

ENGINEERING SERVICES DEPARTMENT						 <i>We're in your world</i> South African Nuclear Energy Corporation SOC Limited							
SPECIFICATION SHEET FOR MOISTURE TRAP Y1701													
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Project	NW PlasGas Demonstration Facility			Unit Tag Number		Y1701							
Datasheet Document No.	ENS-NWPVR-SPE-24030			Revision		1							
GENERAL INFORMATION													
Description	Moisture trap Y1701 is installed on the crude compressed air supply line, 40-17-APCG-074 [4], from Necsa Utility Services to the NW PlasGas Demonstration Facility, upstream of the air purification system Y1702. Its function is to remove moisture that is present in the compressed air, in order to prevent equipment damage downstream.												
Plant Location	Necsa, Pelindaba, North-West Province.												
Equipment Location	NW PlasGas Demonstration Facility - Outside Laboratory 150, Building V-H2.												
Safety Classification	Non-classified (N) and Non-classified (C).												
Quality Classification	Non-classified (N) and Non-classified (C).												
Fluid	Crude compressed air - undried and unfiltered.												
Fluid state	Gas												
Solid content	Possible solid particulates.												
Corrosive due to	N/A.												
FLUID PROPERTIES													
PARAMETERS	UNITS	MINIMUM		NORMAL		MAXIMUM							
Operating temperature ^[2]	°C	-2,6		20		40							
Operating pressure ^[3]	kPa (g)	100		500		750							
Volume flow rate ^[3]	m ³ /h	-		95,26		-							
Moisture content (gram of water per cubic meter of dry air) ^[1]	g/m ³	-		-		66,81							
Density ^[1]	kg/m ³	2,09		6,98		10,78							
Viscosity ^[1]	Pa.s	1,75 x 10 ⁻⁵		1,88 x 10 ⁻⁵		2,6 x 10 ⁻⁵							
Specific heat capacity (C _p) ^[1]	kJ/kg.K	1,027		1,023		1,021							
Allowable pressure drop	kPa	5											
MECHANICAL REQUIREMENTS													
Pipeline Size	40 NB, SCH 40												
Material of Construction													
Body Material	CS, ASTM A105												
Process Connections													
Outlet	Size:	40 NB	Rating:	150#	Flange Spec:	CS, ASTM A105, ASME B16.5							
Input	Size:	40 NB	Rating:	150#	Flange Spec:	CS, ASTM A105, ASME B16.5							

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DESIGN REQUIREMENTS		
Moisture Trap Type	Centrifugal separation	
Water removal efficiency	Minimum 80% removal of bulk water.	
Drain Type	Mechanical float auto-drain	
REFERENCE DRAWINGS / DOCUMENTS		
[1] Perry, R. H., & Green, D. W. (1997). Perry's Chemical Engineers Handbook 7th Edition. McGraw-Hill Company.		
[2] SHEQ-2011-REP-01017, 2011 : Pelindaba Site, Site Description.		
[3] ENS-NWPVR-REP-24004: Pipe Diameter Verification Report (NW PlasGas Demonstration Facility)		
[4] ENS-NWPVR-PID-24014: P&ID for Compressed Air Supply to Lab 150 and Lab 131		
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NED-SHEQ-TEM-11008 R1