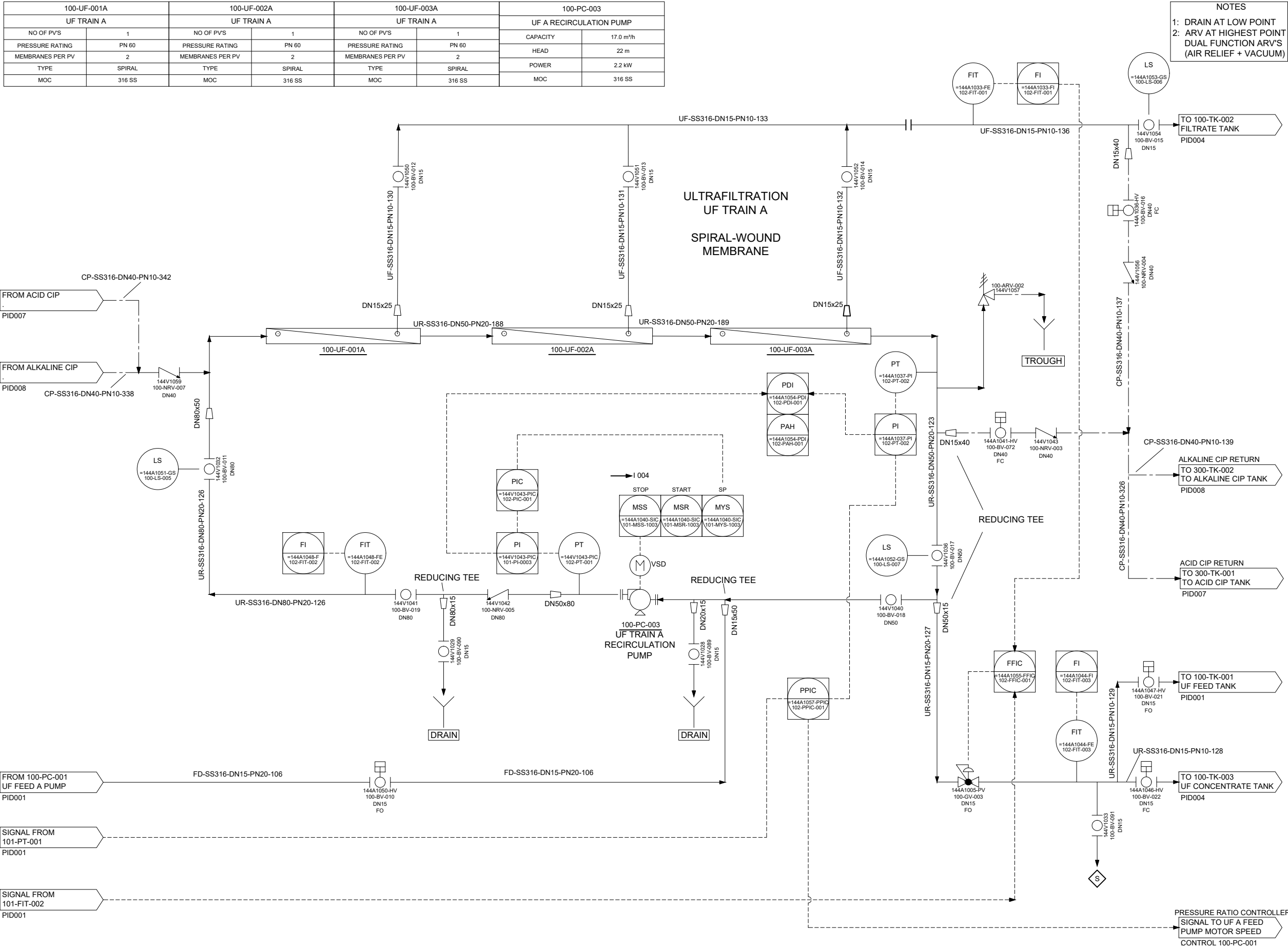




100-UF-001A		100-UF-002A		100-UF-003A		100-PC-003	
UF TRAIN A		UF TRAIN A		UF TRAIN A		UF A RECIRCULATION PUMP	
NO OF PVS	1	NO OF PVS	1	NO OF PVS	1	CAPACITY	17.0 m³/h
PRESSURE RATING	PN 60	PRESSURE RATING	PN 60	PRESSURE RATING	PN 60	HEAD	22 m
MEMBRANES PER PV	2	MEMBRANES PER PV	2	MEMBRANES PER PV	2	POWER	2.2 kW
TYPE	SPIRAL	TYPE	SPIRAL	TYPE	SPIRAL	MOC	316 SS
MOC	316 SS	MOC	316 SS	MOC	316 SS		

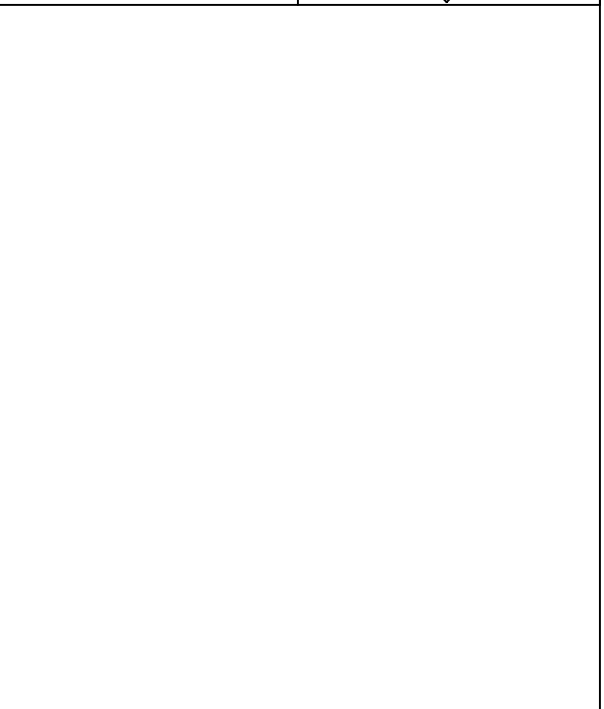


- NOTES
- 1: DRAIN AT LOW POINT

2: ARV AT HIGHEST POINT  
DUAL FUNCTION ARV'S  
(AIR RELIEF + VACUUM)

MATERIAL CODE	
FLUID	CODE
LigniOx Solution	LS
UF Feed	FD
UF Filtrate	UF
UF Reject	UR
Combined Concentrate	CC
NF Feed (High Pressure)	FN
NF Concentrate	NC
NF Permeate	NP
CIP Supply	CS
CIP Return	CP
Sulfuric Acid	AS
Caustic Soda (Liquid)	AC
Water Hot (Hot Condensate)	WH
Water Cold (Demineralized)	WC
Water Potable	WP
Effluent	EF
Offgas Vapour	EV
40% SMBS	SM

LEGEND	
Process Stream	—————
Signal	-----
Intermittent	- - - - -
Fail Open	FO
Fail Closed	FC
Sample Valve	◇



Client

CM2402

ANDRITZ OY

LIGNIOX MEMBRANE DEMO PLANT

PIPING & INSTRUMENTATION DIAGRAM

AREA 100 - UF - TRAIN A (SPIRAL)

DRAWING NO.:

PID NO.:

REV.

CM2402-AND001-4A-PID002

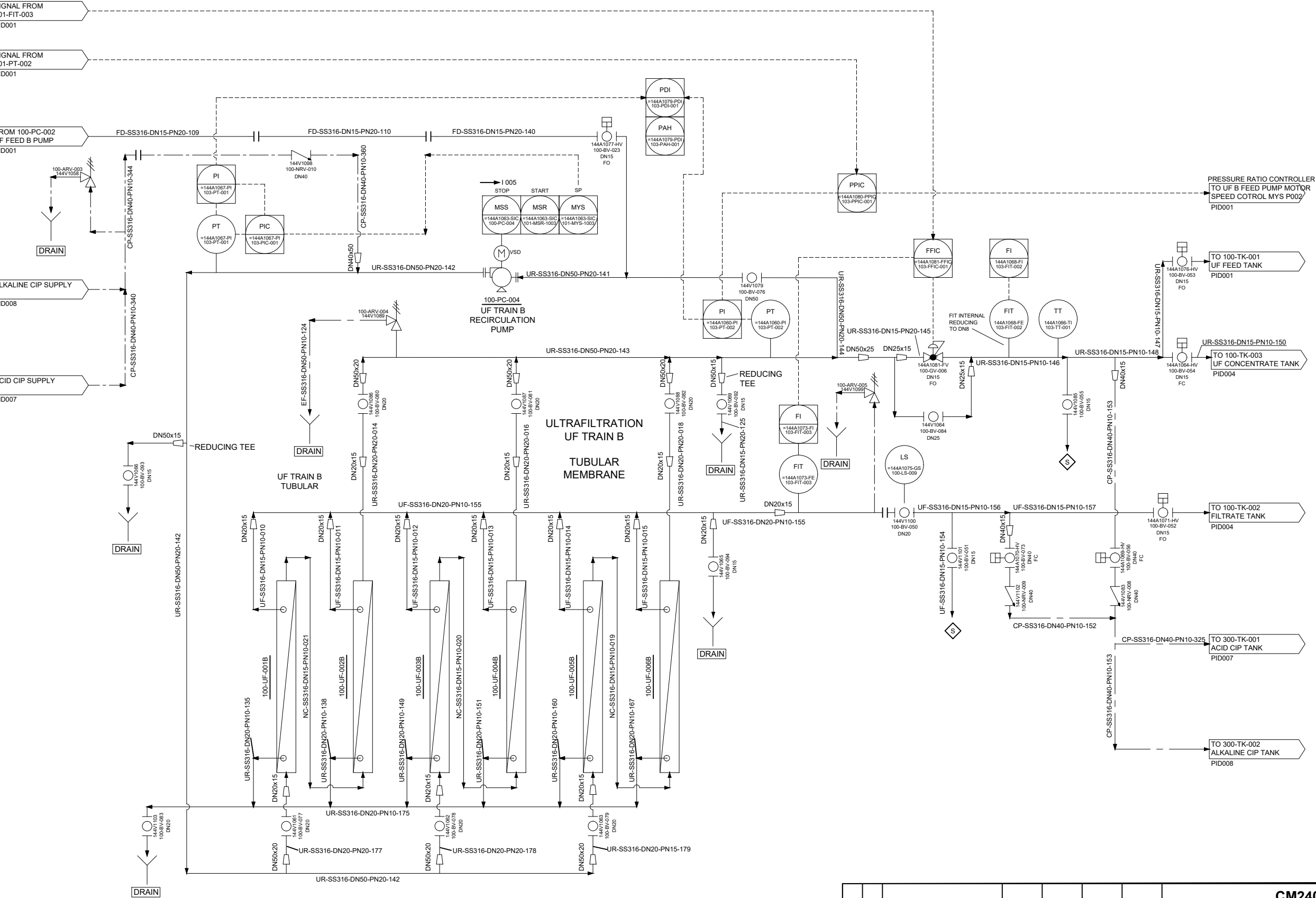
PID002

2

REVISION					
	2	ISSUED FOR CONSTRUCTION	AH	MB	RW
	1Q	ISSUED FOR APPROVAL	AH	MB	RW
	0	ISSUED FOR INFORMATION	RB	SCV	DS
	REV	DESCRIPTION	DRAWN	CHECKED	APPRVD

This drawing is subject to return on demand and must not be copied or passed on to any third party; or used directly or indirectly for any other purpose than the design and construction to the order of CHIMERICAL TECHNOLOGY (PTY) LTD.

100-UF-001B		100-UF-002B		100-UF-003B		100-UF-004B		100-UF-005B		100-UF-006B		100-PC-004	
UF TRAIN B		UF TRAIN B		UF TRAIN B		UF TRAIN B		UF TRAIN B		UF TRAIN B		UF B RECIRCULATION PUMP	
NO OF PVS	1	NO OF PVS	1	NO OF PVS	1	NO OF PVS	1	NO OF PVS	1	NO OF PVS	1	CAPACITY	12.3 m <sup>3</sup> /h
PRESSURE RATING	64 Bar	PRESSURE RATING	64 Bar	PRESSURE RATING	64 Bar	PRESSURE RATING	64 Bar	PRESSURE RATING	64 Bar	PRESSURE RATING	64 Bar	HEAD	18.98 Bar
MEMBRANES PER PV	1	MEMBRANES PER PV	1	MEMBRANES PER PV	1	MEMBRANES PER PV	1	MEMBRANES PER PV	1	MEMBRANES PER PV	1	POWER	11 kW
TYPE	TUBULAR	TYPE	TUBULAR	TYPE	TUBULAR	TYPE	TUBULAR	TYPE	TUBULAR	TYPE	TUBULAR	MOC	316 SS
MOC	316 SS	MOC	316 SS	MOC	316 SS	MOC	316 SS	MOC	316 SS	MOC	316 SS	MOC	316 SS



MATERIAL CODE	
FLUID	CODE
LigniOx Solution	LS
UF Feed	FD
UF Filtrate	UF
UF Reject	UR
Combined Concentrate	CC
NF Feed (High Pressure)	FN
NF Concentrate	NC
NF Permeate	NP
CIP Supply	CS
CIP Return	CP
Sulfuric Acid	AS
Caustic Soda (Liquid)	AC
Water Hot (Hot Condensate)	WH
Water Cold (Demineralized)	WC
Water Potable	WP
Effluent	EF
Offgas Vapour	EV
40% SMBS	SM

LEGEND	
Process Stream	_____
Signal	-----
Intermittent	.....
Fail Open	FO
Fail Closed	FC
Sample Valve	◇

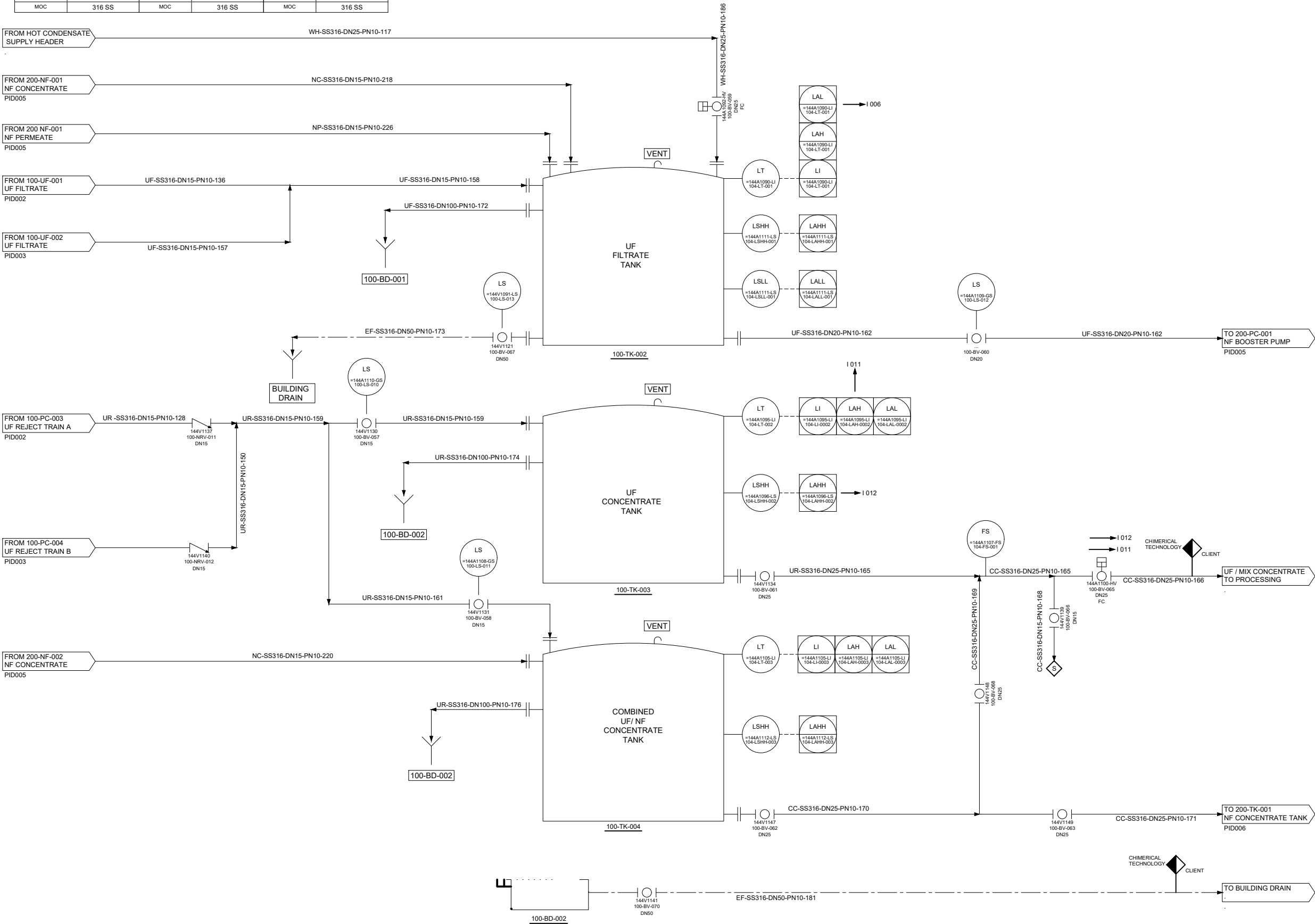
Client	ANDRITZ LigniOx
CM2402 ANDRITZ OY LIGNIOX MEMBRANE DEMO PLANT PIPING & INSTRUMENTATION DIAGRAM AREA 100 - UF - TRAIN B (TUBULAR)	CHIMERICAL TECHNOLOGY

REVISION	DESCRIPTION	DRAWN	CHECKED	APPRVD	DATE
2	ISSUED FOR CONSTRUCTION	AH	MB	RW	01/02/2025
1Q	ISSUED FOR APPROVAL	AH	MB	RW	29/01/2025
0	ISSUED FOR INFORMATION	RB	SCV	DS	17/05/2024
REV	DESCRIPTION	DRAWN	CHECKED	APPRVD	DATE

This drawing is subject to return on demand and must not be copied or passed on to any third party; or used directly or indirectly for any other purpose than the design and construction to the order of CHIMERICAL TECHNOLOGY (PTY) LTD.

DRAWING NO.: CM2402-AND001-4A-PID003	PID NO.: PID003	REV. 2
---	--------------------	-----------

100-TK-002		100-TK-003		100-TK-004	
UF FILTRATE TANK		UF CONCENTRATE TANK		UF COMB UF/NF CONCENTRATE TANK	
CAPACITY	1.96 m³	CAPACITY	1.1 m³	CAPACITY	1.1m³
DIMENSION	Ø 1m H 2.5m	DIMENSION	Ø 1m H 1.5m	DIMENSION	Ø 1m H 1.5m
MOC	316 SS	MOC	316 SS	MOC	316 SS



## MATERIAL CODE

FLUID	CODE
LigniOx Solution	LS
UF Feed	FD
UF Filtrate	UF
UF Reject	UR
Combined Concentrate	CC
NF Feed (High Pressure)	FN
NF Concentrate	NC
NF Permeate	NP
CIP Supply	CS
CIP Return	CP
Sulfuric Acid	AS
Caustic Soda (Liquid)	AC
Water Hot (Hot Condensate)	WH
Water Cold (Demineralized)	WC
Water Potable	WP
Effluent	EF
Offgas Vapour	EV
40% SMBS	SM

## LEGEND

Process Stream	—————
Signal	-----
Intermittent	- - - - -
Fail Open	FO
Fail Closed	FC
Sample Valve	◇

Client



CM2402

ANDRITZ OY

LIGNIOX MEMBRANE DEMO PLANT  
PIPING & INSTRUMENTATION DIAGRAM  
AREA 100 - UF TANKS

This drawing is subject to return on demand and must not be copied or passed on to any third party; or used directly or indirectly for any other purpose than the design and construction to the order of CHIMERICAL TECHNOLOGY (PTY) LTD.

DRAWING NO.:  
CM2402-AND001-4A-PID004

PID NO.:  
PID004

REV.  
2

REVISION						
	NO.	DESCRIPTION	DRAWN	CHECKED	APPRVD	DATE
	2	ISSUED FOR CONSTRUCTION	AH	MB	RW	01/02/2025
	1Q	ISSUED FOR APPROVAL	AH	MB	RW	29/01/2025
	0	ISSUED FOR INFORMATION	RB	SCV	DS	17/05/2024
	REV	DESCRIPTION	DRAWN	CHECKED	APPRVD	DATE

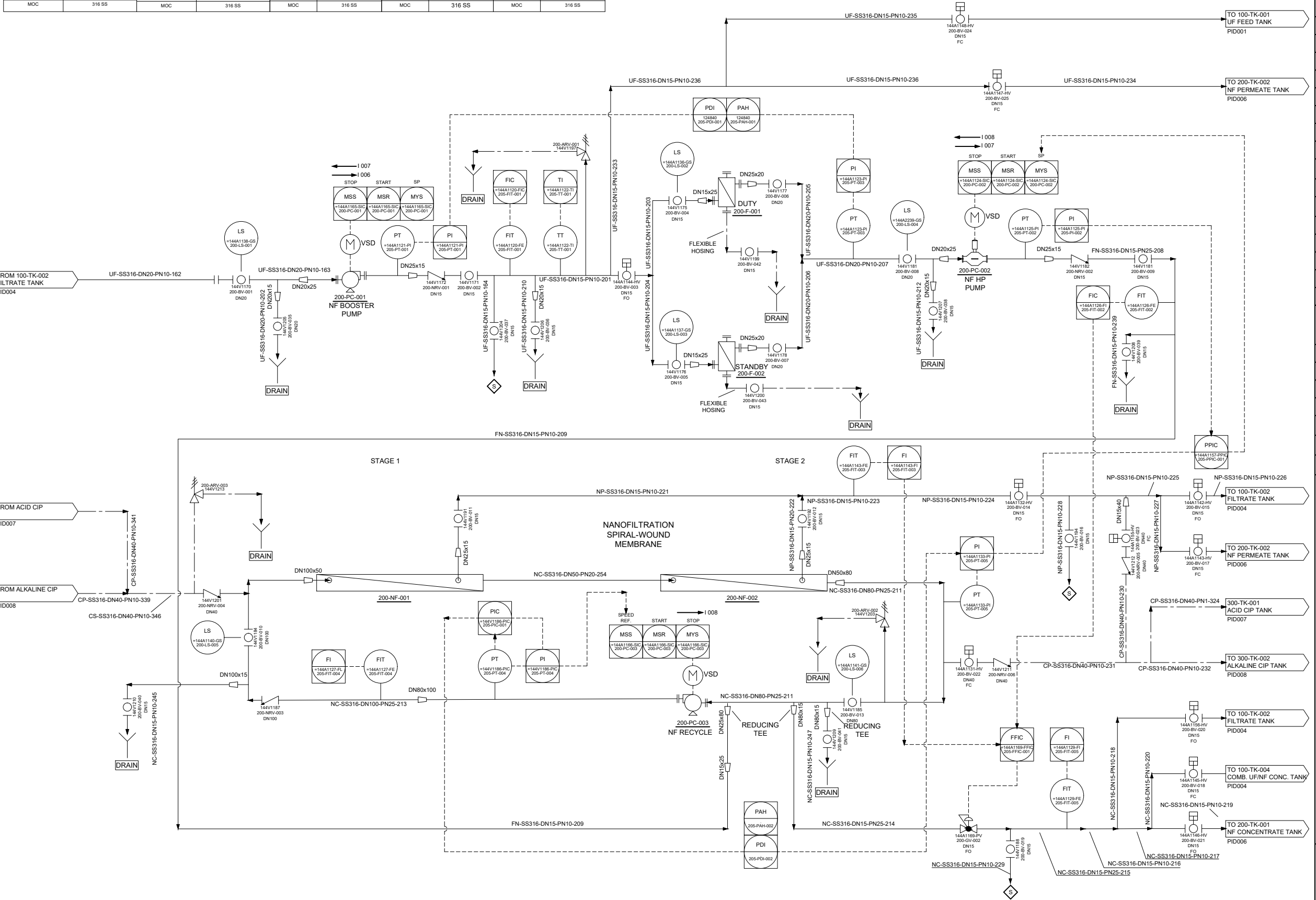
200-F-001 / 2		200-NF-001 / 2		200-PC-001		200-PC-002		200-PC-003	
NF FEED CARTRIDGE FILTERS		NF TRAIN		NF BOOSTER PUMP		NF HP PUMP		NF RECYCLE PUMP	
CAPACITY	1.2 m³/h	NO OF PVS	2	CAPACITY	1.8m³/h	CAPACITY	1.80 m³/h	CAPACITY	43m³/h
MIN PARTICLE SIZE	1 µm	PRESSURE RATING	69 Bar	HEAD	38.6m	HEAD	172m	HEAD	3 Bar
DIFFERENTIAL PRESSURE	2 Bar	MEMBRANES PER PV	1	POWER	0.55 kW	POWER	2.2kW	POWER	4kW
MOC	316 SS	TYPE	Spiral						
		MOC	316 SS	MOC	316 SS	MOC	316 SS	MOC	316 SS

MATERIAL CODE

FLUID	CODE
LigniOx Solution	LS
UF Feed	FD
UF Filtrate	UF
UF Reject	UR
Combined Concentrate	CC
NF Feed (High Pressure)	FN
NF Concentrate	NC
NF Permeate	NP
CIP Supply	CS
CIP Return	CP
Sulfuric Acid	AS
Caustic Soda (Liquid)	AC
Water Hot (Hot Condensate)	WH
Water Cold (Demineralized)	WC
Water Potable	WP
Effluent	EF
Offgas Vapour	EV
40% SMBS	SM

LEGEND

Process Stream	
Signal	
Intermittent	
Fail Open	FO
Fail Closed	FC
Sample Valve	S



Client



REVISION	DESCRIPTION	DRAWN	CHECKED	APPRVD	DATE
2	ISSUED FOR CONSTRUCTION	AH	MB	RW	01/02/2025
1Q	ISSUED FOR APPROVAL	AH	MB	RW	29/01/2025
0	ISSUED FOR INFORMATION	RB	SCV	DS	17/05/2024
REV					

CM2402

ANDRITZ OY

LIGNIOX MEMBRANE DEMO PLANT  
PIPING & INSTRUMENTATION DIAGRAM  
AREA 200 - NF

This drawing is subject to return on demand and must not be copied or passed on to any third party; or used directly or indirectly for any other purpose than the design and construction to the order of CHIMERICAL TECHNOLOGY (PTY) LTD.

DRAWING NO.:

CM2402-AND001-4A-PID005

PID NO.:

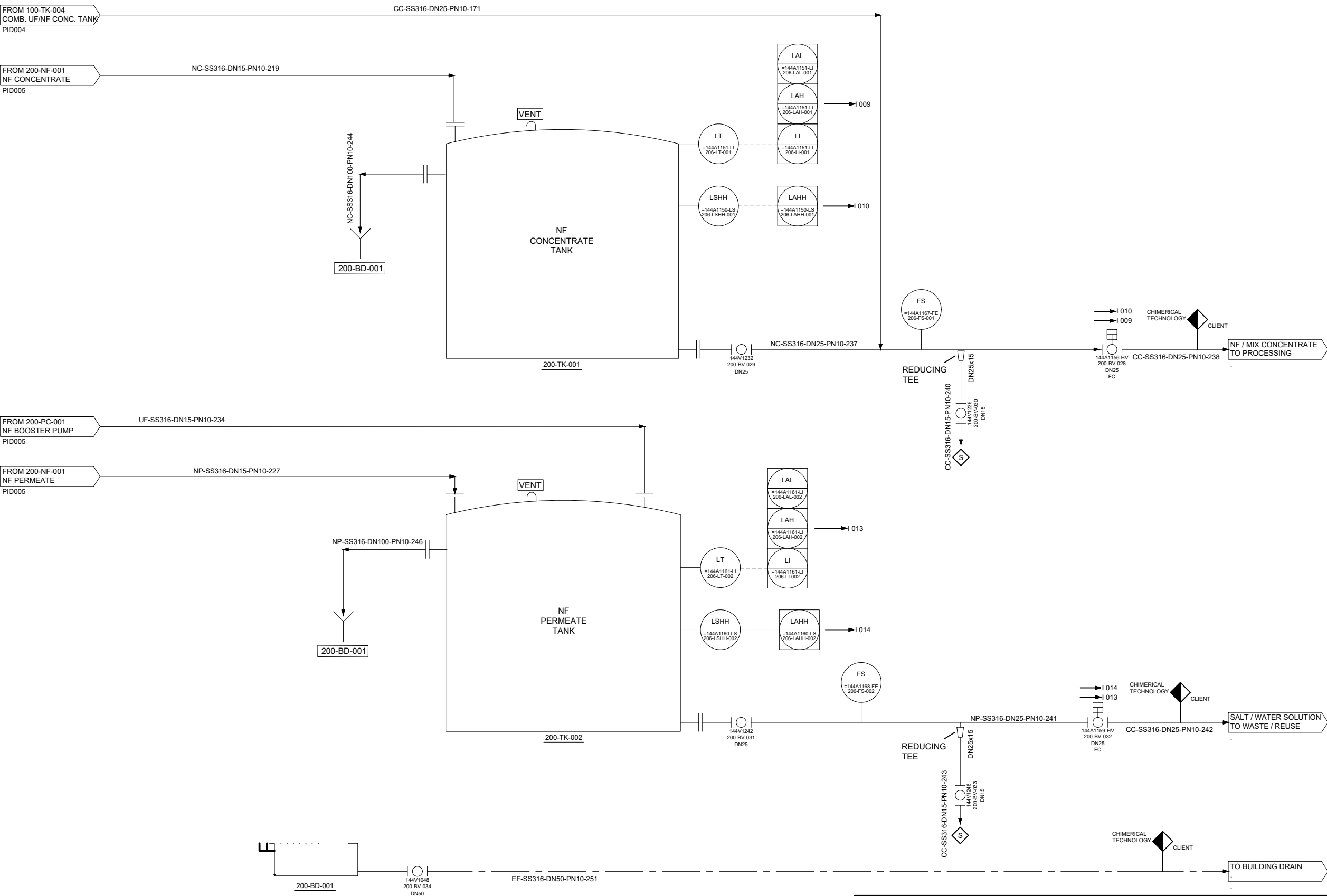
PID005

REV.





2





200-TK-001		200-TK-002	
NF CONCENTRATE TANK		NF PERMEATE TANK	
CAPACITY	1.1 m³	CAPACITY	1.1 m³
DIMENSIONS	Ø 1m H 2.5m	DIMENSIONS	Ø 1m H 2.5m
MOC	316 SS	MOC	316 SS



MATERIAL CODE	
FLUID	CODE
LigniOx Solution	LS
UF Feed	FD
UF Filtrate	UF
UF Reject	UR
Combined Concentrate	CC
NF Feed (High Pressure)	FN
NF Concentrate	NC
NF Permeate	NP
CIP Supply	CS
CIP Return	CP
Sulfuric Acid	AS
Caustic Soda (Liquid)	AC
Water Hot (Hot Condensate)	WH
Water Cold (Demineralized)	WC
Water Potable	WP
Effluent	EF
Offgas Vapour	EV
40% SMBS	SM

LEGEND	
Process Stream	
Signal	
Intermittent	
Fail Open	FO
Fail Closed	FC
Sample Valve	

<p>Client</p>			
<p>2 BODY DEMO PLANT ATION DIAGRAM TANKS</p>			
<p>must not be copied or passed on to any other purpose than the design and TECHNOLOGY (PTY) LTD.</p>	<p>DRAWING NO.: <b>CM2402-AND001-4A-PID006</b></p>	<p>PID NO.: <b>PID006</b></p>	<p>REV. <b>2</b></p>

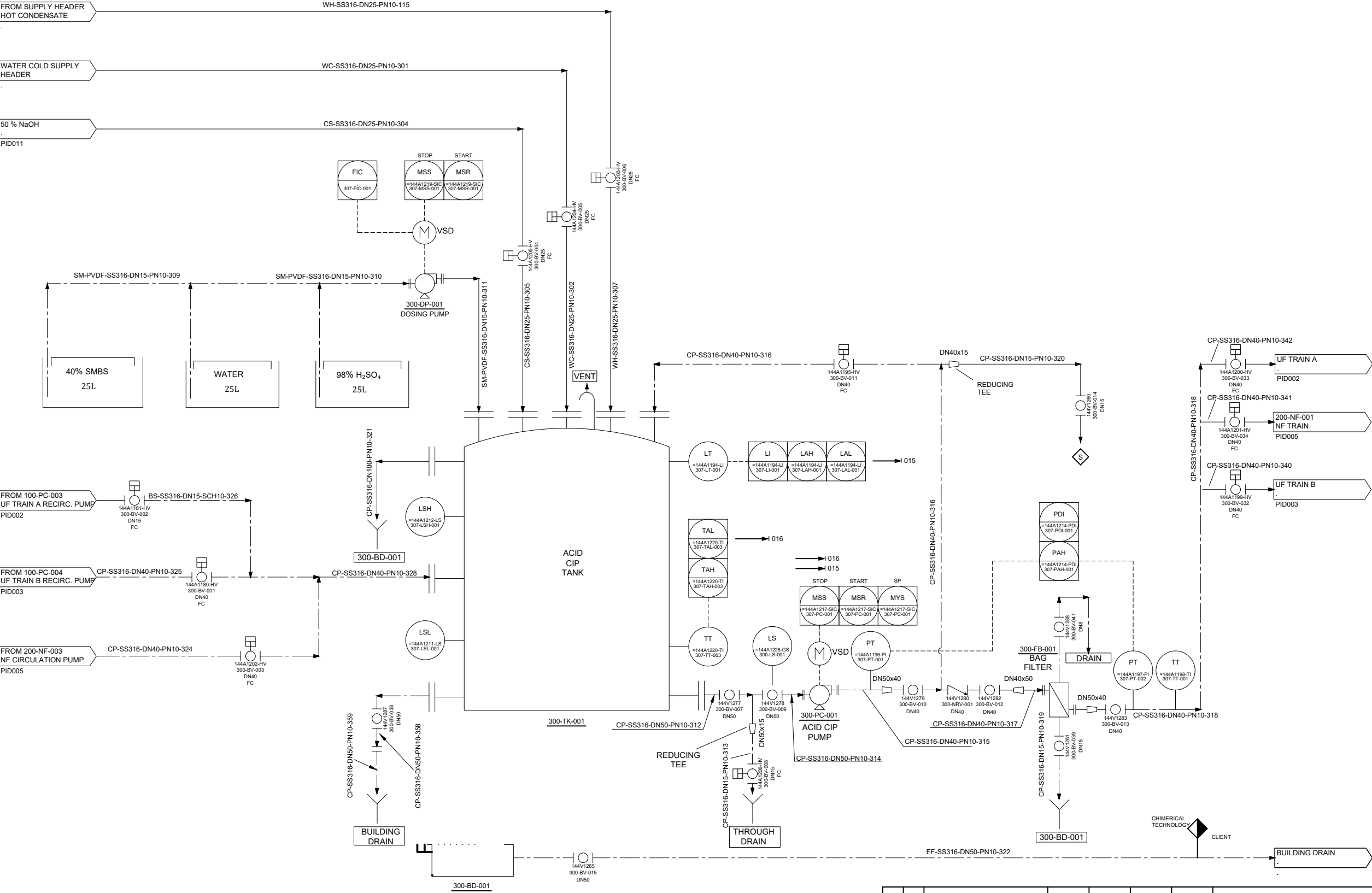
REVISION						
	2	ISSUED FOR CONSTRUCTION	AH	MB	RW	01/02/2025
	1Q	ISSUED FOR APPROVAL	AH	MB	RW	29/01/2025
	0	ISSUED FOR INFORMATION	RB	SCV	DS	17/05/2024
REV	DESCRIPTION	DRAWN	CHECKED	APPRVD	DATE	

**CM2402**  
**ANDRITZ OY**  
**LIGNIOX MEMBRANE DEMO PLANT**  
**PIPING & INSTRUMENTATION DIAGRAM**  
**AREA 200 - NF TANKS**

---

This drawing is subject to return on demand and must not be copied or passed on to any third party, or used directly or indirectly for any other purpose than the design and construction to the order of CHIMERICAL TECHNOLOGY (PTY) LTD.

300-FB-001		300-DP-001		300-PC-001		300-TK-001	
BAG FILTER		DOSING PUMP		ACID CIP PUMP		ACID CIP TANK	
CAPACITY	17m³/h	CAPACITY	0.07m³/h	CAPACITY	17m³/h	CAPACITY	1.01m³
MIN PARTICLE SIZE	1 µm	HEAD	10 m	HEAD	30m	DIMS	Ø 0.89m H 1.16m
DIFFERENTIAL PRESSURE	2 bar	POWER	0.062 kW	POWER	3 kW		
MOC	316 SS	MOC	316 SS	MOC	316 SS	MOC	316 SS



MATERIAL CODE	
FLUID	CODE
LigniOx Solution	LS
UF Feed	FD
UF Filtrate	UF
UF Reject	UR
Combined Concentrate	CC
NF Feed (High Pressure)	FN
NF Concentrate	NC
NF Permeate	NP
CIP Supply	CS
CIP Return	CP
Sulfuric Acid	AS
Caustic Soda (Liquid)	AC
Water Hot (Hot Condensate)	WH
Water Cold (Demineralized)	WC
Water Potable	WP
Effluent	EF
Offgas Vapour	EV
40% SMBS	SM

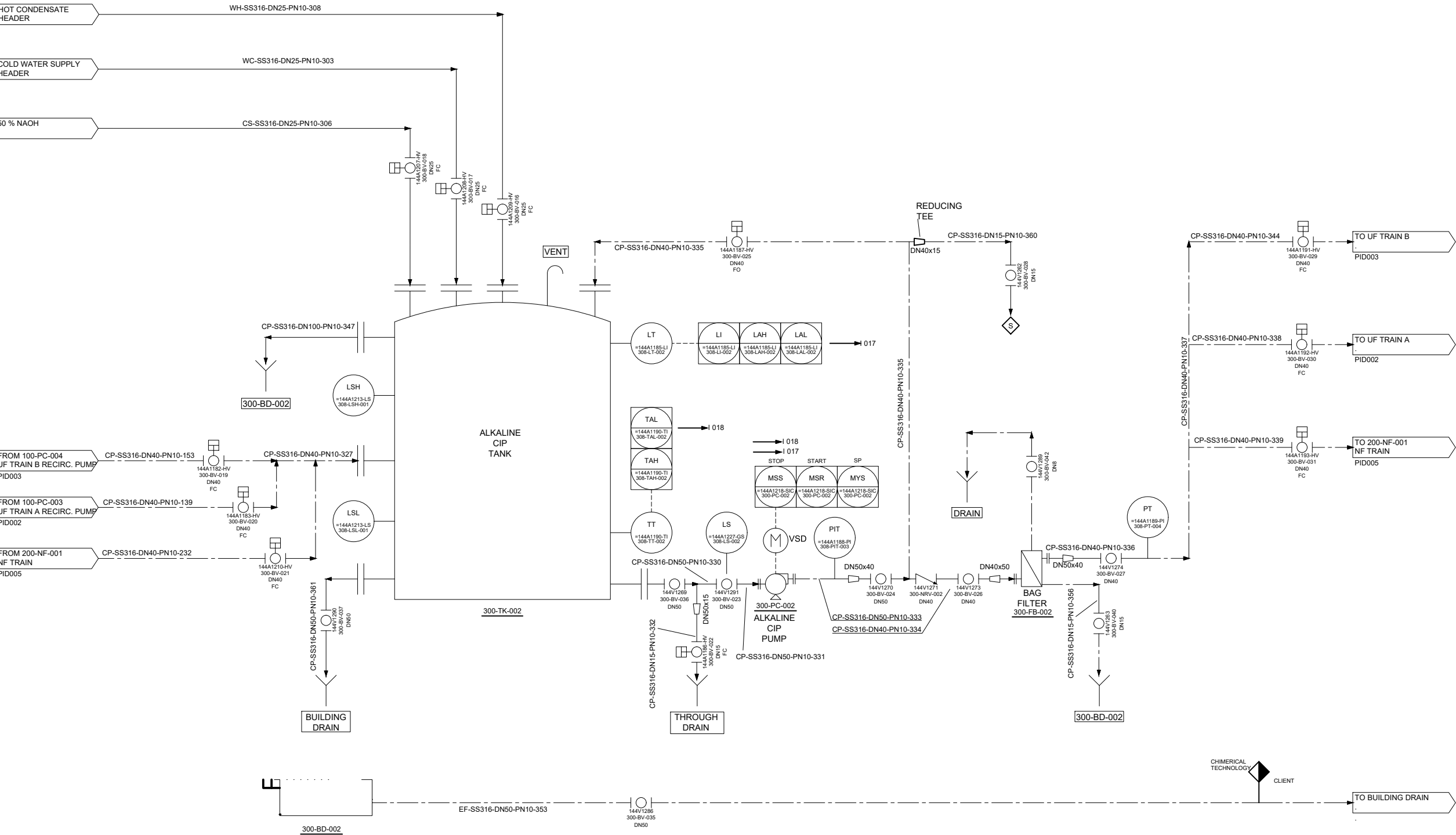
LEGEND	
Process Stream	—————
Signal	-----
Intermittent	-----
Fail Open	FO
Fail Closed	FC
Sample Valve	◇



Client		
CM2402 ANDRITZ OY LIGNIOX MEMBRANE DEMO PLANT PIPING & INSTRUMENTATION DIAGRAM AREA 300 - CIP ACID		
DRAWING NO.: CM2402-AND001-4A-PID007	PID NO.: PID007	REV.: 2

REVISION	DESCRIPTION	DRAWN	CHECKED	APPRVD	DATE
2	ISSUED FOR CONSTRUCTION	AH	MB	RW	01/02/2025
1Q	ISSUED FOR APPROVAL	AH	MB	RW	29/01/2025
0	ISSUED FOR INFORMATION	RB	SCV	DS	17/05/2024

300-FB-002		300-PC-001		300-TK-002	
BAG FILTER		ALKALINE CIP PUMP		ALKALINE CIP TANK	
CAPACITY	17 m³/h	CAPACITY	17 m³/h	CAPACITY	1.01 m³
MIN PARTICLE SIZE	1 um	HEAD	30m	DIMS	Ø 0.89 m H 1.610 m
DIFFERENTIAL PRESSURE	2 bar	POWER	3 kW		
MOC	316 SS	MOC	316 SS	MOC	316 SS



MATERIAL CODE	
FLUID	CODE
LigniOx Solution	LS
UF Feed	FD
UF Filtrate	UF
UF Reject	UR
Combined Concentrate	CC
NF Feed (High Pressure)	FN
NF Concentrate	NC
NF Permeate	NP
CIP Supply	CS
CIP Return	CP
Sulfuric Acid	AS
Caustic Soda (Liquid)	AC
Water Hot (Hot Condensate)	WH
Water Cold (Demineralized)	WC
Water Potable	WP
Effluent	EF
Offgas Vapour	EV
40% SMBS	SM

LEGEND	
Process Stream	—————
Signal	-----
Intermittent	-----
Fail Open	FO
Fail Closed	FC
Sample Valve	◇

Client

REVISION						<b>CM2402</b> ANDRITZ OY LIGNIOX MEMBRANE DEMO PLANT PIPING & INSTRUMENTATION DIAGRAM AREA 300 - CIP ALKALINE	 <b>CHIMERICAL TECHNOLOGY</b>		
	2	ISSUED FOR CONSTRUCTION	AH	MB	RW	01/02/2025			
	1Q	ISSUED FOR APPROVAL	AH	MB	RW	29/01/2025			
	1A	ISSUED FOR INFORMATION	RB	-	-	13/06/2024			
	REV	DESCRIPTION	DRAWN	CHECKED	APPRVD	DATE			
This drawing is subject to return on demand and must not be copied or passed on to any third party; or used directly or indirectly for any other purpose than the design and construction to the order of CHIMERICAL TECHNOLOGY (PTY) LTD.							DRAWING NO.: CM2402-AND001-4A-PID008	PID NO.: PID008	REV. 2



