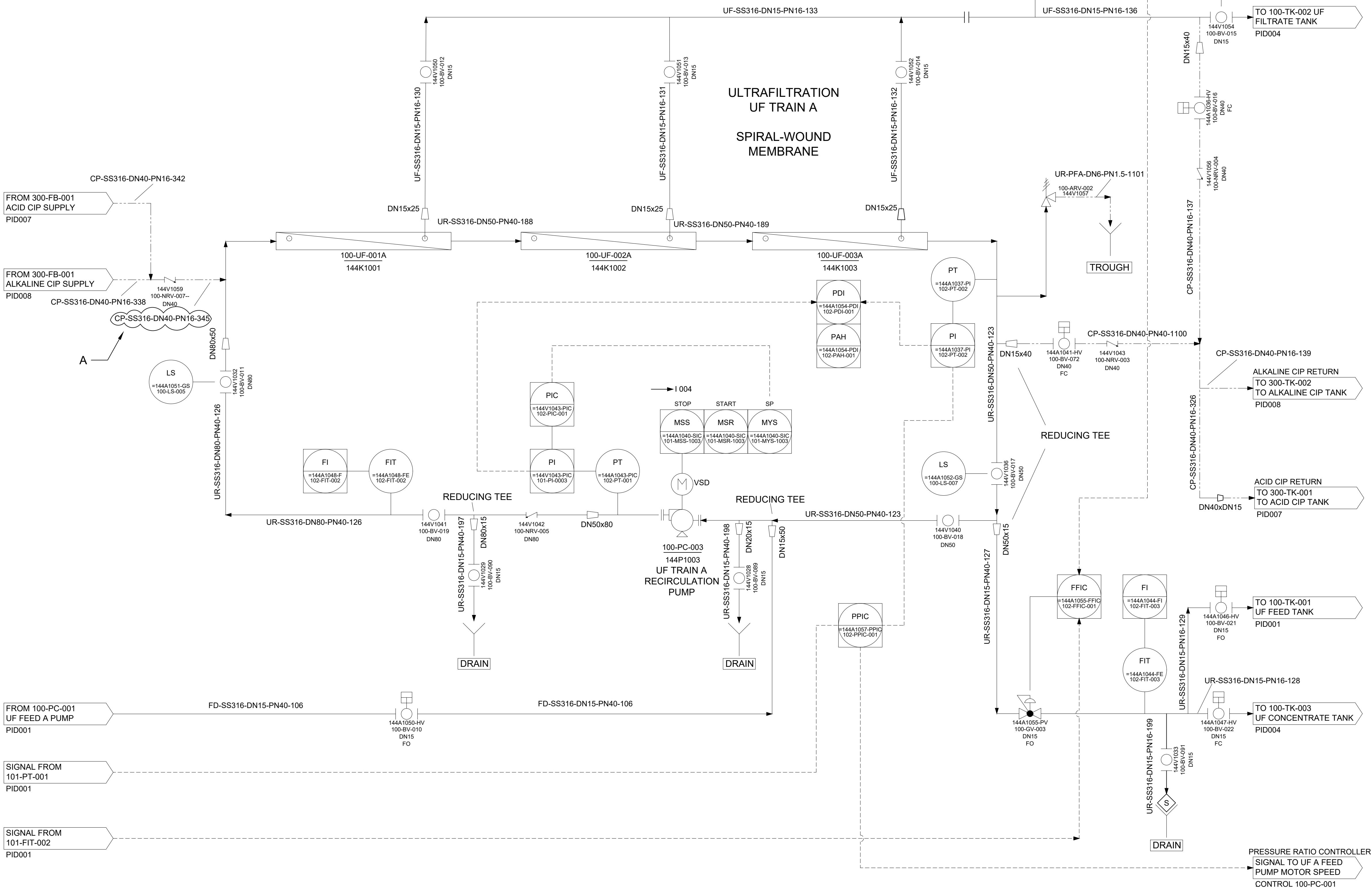







100-UF-001A		100-UF-002A		100-UF-003A		100-PC-003	
UF TRAIN A		UF TRAIN A		UF TRAIN A		UF A RECIRCULATION PUMP	
NO OF PVS	1	NO OF PVS	1	NO OF PVS	1	CAPACITY	17.0 m³/h
PRESSURE RATING	PN 60	PRESSURE RATING	PN 60	PRESSURE RATING	PN 60	HEAD	22 m
MEMBRANES PER PV	2	MEMBRANES PER PV	2	MEMBRANES PER PV	2	POWER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



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	

A. RE-ADDED "CP-345"

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 A (SPIRAL) - AS-BUILT

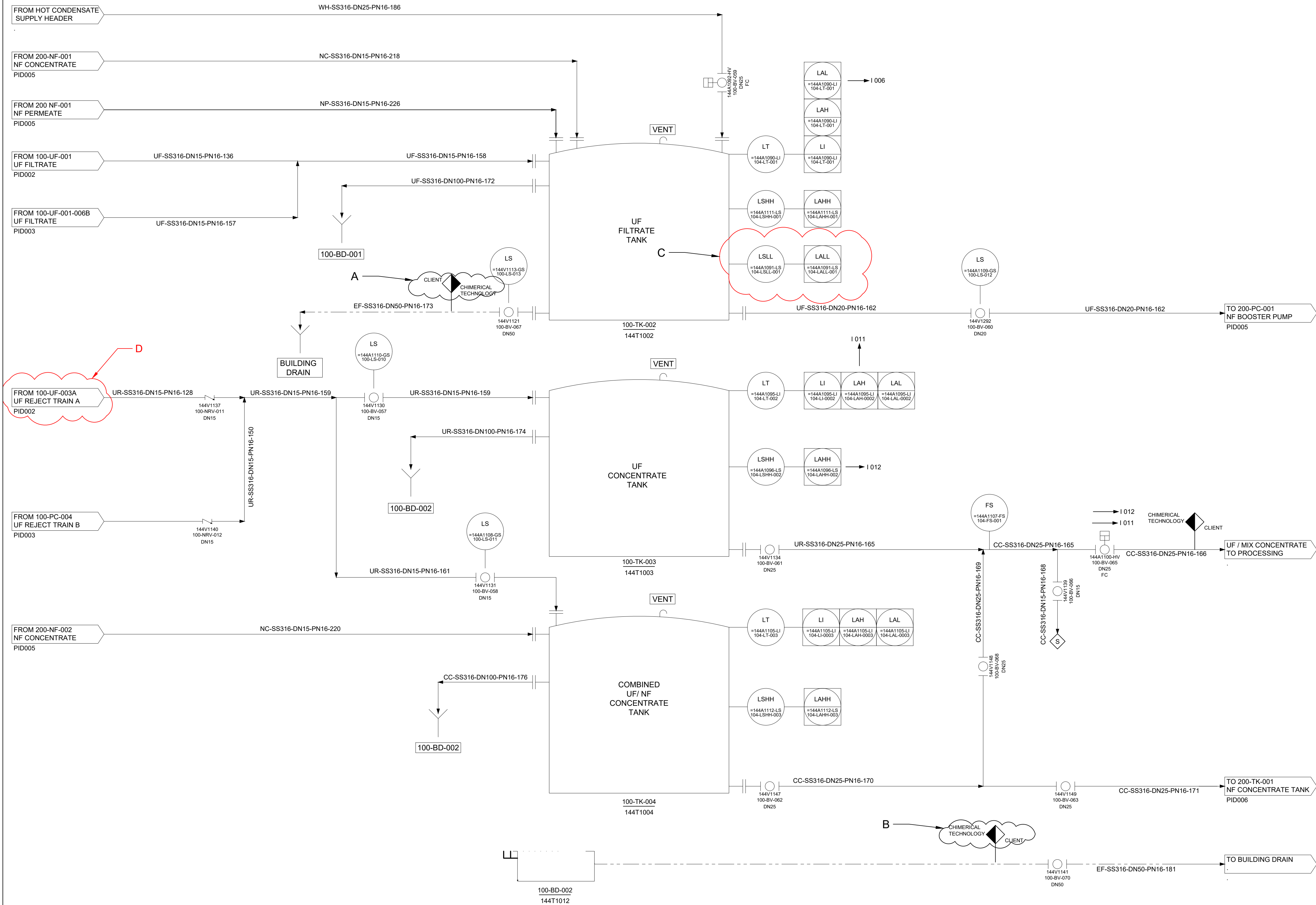
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The bottom section of the slide features two logos. On the left is the logo for ANDRITZ Ligni Qx, which includes the word "ANDRITZ" in blue, "Ligni" in grey, and a stylized "Qx" with a green leaf. On the right is the logo for Chimera Chemical Technology, featuring a molecular structure icon and the text "CHIMERICAL TECHNOLOGY" in bold black letters.

DRAWING NO.:	PID NO.:	REV.
CM2402-AND001-4A-PID002	PID002	5

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
INSTRUMENT AIR	IA

LEGEND

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

A. ADDED BATTERY LIMIT
B. ADDED BATTERY LIMIT
C. ANDRITZ TAG CHANGED
D. OFF PAGE CONNECTOR DESCRIPTION CHANGED

Client

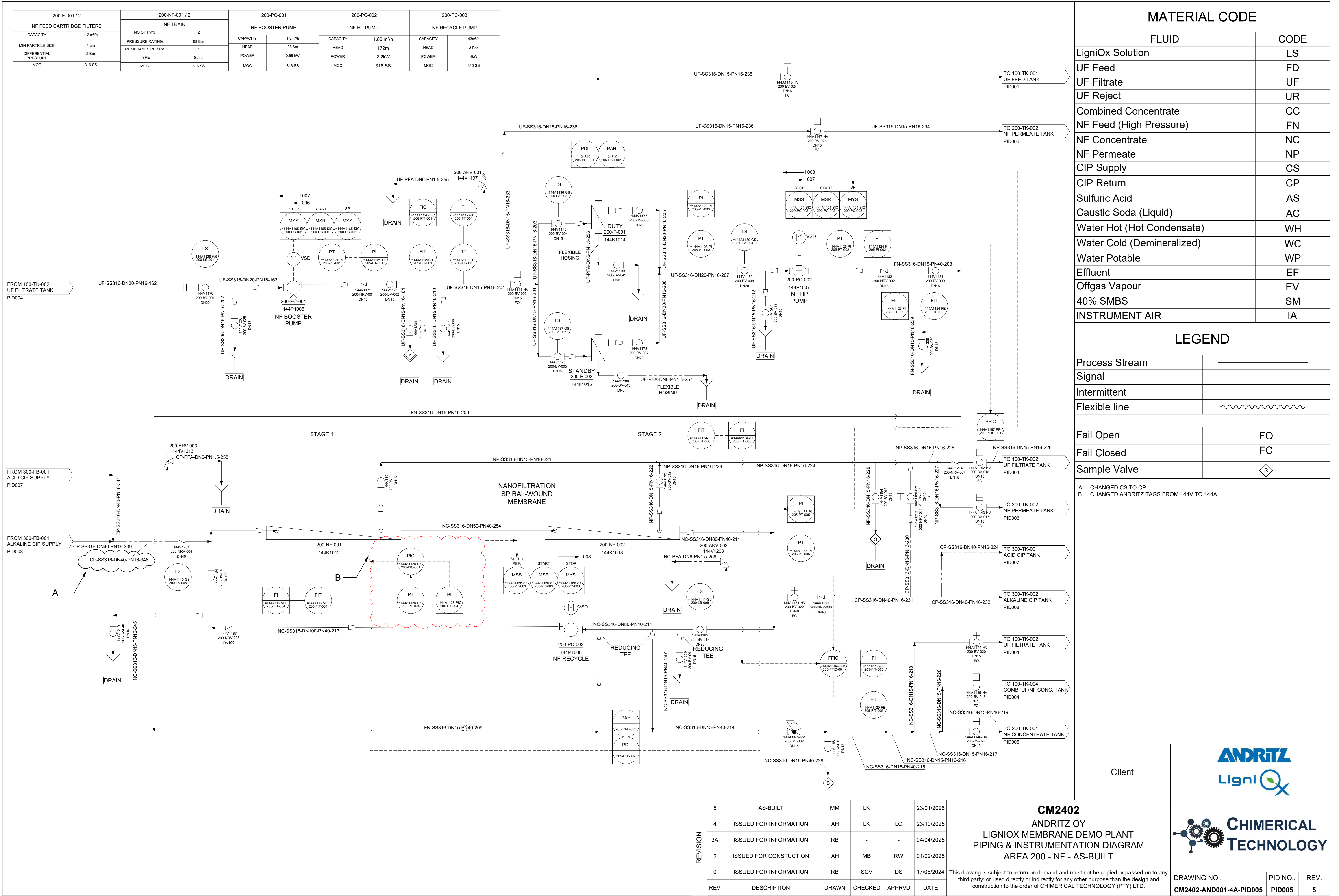


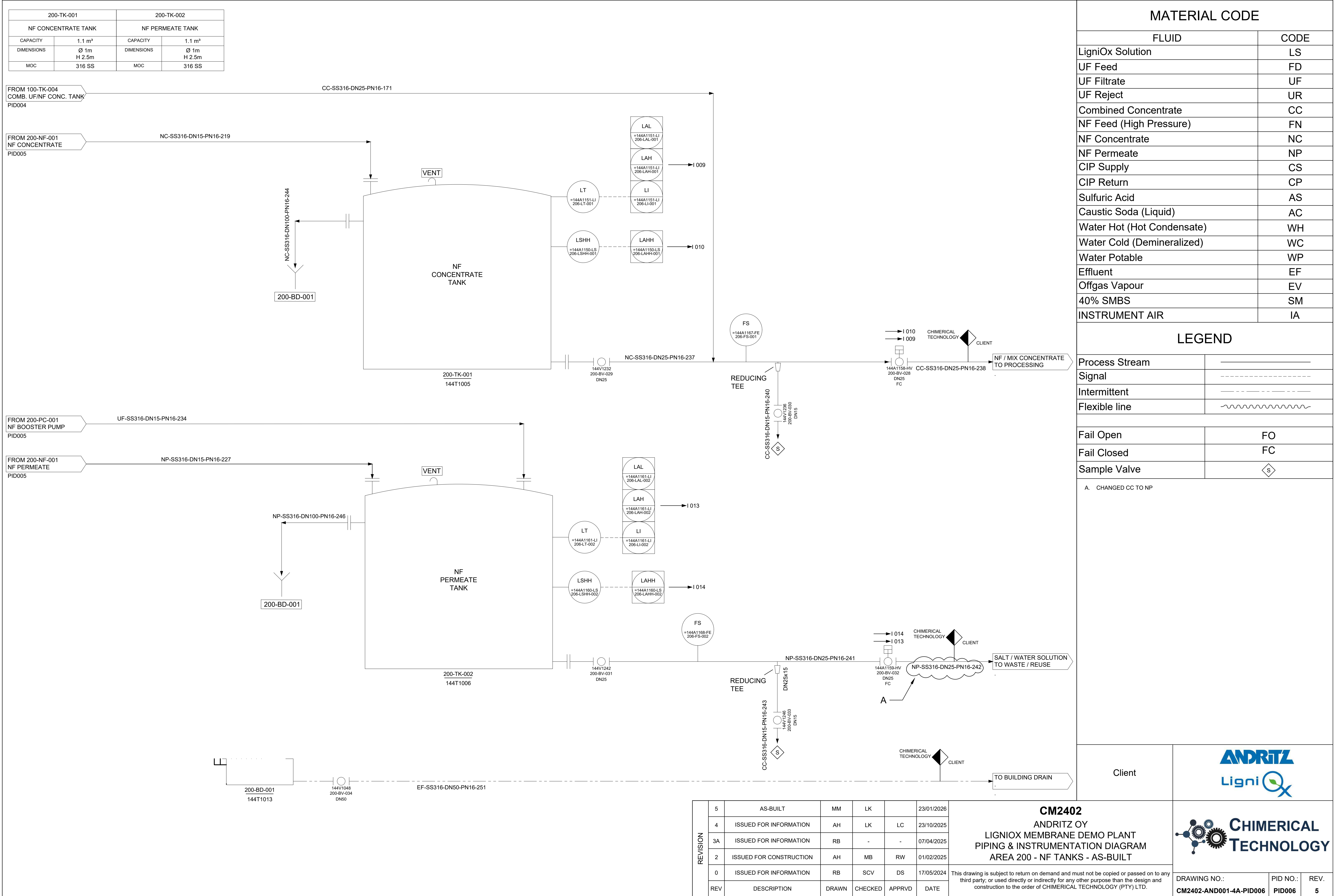
REVISION	5	AS-BUILT	MM	LK		23/01/2026
	4	ISSUED FOR INFORMATION	AH	LK	LC	23/10/2025
	3A	ISSUED FOR INFORMATION	RB	-	-	04/04/2025
	2	ISSUED FOR CONSTRUCTION	AH	MB	RW	01/02/2025
	0	ISSUED FOR INFORMATION	RB	SCV	DS	17/05/2024
	REV	DESCRIPTION	DRAWN	CHECKED	APPRVD	DATE

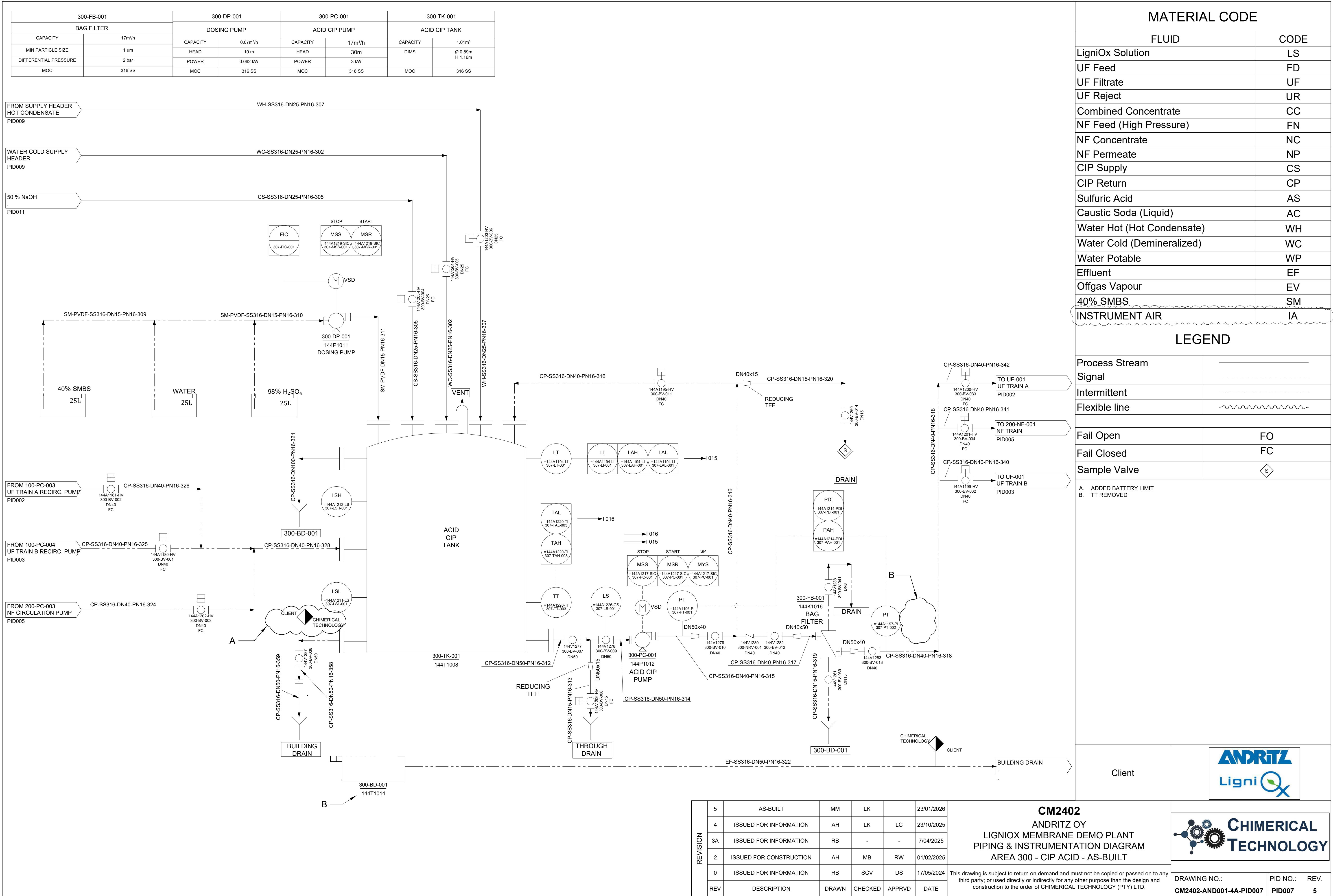
CM2402
ANDRITZ OY
LIGNIOX MEMBRANE DEMO PLANT
PIPING & INSTRUMENTATION DIAGRAM
AREA 100 - UF TANKS - AS-BUILT

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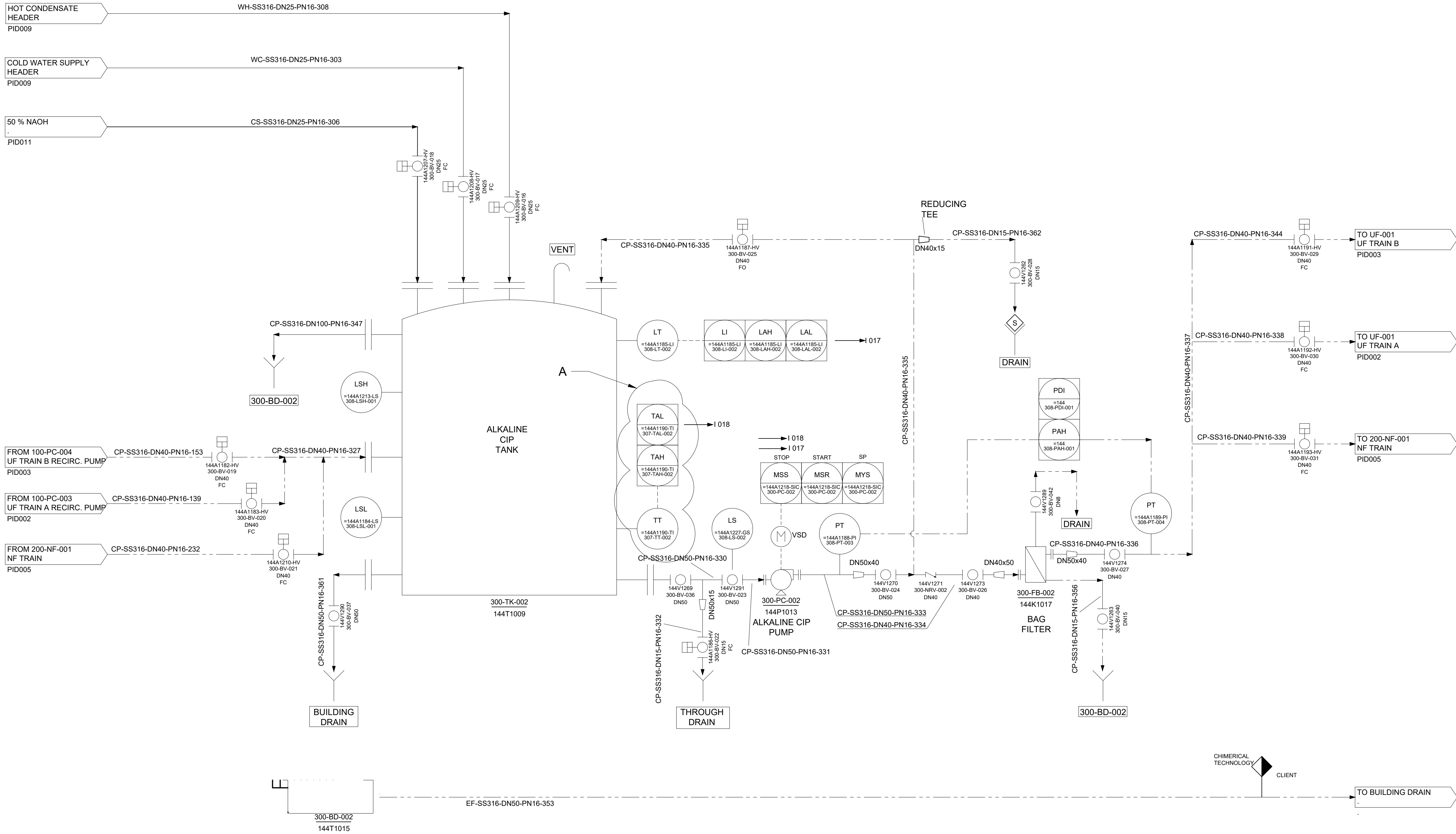
DRAWING NO.:	PID NO.:	REV.
CM2402-AND001-4A-PID004	PID004	5







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 µm	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
INSTRUMENT AIR	IA

LEGEND	
Process Stream	_____
Signal	-----
Intermittent	-----
Flexible line	~~~~~
Fail Open	FO
Fail Closed	FC
Sample Valve	◇ S

A - TAG NUMBERS CHANGED

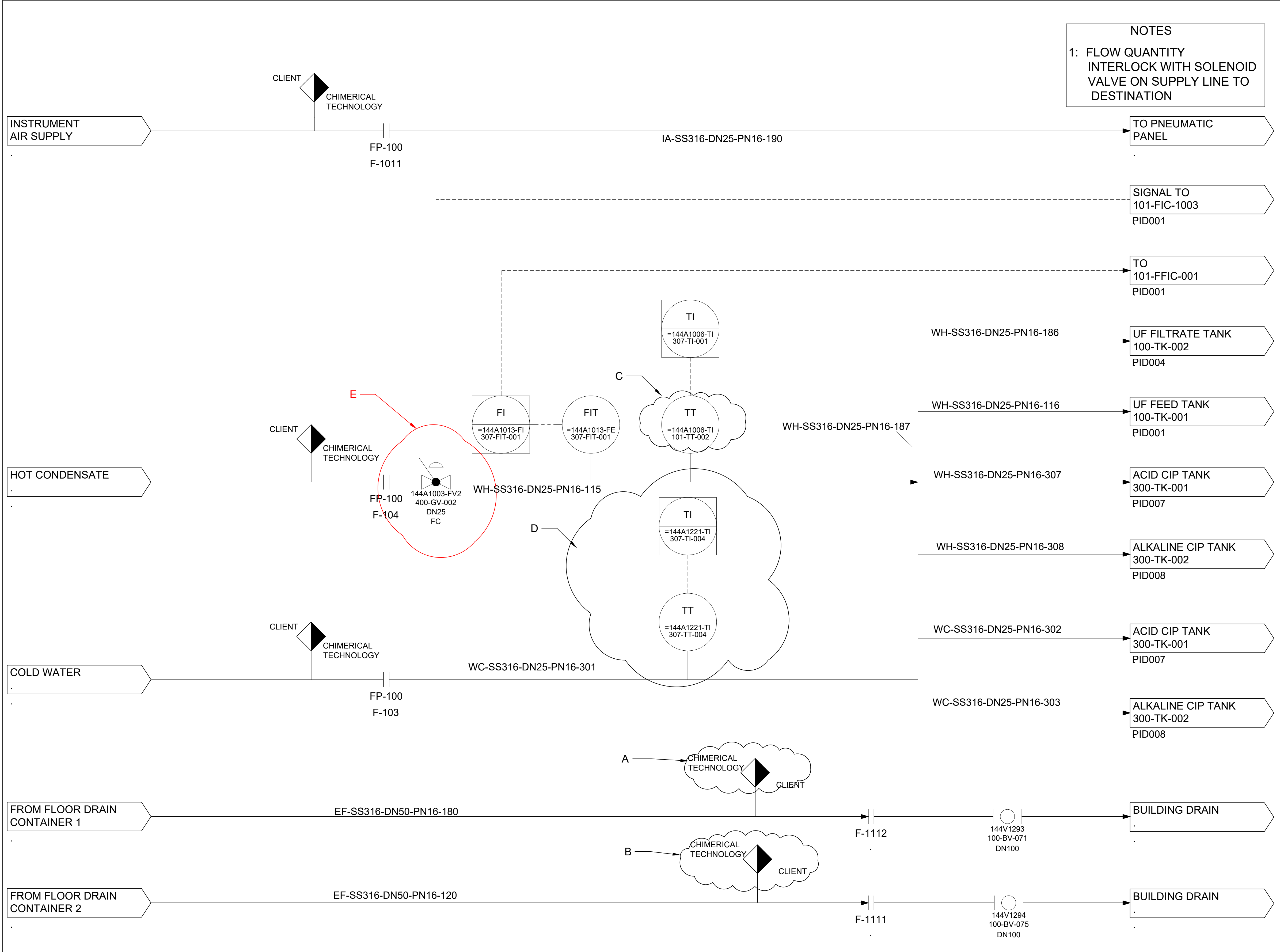
Client

REVISION	5	AS-BUILT	MM	LK		23/01/2026
	4	ISSUED FOR INFORMATION	AH	LK	LC	23/10/2025
	3A	ISSUED FOR INFORMATION	RB	-	-	07/04/2025
	2	ISSUED FOR CONSTRUCTION	AH	MB	RW	01/02/2025
	1Q	ISSUED FOR APPROVAL	AH	MB	RW	29/01/2025
REV		DESCRIPTION	DRAWN	CHECKED	APPRVD	DATE

CM2402
ANDRITZ OY
LIGNIOX MEMBRANE DEMO PLANT
PIPING & INSTRUMENTATION DIAGRAM
AREA 300 - CIP ALKALINE - AS-BUILT

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DRAWING NO.: **CM2402-AND001-4A-PID008** PID NO.: **PID008** REV.: **5**



NOTES
1: FLOW QUANTITY
INTERLOCK WITH SOLENOID
VALVE ON SUPPLY LINE TO
DESTINATION

TO PNEUMATIC
PANEL

SIGNAL TO
101-FIC-1003
PID001

TO
101-FFIC-001
PID001

UF FILTRATE TANK
100-TK-002
PID004

UF FEED TANK
100-TK-001
PID001

ACID CIP TANK
300-TK-001
PID007

ALKALINE CIP TANK
300-TK-002
PID008

ACID CIP TANK
300-TK-001
PID007

ALKALINE CIP TANK
300-TK-002
PID008

BUILDING DRAIN

BUILDING DRAIN

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	◇ S

FLANGE PLATES

F102	DN25	PN10	SS316
F104	DN25	PN10	SS316
F103	DN25	PN10	SS316

A. ADDED BATTERY LIMIT
B. ADDED BATTERY LIMIT
C. CHANGED TAG
D. CHANGED TAG NUMBER
E. VALVE MOVED FROM PID-001

Client

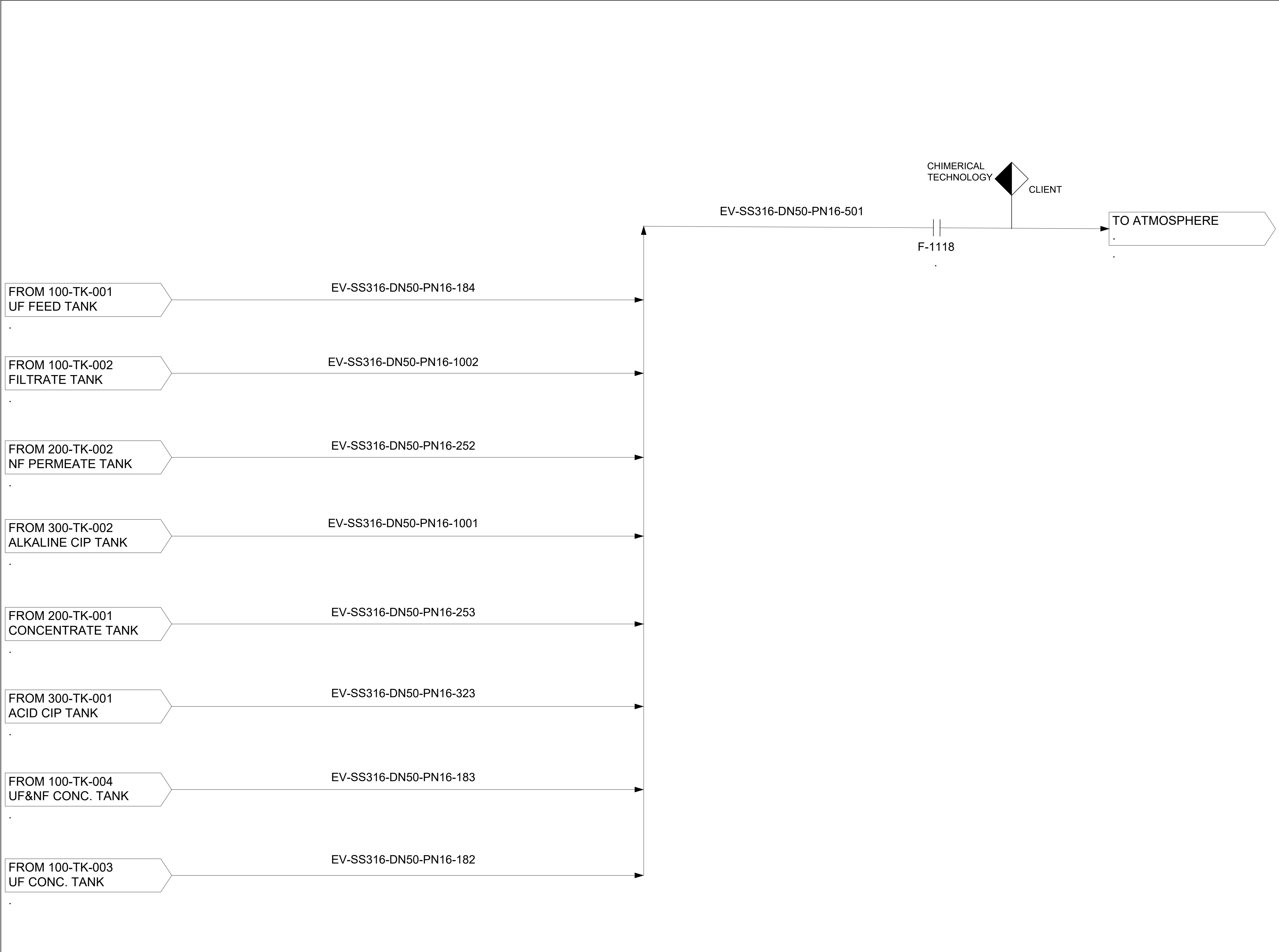


REVISION	5	AS-BUILT	MM	LK		23/01/2026
4	ISSUE FOR INFORMATION	AH	LK	LC		23/10/2025
3A	ISSUE FOR INFORMATION	RB	-	-		07/04/2025
2	ISSUE FOR CONSTRUCTION	AH	MB	RW		01/02/2025
1Q	ISSUE FOR APPROVAL	AH	MB	RW		29/01/2025
REV	DESCRIPTION	DRAWN	CHECKED	APPRVD	DATE	

CM2402
ANDRITZ OY
LIGNIOX MEMBRANE DEMO PLANT
PIPING & INSTRUMENTATION DIAGRAM
AREA - UTILITIES - AS-BUILT

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DRAWING NO.:	PID NO.:	REV.
CM2402-AND001-4A-PID009	PID009	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 (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	◇S

REVISION	5	AS-BUILT	MM	LK		23/01/2026	<div>CM2402</div> <div>ANDRITZ OY</div> <div>LIGNIOX MEMBRANE DEMO PLANT</div> <div>PIPING & INSTRUMENTATION DIAGRAM</div> <div>AREA - COMMON VENT - AS-BUILT</div> <div>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.</div>	<div>DRAWING NO.: CM2402-AND001-4A-PID010</div> <div>PID NO.: PID010</div> <div>REV. 5</div>
	4	ISSUE FOR INFORMATION	AH	LK	LC	23/10/2025		
	3A	ISSUE FOR INFORMATION	RB	-	-	07/04/2025		
	2	ISSUE FOR CONSTRUCTION	AH	MB	RW	01/02/2024		
	1Q	ISSUE FOR APPROVAL	AH	MB	RW	29/01/2024		
	REV	DESCRIPTION	DRAWN	CHECKED	APPRVD	DATE		



