



## 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-1106.001, .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 DRAWING 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.
  - PAINING & 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-PHL-1009.
  - FOR ALARM VALUES REFER DOC. NO. 50489-530-020-SUM-1006.
- NOTES:**
- DELETED.
  - AUTOMATIC VARIABLE PUMP STROKE ADJUSTMENT IS THROUGH DCS.
  - DELETED.
  - VALVE CLOSURES AT HIGH LIQUID LEVEL H1 (SET @2785mm) VALVE OPENS AT LOW LIQUID LEVEL L1 (SET @410mm).ZSC OF LCV-6098 & LCV-6113 STOPS DUTY & STANDBY TRANSFER PUMP G-028A/B BY SSLS LOGIC.
  - DELETED.
  - LOW LOW LIQUID LEVEL STOPS BIOCID E B INJECTION PUMPS, G-049A/B/C/D/E/F AND AGITATOR.
  - FLUSHING CONNECTIONS.
  - BIOCID E B DAY TANK COMES UNDER BUND AREA & BIOCID E B INJECTION PUMP IS PART OF PUMP SKID.
  - EYEWASH AND SAFETY SHOWERS ARE PROVIDED IN THE CHEMICAL INJECTION SKID AREA.
  - PROVIDE CORIOLIS FLOW MEASUREMENT AND FACILITY FOR LOCAL CALIBRATION.
  - TANK LEVEL INSTRUMENTS ARE CALIBRATED IN VOLUMETRIC UNITS.
  - DELETED.
  - HIGH HIGH LIQUID LEVEL STOPS BIOCID E B TRANSFER PUMP G-028A/B.
  - BIOCID E B SHALL BE STORED BELOW 60°C. PIPING TO BE INSULATED TO PROTECT THE FLOW FROM HEAT BUILD UP DUE TO SOLAR RADIATION.
  - TANK BUND NOT IN VENDOR SCOPE. TANK CONCRETE BUND SHALL BE 115% CONTAINMENT OF D-049.
  - DEVIATION ALARMS ARE CONFIGURED IN THE DCS TO ALARM IF ACTUAL FLOW DIFFERS FROM SET BY 10%.
  - FLAME ARRESTOR INSTALLED WITH GOOSE NECK PIPE FOR VENT.
  - DELETED
  - DELETED
  - CHEMICAL INJECTION RATIO CONTROLLER IS SET IN PPM.
  - ANTI-RESISTANT CHEMICAL FLOOR ARE PROVIDED.
  - OVERFLOW NOZZLE IS LOCATED ABOVE HHLL.
  - TANK AREA ARE PAVED. FLOOR IS SLOPED TOWARDS SUMP PIT.
  - VENT TO SAFE LOCATION ARE AS PER KOC-G-002 ALONG WITH GOOSE NECK & BIRD SCREEN.
  - (A) LOW POINT DRAIN IS PROVIDED AS APPROPRIATE.  
(B) DELETED
  - EMERGENCY STOP PUSH BUTTON IN THE FIELD IS AT A SAFE DISTANCE.
  - CHEMICAL PUMPOUT CONNECTION.
  - PUMP SUCTION BALL VALVE & CALIBRATION POT BALL VALVE ARE LOCATED ADJACENT TO ONE ANOTHER FOR MEASURING THE FLOW.
  - PUMPS ARE PROVIDED WITH DIAPHRAGM RUPTURE ALARM (PAHH).
  - VACUUM TRUCK CONNECTION (PIPE & VALVE) : L&T SCOPE
  - PAHH STOPS EFFLUENT WATER BALANCE TANK BIOCID E B INJECTION PUMP.
  - DIRECT MOUNTING TO THE PUMP HEAD FOR DETECTING RUPTURE OF DIAPHRAGM.
  - CHEMICAL SKID DRAIN LINE TILL INLINE TEE CONNECTION IS IN L&T SCOPE.
  - MINIMUM STROKE OF 10% IS PROVIDED FOR ALL CHEMICAL INJECTION PUMP.

Z0	ISSUED FOR AS-BUILT	HSB/CHS	AKG	SRA	RAK	18.08.18
01	ISSUED FOR CONSTRUCTION	HSB/CHS	AKG	SRA	RAK	22.12.16
0	ISSUED FOR CONSTRUCTION	HSB/CHS	AKG	SRA	RAK	06.06.16
D	ISSUED INCORPORATED CLIENT COMMENTS	PAK/CHS	AKG	SRA	RAK	07.04.16
C	ISSUED INCORPORATED CLIENT COMMENTS	JSI/ABY	AKG	SRA	RAK	30.10.15
OC	ISSUED INCORPORATED CLIENT COMMENTS	BAK/ABY	AKG	SRA	RAK	04.06.15
B	ISSUED INCORPORATED CLIENT COMMENTS	BAK/VSA	AKG	SRA	RAK	24.02.15
A	ISSUED FOR APPROVAL	PK/ABY	AKG	SRA	RAK	12.12.14
REV.	DESCRIPTION	DRAWN	CHECKED	HOD	PEM	DATE

CONTRACTOR REVISION



CONTRACTOR DETAILS:-  
**LARSEN & TOUBRO LIMITED**  
FARIDABAD

PROJECT TITLE:-  
NEW GATHERING CENTRE GC-30  
IN NORTH KUWAIT

DOCUMENT TITLE:-  
PIPING & INSTRUMENTATION DIAGRAM  
CHEMICAL INJECTION SKID #4 - BIOCID E B (CONTINUOUS DOSING)  
(D-049 & G-049A/B)

PROJECT NO.	DRAWING NO.	REV.	KOC DRG. NO.	REV.
EF1902	CONTRACTOR DRG. NO.	50489-530-020-PID-1197.005	Z0	
	SHEET NO. 5 OF 7			
	COMPANY DRG. NO.	EF1902-530-DCO-PID-0197.005	A3	
	SHEET NO.			