

Z-015

EFFLUENT WATER TREATMENT PACKAGE TRAIN-B

1:500

V-210 NOTE 11

IGF VESSEL (TRAIN B)

CAPACITY m3 (BBLs) : 127.4 (801.4)  
ID mm (ft.-in) : 3175 (10'-5")  
LENGTH mm (ft.-in) : 15035 (49'-3")  
OP PRESS /DES PRESS barg (PSIG) 2.8~4.4/12.3 (40.6~63.8/178.4)  
OP TEMP/DESIGN TEMP °C (°F) : 15~55/-3/93 (59~131/217/200)  
UTC NO. :  
TRIM NO. : VT-110-Q15B/C15B1/Q35B

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## 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 VALVE 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:

- LASER INDUCED FLOURESCENCE TYPE INLINE OIL IN WATER MONITOR CONSIDERED TO BE FREE ISSUED FOR INSTALLATION IN PIPING DOWNSTREAM OF LCV-2275 BY CAMERON.
- FIRE CASE PSVS ARE SIZED BY CAMERON AND SUPPLIED BY OTHERS. INLET AND OUTLET VALVES ARE KEY INTERLOCKED SUCH THAT ONE RELIEF VALVE IS ALWAYS ONLINE AT ANY TIME.
- VALVE AND CHECK VALVE IN L&T SCOPE OF SUPPLY FOR NITROGEN PURGE CONNECTION.
- CONNECTION FOR INTERMITTENT SKIMMING OF OIL LAYER FROM DEGASSING CHAMBER.
- DELETED.
- MAGNETIC REFLECTOR TYPE LEVEL GAUGE.
- CHEMICAL INJECTION POINTS UPSTREAM OF VESSEL INLET ON COMMON INFLUENT LINE. INLINE CHEMICAL MIXERS ARE FREE ISSUED BY CAMERON FOR INSTALLATION INTO PIPING BY L&T.
- RODDING OUT POINT.
- DEMISTERS ARE PROVIDED ON ALL GAS OUTLETS AND SHALL REMOVE ALL LIQUID DROPLETS LARGER THAN 10 MICRONS.
- THE VALVE IN IGF TREATED WATER COMPARTMENT IS USED ONLY FOR DRAINING AND AFTER A PROLONGED PERIOD OF IGF TRAIN NOT BEING IN SERVICE.
- IGF VESSELS 530-V-110/210/310 ARE TWO OPERATING AND ONE STANDBY.
- SHUTDOWN CONTROLS ARE UNDERTAKEN IN GC DCS AND ESD SYSTEMS. READ/WRITE FUNCTION AVAILABLE IN DCS ONE COMMON PLC UNIT CONTROL FOR ALL 3 TRAINS PROVIDED FOR PACKAGE CONTROL AND MONITORING. LOCATED REMOTELY IN CONTROL ROOM. ALL FIELD INSTRUMENTS TO BE WIRED TO SKID EDGE JUNCTION BOXES. CABLING BETWEEN SKID EDGE JUNCTION BOXES AND PLC BY L&T.
- TREATED WATER CHAMBER LEVEL CONTROLLER SHALL OPERATE BETWEEN NORMAL SET POINT AND SKIM SET POINT ON A TIMED SEQUENCE.
- SLUDGE LINES SHALL INCLUDE 45 DEGREE TEES AND PIPING ROUTING SHALL HAVE MINIMUM 30 BENDS.
- LP FUEL GAS PRESSURE IS REGULATED TO 4.4 BARG (WITH FUTURE FILTER) & 2.8 BARG (WITHOUT FUTURE FILTER) UPSTREAM OF PACKAGE ON 50489-530-020-PID-1268.
- SAMPLE POINT WITH VALVE ARRANGEMENT AS PER LEGEND WITH LOCAL SAMPLE COLLECTION POINTS.
- SAMPLE POINT WITH OUILLS. FOR DETAILS REFER 50489-530-050-07379-GAO-V001
- PRESSURE INSTRUMENT CONNECTIONS ARE AS PER DRAWING-- 50489-530-020-PID-1106.001.
- NO INSULATION, HEAT TRACING, PERSONNEL PROTECTION OR FIREPROOFING IS CONSIDERED IN PACKAGE SCOPE OF SUPPLY.
- INSTRUMENT AIR IS SUPPLIED BY L&T TO A TERMINATION POINT AT CONTROL VALVE SKID EDGE.
- TSS TO BE MEASURED AT SAMPLE POINT PROVIDED; NO ONLINE TSS ANALYSER PROVIDED.
- CONTROL VALVE FLANGE RATING WILL BE 300# FOR 8" & BELOW.
- UTILITY CONNECTION FOR PIPEWORK FLUSHING.
- EDUCTORS ARE PROPRIETARY SPECIAL PIPING ITEMS IN 25% CR SUPER DUPLEX.
- CONNECTION FOR TUBING HOOK-UP FOR SIGHT GLASS FLUSHING, FOR DETAIL REFER TO HOOK-UP DRAWINGS 50489-530-080-07379-HUD-V001.
- FGL 100.1M +3885 MM TO CENTER OF VESSEL.
- IGF PRESSURE VESSEL IS SUITABLY LINED TO PREVENT CORROSION DUE TO VERY HIGH SALINITY OF EFFLUENT WATER.
- FOR CONTINUATION, SEE DRAWING 50489-530-020-PID-1270.001.
- MOV'S AND O30-FIT-1274 ARE IN L&T SCOPE OF SUPPLY.
- SET POINT WITHOUT FUTURE FILTER AT OUTLET OF EWP: 2.9 barg (42.1 psig)
- SET POINT WITH FUTURE FILTER AT OUTLET OF EWP: 4.5 barg (65.3 psig).
- VENDOR PID NO: 50489-530-020-07379-PID-V002 SHEET 1 OF 2.
- BAFFLE PLATE
- DIPPED PIPE FOR GWR LEVEL TRANSMITTERS.

## LEVEL SETTINGS

SKIM CHAMBER  
LEVEL SETTINGS  
HHLL = 1500mm  
HLL = 1275mm  
NLL = 825mm  
LLL = 2900mm  
LLLL = 450mm

TREATED WATER CHAMBER  
LEVEL SETTINGS  
HHLL = 3050mm  
HLL = 2900mm  
NLL(SKIM) = 2896mm  
NLL(OP) = 2732mm  
LLL = 1800mm  
LLLL = 1550mm

## AS-BUILT

### KOC APPROVAL

NAME / KOC NO:  
DESIGNATION:  
GROUP / TEAM:  
SIGNATURE:  
DATE:

## AS-BUILT

### LARSEN & TOUBRO LIMITED

NAME :  
DESIGNATION :  
SIGNATURE :  
DATE :  
DEPT / DIVISION :

REV.	DESCRIPTION	DRAWN	CHECKED	HOD	PEM	DATE
Z0	ISSUED FOR AS-BUILT	BAK/VSA	AKG	SRA	RAK	12.09.18
01	ISSUED FOR CONSTRUCTION	BAK/VSA	AKG	SRA	RAK	04.10.16
02	ISSUED FOR CONSTRUCTION	HSB/ABY	AKG	SRA	RAK	03.09.16
0	ISSUED FOR CONSTRUCTION	HSB/ABY	AKG	SRA	RAK	22.06.16
E	ISSUED INCORPORATED CLIENT COMMENTS	PAK/ABY	AKG	SRA	RAK	27.05.16
D	ISSUED INCORPORATED CLIENT COMMENTS	PAK/ABY	AKG	SRA	RAK	23.03.16
C	ISSUED INCORPORATED CLIENT COMMENTS	BAK/ABY	AKG	SRA	RAK	08.09.15
B	ISSUED INCORPORATED CLIENT COMMENTS	BAK/VSA	AKG	SRA	RAK	20.02.15
A	ISSUED FOR APPROVAL	PK/VSA	AKG	SRA	RAK	05.12.14

## 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**  
**INDUCED GAS FLOTATION SYSTEM TRAIN B**

PROJECT NO.	DRAWING NO.	REV.	KOC DRG. NO.	REV.
EF1902	50489-530-020-PID-1269.002	Z0		
	SHEET NO. 2 OF 3			
	COMPANY DRG. NO.	REV.		
	EF1902-530-DCO-PID-0269.001	A5		
	SHEET NO.			