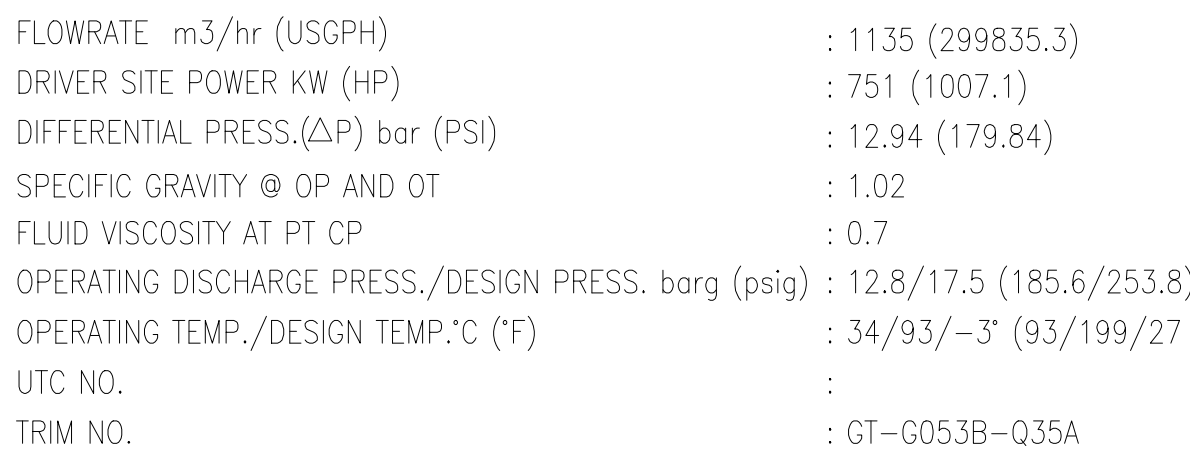


<u>D-072B</u>	
FIRE WATER PUMP DIESEL DAY TANK	
CAPACITY M3 (BBLs)	: 4.9 (30.82)
DIMENSION mm (ft.-in)	: 1750x1750 (5' 9"x5' 9")
HEIGHT mm (ft.-in)	: 1805.8 (5' 11")
OPERATING PRESS./DESIGN PRESS.borg (psig)	: ATM/ATM+STATIC HEAD
OPERATING TEMP./DESIGN TEMP.°C (°F)	: AMB/93/-3 (AMB/200/27)
UTC NO.	:
TRIM NO.	: DT-D072A-C13A





NOTES (CONTINUED):

33. ONE FREE-STANDING REMOTE CONTROL PANEL FOR THE FIRE WATER PUMP SET (S) SHALL BE LOCATED WITHIN THE AUXILIARY CONTROL ROOM.
34. DELETED
35. ALL SUCCTION & DISCHARGE PIPING OF FIRE WATER PUMPS SHALL COMPLY WITH NFPA 20 REQUIREMENT FOR PERFORMANCE TESTING OF FIRE WATER PUMPS.
36. FIRE WATER PIPING ABOVE 12" THAT REQUIRE INTERNAL COATING SHALL BE WITH FLANGED CONNECTION.
37. INSULATING CASING KIT SHALL BE INSTALLED AT CONNECTING PIPES MADE OF DISSIMILAR METALS & AT PIPING UG/AG INTERFACE.
38. PUMP OPERATION PHILOSOPHY SHALL BE AS PER 50489-530-000-0817-PHL-VOL-01.
39. THESE ARE SWITCH GAUGES WHICH WILL INDICATE LOCALITY & SEND SIGNAL TO LCP.
40. PRESSURE SENSING LINE IS PRESSURISED BY JOCKET TO DISCHARGE LINE OF FIRE WATER PUMPS AND THE SYSTEM IS PRESSURISED AT 12.8 BARG BY CONNECTION PUMPS.
41. TSV-405 IS THERMAL CASING RELIEF VALVE.
42. INSTRUMENTS MOUNTED ON DIESEL ENGINE DRIVER.

HAZOP RECOMMENDATIONS:

1. PROVIDED DCS INDICATION WITH HIGH ALARM FOR PDIT-9062/9063/9064.

B.	FOR STANDARD SYMBOLS AND NOMENCLATURE SEE DRAWINGS 50489-530-020-PID-1104.001 & 1104.002.				
B.	ALL EQUIPMENT NUMBERS SHOWN ON THIS PID# ARE PRECEDED BY 530--.				
C.	FOR TYPICAL INSTRUMENT CONNECTION SBOV, XV, MOV, & ESD DETAILS SEE DRAWING NO. 50489-530-020-PID-1108.001 TO 004, 006 & 007.				
D.	FOR MISCELLANEOUS PIPING DETAILS SEE DRAWING 50489-530-020-PID-1108.001.				
E.	FOR TYPICAL VALVING, DRAINAGE AND GENERAL ARRANGEMENT OF LEVEL INSTRUMENTATION, PUMPS AND CONTROL VALVES SEE DRAWING 50489-530-020-PID-1108.001 TO 010.				
F.	DRAWING NUMBERS SHOWN IN PID# CONTINUATION BOXES ARE ABBREVIATED SHOWING DRAWING SEQUENTIAL NUMBERS ONLY. THE FULL FORM OF THE DRAWING NUMBER IS 50489-530-020-PID-XXXX.SHT. NO.				
G.	ALL INSTRUMENT TAG NO. SHOWN ON THIS PID# ARE PRECEDED BY 030.				
H.	PAINTING/COATING SHALL BE IN ACCORDANCE WITH KOC-P-001.				
	NOTES:				
1.	CATHODIC PROTECTION PROVIDED FOR UNDERGROUND SECTION OF PIPELINE AS PER KOC-L-015.				
2.	ALL FIRE WATER PUMPS ARE PROVIDED WITH AN AUTOMATIC AIR RELEASE VALVE.				
3.	WHEN THE FIRE WATER PRESSURE IN THE MAIN HEADER DROPS BELOW 11.03 BAR# THE PUMP HAVING FIRST PRIORITY WILL START. THE SECOND PUMP WILL CUT IN AFTER A PERIOD OF 10 SECONDS IF THE LOW HEAD FIRE WATER PRESSURE PERSISTS OR IF THE PRIORITY PUMP FAILS TO START. ALL PUMPS G-0534/B/C HAVE EQUAL CAPABILITY FOR NOMINATION AS THE PRIORITY PUMP. INTERLOCKS ARE PROVIDED TO PREVENT FIRE WATER TO PREVENT FIRE WATER PUMPS STARTING SIMULTANEOUSLY.				
4.	ALL FIRE WATER PUMPS ARE EQUIPPED WITH INDIVIDUAL AUTOMATIC CONTROLLERS. EACH CONTROLLER HAS ITS OWN PRESSURE SENSING LINE.				
5.	FLOW INDICATOR FOR FIRE WATER PUMPS RUNNING TEST. PROVIDED ON COMMON RETURN FOR ALL PUMPS				
6.	DESIGN TO COMPLY WITH NFPA 20 REQUIREMENTS RELEVANT TO LOCAL PANEL AND INSTRUMENT.				
	-THE CONTROLLER FOR EACH UNIT OF MULTIPLE PUMP UNITS INCORPORATES				
	A SEQUENTIAL TIMING DEVICE TO PREVENT ANY ONE DRIVER FROM STARTING				
	SIMULTANEOUSLY WITH ANY OTHER DRIVER				
	-IT IS ARRANGED TO SHUT DOWN THE ENGINE AT A SPEED APPROXIMATELY				
	20 PERCENT ABOVE RATED ENGINE SPEED AND TO BE MANUALLY RESET.				
7.	LEAD PUMP SELECT SIGNAL.				
8.	ALL DRIVERS ARE TO HAVE THE FOLLOWING :				
	(a) RUNNING INDICATION ON THE DCS.				
	(b) MOTOR FAULT ALARM IN THE DCS.				
	(c) LOCAL STOP / START.				
	(d) FIRE PUMP STOP FROM THE LOCAL CONTROL PANEL ONLY.				
9.	DELETED				
10.	DELETED				
11.	CONTROL VALVE AND LINE ARE SIZED BY PUMP MANUFACTURER'S SPECIFIED MINIMUM FLOW.				
12.	DELETED				
13.	DELETED				
14.	DUPLEX TYPE STRAINERS WITH PROPER DRAIN VALVE.				
15.	WHEN AT REST, THOSE PARAMETERS AFFECTING ITS READINESS TO OPERATE ARE CONTINUOUSLY MONITORED AND IF A FAULT SITUATION OCCURS, THE FACT IS ANNUNCIATED AT THE LOCAL AND REMOTE CONTROL				
16.	A LOCAL FIREWATER PUMP CONTROL PANEL IS SITUATED ON EACH FIRE PUMPSKID.				
17.	THE FIREWATER PUMPS ARE ABLE TO BE STARTED AUTOMATICALLY OR MANUALLY FROM LOCAL OR REMOTE CONTROL PANELS.				
18.	THE DRIVER IS EQUIPPED WITH MANUALLY OPERABLE DIRECT-START SWITCHES ALLOWING POWER FROM THE BATTERIES TO THE STARTER MOTOR.				
19.	FIRE WATER PUMP AND CONTROLLER ARE UL LISTED/FM APPROVED.				
20.	THE WEEKLY START FACILITY IS PROVIDED BY PUMP VENDOR AND IS MANUALLY INITIATED ONLY.				
21.	THE FIRE WATER PUMP IS DESIGNED IN ACCORDANCE WITH KOC-ME-009, CRITERIA TO KOC-ME-009, CRITERIA TO KOC-ME-009-CRT-001, IF 015-11-1003 & NFPA 20.				
22.	DELETED				
23.	LALL 9046 IS FOR ALARM ONLY, IF THE LIQUID LEVEL OF DIESEL DRY TANK BECOMES LOW LOW LEVEL, THE ALARM WILL SOUND				
24.	THE SUPPLY TIME OF DIESEL FUEL FOR THE FIRE WATER PUMP OPERATION IS OF 24 (TWENTY FOUR) HOURS				
25.	THE PRESSURE SENSING LINE INSTALLED AT EACH FIRE WATER PUMP CONTROLLER TO DETECT THE PRESSURE DROP IN FIRE WATER LINE IS IN ACCORDANCE WITH NFPA 20 AND SHALL BE PROVIDED BY PUMP VENDOR.				
26.	DELETED				
27.	LOCAL START / STOP SEQUENCE SHALL BE PROVIDED AS PER NFPA 20 & KOC-ME-009 INCLUDING THE UL LISTED/FM APPROVED CONTROLLER.				
28.	DEVICES OR ASSEMBLIES SHALL BE LOCATED AT A MINIMUM OF 10 PIPE DIAMETERS FROM THE PUMP SUCTION FLANGE.				
29.	THE FOLLOWING FUNCTION ARE PROVIDED IN THE LOCAL & REMOTE CONTROL PANEL AS PER KOC-ME-009.				
	a. START/STOP (ONLY ON LOCAL CONTROL PANEL)				
	b. BATTERY SELECTOR				
	c. PANEL HEATER ON/OFF				
	d. ANNUNCIATOR TEST BUTTON				
	e. ALARM ACKNOWLEDGMENT BUTTON & RESET BUTTON				
	f. WEEKLY TEST START/STOP				
	g. MAIN ISOLATION				
	h. ON/OFF MANUAL SELECTOR				
	i. MANUAL EMERGENCY START BUTTON ETC.				
30.	SHIFED TO NOTE NO. H OF GENERAL NOTES				
31.	VENT CONNECTION OF DRY TANKS SHALL BE PROVIDED WITH FLAME/SPARK ARRESTER.				
32.	ROUTED TO STORM WATER SEWER.				
	HOLD:				
	1. DELETED				
	2. DELETED				
	3. DELETED				
03	RE - ISSUED FOR CONSTRUCTION	HSH/HSA	NIJ	SRA	RAK
02	RE - ISSUED FOR CONSTRUCTION	HSH/HSA	NIJ	SRA	RAK
01	RE - ISSUED FOR CONSTRUCTION	HSH/HSA	NIJ	SRA	RAK
0	ISSUED FOR CONSTRUCTION	HSH/HSA	NIJ	SRA	RAK
F	ISSUED "INCORPORATED CLIENTS COMMENTS"	HSH/HSA	NIJ	SRA	RAK
E	ISSUED FOR VENDOR HAZOP	PAK/HSA	NIJ	SRA	RAK
D	ISSUED "INCORPORATED CLIENTS COMMENTS"	PAK/HSA	NIJ	SRA	RAK
C	ISSUED "INCORPORATED CLIENTS COMMENTS"	PAK/HSA	NIJ	SRA	RAK
B	ISSUED "INCORPORATED CLIENTS COMMENTS"	PAK/HSA	NIJ	SRA	RAK
A	ISSUED FOR APPROVAL	PAK/ASA	NIJ	SRA	RAK
REV.	DESCRIPTION	DRAWN	CHECKED	HOD	PEM
					APPRD.

CONTRACTOR REVISION			
KUWAIT OIL CO. K. S. C.		 شركة نفط الكويت ش.م.ك. إحدى شركات مؤسسة البترول الكويتية A Subsidiary of Kuwait Petroleum Corporation	
CONTRACTOR DETAILS:--  LARSEN & TOUBRO LIMITED FARIDABAD			
PROJECT TITLE:-- NEW GATHERING CENTRE GC-30 IN NORTH KUWAIT			
DOCUMENT TITLE:-- PIPING & INSTRUMENTATION DIAGRAM FIRE WATER PUMP (G-053B)			
PROJECT NO.		DRAWING NO.	
EF1902	CONTRACTOR DRG. NO.	REV.	KOC DRG. NO.
	50489-530-000-PID-1111.002	03	
	SHEET NO. 2 OF 3		SHEET NO.
	COMPANY DRG. NO.	REV.	
	EF1902-530-DBO-PID-0111.002	A4	
	SHEET NO.		