



DESCRIPTION		Tank T1601 is used as a buffer for the holding of demineralised cooling water in the Nuclear Waste Plasma Gasification and the Uranium Contaminated Waste Oil Plasma Gasification (CWOPG) Demonstration Facilities.				
EQUIPMENT LOCATION		NW PlasGas and CWOPG Demonstration Facility- Outside laboratory 150, Building V-H2				
PLANT LOCATION		Necsa, Pelindaba, North-West Province				
SAFETY CLASSIFICATION		Non-classified (N) and SC-3(C)				
FLUID PROPERTIES						
FLUID	Demineralised Water					
FLUID STATE	Liquid	SOLIDS CONTENT	\$ 1200 mg/L total dissolved solids [5]			
MASS FLOW RATE IN/OUT (kg/h)	16802.1 [1]					
DENSITY (kg/m ³)	995.65 at 30 °C [1]					
VISCOOSITY (cP)	0.7 at 30 °C [3]					
THERMAL CONDUCTIVITY (W/m.K)	0.615 at 30 °C [4]					
SPECIFIC HEAT CAPACITY (kJ/kg)	4.18 at 30 °C [4]					
CORROSIVE DUE TO	N/A					
MASS EMPTY (kg)	Supplier to advise	CORROSION ALLOWANCE (")	0.00			
CAPACITY OF VESSEL (L)	1500	VOLUME OF FLUID (L)	-			
PRESSURE (kPa (g))						
DESIGN	Ambient	DESIGN	50			
OPERATING	0	OPERATING	30 - 40 °C			
MINIMUM	0	MINIMUM	-2.6 °C			
TEST	Supplier to Advise	TEST	Supplier to Advise			
TYPE OF PRESSURE TEST		HYDROSTATIC	Yes	PNEUMATIC		
DESIGN CODE	API 650.					
SPECIFICATION	N/A					
LAGGING	N/A					
TANK HEIGHT (m)	1.97 [2]					
TANK DIAMETER (m)	0.98 [2]		INTERNAL VOLUME (m ³)	1.5		
No. of LEG SUPPORTS	3 See Note 7*					
AGITATOR REQUIREMENTS		COOLING/HEATING REQUIREMENTS				
AGITATOR REQUIRED	N	COOLING/HEATING REQUIRED	N			
AGITATOR SPECIFICATIONS / DATASHEET NO.	N/A	COOLING/HEATING SPECIFICATIONS / DATASHEET NO	N/A			

[1] ENS-OPWVR-CLC-24004: OPWVR Facility Piping System Design Calculations - Line Sizing
 [2] ENS-FDP-REP-24006: Equipment Sizing: Demineralised Cooling Water Tank T83237
 [3] ENS-FDP-REP-24034: Centrifugal Pumps Sizing Report for FDP Demonstration Facility
 [4] ENS-FDP-FDM-24001: Process Flow Diagram Filter Destruction Project
 [5] Rand Water Supply to Tshwane municipality: 1 Month Water Quality Report

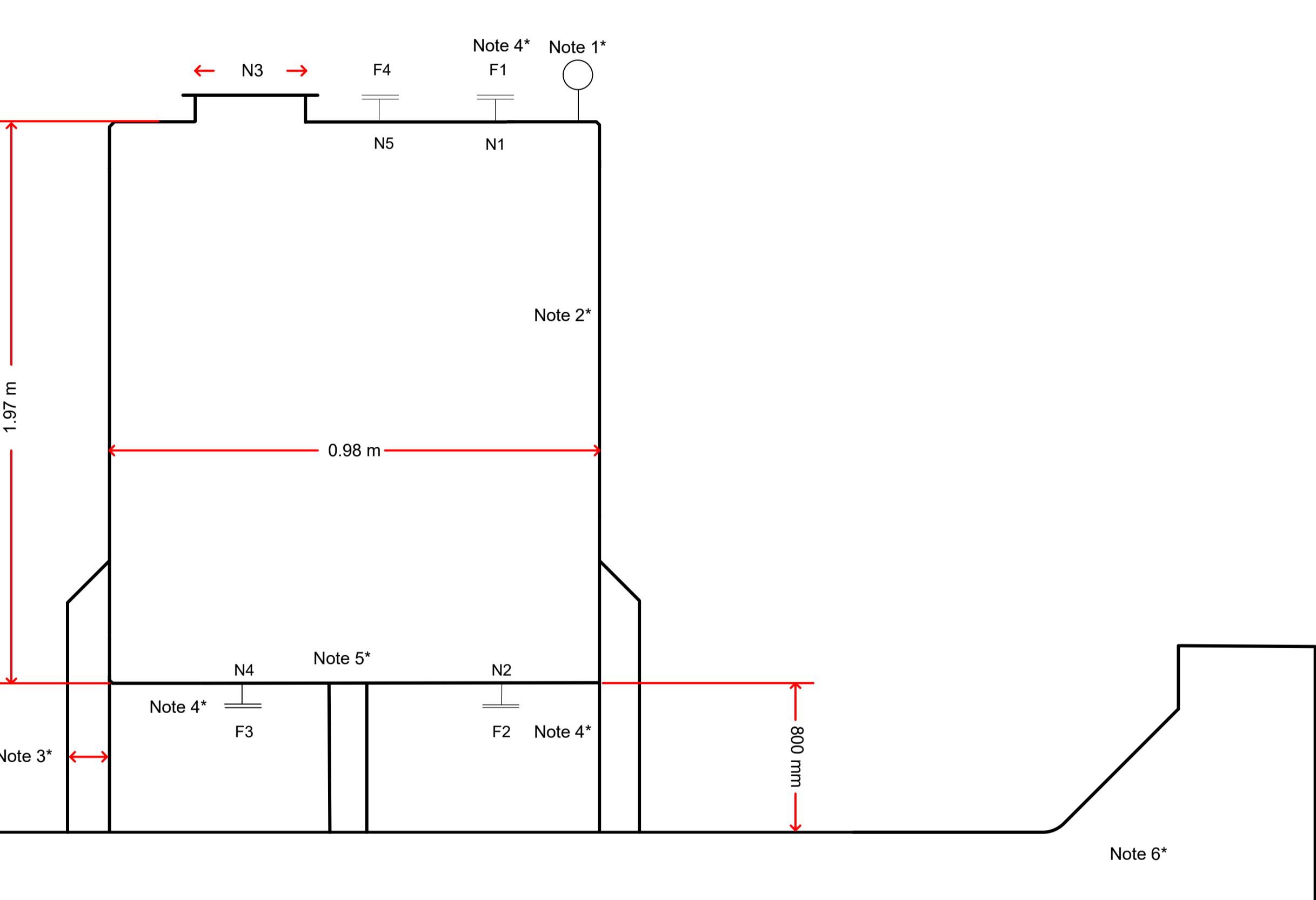
MATERIAL				
SHELL	FLANGES	HEADS	PIPE NOZZLES	
SS 304L	SS, ASTM A182-F304/304L, ASME B16.5	Stainless steel	SS, ASTM A182-F304/304L	
SUPPORTS	GASKETS	UTILITIES	BOLTS	
Stainless steel (SS)	1/16" thick flexible graphite w/ 304 SS	N/A	ASTM A193, Gr B7 stud, w/ heavy hex nuts ASTM A194, Gr 2H	

NOZZLE SCHEDULE				
MARK	NB	RATING AND FACING	DESCRIPTION	
N1	15	Weld Neck Flange, RF, Class Rating 150	Demineralised Cooling Water Inlet Nozzle	
N2	80	Weld Neck Flange, RF, Class Rating 150	Demineralised Cooling Water Outlet Nozzle	
N3	-	Supplier to Advise	Loose fitting lid for easy maintainability (Manway)	
N4	25	Weld Neck Flange, RF, Class Rating 150	Demineralised Cooling Water Drain Nozzle	
N5	25	Weld Neck Flange, RF, Class Rating 150 (Supplier can advise on the connection)	Vent	

OTHER	
MARK	DESCRIPTION
Note 1	An additional 80 NB Sch 40 pipe nozzle connection port will have to be created for the insertion of an ultrasonic level indicator at this location.
Note 2	The wall thickness will be specified on advise from the supplier.
Note 3	Leg support details will be specified on advice from the supplier. This includes the distances between each of the supports.
Note 4	Flange sizes specified based on SS, ASTM A182-F304/304L, ASME B16.5.
Note 5	T1601 is designed for construction as a cylindrical, flat-bottomed tank.
Note 6	T1601 will be located in a bunded area, the design of which shall be according to the relevant civil engineering standards.
F1, F2,F3,F4	All process lines marked "F" shall be flanged for easy maintainability.

NON DESTRUCTIVE TESTING (NDT)		FABRICATION	
DYE-PENETRANT	N	CHEMICAL CLEANING	Y
HALIED	N	HEAT TREATMENT	N
MAGNETIC PARTICLE TESTING	Y	HELUM LEAK TESTING	N
ULTRA-SONIC	Y	ALLOWABLE LEAK RATE	N
HARDNESS TESTING	N	SURFACE FINISH INTERNAL	N
X-RAY	N	MATERIAL CERTIFICATES	Y
QUALITY CONTROL BLOCK	N	VESSEL TO BE DRIED	N

 We're in your world	Integrated NW PlasGas and Contaminated Waste Oil Plasma Gasification Demonstration Facilities.			DESTROY ALL PREVIOUS PRINTS
	Primary Cooling Water Tank T1601 Specification Sheet			
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CONFIDENTIAL	Document No.	ENS-NWPVR-SPE-24013		Revision



APPROVAL

DISCIPLINE	NAME	SIGNATURE	DATE
Prepared	Process Engineer	M Mashaya	
Checked	Process Engineer	N Mokoena	
Checked	Senior Process Engineer	M Correia	
Checked	Mechanical Engineer	S Masango	
Checked	Chief Mechanical Engineer	S Mgoma	
Checked	Chief C&I Engineer	G Manuel	
Approved	Chief Process Engineer	K Moodley	

REVISION HISTORY			
Revision	Description	By	Date
1	First Issue.	Mondli Mashaya	15/01/2025
2	Update for Uranium Contaminated Waste Oil Plasma Gasification Project	Mondli Mashaya	04/03/2025
3	Update to include a 25NB vent	Mondli Mashaya	22/08/2025
4	Update for Mechanical Design Properties	Siphiwe Masango	05/12/2025