P&ID LEGEND & SYMBOLS

- TT — TEMPERATURE TRANSMITTER & DISPLAY / TEMPERATURE TRANSMITTER
- PI — PRESSURE INDICATOR
- TI — TEMPERATURE INDICATOR
- LG — LEVEL GAUGE
- PDS — DIFFERENTIAL PRESSURE SWITCH
- PSH — PRESSURE SWITCH
- BE — FLAME DETECTOR
- TSH — TEMPERATURE SWITCH
- LSL — LEVEL SWITCH
- BALL VALVE
- SPRING OPERATED PRESSURE RELIEF VALVE
- PRESSURE REGULATOR COMPLETE WITH SSV VALVE
- SOL — SOLENOID VALVE (230V AC)
- TWO WAY MANIFOLD
- JUNCTION BOX EExd II/IIB/IIC/T4 - IP65
- SIGNAL TO UCP
- SIGNAL TO DCS
- ALARM/TRIP SIGNAL IN UCP
- HARD WIRING (INSTR. EExd II/IIC/T4 EXECUT.)
- HEAT TRACE

NOTES:

1) SUPPLY FROM CUSTOMER

LOCAL CONTROL PANEL EXECUTION Ex-d IIb T3
MOUNTED ON THE WBH

JB1 — XE — LOCATED IN BURNER AREA Ex-d EXECUT.

BMS

FRONT PANEL DISPLAY

TIC1 WATER — TT 001 WATER TEMPERATURE 4÷20mA 24VDC — CONTROL ROOM ANALOG SIGNAL FROM DCS (HARDWIRED) — REMOTE WATER SET POINT 4÷20mA 24VDC — SSP WATER

TIC2 GAS — TT 003 GAS TEMPERATURE 4÷20mA 24VDC — CONTROL ROOM ANALOG SIGNAL FROM DCS (HARDWIRED) — REMOTE GAS SET POINT 4÷20mA 24VDC — SSP GAS

GENERAL SWITCH GS

PLC

BMS

START HS ON

BURNER ON UL BO

STOP HS OFF

POWER ON UL 230

READY TO START UL RS

ALARM RESET HS AR

AUX. ON UL 24

GENERAL FAULT UL GF

INSER. POWER HS IP

LAMP TEST HS LT

LOCAL/REMOTE SEL LR

ALARM ACKN. HS ACK

EMERG. STOP HS ACK

GAS/DIESEL SEL GD

TYPICAL ALARM DISPLAYED ON LCD CONTROL PANEL:
FLAME FAILURE
LO GAS PRESSURE
HI GAS PRESSURE
HI WATER TEMPERATURE
LO LO WATER LEVEL TRIP
PURGING FAILURE
IGNITION FAILURE

CONTROL ROOM
DIGITAL SIGNAL FROM DCS (HARDWIRED)

HEATER START RHS ON — HEATER STOP RHS OFF — EXT. EM STOP RHS EME — RUNNING FAN MOTOR (MCC) RHS RM — RUNNING PUMP MOTOR (MCC) RHS RM

CONTROL ROOM
DIGITAL SIGNAL TO DCS (HARDWIRED)

RUNNING STATUS RUL RS — LOCAL/REMOTE STATUS RUL LR — GENERAL FAULT RUL GF — START FAN MOTOR (MCC) RUL SF — START DIESEL PUMP MOTOR (MCC) RUL SP

POWER SUPPLY:
230 VAC 1PH+N 50Hz – MAX 0.7 kW FROM UPS

TO INSTR. / VALVES

WATER BATH HEATER DESIGN & PROCESS DATA

1. NOMINAL FLOW RATE : 145.200 Nmc/h
2. GAS MAX. INLET PRESSURE : 49.4 Barg
   INLET GAS TEMP. : min 16.25 °C – OUTLET TEMP. 30÷38.5 °C @ MAX FLOW
3. DESIGN TEMPERATURE : –43/+100 °C GAS AND WATER SIDE
4. DESIGN PRESSURE : GAS SIDE=75 Barg
   WATER SIDE=ATM.
5. MAX WATER TEMPERATURE : 85 °C
6. WIND SPEED : (HOLD)
7. AREA CLASSIFICATION : Zone 1 – ATEX Exx-d IIb T3
8. NOMINAL DUTY 1705 kW = 1.465.668 kCal/h
9. HEATER EFFICIENCY 0.89 = 1.632.272 kCal/h (BURNER)

OUTLET DATA	
REFERENCE CODE	ASME B31.3
FLOW RATE	143 Lit / h
PIPING CLASS	150 RF
OP. PRESSURE	1 ÷ 2 Barg
OP. TEMPERATURE	35 °C (dew point critical)
DESIGN PRESSURE	19 Barg
DESIGN TEMP.	0÷50 °C
CORR. ALLOWANCE	1.6 mm

INLET DATA	
REFERENCE CODE	ASME B31.3
FLOW RATE	143 Lit / h
PIPING CLASS	300 RF
OP. PRESSURE	23 Barg
OP. TEMPERATURE	35 °C (dew point critical)
DESIGN PRESSURE	37.5 Barg
DESIGN TEMP.	0÷50 °C
CORR. ALLOWANCE	1.6 mm

DIESEL RETURN — DIESEL INLET — FILTER — F.C. — XV–003 — XV–004 — XV–005 — XV–006 — XV–002 — XV–001

SIGHT GLASS — DIESEL IGNITION PILOT — GAS INGNITION PILOT — BI–FUEL BURNER

RUN STOP — M–001

SMOKE ANALYSYS — BIRD PROTECTION — ATMOSPHERIC EXPANSION TANK — 6" VENT — 2" OVERFLOW — SERVICE WATER BY CLIENT — 2" ANSI 150 RF — DRAIN

COIL BUNDLE

COIL #1
COIL #2
COIL #3

H–12020

SAMPLING POINT — WATER DRAIN

INLET DATA	
REFERENCE CODE	ASME B31.3
FLOW RATE	145.200 Nm3/h
PIPING CLASS	600 RTJ
OP. PRESSURE	49.4 ÷ 69.4 Barg
OP. TEMPERATURE	18.2 ÷ 25 °C
DESIGN PRESSURE	75 Barg
DESIGN TEMP.	-43 (MOMT -46 °C)
CORR. ALLOWANCE	6 mm

OUTLET DATA	
REFERENCE CODE	ASME B31.3
FLOW RATE	145.200 Nm3/h
PIPING CLASS	600 RTJ
OP. PRESSURE	49.4 ÷ 69.4 Barg
OP. TEMPERATURE	30 ÷ 38.5 °C
DESIGN PRESSURE	75 Barg
DESIGN TEMP.	-43 (MOMT -46 °C)
CORR. ALLOWANCE	6 mm

TO VENT HEADER — PRV–001 0.8 barg — MAX 1.5 BARG — MAX 10 BARG — PCV 001 Set 0.5 Barg — SET @ 6 barg — XV Set 1.2 Barg — 1" ANSI 150 RF — FILTER — FUEL GAS INLET

INLET DATA	
REFERENCE CODE	ASME B31.3
FLOW RATE	171 Nm3/h
PIPING CLASS	150 RF
OP. PRESSURE	Max 5 Barg
OP. TEMPERATURE	35 °C (dew point critical)
DESIGN PRESSURE	12 Barg
DESIGN TEMP.	0÷50 °C
CORR. ALLOWANCE	1.6 mm

REV	DATE	REVISION	BY	CHECK	REVIEW ENGR	LEAD ENGR	ENG MNGR
J	20.05.2025	ISSUED FOR REVIEW	KARC	HANT	GOZO	AKYO	SJ
I	22.01.2024	ISSUED FOR REVIEW	KARC	HANT	GOZO	AKYO	SJ
H	17.01.2024	ISSUED FOR REVIEW	KARC	HANT	GOZO	AKYO	SJ
G	27.11.2023	ISSUED FOR REVIEW	KARC	HANT	GOZO	AKYO	SJ
F	02.11.2023	ISSUED FOR REVIEW	KARC	HANT	GOZO	AKYO	SJ
E	03.10.2023	ISSUED FOR REVIEW	KARC	HANT	GOZO	AKYO	SJ
D	21.09.2023	ISSUED FOR REVIEW	KARC	HANT	GOZO	AKYO	SJ
C	21.08.2023	ISSUED FOR REVIEW	KARC	HANT	GOZO	AKYO	SJ
B	17.08.2023	ISSUED FOR INTERDISCIPLINARY REVIEW	KARC	HANT	GOZO	AKYO	SPAS
A	16.08.2023	ISSUED FOR INTERNAL REVIEW	KARC	HANT	GOZO	AKYO	SPAS

SCALE | DRAWN | CHECKED

URAL OIL&GAS — NSS LTD NEFTESTROISERVICE Limited Liability Partnership — iPetrogas Industry Innovative Industrial Solutions — PGI Endüstriyel Sistemler İmalat ve Mühendislik A.Ş.

	NSS-RZK-PO-0017
	ROZHKOVSKOYE FIELD DEVELOPMENT PROJECT
NSS WATER BATH HEATER	Стадия: - / Лист: - / Листов: -
PID DRAWING	PETROGAS INDUSTRY

Изм.	Кол.уч	Лист	Док.	Подпись	Дата
РАЗРАБОТАЛ	-				-
ПРОВЕРИЛ	-				-
ПЕРЕВОДЧИК	-				-
СПЕЦ ПО ДОК.	-				-
ГИП	-				-

ROZHKOVSKOYE FIELD DEVELOPMENT PROJECT

P&ID

JOB No.	DRAWING No.	REV.
W–3570	RZK–NSS–PGI–PID–MEC–90001–00	J

ФАЙЛ / FILE ---------- МАСШТАБ / SCALE: 1:100 ФОРМАТ / FORMAT: A1