



TYPICAL SKID OF DELUGE VALVE FOR LP SEPARATORS (530-C-101/201/301)

AS-BUILT	
KOC APPROVAL	
NAME / KOC No:	
DESIGNATION :	
GROUP / TEAM :	
SIGNATURE :	
DATE :	

AS-BUILT	
LARSEN & TOUBRO LIMITED	
NAME :	VAIBHAV VERMA
DESIGNATION :	AGM
SIGNATURE :	
DATE :	12-Aug-2018
DEPT/ DIVISION :	ENGINEERING

AREA PROTECTED	NO. OF NOZZLES	K FACTOR	SPRAY ANGLE	TRIGGER HEADS	LINE No. 1	LINE No. 2	LINE No. 3	LINE No. 4	LINE NO. 10	LINE NO. 11	TAG A	TAG B	TAG C	TAG D	TAG E	TAG F	TAG G	TAG H	TAG I	TAG J	TAG K	TAG L	TAG M	TAG N	TAG O	TAG P	TAG AA	DV SKID NO.	SUCTION COLLECTION HEAD NO.
LP SEPARATORS (530-C-101)	56	50	140°	56	8"-WF-9071-Q35A	8"-WF-9072-Q35A	8"-WF-9073-Q15A	8"-WF-9074-Q15A	1"-AI-1767-S10A	1/2"-AI-9009-S10A	9001A	9001B	9001C	9001D	9001E	9001F	9001G	9001H	9001I	9001J	9001K	9001L	9001M	9001N	9001O	9001P	SP-001	DVS-07	SCH-11
LP SEPARATORS (530-C-201)	56	50	140°	56	8"-WF-9133-Q35A	8"-WF-9080-Q35A	8"-WF-9081-Q15A	8"-WF-9082-Q15A	1"-AI-1766-S10A	1/2"-AI-9010-S10A	9002A	9002B	9002C	9002D	9002E	9002F	9002G	9002H	9002I	9002J	9002K	9002L	9002M	9002N	9002O	9002P	SP-002	DVS-08	SCH-12
LP SEPARATORS (530-C-301)	56	50	140°	56	8"-WF-9134-Q35A	8"-WF-9088-Q35A	8"-WF-9089-Q15A	8"-WF-9090-Q15A	1"-AI-1768-S10A	1/2"-AI-9011-S10A	9003A	9003B	9003C	9003D	9003E	9003F	9003G	9003H	9003I	9003J	9003K	9003L	9003M	9003N	9003O	9003P	SP-003	DVS-09	SCH-13

GENERAL NOTES:

- FOR STANDARD SYMBOLS AND NOMENCLATURE SEE DRAWINGS 50489-530-020-PID-1104.001 & 1105.001.
- ALL EQUIPMENT NUMBERS SHOWN ON THIS P&ID ARE PRECEDED BY 530-.
- FOR ESDV, SBDV AND MOV DETAILS SEE DRAWINGS 50489-530-020-PID-1106.001 & 1107.001.
- FOR MISCELLANEOUS PIPING DETAILS SEE DRAWING 50489-530-020-PID-1108.001.
- FOR TYPICAL VALVING, DRAINAGE AND GENERAL ARRANGEMENT OF LEVEL INSTRUMENTATION, PUMPS AND CONTROL VALVES SEE DRAWING 50489-530-020-PID-1109.001.

NOTES:

- UV/IR FLAME DETECTORS AUTOMATICALLY DETECT FIRE AND WHEN ACTIVATED A SIGNAL IS SENT TO THE F&G PANEL IN THE CCR.
- AIR SET IS FITTED WITH AIR FILTER, REGULATOR AND PI.
- RO SUPPLIED TO GIVE PRESSURE/LOSS CHARACTERISTICS OF THE DELUGE VALVE.
- 4 WAY SUCTION COLLECTION HEAD IS INSTALLED TO ALLOW SECONDARY
- SUPPLY OF WATER TO DELUGE SYSTEM.
- DELUGE VALVE IS DIAPHRAGM TYPE DESIGNED FOR DELUGE OPERATION AND BE UL LISTED AND FM APPROVED
- TRIGGER HEAD CONFIGURATION
1/2" FUSABLE PLUGS OVER PROTECTED EQUIPMENT ON A GENERAL 3 x 3 METRE MATRIX
- 2 VALVES REQUIRED IN BYPASS LINE TO PREVENT UNNECESSARY LOSS OF WATER DUE TO GATE VALVE PASSING.
- ADEQUATE DRAINAGE IS PROVIDED AROUND DELUGE SYSTEM TO AVOID ACCUMULATION OF WATER AROUND THE EQUIPMENT
- PROVISION ARE MADE FOR PRESSURE TESTING AS PER NFPA 15 CLAUSE NO. 6.4.4 & 6.4.4.5 NEAR THE HYDRAULICALLY REMOTEST NOZZLE.
- DELUGE VALVES ARE HELD CLOSED BY AIR PRESSURE SUPPLIED FROM THE INSTRUMENT AIR SYSTEM.
- DELUGE VALVES SHALL FULLY OPEN WITHIN 10 SECONDS ON REMOVE OF INSTRUMENT AIR BY:
A. REMOTE OPERATION OF A PUSH BUTTON AT THE MAIN FIRE AND GAS PENEL, LOCATED IN THE CONTROL ROOM, TO ENERGIZE A SOLENOID VALVES IN INSTRUMENT AIR SUPPLY TO DELUGE VALVE.
B. LOCAL OPERATION OF A MECHANICAL AIR RELEASE UNIT OF DELUGE VALVE STATION.
- SPRAY NOZZLE IS CONSTRUCTED FROM MAINE BRASS.
- DELUGE VALVE STATIONS ARE PROTECTED FROM RADIATED HEAT BY THE PROVISION OF METAL RADIATION SHIELDS.
- PIPE MOC (AS PER KOC-L-009):
3" SIZE AND BELOW : 90-10 COPPER NIKEL TO ASTM B 466 UNS.
4" SIZE AND ABOVE : CARBON STEEL API 5L GRB WITH PHENOLIC EPOXY COATING.
- FLANGE INSULATION KITS ARE PROVIDED AT DISSIMILAR METAL JUNCTIONS HAVING ELECTROMOTIVE POTENTIAL DIFFERENCE GREATER THAN 0.05V AS PER CLAUSE 7.3.1.17 OF KOC-L-009.
- INTERNALLY COATED UG PIPING ARE FLANGED SPOOLS AS PER KOC-L-009.
- FLUSHING DRAIN PIT IS ACCESSIBLE FROM GROUND LEVEL.
- THE UNDERGROUND SECTION ARE EXTERNALLY COATED WITH 3 LAYERS EXTDRD HDPE AS PERKOC-P004 PART 6, REV-2 WITH THE INTERNAL PHENOLIC EPOXY ON THE PIPING ARE AS PER KOC-P-005 REV-1.
- THE ABOVE GROUND PIPING SECTION ARE COATED WITH SYSTEM A1-1 OF KOC-P-001 REV 3
- TOP CHAMBER OF DELUGE VALVE IS CONNECTED TO WATER LINE & TO WATER INLET OF ACTUATOR WHEN THE AIR PRESSURE DROPS DUE TO DETECTION OF FIRE THE DIAPHRAGM OF ACTUATOR IS LIFTED AND ALLOWS THE WATER PRESSURIZING DIAPHRAM OF DELUGE VALVE TOP CHAMBER TO DRAIN. THIS RELEASES THE PRESSURE IN THE TOP CHAMBER OF DELUGE VALVE ALLOWING THE DELUGE VALVE TO OPEN.

LEGENDS:

SYMBOL	DESCRIPTION
FW	FIRE WATER PIPING
↓	SPRAY NOZZLE
◇	REDUCER
◇	GATE VALVE
→	END CAP

REFERENCE DRAWINGS:

50489-530-000-CAL-1003	HYDRAULIC CALCULATION FOR WATER SPRAY SYSTEM FOR LP WET CRUDE SEPARATOR
KOC-L-009	KOC STANDARD FOR FIRE PROTECTION SYSTEMS
50489-530-000-LAD-1065	FIRE WATER NETWORK LAYOUT
50489-530-000-LAD-1066	FIRE WATER SPRAY SYSTEM LAYOUT FOR LP SEPARATOR

Z0	ISSUED FOR AS-BUILT	PAK/DEU	NIJ	SRA	RAK	12.08.18
0	ISSUED FOR CONSTRUCTION	PAK/DEU	NIJ	SRA	RAK	13.05.16
B	ISSUED "INCORPORATED CLIENT COMMENTS"	PAK/DEU	NIJ	SRA	RAK	15.10.15
A	ISSUED FOR APPROVAL	PAK/DEU	NIJ	SRA	RAK	10.04.15
REV.	DESCRIPTION	DRAWN	CHECKED	HOD	PEM	DATE
				APPRD.		

CONTRACTOR REVISION



CONTRACTOR DETAILS:-	LARSEN & TOUBRO LIMITED FARIDABAD
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PROJECT TITLE:-	NEW GATHERING CENTRE GC-30 IN NORTH KUWAIT
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DOCUMENT TITLE:-	PIPING & INSTRUMENTATION DIAGRAM DELUGE WATER SPRAY SYSTEM FOR LP WET CRUDE SEPARATOR (530-C-101/201/301)
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PROJECT NO.	DRAWING NO.
CONTRACTOR DRG. NO.	REV. KOC DRG. NO.
50489-530-000-PID-1117.001	Z0
SHEET NO. 1 OF 2	SHEET NO.
COMPANY DRG. NO.	REV.
SHEET NO.	