



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 SBOV, 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.
 - 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-PHL-1009.
 - FOR ALARM VALUES REFER DOC. NO. 50489-530-020-SUM-1006.
- NOTES:**
- HEATER FIRE-TUBES AND PROCESS COILS ARE EASILY REMOVABLE AND MAINTAINABLE.
 - VESSEL PIPING AND INSTRUMENTATION IN HOT SERVICE ARE INSULATED.
 - HEATER IS BASED ON TWO FIRE TUBE ASSEMBLY.
 - FOR CHEMICAL CLEANING/ PURGE CONNECTION AND FOR MANUAL ADDITION OF CHEMICAL.
 - THE MAIN GAS BURNER FLAME MONITORS ARE OF THE UV TYPE, SELF CHECKING AND CONTINUOUSLY PURGED WITH CLEAN AIR AND IT IS EQUIPPED WITH "SIGHTING TUBE".
 - PIPING EXPOSED TO CRUDE IS SUBJECT TO FOULING FOR DESIGN OF HEATER COIL.
 - REFER TO 50489-530-020-29021-CAL-V002
 - STACK HEIGHT IS DESIGNED FOR SAFE DISPOSAL OF EXHAUST GASES WITH ADEQUATE SUPPORTS TO AVOID ANY VIBRATION.
 - ADEQUATE SPACE AND CLEAR AREA IS PROVIDED AROUND HEATER TO ENABLE EASY PULL OUT AND LIFTING OF HEATER COIL AND FIRETUBES.
 - FOR WASH INJECTION NOZZLE DETAIL SEE STANDARD DWG.50489-530-020-PID-1108.001
 - PILOT BURNER FLAME DETECTOR IS UV TYPE.
 - SAMPLE POINT ON STACK IS ACCESSIBLE VIA PLATFORM.
 - PRESSURE INSTRUMENTS REFER DWG.50489-530-020-PID-1106.001
 - ALL HEATER STACKS SHOULD HAVE LIGHTING PROTECTION AND FLAME ARRESTOR.
 - UTILITY CONSUMPTION : REFER TO 50489-530-020-29021-LST-V001
 - FEED HEATER IS DESIGNED FOR BOTH EXCHANGER BY-PASS CASE & ALSO 43% RECYCLE OF HOT WET CRUDE TO WET/DUAL TANK WHEN WATER OUT INCREASED. RECYCLE SYSTEM CAN BE INSTALLED IN FUTURE.
 - AS SOON AS BURNER DUTY (I.E. FUEL GAS FLOW RATE) IS STABILIZED (CRITERION FG FLOW RATE VARIATION <4% OVER A PERIOD OF 5 MINUTES : WILL BE ADJUSTED DURING COMMISSIONING), CASCADE REGULATION AC 1156 -> FC 1169 A (RESPECTIVELY AC 1157 -> FC 1170 A) IS ACTIVE. REFER CONTROL PHILOSOPHY 50489-530-020-29021-PHL-V001.
 - DRAIN PIT COMMON FOR ALL HEATERS, PUMP OUT BY VACUUM TRUCK.
 - TIC-1198 IS CONTROLLED IN CASCADE MODE BY TIC-1200 DURING NORMAL OPERATION.
 - HIGH DEVIATION (>5 °C) BETWEEN TIC-1200 SET POINT AND TIC-1200 CURRENT VALUE OVERRIDES BURNER CONTROL SYSTEM FROM TIC-1198 TO TIC-1200. AS SOON AS THE DIFFERENCE BETWEEN THE REQUIRED AND THE MEASURED OIL TEMPERATURE IS REDUCED (DIFF. TEMP <1 °C), THE CONTROL IS REVERTED TO ITS NORMAL CONFIGURATION.
 - ALL SAMPLING CONNECTIONS TO BE ACCESSIBLE AT GRADE.
 - FOR LEVEL OF SHUT DOWN REFER TO 50489-530-020-29021-CAE-V001
 - INSTRUMENT AIR FLUSH TO AVOID SOLID DEPOSIT ON UV FLAME DETECTOR LENS.
 - VENT TO SAFE LOCATION ARE AS PER KOC-G-002
 - FOR THE QUANTITY OF PATHS FOR FIRE-TUBE COILS AND PROCESS COILS PLEASE REFER TO DATASHEET FOR DESALTER FEED HEATER 50489-530-020-29021-DAT-V001.
 - FIRING RATE CONTROLLER TO SUPPORT THE HEATER START-UP SELECTION, IS PART OF CONTROL PHILOSOPHY 50489-530-020-29021-PHL-V001.
 - SHUTDOWN LEVELS ARE EXECUTED IN BMS (BURNER MANAGEMENT SYSTEM) LOGIC.
 - THE HEATER IS TRIPPED AS SOON AS OIL LAYER IS DETECTED ON WATER.
 - STRAIGHT LENGTH REQUIREMENT FOR ORIFICE FLOW METER SHALL BE 20D UPSTREAM & 5D DOWNSTREAM.
 - ADDITIONAL CLEANING FACILITIES ARE PROVIDED AT ANY CHANGES IN DIRECTION OF 45° & AT A MAXIMUM OF 50 METER INTERVALS ON STRAIGHT RUN.
 - A LOCAL HEATER CONTROL PANEL SHALL HAVE PUSHBUTTONS AND ALARM / SEQUENCE REPEAT LAMPS FOR MANUALLY INITIATE THE HEATER START-UP SEQUENCE, AS WELL AS ALLOWING MANUAL INITIATION OF HEATER SHUTDOWN, LOCAL ALARM REST, LOCAL / REMOTE FUNCTIONALITY. TIE IN POINT LIST
- | No. | SERVICE | SIZE | RATING |
|--------|----------------------|------|--------|
| TP-402 | POTABLE WATER SUPPLY | 2" | 150# |
| TP-403 | WET CRUDE IN | 10" | 300# |
| TP-404 | WET CRUDE OUT | 10" | 300# |
| TP-406 | PROCESS COIL DRAIN | 2" | 150# |
| TP-407 | WATER BATH DRAIN | 4" | 150# |

ZO	ISSUED FOR AS-BUILT	HSB/VSA	AKG	SRA	RAK	16.08.18
O	ISSUED FOR CONSTRUCTION	HSB/VSA	AKG	SRA	RAK	25.07.16
E	ISSUED INCORPORATED CLIENT COMMENTS	HSB/VSA	AKG	SRA	RAK	17.06.16
D	ISSUED INCORPORATED CLIENT COMMENTS	HSB/VSA	AKG	SRA	RAK	10.05.16
C	ISSUED INCORPORATED CLIENT COMMENTS	BAK/VSA	AKG	SRA	RAK	11.09.15
OC	ISSUED INCORPORATED CLIENT COMMENTS	BAK/VSA	AKG	SRA	RAK	30.05.15
B	ISSUED INCORPORATED CLIENT COMMENTS	BAK/VSA	AKG	SRA	RAK	17.02.15
A	ISSUED FOR APPROVAL	BAK/VSA	AKG	SRA	RAK	29.11.14
REV.	DESCRIPTION	DRAWN	CHECKED	HOD	PEM	DATE

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
DESALTER FEED HEATER TRAIN A (F-101A)

PROJECT NO.	DRAWING NO.	REV.	KOC DRG. NO.	REV.
50489-530-020-PID-1134.001	ZO			
SHEET NO. 1 OF 4				
COMPANY DRG. NO.	REV.			
EF1902	A4			
SHEET NO.				