



## GENERAL NOTES:

- FOR STANDARD SYMBOLS AND NOMENCLATURE SEE DRAWINGS 50489-530-020-PID-1104.001 & .002.
- ALL EQUIPMENT NUMBERS SHOWN ON THIS P&ID ARE PRECEDED BY 530--.
- ALL INSTRUMENT NUMBERS SHOWN ON THIS P&ID ARE PRECEDED BY 030--.
- FOR TYPICAL INSTRUMENT CONNECTION SBDV, XV, MOV & ESDV DETAILS SEE DRAWINGS 50489-530-020-PID-1106.002, .003, .004, .005, .006 & .007.
- FOR MISCELLANEOUS PIPING TYPICAL VALVING, DRAINAGE & GENERAL ARRANGEMENT OF LEVEL INSTRUMENTS, PUMPS, STRAINERS & CONTROL VALVES SEE DRAWINGS 50489-530-020-PID-1108.001 TO 1108.010.
- DRAWING NUMBERS SHOWN IN P&ID CONTINUATION BOXES ARE ABBREVIATED SHOWING SEQUENTIAL NUMBERS ONLY. THE FULL FORM OF THE DRAWING NUMBER IS 50489-530-020-PID-XXXX.SHT.NO.
- FOR MATERIAL SELECTION DIAGRAM SEE DRAWINGS 50489-530-020-MSD-1001.001 TO 1023.
- DETAIL NUMBERING FOR CI, SC, CC & CP SEE DRAWING 50489-530-020-PID-1108.003.
- PAINTING & COATING ARE IN ACCORDANCE WITH KOC-P-001.
- LOW POINT DRAIN & HIGH POINT VENT ARE INDICATED IN P&ID.
- FOR CAUSE & EFFECT REFER DOC. NO. 50489-530-020-PID-1009.
- FOR ALARM VALUES REFER DOC. NO. 50489-530-020-SUM-1006.

## NOTES:

- RELIEF VALVE IS BELLOWS TYPE. INLET AND DISCHARGE VALVES ARE KEY INTERLOCKED SUCH THAT ONE RELIEF VALVE IS ALWAYS ON LINE AT ANY TIME.
- DELETED.
- NITROGEN PURGE CONNECTION.
- DELETED.
- SEPARATOR IS DESIGNED WITH SUITABLE FOAM BREAKER INTERNAL DEVICES. (VANE TYPE) INLET ENTRY IS ON THE TOP OF SEPARATOR.
- FY PROVIDES PRESSURE AND TEMPERATURE COMPENSATION FOR FOI.
- THREE TRANSMITTERS FOR PAHH ARE PROVIDED. ESD SYSTEM OPERATES WITH 2 OUT OF 3 VOTING BASIS. THIS APPLIES TO ESD FOR THE CRUDE FROM WET MANIFOLD. ROOT VALVES OF PIT-1013 A/B/C TO BE LOCKED OPEN.
- VALVE IS SIZED FOR THE PROPER GAGE AND TRIM TO PREVENT FLASHING AND REDUCE NOISE.
- LIQUID CARRY OVER POT WITH ALARM.
- 3 OFF 33% SPLIT RANGE CONTROL FOR THREE VALVE.
- PROVISION FOR SAND REMOVAL WATER FLUSHING HOSE CONNECTION IF EFFLUENT WATER IS NOT AVAILABLE.
- SAND REMOVAL CONNECTION 4" NOZZLE INSTALLED.
- FIXING BRACKETS ARE PROVIDED ON THE VESSEL INTERNAL FOR FUTURE INSTALLATION OF OIL PHASE WEIR IF 2 PHASE SEPARATOR TO BE USED AS A 3 PHASE SEPARATOR. WEIR LOCATION AND HEIGHT ARE FIXED AS FOLLOWS:  
HEIGHT : 2200mm  
LOCATION : 1300mm FROM T/T
- TWO SPLIT RANGE CONTROL VALVES. FIRST SIZED FOR 33% AND SECOND FOR 67% OF TOTAL CAPACITY RESPECTIVELY.
- VANE PACK AND DEMISTER DEVICE TO ARREST 10 MICRONS AND LARGER FROM THE GAS STREAM.
- SUPPORT LINE FOR 3-PHASE FLOW (SLUG FLOW) DOWNSTREAM OF CONTROL VALVE STATION.
- LIQUID CARRY OVER POT IS LOCATED IN HORIZONTAL STRAIGHT RUN PIPE, WITH MINIMUM 100 STRAIGHT UPSTREAM, TO ENSURE SATISFACTORY OPERATION.
- INTERNAL ARE EASILY REMOVABLE FOR MANUAL CLEANING THROUGH MANHOLE.
- DELETED.
- ALL BLOWDOWN VALVES ARE SUPPLIED WITH A DEDICATED INSTRUMENT AIR ACCUMULATOR.
- DELETED.
- THE OPERATING PRESSURE RANGE IS 2.4 TO 3.5 barg (35 TO 50 PSIG).
- LOCATE PG TO BE READABLE FROM ESDV BY-PASS VALVE.
- CHEMICAL INJECTION POINT IS LOCATED AS NEAR AS POSSIBLE FROM THE GAS OIL OUTLET OF THE SEPARATOR.
- LOCATE ESDV CLOSE TO EACH SEPARATOR.
- SEPARATOR IS DESIGNED FOR THREE PHASE SEPARATION BUT OPERATED FOR TWO PHASE SEPARATION. SEPARATOR IS SIZED FOR A SLUG VOLUME OF 36.3 m<sup>3</sup> & 6.9 m<sup>3</sup> FOR 2 PHASE & 3 PHASE OPERATION RESPECTIVELY SEPARATOR HAS DEFOAMING & PLATE PACKS.
- WATER OUTLET CONNECTION PROVIDED FOR FUTURE THREE PHASE FLOW OPERATION.
- DELETED.
- DISSIMILAR TYPE CHECK VALVE.
- FOR CHEMICAL INJECTION NOZZLE DETAIL SEE STANDARD DWG. PID-50489-530-020-PID-1108.001
- DELETED.
- DELETED.
- TRI-COCK CONNECTION PROVIDED FOR INTERFACE LEVEL CALIBRATION FOR THREE PHASE SEPARATION OPERATION.
- FE 1013A/B ARE 2X50% AND ARE SUITABLE FOR OIL IN WATER TWO PHASE FLOW.
- VALVES CONNECTED TO NOZZLES J4A/B, J5A/B, J6A/B, J9A/B, J10A/B, J14A/B & J15A/B ARE 250% SUPER DUPLEX.
- DELETED.
- CC & CP ARE INSTALLED AT MINIMUM DISTANCE OF 10D (DIAMETER OF PIPE) FROM THE CHEMICAL INJECTION POINT.

REV.	DESCRIPTION	DRAWN	CHECKED	HOD	PEM	DATE
Z0	ISSUED FOR AS-BUILT	BAK/SSI	AKG	SRA	RAK	01.09.18
01	ISSUED FOR CONSTRUCTION	BAK/SSI	AKG	SRA	RAK	28.11.16
0	ISSUED FOR CONSTRUCTION	HSH/PRS	AKG	SRA	RAK	25.05.16
E	ISSUED INCORPORATED CLIENT COMMENTS	HSH/VSA	AKG	SRA	RAK	11.03.16
D	ISSUED INCORPORATED CLIENT COMMENTS	BAK/VSA	AKG	SRA	RAK	07.01.16
C	ISSUED INCORPORATED CLIENT COMMENTS	BAK/VSA	AKG	SRA	RAK	23.10.15
OC	ISSUED INCORPORATED CLIENT COMMENTS	BAK/VSA	AKG	SRA	RAK	30.05.15
B	ISSUED INCORPORATED CLIENT COMMENTS	BAK/VSA	AKG	SRA	RAK	11.02.15
A	ISSUED FOR APPROVAL	BAK/VSA	AKG	SRA	RAK	29.11.14

## CONTRACTOR REVISION

**KUWAIT OIL CO. K. S. C.**

**شركة نفط الكويت ش.م.ك.**

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 LP WET CRUDE SEPARATOR (C-101) TRAIN A**

PROJECT NO.	DRAWING NO.	REV.	KOC DRG. NO.	REV.
EF1902	50489-530-020-PID-1115	Z0		
	SHEET NO. 1 OF 1			
	COMPANY DRG. NO.			
	EF1902-530-DCO-PID-0115.001	A6		
	SHEET NO.			