGE
1"-SWR-045-01CS-H

123A90-DDL-PR-PID-80023
FROM ULTRA-FILTRATION UNIT, FILTERED SEA WATER TANK AND DESALINATION UNIT
1"-SWR-053-01CS-H

123A90-DDL-PR-PID-80024
FROM FRESH WATER TANK AND UV WATER FILTER
1"-DM-056-01CS-H NNF

50 PI 014 H

50 TDI 002 H

50 PT 014

50 TI 002

3/4" FLG x 1/2" NPTF BLPH-MV-411

INSTR. PIPING

50 TT 002

50 TE 002

E

01

3/4"

4" x 1" ECC. RED.

1.1/2"

4" x 1 1/2" ECC. RED.

BLPH-MV-412

LO

BLPH-NRV-028

1-1/2"-WW-073-01CS-H

B-50014
BRINE DISCHARGE CAISSON
SIZE : 152 mm (ID) x 21808 mm (H) HOLD 1
MATERIAL : CARBON STEEL)
01

H

N

-5000

EL. +21.8 m

NOTE 2

B-50014
NOTE 1

EL. +0.00 m

123A90-DDL-PR-PID-80029
FROM HYDROGEN VENT KO DRUM
1"-WW-071-01CS-H NNF

123A90-DDL-PR-PID-80027
FROM INSTRUMENT AIR PACKAGE
1"-WW-079-01CS-H

123A90-DDL-PR-PID-80022
FROM SEA WATER COARSE FILTER PACKAGE
1"-SWR-149-01SD-H

NOTES

1. CAISSON IS OPEN TOPPED.
2. ALL OVERBOARD LINES TO TERMINATE APPROXIMATLEY 5000 mm INSIDE CAISSON.

HOLDS

1. BRINE CAISSON INTERNAL DIAMETER. 01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
WATER DISPOSAL SHEET 1

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80025		SHEET 001 / REV. 01

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

T-55001
WASTE WATER TANK
SIZE : 4000 mm (L) x 4000 mm (W) x 1000 mm (H)
CAPACITY : 16 m3
DESIGN P/T : 3.5 barg / 80°C
MATERIAL : CARBON STEEL
01

123A90-DDL-PR-PID-80022
FROM ELECTRO-CHLORINATION PACKAGE
E
1"-CI-043-01CP-E
1"
BLPH-MV-396
55 FIC 001
55 FV 001
NC
HOLD 3,5
NOTE 7
01
1"
BLPH-MV-397
55 FT 001
55 FE 001
NOTE 6
HOLD 4
PIP.
INSTR.
PIP.
01
01
..WW-201-01CS-N
NOTE 4
TO SHIP DISPOSAL
SP 0039
01
2"-AV-256-01CS-N
RS
01
55 LI 001
H
L
55 LIT 001
3"
01
M1
I1
L
01
1"-WW-202-01CS-H
123A90-DDL-PR-PID-80011
FROM ELECTROLYSER PACKAGE
NNF
1"-WW-004-01CS-H
01
WW-001
WW-081
1"-WW-081-01CS-H
RS
I2
01
T-55001
TRIM LINE:
1"-WW-200-01CS-H
NOTE 1, 4, 6
HOLD 2
01
NOTE 1, 5
01
BLPH-MV-400
CONC. RED. 0.75"x1/2"
0.75"
BLPH-MV-401
1/2"
SAMPLE CONNECTION
123A90-DDL-PR-PID-80022
FROM SEA WATER COARSE FILTER PACKAGE AND ELECTRO-CHLORINATION PACKAGE
NNF
1"-WW-038-01CS-H
123A90-DDL-PR-PID-80023
FROM ULTRA-FILTRATION UNIT, FILTERED SEA WATER TANK AND DESALINATION UNIT
NNF
1"-WW-054-01CS-H
123A90-DDL-PR-PID-80029
FROM LIQUID SEAL DRUM
NNF
1"-WW-202-01CS-H

NOTES

1. ALL STILLING TUBES AND DIP PIPES SHALL BE SUPER DUPLEX.
2. DELETED.
3. LOCATE VENT DISCHARGE AWAY FROM WALKWAYS ETC.
4. IN DECK TANK WITH EXAMPLE EXPORT LINE SHOWN FOR CLARITY.
5. PERFORATED STILLING TUBE.
6. VARIABLE AREA FLOW METER TO BE INSTALLED VERTICALLY WITH DIRECTION OF FLOW UPWARDS.
7. FOR PERIODIC DOSING OF THE WASTE WATER TANK.
8. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR WASTE WATER TANK - T-55001, DOC. N. "123A90-DDL-MAC-DS-50008"

01

HOLDS

1. CONTROL VALVE SIZE (BY VENDOR)
2. METHODOLOGY FOR EMPTIYNG THE WASTE WATER TANK.
3. DELETED.
4. MULTIVARIABLE FLOWMETERS REQUIRE 7 DIAMETERS STRAIGHT LENGHT UPSTREAM AND 5 DIAMETERS STRAIGHT LENGHT DOWNSTREAM (TO BE CONFIRMED BY VENDOR).
5. CONTROL LOOP IS IN HOLD. DEPENDING ON TYPE OF ELECTRO-CHLORINATION PUMPS.

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
WATER DISPOSAL SHEET 2

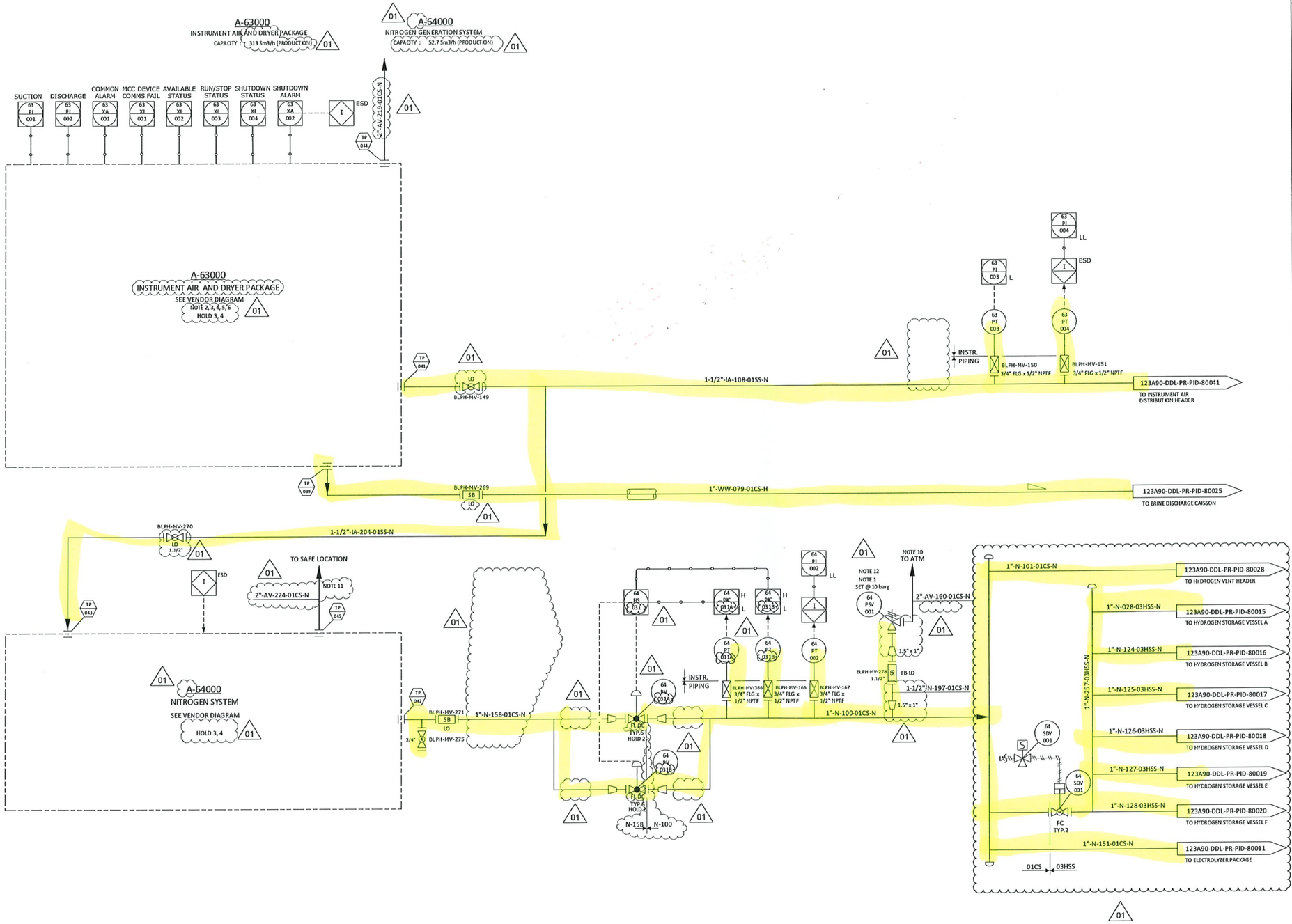
CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK
SCALE NTS
DRAWN | CHECKED | APPROVED | DATE

A1
DRAWING NO. 123A90-DDL-PR-PID-80026
SHEET 001
REV. 01

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV



NOTES

1. ONE UNINSTALLED SPARE PSV SHALL BE AVAILABLE.
2. COMPRESSORS AND DRIERS DESIGNED FOR 2 X 100% CONFIGURATION. INSTRUMENT AIR RECEIVER DESIGNED FOR 1 X 100%.
3. VENDOR TO PROVIDE NECESSARY CONTROLS, INSTRUMENTATIONS AND ISOLATIONS IN ORDER TO OPERATE THE PLANT IN SAFE MANNER.
4. COMPRESSORS WILL OPERATE ON THE BASIS OF ONE WORKING AND ONE ON STANDBY.
5. COMPRESSORS TO BE SCREW TYPE OIL FREE.
6. AIR COMPRESSOR INLET TO BE LOCATED AWAY FROM ANY VENTS.
7. DELETED.
8. DELETED.
9. DELETED.

01

10. TO SAFE LOCATION, ROUTED AWAY FROM WALKWAYS.
11. THE LINE 2"-AV-224-01CS-N IS PREDOMINATELY OXYGEN.
12. 64PSV001 SIZED FOR UPSTREAM CV FAILURE..

01

HOLDS

1. DELETED. 01
2. CONTROL VALVE SIZE (BY VENDOR).
3. CONTROL INTERFACES SHOWN FOR THE PACKAGES ARE IN HOLD UNTIL ALL DETAILS ARE PROVIDE BY THE RESPECTIVE VENDORS AND CONFIRMED.
4. VENDOR DOCUMENT NUMBER.

01

A B C D E F

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

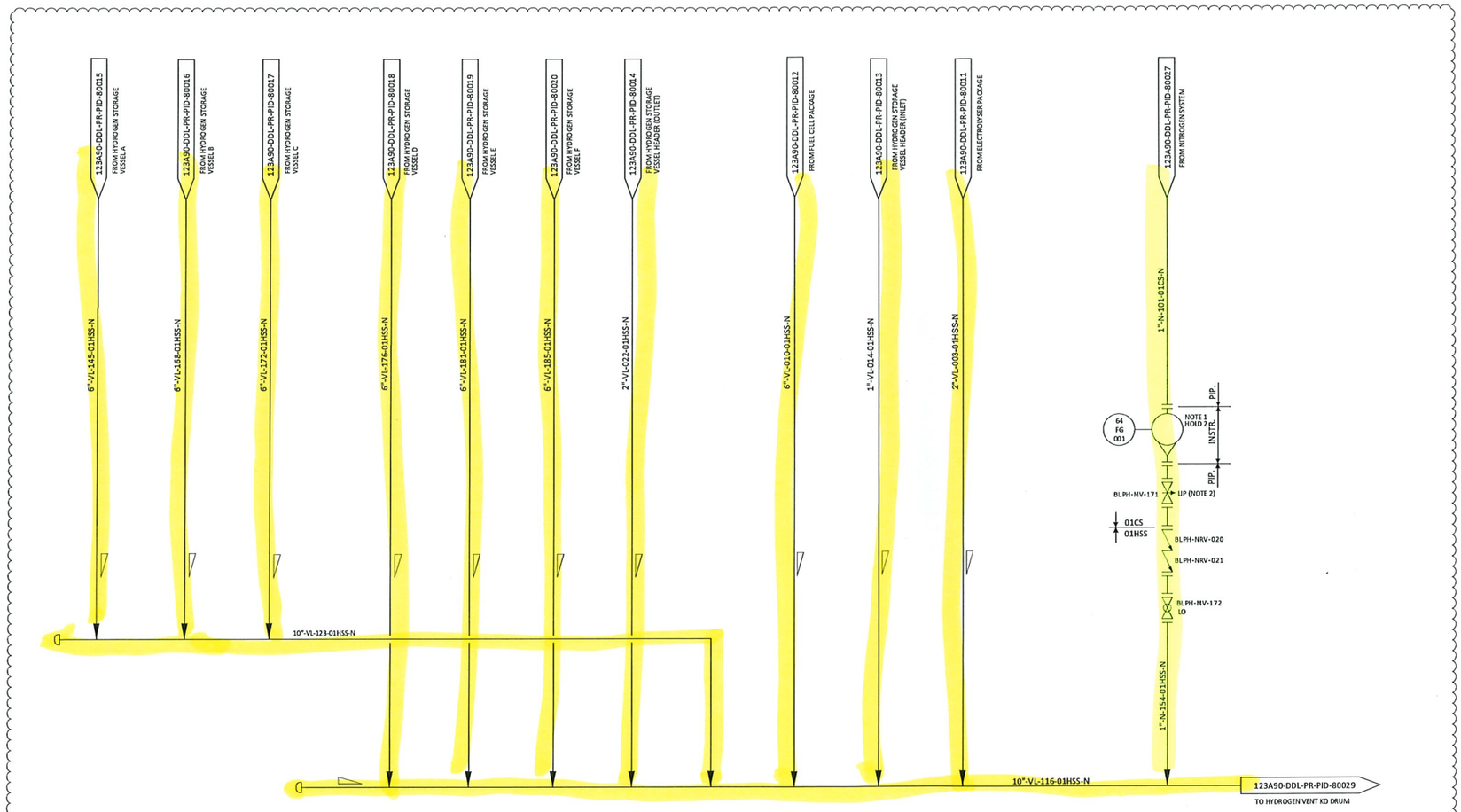
TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
INSTRUMENT AIR PACKAGE

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK			SCALE	NTS
DRAWN	CHECKED	APPROVED		DATE	
A1	DRAWING NO. 123A90-DDL-PR-PID-80027			SHEET 001	REV. 01

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV



01

NOTES

1. FLOW METER 64-FG-001 SHALL BE READABLE FROM MANUAL VALVE MV-171.
2. VALVE BLPH-MV-171 TO BE LOCKED IN PLACE.

01

HOLDS

1. DELETED.
2. MULTIVARIABLE FLOWMETERS REQUIRE 7 DIAMETERS STRAIGHT LENGHT UPSTREAM AND 5 DIAMETERS STRAIGHT LENGHT DOWNSTREAM (TO BE CONFIRMED BY VENDOR).

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN VENT HEADER

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK		SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE	
A1	DRAWING NO. 123A90-DDL-PR-PID-80028		SHEET 001	REV. 01

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

V-43001
HYDROGEN VENT KO DRUM
SIZE : 600 mm (ID) x 2350 mm (H)
DESIGN P/T : 3.5 barg / -10 / 80°C
MATERIAL : LCTS + 3 mm CA
01

Q-43004
HYDROGEN VENT NOTE 1
SIZE : 254 mm (D)
DESIGN P/T : 3.5 barg / -10 / 80°C
01

01

01

ULTRASONIC

43 FT 001 — 43 FI 001 H

43 FE 001

10"-VL-117-01HSS-N

10 Dmin STRAIGHT LENGHT

3 Dmin STRAIGHT LENGHT

LIQUID REFILLING

NOTE 8

1"-WW-216-01CS-N

1" LC BLPH-MV-419

N4

N1

NOTE 7, 9

HANDHOLE

E

N3

NOTE 6

NOTE 11
NOTE 14

K1A

K1B

BLPH-MV-462 E 1"

BLPH-MV-463 E 1"

43 LT 003 — 43 II 003 L

1"-VL-261-01HSS-N

Q-43004
NOTE 3, 5, 10, 12

NOTE 2, 15

N2

PIPING INSTR.

E

BLPH-MV-417

BLPH-MV-418 LC 1"

1"-WW-260-01CS-E

202 H

260 E

NNF 1"-WW-202-01CS-H

123A90-DDL-PR-PID-80026

43 PI 001 H

43 PT 001

INSTR. PIPING

3/4" FLG x 1/2" NPTF BLPH-MV-407

1"x3/4" CONC. RED.

1"

MW

3" BLPH-MV-402

123A90-DDL-PR-PID-80028
FROM HYDROGEN VENT HEADER

10"-VL-116-01HSS-N

N1

V-43001

TRIM LINE: 10"-VL-220-01HSS-N

311

NOTE 5

PIPING INSTR.

1" BLPH-MV-404

E

43 LT 001 — 43 II 001 H L

E

1" BLPH-MV-405

N3

E H

WW 259

WW 071

1"-WW-259-01CS-E

E

BLPH-MV-409 SB LC 1"

1"-WW-071-01CS-H

NOTE 4

123A90-DDL-PR-PID-80025
TO BRINE DISCHARGE CAISSON

NOTES

1. VENT TO SAFE LOCATION SEGREGATED FROM OTHER VENTS.
2. VENT TO BE EQUIPPED WITH FLAME ARRESTOR AND BIRD SCREEN.
3. LIQUID SEAL DRUM IS PART OF THE VENT SYSTEM.
4. LIQUID DRAINLINES TO BE ROUTED TO ENSURE GRAVITY DRAIN.
5. HYDROGEN VENT KO DRUM BOOT AND LIQUID SEAL DRUM TO BE HEAT TRACING.
6. SEAL LEG WILL BE DETERMINATED ON THE MAXIMUM BACK PRESSURE IN THE VENT.
7. SEAL VENT TO BE PLACED INTO A SAFE POSITION.
8. FILLING LINE TO BE PLACED IN AN ACCESSIBLE POSITION.
9. TRACED FROM NOZZLE N3 UP TO SWAN NECK.
10. LIQUID SEAL DRUM I.D. 590 mm, HEIGHT 2350 mm (T/T). TBC BY H2 VENT VENDOR.
11. INLET DIP LEG SUBMERSION HEIGHT OF 0.2 m (TBC BY VENDOR).
12. FLUID HEIGHT OF 1.5 m FROM BOTTOM T.L. (TBC BY VENDOR).
13. FOR DESCRIPTION AND SPECIFICATION OF VESSEL NOZZLE, REFERENCE SHALL BE MADE TO THE TECHNICAL DATA SHEET FOR H2 VENT KOD.
14. LIQUID INSIDE SEAL DRUM IS A WATER - GLYCOL MIXTURE WITH 40% VOLUME OF GLYCOLE.
15. TOP OF TIP OF H2 VENT SHALL BE AT AS MINIMUM 6.2 m FROM HIGHEST REACHABLE PLATFORM.

01

HOLDS

1. DELETED.
2. DELETED.
3. DELETED.

01

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
HYDROGEN VENT DRUM

CONTRACT NO./TITLE CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK

SCALE NTS

DRAWN | CHECKED | APPROVED | DATE

A1

DRAWING NO. 123A90-DDL-PR-PID-80029

SHEET 001

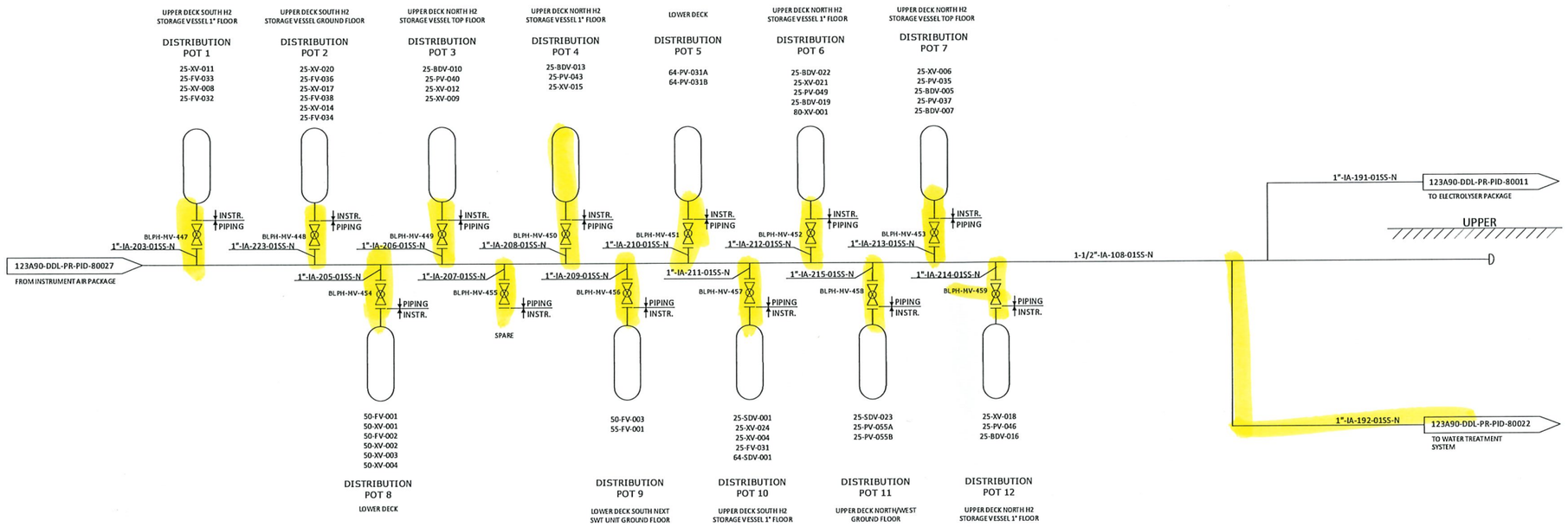
REV. 01

File Name : FILE_NAME

DRAWING NO. DRAWING_NO.

REV. REV

01



NOTES

REV.	DATE	DRN	CHKD	APPD	DESCRIPTION
01	15/02/2024	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)
00	20/10/2023	CIM	RZI	DLO	ISSUE FOR ACCEPTANCE (IFA)

CROSSWIND

ROSETTI MARINO

TITLE :
BLPH PIPING AND INSTRUMENTATION DIAGRAM
INSTRUMENT AIR DISTRIBUTION HEADER

CONTRACT NO./TITLE	CW-I-WP4-2023-05/HOLLANDSE KUST NOORD WIND PARK	SCALE	NTS
DRAWN	CHECKED	APPROVED	DATE
A1	DRAWING NO. 123A90-DDL-PR-PID-80041	SHEET 001	REV. 01

File Name : FILE_NAME