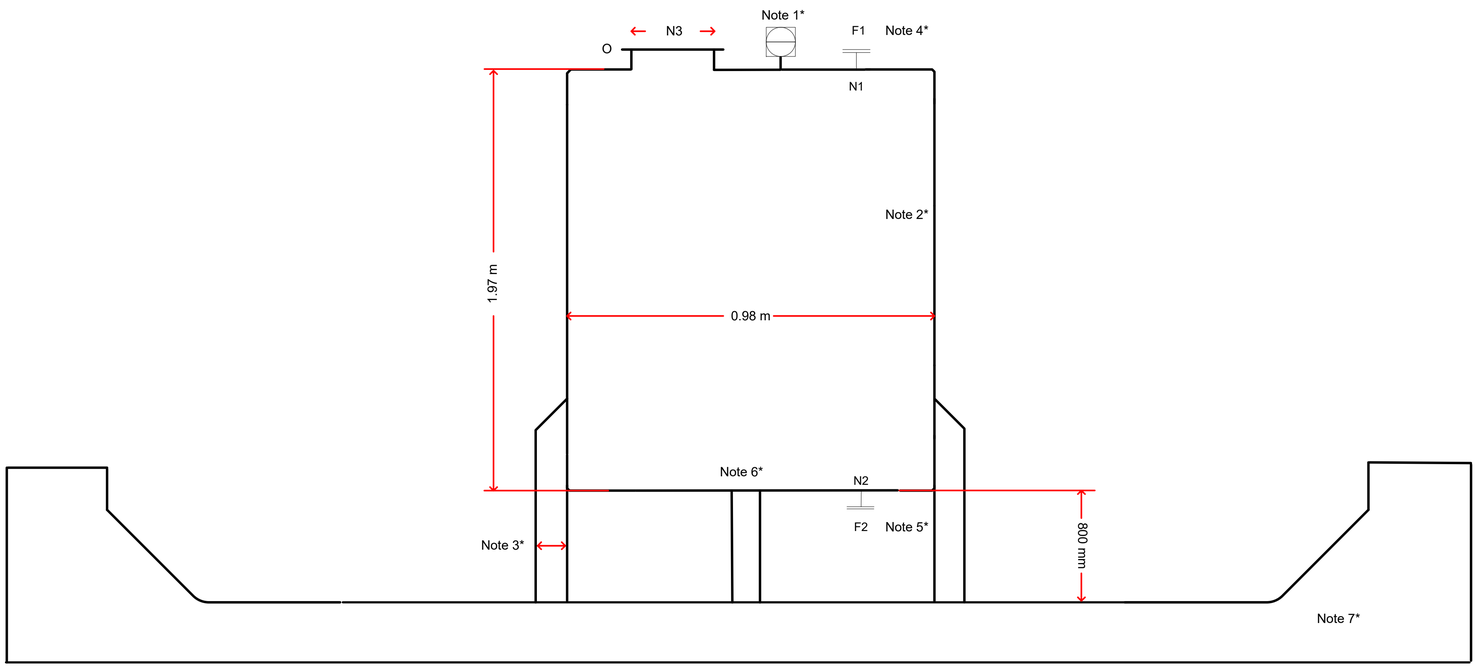
DO NOT SCALE! | PROJECTION | IF IN DOUBT, ASK



DESCRIPTION	Tank T83237 is used as a buffer for the holding of demineralised cooling water in the PTFE destruction demonstration facility.
EQUIPMENT LOCATION	Outside laboratory 131, Building V-H2
PLANT LOCATION	Necsa, Pelindaba, North-West Province
SAFETY CLASSIFICATION	Non-classified (N) and SC-3(C)
QUALITY CLASSIFICATION	Non-classified (N) and QC-3(C)

FLUID PROPERTIES

FLUID	Demineralised Water		
FLUID STATE	Liquid	SOLIDS CONTENT	≤ 1200 mg/L total dissolved solids [6]
MASS FLOW RATE IN/OUT (kg/h)	16129 [1]		
DENSITY (kg/m^3)	995.67 at 30 °C [5]		
VISCOSITY (cP)	0.7 at 30 °C [3]		
THERMAL CONDUCTIVITY (W/m.K)	0.615 at 30 °C [5]		
SPECIFIC HEAT CAPACITY (kJ/kgK)	4.18 at 30 °C [5]		
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))		**TEMPERATURE (ºC)**	
DESIGN	1585	DESIGN	93
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	N/A

DESIGN CODE	ASME B31.3-2022, ISO 9001
SPECIFICATION	N/A
LAGGING	N/A
TANK HEIGHT (m)	1.97 [4]
TANK DIAMETER (m)	0.98 [4]
No. of LEG SUPPORTS	3

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

NOTES AND REFERENCES

[1] ENS-FDP-CLC-24015: Energy Balance Calculation for the PTFE Filter Destruction System
[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-REP-24006: Equipment Sizing: Demineralised Water Tank (T83227)
[5] ENS-FDP-FDM-24001: Process Flow Diagram Filter Destruction Project
[6] 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	1/16” thick flexible graphite w/304 SS	N/A	ASTM A193, Gr B7 stud, w/2 heavy hex nuts ASTM A194, Gr 2H

NOZZLE SCHEDULE

MARK	NB	RATING AND FACING	DESCRIPTION
N1	50	Weld Neck Flange, RF. Class Rating 150	Demineralised Cooling Water Inlet Nozzle
N2	50	Weld Neck Flange, RF. Class Rating 150	Demineralised Cooling Water Outlet Nozzle
N3	-	Supplier to Advise	Loose fitting lid for easy maintainability.

OTHER

MARK	DESCRIPTION
Note 1	An additional 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	Flange sizes specified based on SS, ASTM A182-F304/304L, ASME B16.5.
Note 6	T83237 is designed for construction as a cylindrical, flat-bottomed tank.
Note 7	T83237 will be located in a bunded area, the design of which shall be according to the relevant civil engineering standards.
F	All process lines marked “F” shall be flanged for easy maintainability.
O	Loose fitting lid for easy maintainability.

NON DESTRUCTIVE TESTING (NDT)		**FABRICATION**	
DYE-PENETRANT	N	CHEMICAL CLEANING	Y
HALIED	N	HEAT TREATMENT	N
MAGNETIC PARTICLE TESTING	Y	HELIUM 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

APPROVAL

	DISCIPLINE	NAME	SIGNATURE	DATE
Prepared	Process Engineer	MK Nkadimeng		
Checked	Process Engineer	ND Mokoena		
Checked	Senior Process Engineer	BM Khumalo		
Checked	Mechanical Engineer	M. Msane		
Checked	Chief Mechanical Engineer	S. Mngoma		
Checked	Chief C&I Engineer	G. Manuel		
Approved	Chief Process Engineer	K. Moodley		

REVISION HISTORY

Revision	Description	By	Date
1	First Issue.	Mmotle Nkadimeng	10-09-24
2	Second issue. Nozzle size updated	Manqoba Msane	04-06-25

necsa — We’re in your world — South African Nuclear Energy Corporation SOC Limited

COPYRIGHT
This drawing is the property of Necsa and may not, without written permission, be copied, communicated to a third party, or be used either wholly or in part for any purpose other than for which it is supplied

PTFE Filter Destruction Project

Primary Cooling Water Tank Specification Sheet

DESTROY ALL PREVIOUS PRINTS

2

CONFIDENTIAL | Document No. ENS-FDP-SPE-24015 | Revision