

100-TK-001		100-HEI-001		100-PC-001		100-PC-002	
UF FEED TANK A		ELECTRIC FLANGED HEATER		UF FEED PUMP A		UF FEED PUMP B	
CAPACITY	1.96 m <sup>3</sup>			CAPACITY	0.90 m <sup>3</sup> /h	CAPACITY	0.54 m <sup>3</sup> /h
DIMENSIONS	Ø 1M H: 2M			HEAD	139 m	HEAD	57.1m
MOC	316 SS	MOC	INC 800	POWER	9 kW	POWER	1.1 kW
				MOC	316 SS	MOC	316 SS

**NOTE : 1**  
**ARV AT HIGHEST POINT  
DUAL FUNCTION ARV'S  
(AIR RELIEF + VACUUM)**

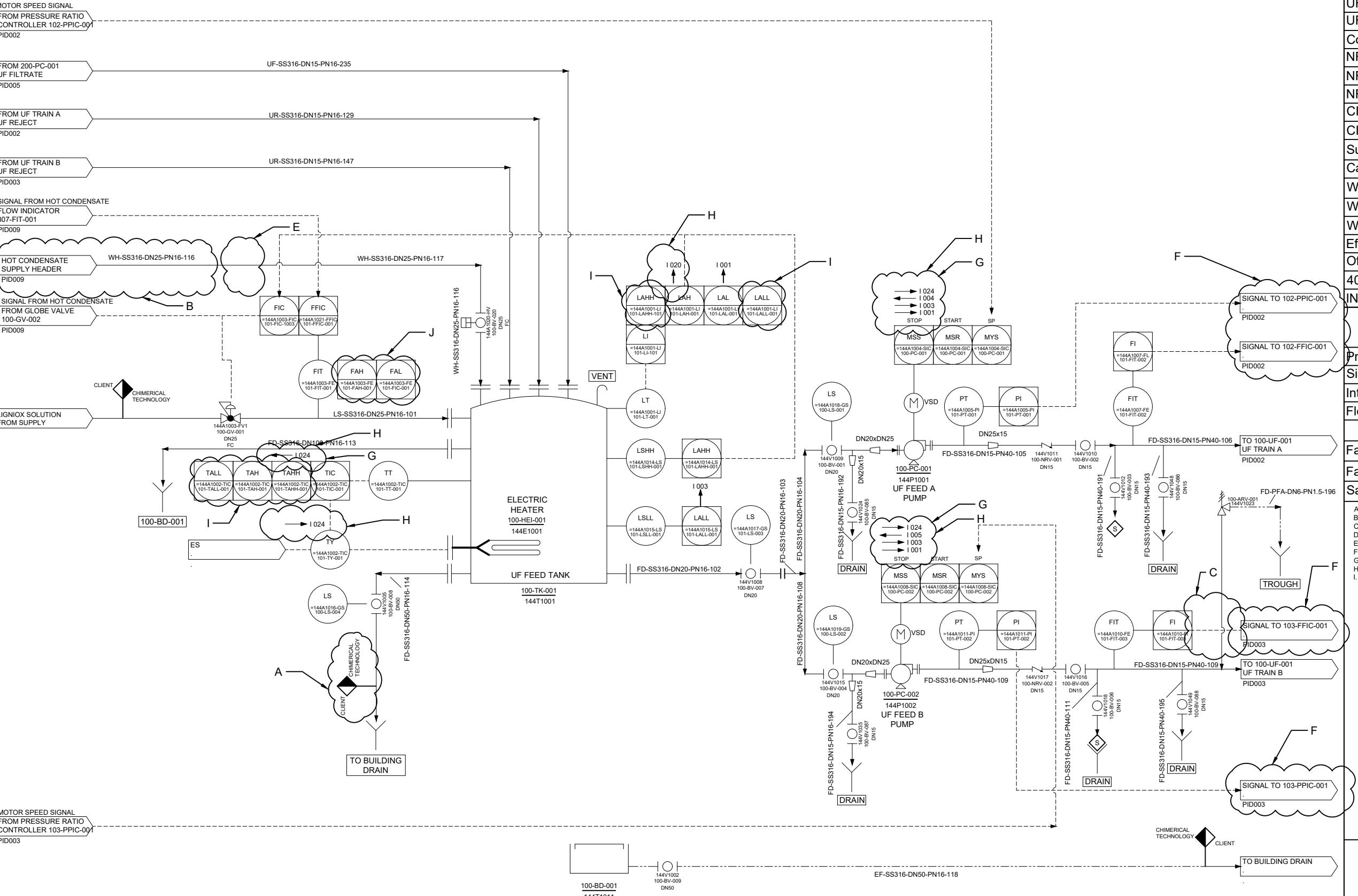
## MATERIAL CODE

FLUID	CODE
gniOx Solution	LS
F Feed	FD
F Filtrate	UF
F Reject	UR
combined Concentrate	CC
F Feed (High Pressure)	FN
F Concentrate	NC
F Permeate	NP
P Supply	CS
P Return	CP
Sulfuric Acid	AS
caustic Soda (Liquid)	AC
ater Hot (Hot Condensate)	WH
ater Cold (Demineralized)	WC
ater Potable	WP
fluent	EF
ffgas Vapour	EV
0% SMBS	SM
STRUMENT AIR	IA

## LEGEND

Process Stream	
Signal	
Intermittent	
Flexible line	
Mail Open	FO
Mail Closed	FC
Sample Valve	
1. ADDED BATTERY LIMIT 2. OFF PAGE CONNECTOR UNDATED + LINE NUMBER CHANGED 3. LINE TYPE CHANGED OFF-PAGE-CONNECTORS ADDED ( SIGNAL TO ) VALVE MOVED TO PID-009 TAG CHANGED 4. INTERLOCKS REMOVED ELEMENTS ADDED CONTROL LOGIC ADDED	

- ADDED BATTERY LIMIT
- OFF PAGE CONNECTOR UNDATED + LINE NUMBER CHANGED
- LINE TYPE CHANGED
- OFF-PAGE-CONNECTORS ADDED ( SIGNAL TO )
  - VALVE MOVED TO PID-009
- TAG CHANGED
- INTERLOCKS REMOVED
- ELEMENTS ADDED
  - CONTROL LOGIC ADDED



REVISION	5	AS-BUILT	MM	LK		23/01/2026	This is the latest revision.
	4	ISSUED FOR INFORMATION	AH	LK	LC	23/10/2025	
	3A	ISSUED FOR INFORMATION	RB	-	-	04/04/2025	
	2	ISSUED FOR CONSTRUCTION	AH	MB	RW	01/02/2025	
	0	ISSUED FOR INFORMATION	RB	SCV	DS	17/05/2024	
	REV	DESCRIPTION	DRAWN	CHECKED	APPRVD	DATE	

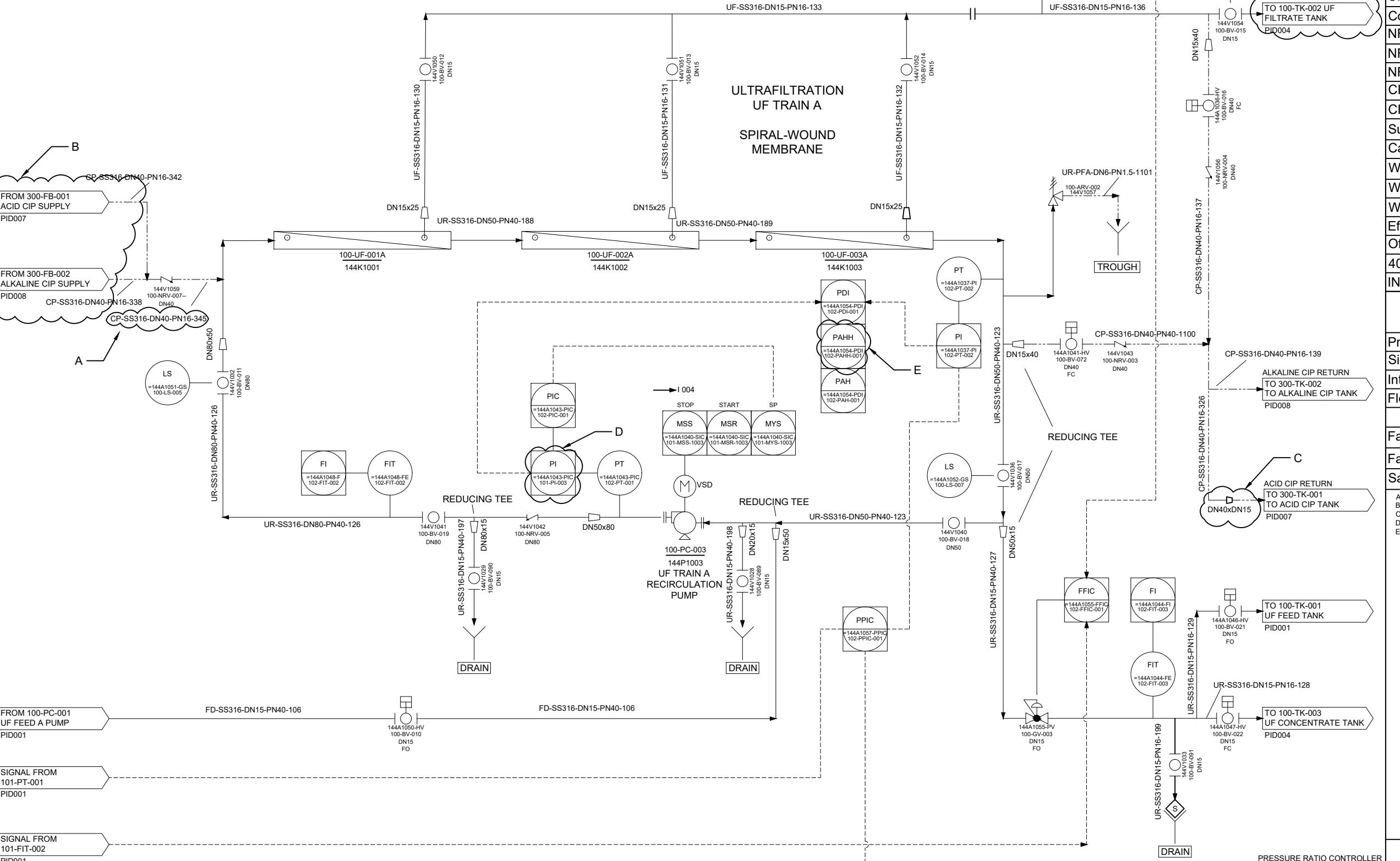
**CM2402**  
ANDRITZ OY  
LIGNIOX MEMBRANE DEMO PLANT  
PIPING & INSTRUMENTATION DIAGRAM  
AREA 100 - FEED - AS-BUILT



## Client

**ANDRITZ**  
Ligni Q

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 PV'S	1	NO OF PV'S	1
PRESSURE RATING	PN 60	PRESSURE RATING	PN 60
MEMBRANES PER PV	2	MEMBRANES PER PV	2
TYPE	SPIRAL	TYPE	SPIRAL
MOC	316 SS	MOC	316 SS
			CAPACITY 17.0 m³/h
			HEAD 22 m
			POWER 2.2 kW
			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 (Deminerlized)	WC
Water Potable	WP
Effluent	EF
Offgas Vapour	EV
40% SMBS	SM
INSTRUMENT AIR	IA

## LEGEND

Process Stream	—
Signal	—
Intermittent	—
Flexible line	wavy line
Fail Open	FO
Fail Closed	FC
Sample Valve	◊

A. RE-ADDED "CP-345"  
 B. OFF PAGE CONNECTOR EDITED  
 C. REDUCER ADDED  
 D. TAG UPDATED  
 E. PAHH ADDED

Client	
REVISION	**CM2402**   ANDRITZ OY   LIGNIOX MEMBRANE DEMO PLANT   PIPING & INSTRUMENTATION DIAGRAM   AREA 100 - UF TRAIN A (SPIRAL) - AS-BUILT
REV	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-PID002   PID NO.: PID002   REV. 5

## MATERIAL CODE

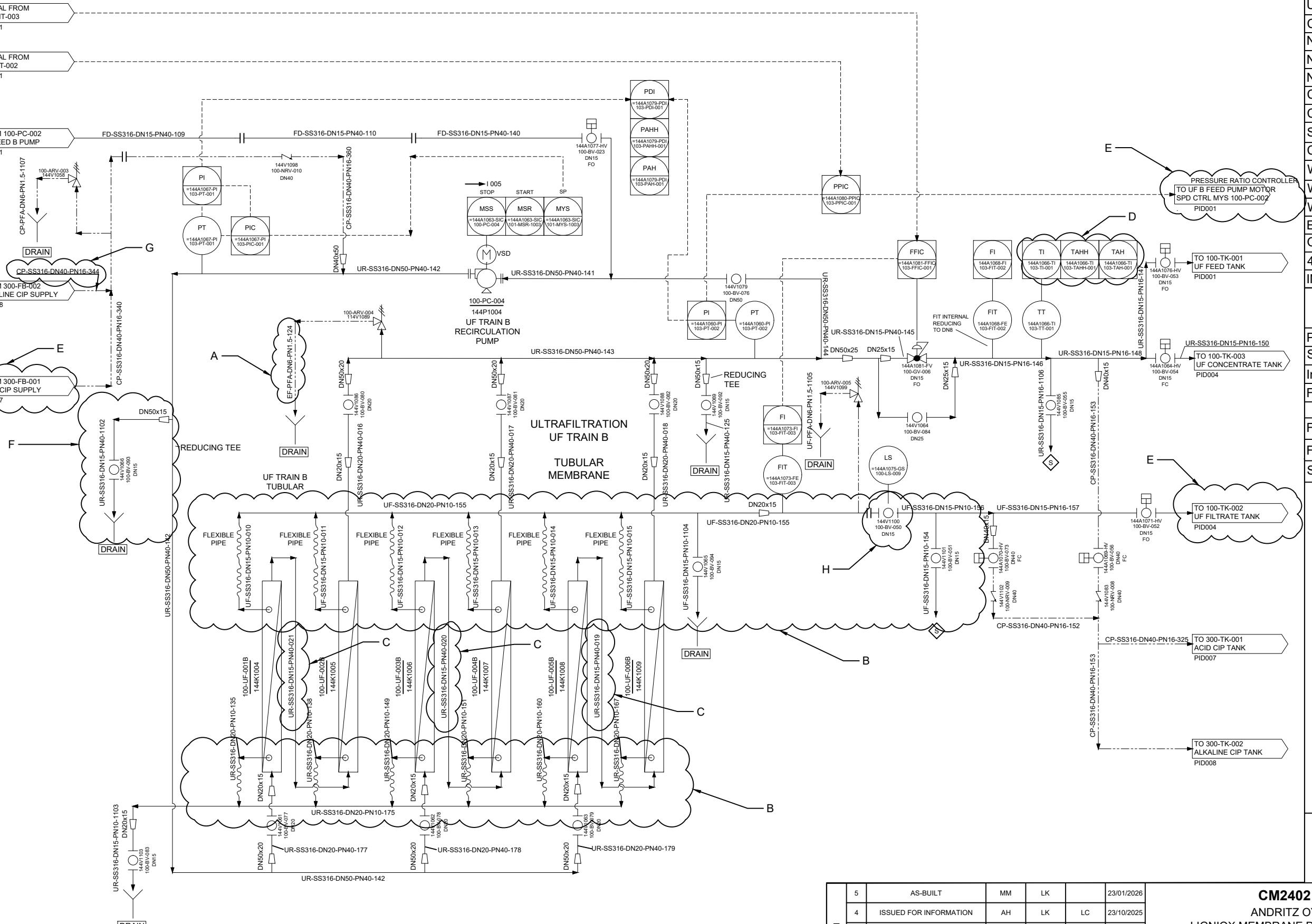
FLUID	CODE
LigniOx Solution	LS
UF Feed	FD
UF Filtrate	UF
UF Reject	UR
Combined Concentrate	CC
NF Feed (High Pressure)	FN
NF Concentrate	NC
NF Permeate	NP
CIP Supply	CS
CIP Return	CP
Sulfuric Acid	AS
Caustic Soda (Liquid)	AC
Water Hot (Hot Condensate)	WH
Water Cold (Deminerilized)	WC
Water Potable	WP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

## LEGEND

Process Stream	—
Signal	- - -
Intermittent	~~~~~
Flexible line	~~~~~
Fail Open	FO
Fail Closed	FC
Sample Valve	◊

A. MATERIAL CHANGE SS316 TO PFA  
 B. PRESSURE RATING CHANGED FROM PN16 TO PN10  
 C. LINE DESCRIPTION CHANGED  
 D. INSTRUMENTS ADDED  
 E. OFF-PAGE CONNECTOR UPDATED  
 F. MISSING LINE ADDED  
 G. LINE NUMBER PLACEMENT FIXED  
 H. VALVE DN FIXED

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 PV'S	1	NO OF PV'S	1	NO OF PV'S	1	NO OF PV'S
PRESSURE RATING	64 Bar	PRESSURE RATING	64 Bar	PRESSURE RATING	64 Bar	PRESSURE RATING
MEMBRANES PER PV	1	MEMBRANES PER PV	1	MEMBRANES PER PV	1	MEMBRANES PER PV
TYPE	TUBULAR	TYPE	TUBULAR	TYPE	TUBULAR	TYPE
MOC	316 SS	MOC	316 SS	MOC	316 SS	MOC



REVISION	5	AS-BUILT	MM	LK	23/01/2026
4	ISSUED FOR INFORMATION	AH	LK	LC	23/10/2025
3A	ISSUED FOR INFORMATION	RB	-	-	04/04/2025
2	ISSUED FOR CONSTRUCTION	AH	MB	RW	01/02/2025
0	ISSUED FOR INFORMATION	RB	SCV	DS	17/05/2024
REV	DESCRIPTION	DRAWN	CHECKED	APPRVD	DATE

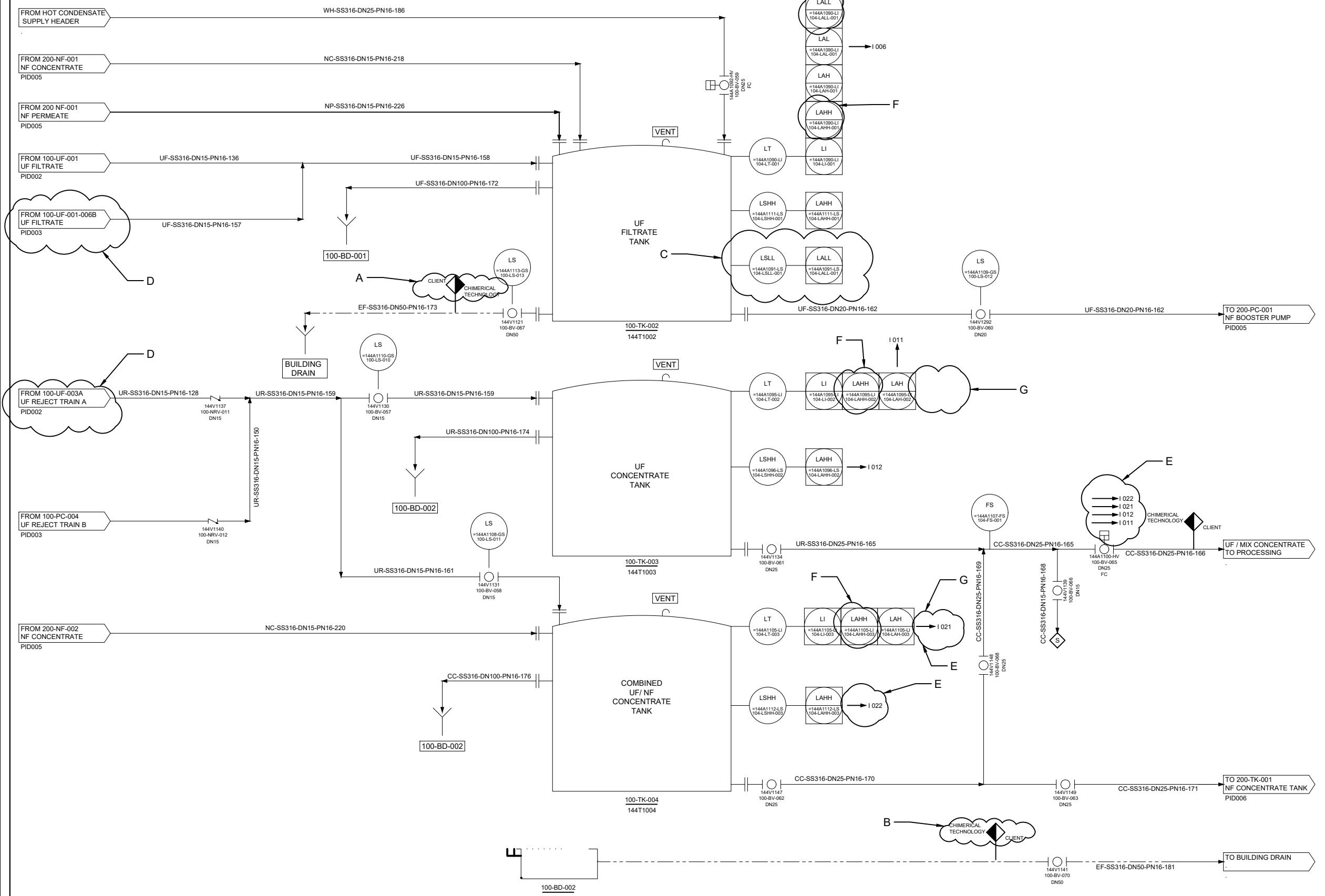
**CM2402**  
 ANDRITZ OY  
 LIGNIOX MEMBRANE DEMO PLANT  
 PIPING & INSTRUMENTATION DIAGRAM  
 AREA 100 - UF TRAIN B (TUBULAR) - AS-BUILT

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.:	5
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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
Lignox 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 (Deminerlized)	WC
Water Potable	WP
Effluent	EF
Offgas Vapour	EV
40% SMBS	SM
INSTRUMENT AIR	IA

## LEGEND

Process Stream	—
Signal	- - -
Intermittent	— - - -
Flexible line	wavy line
Fail Open	FO
Fail Closed	FC
Sample Valve	◊

A. ADDED BATTERY LIMIT  
B. ADDED BATTERY LIMIT  
C. ANDRITZ TAG CHANGED  
D. OFF PAGE CONNECTOR DESCRIPTION CHANGED  
E. INTERLOCKS ADDED  
F. INSTRUMENT ADDED  
G. INSTRUMENT REMOVED

Client



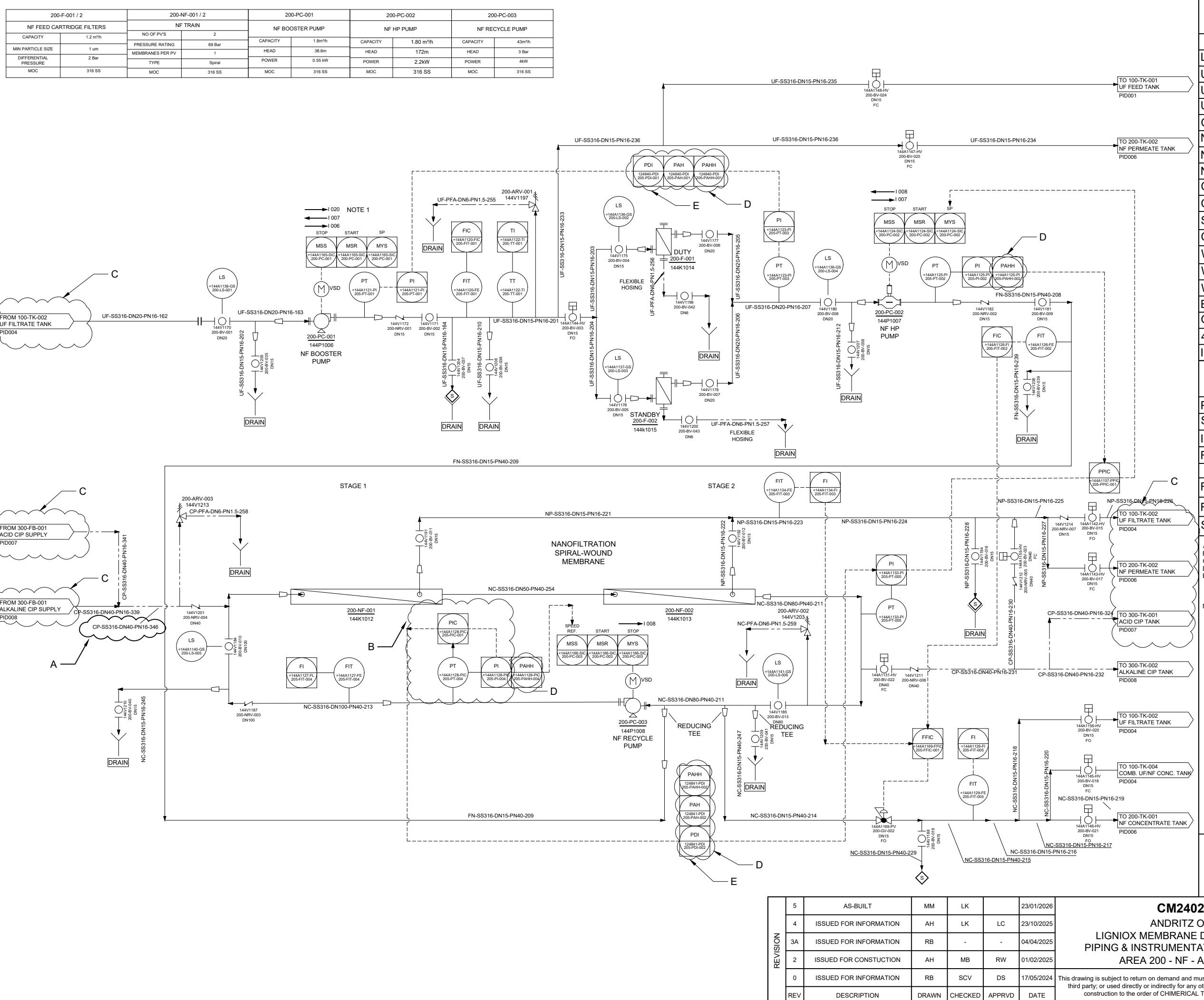
**CM2402**  
ANDRITZ OY  
LIGNIOX MEMBRANE DEMO PLANT  
PIPING & INSTRUMENTATION DIAGRAM  
AREA 100 - UF TANKS - AS-BUILT

REVISION	5	AS-BUILT	MM	LK		23/01/2026
	4	ISSUED FOR INFORMATION	AH	LK	LC	23/10/2025
3A	ISSUED FOR INFORMATION	RB	-	-	04/04/2025	
2	ISSUED FOR CONSTRUCTION	AH	MB	RW	01/02/2025	
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-PID004  
PID NO.: PID004  
REV. 5





## 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 (Deminerlized)	WC
Water Potable	WP
Effluent	EF
Offgas Vapour	EV
40% SMBS	SM
INSTRUMENT AIR	IA

## LEGEND

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

A. CHANGED CS TO CP  
B. CHANGED ANDRITZ TAGS FROM 144V TO 144A  
C. OFF-PAGE CONNECTOR UPDATED  
D. PAHH ADDED  
E. ANDRITZ TAG UPDATED

NOTES:  
1. ON THE CONDITION VALVE 144A1148-HV IS OPEN

REVISION	5	AS-BUILT	MM	LK	23/01/2026
4	ISSUED FOR INFORMATION	AH	LK	LC	23/10/2025
3A	ISSUED FOR INFORMATION	RB	-	-	04/04/2025
2	ISSUED FOR CONSTRUCTION	AH	MB	RW	01/02/2025
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 - AS-BUILT

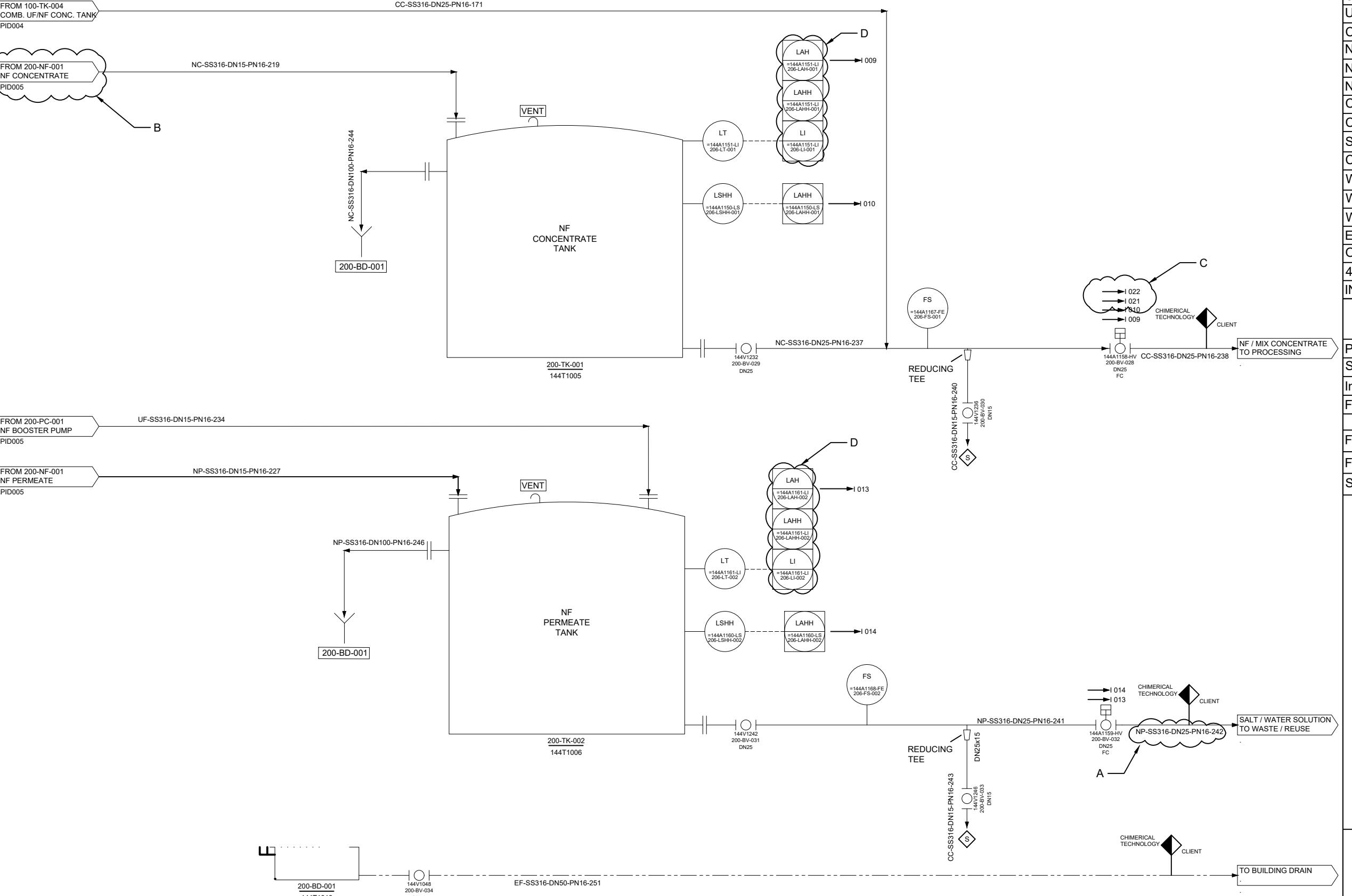
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**CHIMERICAL**  
**TECHNOLOGY**

DRAWING NO.: CM2402-AND001-4A-PID005  
PID NO.: PID005  
REV. 5

200-TK-001	200-TK-002
NF CONCENTRATE TANK	NF PERMEATE TANK
CAPACITY	1.1 m³
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 (Deminerlized)	WC
Water Potable	WP
Effluent	EF
Offgas Vapour	EV
40% SMBS	SM
INSTRUMENT AIR	IA

## LEGEND

Process Stream	—
Signal	- - -
Intermittent	- - - -
Flexible line	wavy line
Fail Open	FO
Fail Closed	FC
Sample Valve	◆

- A. CHANGED CC TO NP
- B. OFF-PAGE CONNECTOR UPDATED
- C. INTERLOCKS ADDED
- D. LAL REMOVED, LAHH ADDED

Client

**ANDRITZ**  
**LigniQ**

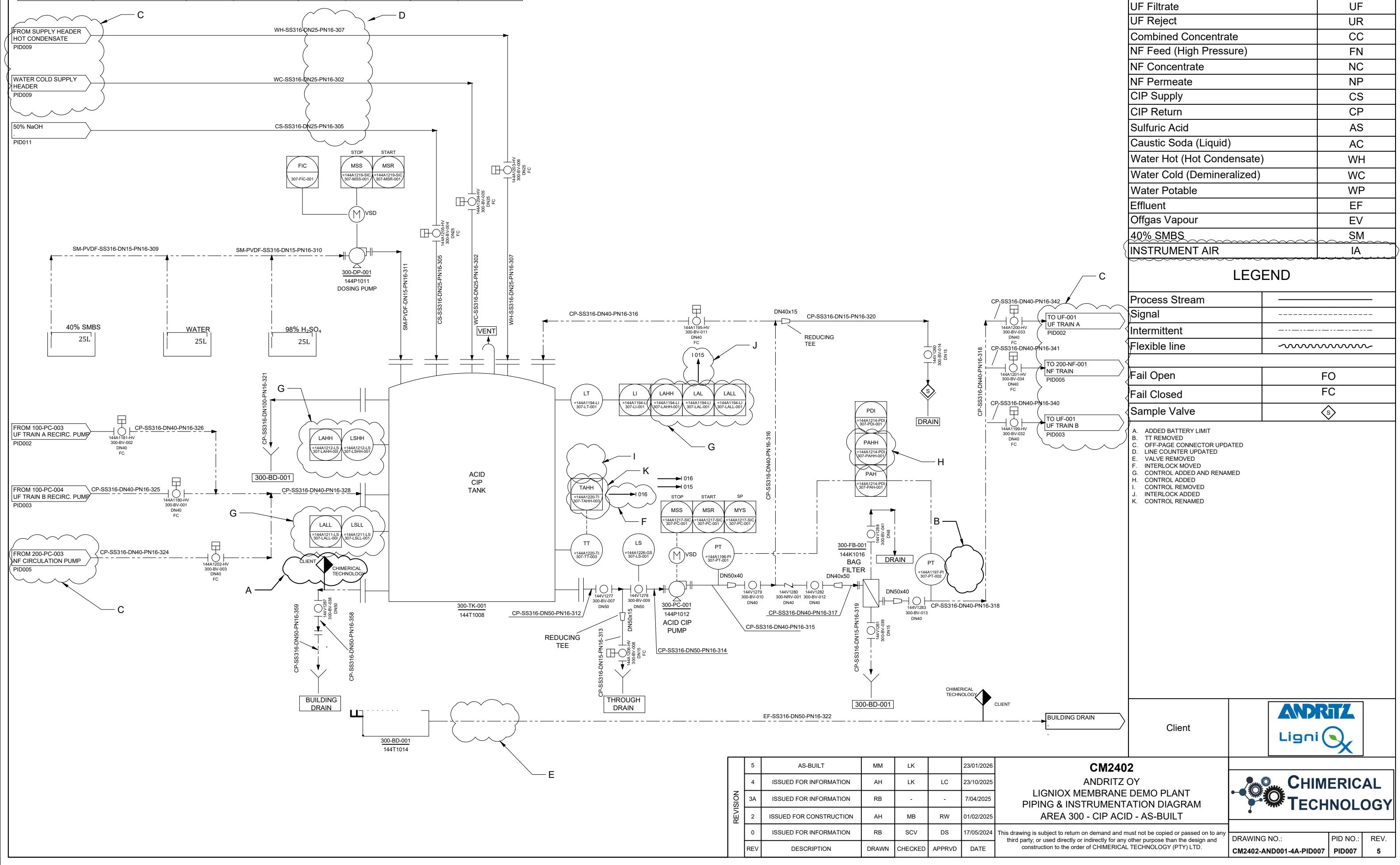
**CM2402**  
ANDRITZ OY  
LIGNIOX MEMBRANE DEMO PLANT  
PIPING & INSTRUMENTATION DIAGRAM  
AREA 200 - NF TANKS - AS-BUILT



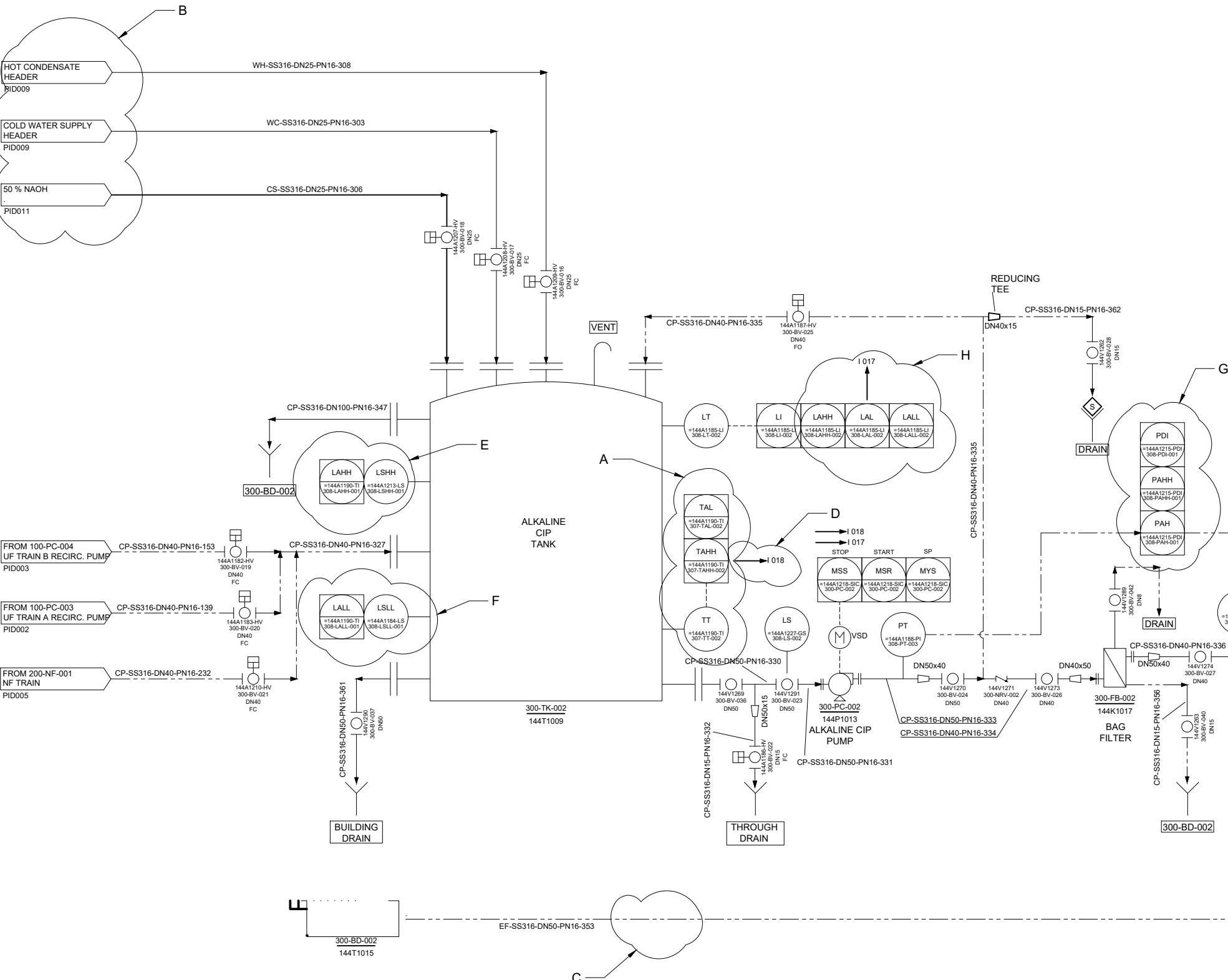
This drawing is subject to return on demand and must not be copied or passed on to any third party or used directly or indirectly for any other purpose than the design and construction to the order of CHIMERICAL TECHNOLOGY (PTY) LTD.

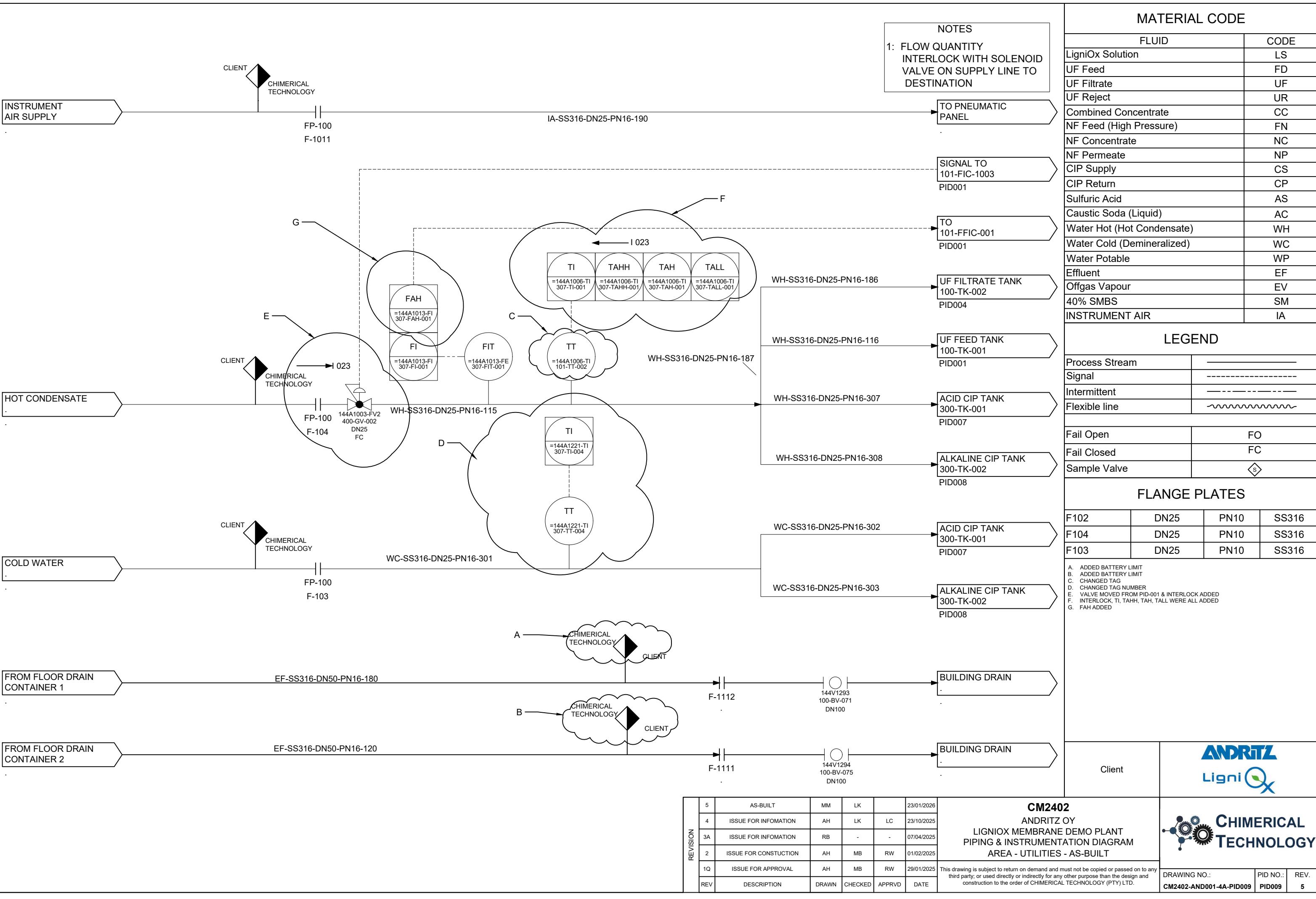
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PID NO.: PID006  
REV. 5

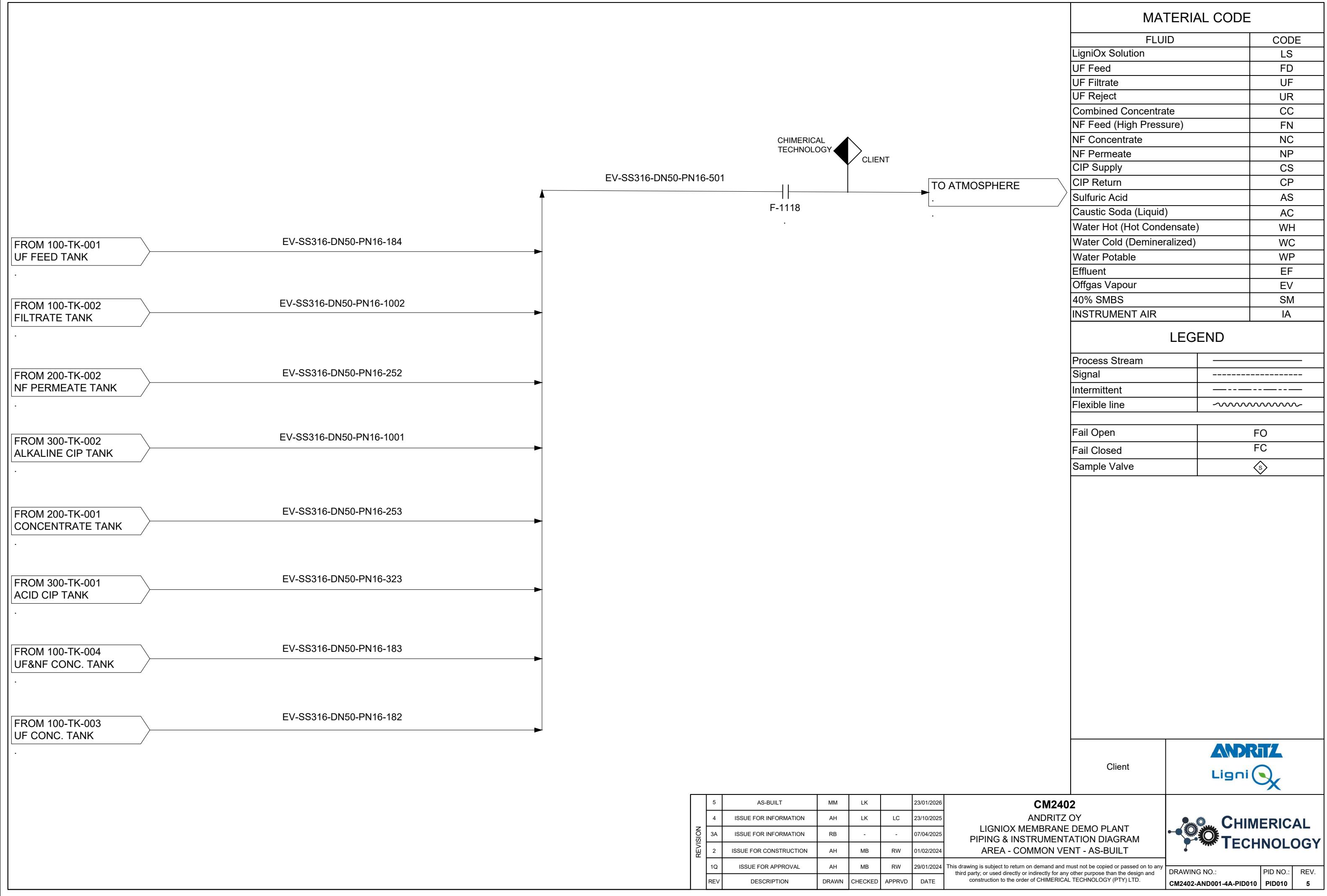
300-FB-001	300-DP-001	300-PC-001	300-TK-001
BAG FILTER	DOSING PUMP	ACID CIP PUMP	ACID CIP TANK
CAPACITY MIN PARTICLE SIZE DIFFERENTIAL PRESSURE MOC	17m³/h 1 um 2 bar 316 SS	CAPACITY HEAD POWER MOC	17m³/h 30m 3 kW 316 SS
		CAPACITY POWER MOC	1.01m³ H 1.16m 316 SS



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
MIN PARTICLE SIZE	1 um	HEAD	30m
DIFFERENTIAL PRESSURE	2 bar	POWER	3 kW
MOC	316 SS	MOC	316 SS
		MOC	316 SS







## MATERIAL CODE

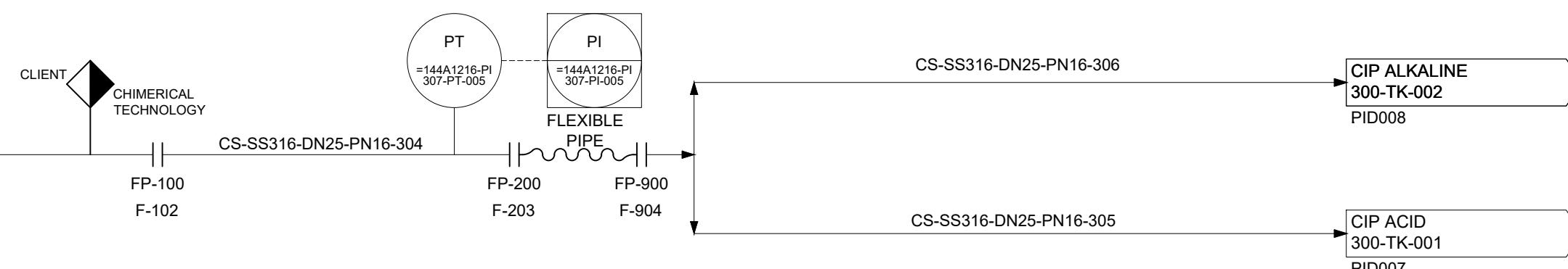
FLUID	CODE
LigniOx Solution	LS
UF Feed	FD
UF Filtrate	UF
UF Reject	UR
Combined Concentrate	CC
NF Feed (High Pressure)	FN
NF Concentrate	NC
NF Permeate	NP
CIP Supply	CS
CIP Return	CP
Sulfuric Acid	AS
Caustic Soda (Liquid)	AC
Water Hot (Hot Condensate)	WH
Water Cold (Demineralized)	WC
Water Potable	WP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

## LEGEND

Process Stream	—
Signal	—
Intermittent	—
Flexible line	~~~~~
Fail Open	FO
Fail Closed	FC
Sample Valve	◊

## FLANGE PLATES

F102	DN25	PN10	SS316
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REVISION REV	5	AS-BUILT	MM	LK		23/01/2026	CM2402 ANDRITZ OY LIGNIOX MEMBRANE DEMO PLANT PIPING & INSTRUMENTATION DIAGRAM AREA - REAGENT - AS-BUILT	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-PID011	PID NO.: PID011	REV. 5
	4	ISSUED FOR APPROVAL	AH	LK	LC	23/10/2025					
	3A	ISSUED FOR APPROVAL	RB	-	-	07/04/2025					
	2	ISSUED FOR CONSTRUCTION	AH	MB	RW	01/02/2025					
	1Q	ISSUED FOR APPROVAL	AH	MB	RW	29/01/2025					
		DESCRIPTION	DRAWN	CHECKED	APPRVD	DATE					

**ANDRITZ**  
**LigniQ**

**CHIMERICAL**  
**TECHNOLOGY**