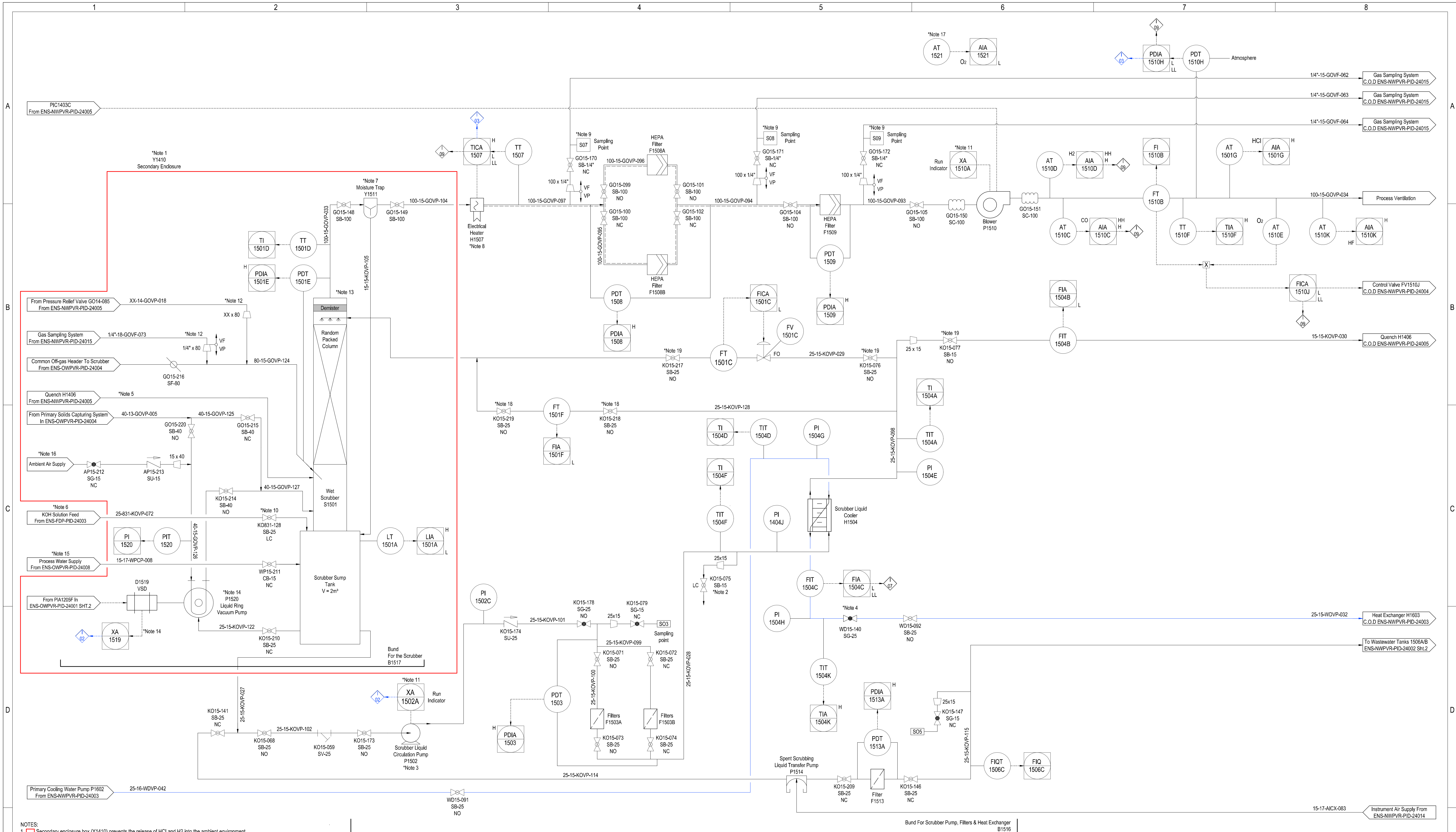


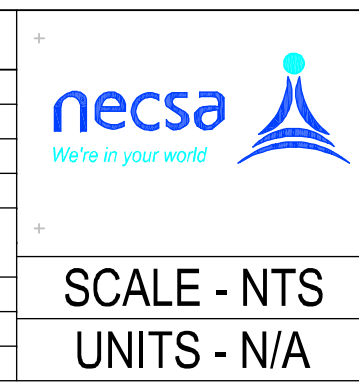


- NOTES:
- Secondary enclosure box (Y1410) prevents the release of HCl and H₂ into the ambient environment, in the event of leakage from the primary containment system. This enclosure box is the continuation of one in ENS-NWPVR-PID-24005. All equipment outside of secondary enclosure envelope is inside Lab 150.
 - Low-point drains are provided for removal of liquid from closed circulation loops during shut-down or maintenance. Exact location of drain valve & safe discharge point to be defined once the system layout and routing of piping are established.
 - Pump P1502 is connected to emergency power and also provided with dry run protection.
 - The globe valve is used to set water flowrate and not as a shut-off/isolation valve. Once the correct flowrate is established the valve is locked in position.
 - Quench H1406 connects directly onto the column of the scrubber S1501 with no pipeline in between. Therefore, no line number assigned to the connection between the quench & scrubber in the P&ID.
 - Transfer of KOH solution scrubbing liquid is a batch process.
 - Moisture trap to be supplied complete with integrated automatic drain valve.
 - Electrical heater to be installed as close as possible to the downstream of HEPA filters.
 - Gas samples to be taken from the top of the process piping to prevent the carry-over and/or condensation of moisture and/or HCl in the sample line.
 - Valve KO-831-128 is provided in the design of the KOH top-up system. The valve is duplicated here only for completeness of the system.
 - Each run indicator, XA1502A & XA1510A, for the pump P1502 & blower P1510 is displayed on the SCADA in the control room. An alarm is triggered if either the pump or blower faulttrip while they are in operation.
 - Line to enter common off-gas header at the top to prevent condensation of moisture, HF and/or HCl in the line, as well as cross contamination.
 - Both the NW Plagas and the Oil waste facilities will be served by one scrubber (S1501), however, only one facility will be operated at a time.
 - Pump P1502 is to be positioned at such a height that the scrubbing liquid fills the pump casing only to the centerline of the pump shaft.
 - Batch transfer process as required for commissioning and/or maintenance.
 - Ambient air drawn directly from the secondary enclosure.
 - AT1521 is used to monitor Oxygen levels inside the laboratory (Lab 150) but outside the secondary enclosure (Y1410).
 - The position of manual valve is normally open during operation of the Oil waste process and normally closed during operation of the NW Plagas process.
 - The position of manual valve is normally open during operation of the NW Plagas process and normally closed during operation of the Oil waste.

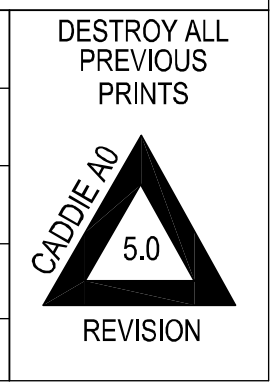
REFERENCED P&IDs & DOCUMENTS				
1.)	ENS-FDP-PID-24003	Scrubber P&ID for the PTPE System.		
2.)	ENS-NWPVR-PID-24005	Reactor P&ID for the NW PLASGAS system.		
3.)	ENS-NWPVR-PID-24004	Gas supply for the NW PLASGAS system.		
4.)	ENS-NWPVR-PID-24015	Gas sampling system P&ID for the NW plagas system.		
5.)	ENS-NWPVR-PID-24001 SHT.2	Plasma Gasification System of the WOPG Demonstration Facility.		
6.)	ENS-FDP-PID-24003	P&ID Diagram KOH scrubber system 831.		
7.)	ENS-NWPVR-PID-24004	Plasma Gasification System of the WOPG Demonstration Facility.		
8.)	ENS-NWPVR-PID-24005	Off-gas Handling System of the WOPG Demonstration Facility.		
9.)	ENS-NWPVR-PID-24008	Utilities System of the WOPG Demonstration Facility.		
FUNC.	NAME	DESIGNATION	SIGNATURE	DATE
PRP'D	M.K.Nkadiemeng	Process Engineer		
REVIEW	G.Manuel	Chief Engineer Control & Instrumentation		
REVIEW	S.Mngoma	Chief Mechanical Engineer		
REVIEW	W.van den Berg	Chief Electrical Engineer		
REVIEW	M.Corraia	Senior Process Engineer		
REVIEW	W.Ludwick	Senior Process Engineer		
APPR'D	K.Moodley	Chief Process Engineer		

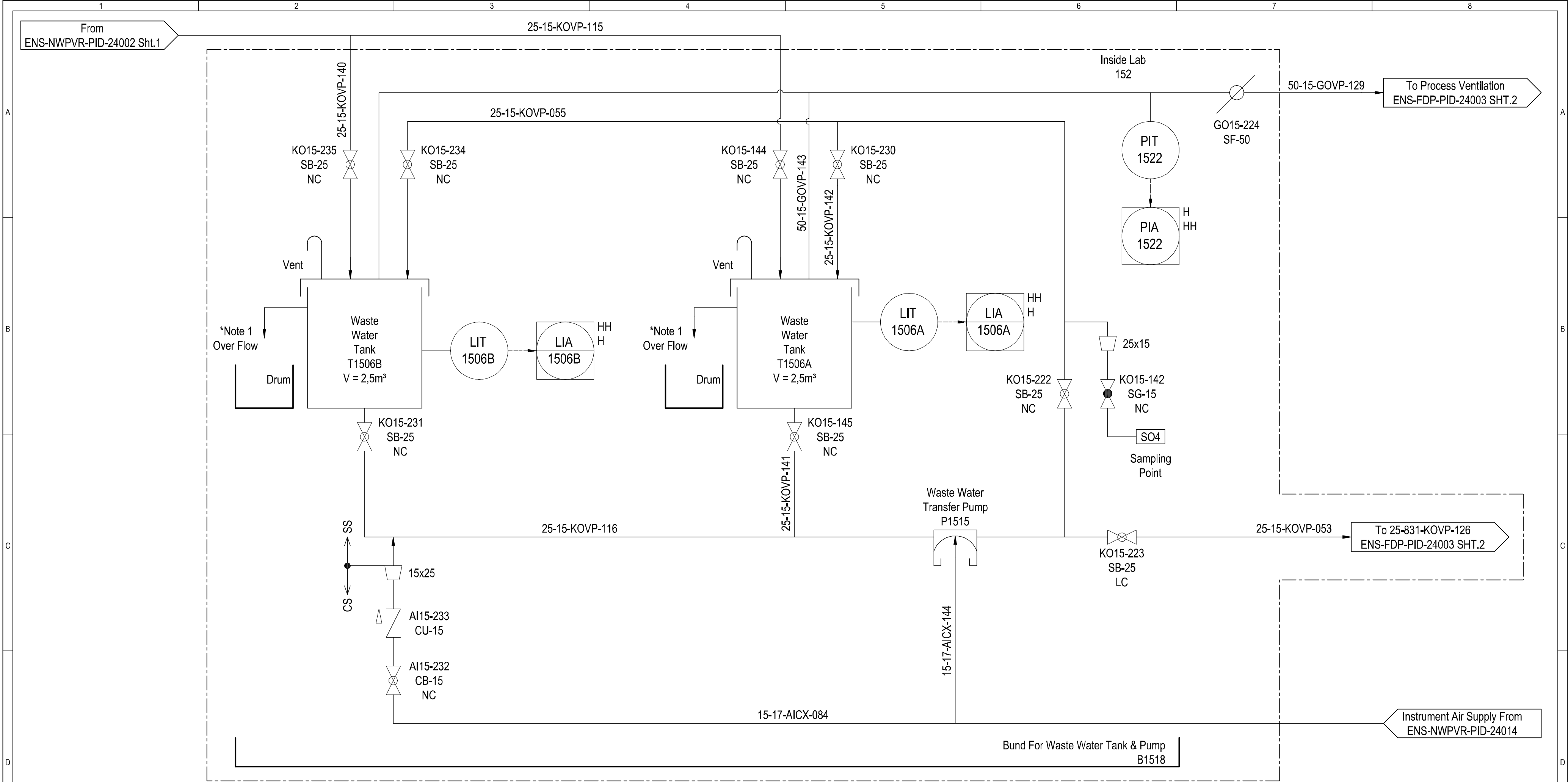
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REV	DESCRIPTION	PRP'D	DATE
1.0	First Issue	P.S.M	14/01/2025
2.0	Second Issue	L.D	30/01/2025
3.0	Third Issue	L.D	14/03/2025
4.0	Forth Issue, Changes as per ENS-NWPVR-ECP-25001	M.K	30/05/2025
5.0	Fifth Issue, Means for reading of pressure in tanks ventilation lines included	M.K	28/08/2025



PROJECT		NW PLASGAS	
TITLE		P&ID DIAGRAM	
DRG.No.		ENS-NWPVR-PID-24002	
SHEET		1 OF 2	
SCALE - NTS		UNITS - N/A	
PROJECT		NW PLASGAS	
TITLE		P&ID DIAGRAM	
DRG.No.		ENS-NWPVR-PID-24002	
SHEET		1 OF 2	
SCALE - NTS		UNITS - N/A	





REFERENCED P&IDs & DOCUMENTS			
1.)	ENS-FDP-PID-24003	Scrubber P&ID for the PTFE System.	
2.)	ENS-NWPVR-24005	Reactor P&ID for the NW PLASGAS system.	
3.)	ENS-NWPVR-24004	Gas supply for the NW PLASGAS system.	
4.)	ENS-NWPVR-PID-24015	Gas sampling system P&ID for the NW plasgas system.	
5.)	ENS-NWPVR-PID-24001 SHT.2	Plasma Gasification System of the WOPG Demonstration Facility.	
6.)	ENS-FDP-PID-24003	P&ID Diagram KOH scrubber system 831.	
7.)	ENS-NWPVR-PID-24004	Plasma Gasification System of the WOPG Demonstration Facility.	
8.)	ENS-NWPVR-PID-24005	Off - gas Handling System of the WOPG Demonstration Facility.	
9.)	ENS-NWPVR-PID-24008	Utilities System of the WOPG Demonstration Facility.	
FUNC.	NAME	DESIGNATION	SIGNATURE
PRP'D	M.K.Nkadameng	PROCESS ENGINEER	
REVIEW	G.Manuel	CHIEF ENGINEER CONTROL & INSTRUMENTATION	
REVIEW	S.Mngoma	CHIEF MECHANICAL ENGINEER	
REVIEW	W.van den Berg	CHIEF ELECTRICAL ENGINEER	
REVIEW	M.Correia	SENIOR PROCESS ENGINEER	
REVIEW	W.Ludwick	SENIOR PROCESS ENGINEER	
APPR'D	K.Moodley	CHIEF PROCESS ENGINEER	

NOTE:
1. THE OVER FLOW FROM EACH TANK IS TRANSFERRED TO A 50-LITRE POLYETHYLENE DRUM.

COPYRIGHT	REV	DESCRIPTION	PRP'D	DATE	PROJECT		NW PLASGAS			DESTROY ALL PREVIOUS PRINTS CADDE 42 5.0 REVISION
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	2.0	Second Issue	L.D	30/01/2025			NW PLASGAS DEMONSTRATION PLANT DUBSYSTEM 15			
	3.0	Third Issue	L.D	14/03/2025						
	4.0	Forth Issue. Changes as per ENS-NWPVR-ECP-25001	M.K	30/05/2025						
	5.0	Fifth Issue. Means for reading of pressure in tanks ventilation lines included	M.K	28/08/2025						
					SCALE - NTS	DRG.No.	ENS-NWPVR-PID-24002			
					UNITS - N/A	SHEET	2 OF 2	TEAMCENTRE No.	-	