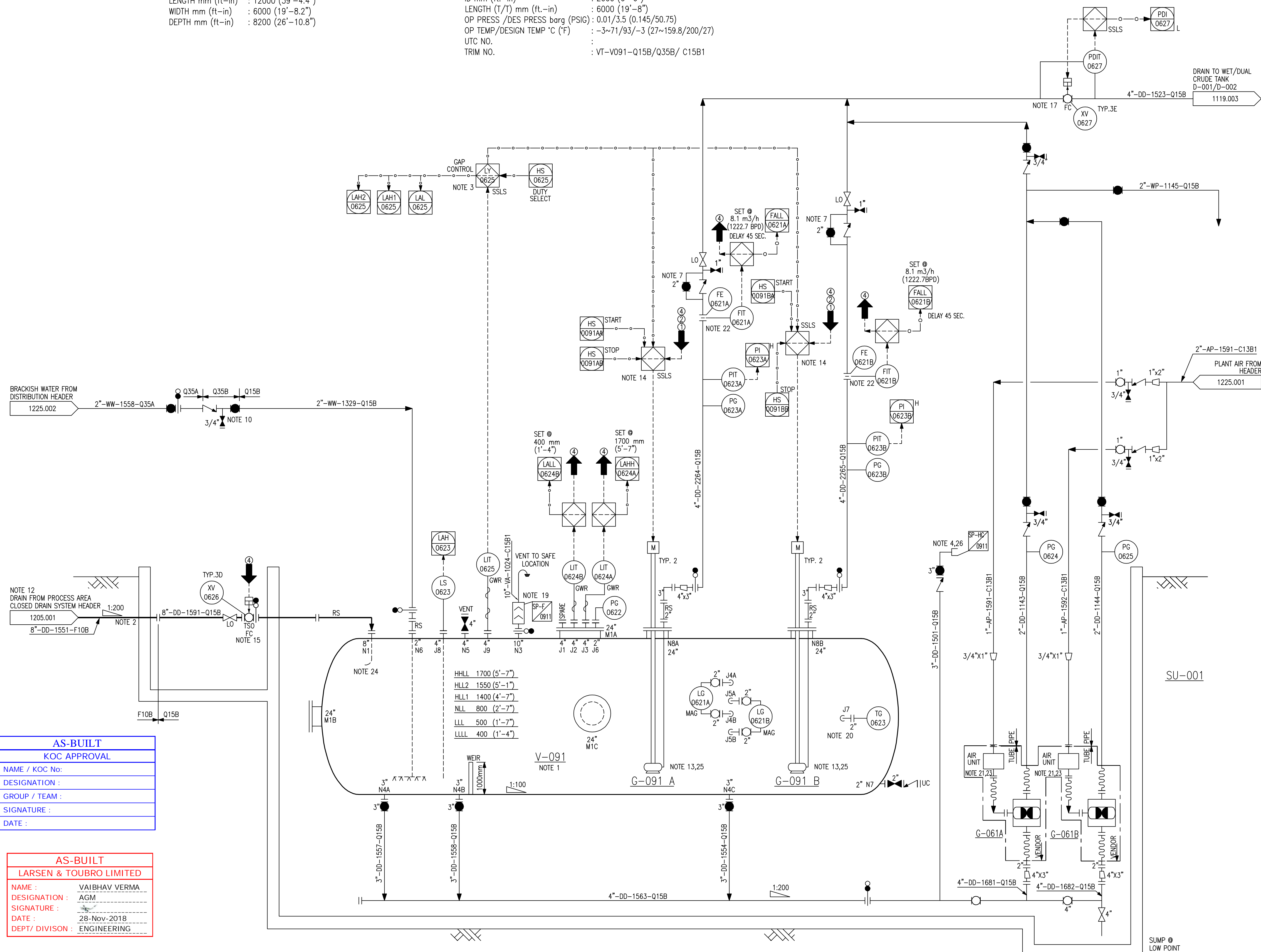


PROCESS AREA DRAIN VESSEL PIT
CAPACITY m3 (BBLS) : 590.4 (3713.5)
LENGTH mm (ft-in) : 12000 (39'-4.4")
WIDTH mm (ft-in) : 6000 (19'-8.2")
DEPTH mm (ft-in) : 8200 (26'-10.8")


PROCESS AREA DRAIN VESSEL	
CAPACITY m3 (BBLs)	: 21 (132)
ID mm (ft.-in)	: 2000 (6'-6")
LENGTH (T/T) mm (ft.-in)	: 6000 (19'-8")
OP PRESS /DES PRESS barg (PSIG)	: 0.01/3.5 (0.145/50.75)
OP TEMP/DESIGN TEMP °C (°F)	: -3~71/93/-3 (27~159.8/200/27)
UTC NO.	
TRIM NO.	: VT-V091-Q15B/Q35B/ C15B1



DOC APPROVAL

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

LARSEN & TOUBRO LIMITED

NAME : VAIBHAV VERMA
DESIGNATION : AGM
SIGNATURE : 
DATE : 28-Nov-2018
DEPT/ DIVISON : ENGINEERING

PROCESS AREA DRAIN VESSEL PIT PUMP

FLOWRATE m3/hr (BPD)	: 6 (905.7)
DRIVER POWER KW (HP)	: N/A
DIFF PRESS Δ P barg (PSIG)	: 5 (72.5)
S.G. @ OP OT	: 0.984~1.174
FLUID VISCOSITY @ PT CP	: 51.66
OP PRESS/DES PRESS barg (PSIG)	: 51.55 (72.5/167.52)
OP TEMP/DESIGN TEMP $^{\circ}$ C ($^{\circ}$ F)	: 15~155/93/-3 (59~131/200/27)
UTC NO.	
TRIM NO.	: G061A/B-Q15B

PROCESS AREA DRAIN VESSEL PUMP

FLOWRATE m3/hr (BPD)	: 28 (4227)
DRIVER POWER KW (HP)	: 22 (29.5)
DIFF PRESS ΔP barg (PSIG)	: 4.86 (70.5)
S.G. @ OP QT	: 0.847~1.17
FLUID VISCOSITY @ PT CP	: 51.66
OP PRESS/DES PRESS barg (PSIG)	: 4.87/14.4 (70.62/208.8)
OP TEMP/DESIGN TEMP °C (°F)	: -3~71/93/-3 (-27~159.8/200/27)
UTC NO.	:
TRIM NO.	: G091A/B-Q15B

- A. FOR STANDARD SYMBOLS AND NOMENCLATURE SEE DRAWINGS 50489-530-020-PID-1104.001 & .002.
- B. ALL EQUIPMENT NUMBERS SHOWN ON THIS P&ID ARE PRECEDED BY 530--.
- C. ALL INSTRUMENT NUMBERS SHOWN ON THIS P&ID ARE PRECEDED BY 030--.
- D. FOR TYPICAL INSTRUMENT CONSTRUCTION SBOV, XV, MOV & ESDV DETAILS SEE DRAWINGS 50489-530-020-PID-1108.002, 003, 004, 005, 006 & 007.
- E. FOR MISCELLANEOUS PIPING TYPICAL VALVING, DRAINAGE & GENERAL ARRANGEMENT OF LEVEL INSTRUMENTS, DUMPS, STRAINERS & CONTROL VALVES SEE DRAWINGS 50489-530-020-PID-1108.001 & 1108.010.
- F. DRAWING NUMBERS SHOWN IN P&ID CONTINUATION BOXES ARE ABREVIATED SHOWING DRAWING SEQUENTIAL NUMBERS ONLY. THE FULL FORM OF THE DRAWING NUMBER IS 50489-530-020-PID-XXXX.SHT.NO.
- G. FOR MATERIAL SELECTION DIAGRAM SEE DRAWINGS 50489-530-020-MSD-1001.001 TO 1023.
- H. DETAIL NUMBERING FOR CI, SC, CC & CP SEE DRAWING 50489-530-020-PID-1108.003.
- I. PAINTING & COATING ARE IN ACCORDANCE WITH KOC-P-001.
- J. LOW POINT DRAIN & HIGH POINT VENT ARE INDICATED IN P&ID.
- K. FOR CAUSE & EFFECT REFER DOC. NO. 50489-530-020-PHL-1009.
- L. FOR ALARM VALUES REFER DOC. NO. 50489-530-020-SUM-1006.

1. VESSEL IS LOCATED BELOW GRADE IN A PIT TO ACCOMMODATE GRAVITY DRAINS.
2. DRAIN LINES AND HEADERS FROM ABOVE GROUND EQUIPMENT RUN UNDERGROUND WITH A SLOPE TO THE DRAIN SLUMP FOR SELF DRAINING.
3. G-091 A/B PUMPS ARE GAP CONTROLLED AS FOLLOWS:
 - A. LAH2 SET @ 1550 mm (5'-1") : START STANDBY PUMP BY SSLS
LAH1 SET @ 1400 mm (4'-7") : START DUTY PUMP BY SSLS
LAL SET @ 1500 mm (1'-7") : STOP DUTY STANDBY PUMPS BY SSLS
 - B. FAILURE OF DUTY PUMP : START STANDBY PUMP, DUTY PUMP IN LOCAL, START STANDBY PUMP ON DEMAND
 - C. HLLL IN WET OR DRY/WET TANKS : INHIBIT START OF PUMPS
STOP DUTY AND STANDBY PUMPS
4. CONNECTION FOR REMOVAL OF SLUDGE/BACK FLUSHING.
5. DELETED.
6. ALL LOCAL INSTRUMENTS ARE ABOVE GROUND LEVEL AND ACCESSIBLE AT A SAFE LOCATION.
7. FOR BACK FLUSHING OF PUMP WHEN PUMP IS TRIPPED BY STRAINER PLUGGING.
8. (a) FLUSHING CONNECTIONS ARE PROVIDED AT END OF COLLECTION HEADERS AND AT ANY CHANGES IN DIRECTION OF UNDERGROUND PIPE OVER 90°.
(b) ADDITIONAL CLEANING FACILITIES ARE PROVIDED AT ANY CHANGE IN DIRECTION 45° AND AT A MAXIMUM OF 60 METRE INTERVALS ON STRAIGHT RUN.
(c) EQUIPMENT ISOLATION VALVES ARE SHOWN ON UPSTREAM P&ID's.
9. DELETED
10. SPRING LOADED BALL VALVE.
11. DELETED
12. PRESSURISED & GRAVITY DRAINS ARE SEGREGATED INTO SEPARATE HEADERS.
REFER TO RELEVANT DRAWINGS FOR DRAIN COLLECTION AND ROUTING.
13. MINIMUM SUBMERGENCE IS 380mm FROM THE BOTTOM OF THE VESSEL.
14. DURING SHUTDOWN LEVEL-1 AND 2, EMERGENCY GENERATOR SUPPLIES POWER TO THESE PUMPS, SO PUMPS CAN RUN AFTER THE RELATIVE ESD LOGICS ARE RESET.
15. WHEN LEVEL MEASURED BY LIT-0625 IS COMING AT LOW, VALVE IS RESET AUTOMATICALLY.
16. ONE PUMP OPERATING AND ONE PUMP ON STAND-BY.
17. A. TO PREVENT BACK FLOW VALVE TO OPEN WHEN UPSTREAM PRESSURE EXCEEDS DOWNSTREAM PRESSURE.
B. WHEN PUMP(S) ARE RUNNING PDAI ALONG XV SHALL NOT STOP THE PUMPS.
C. NO PUMP RUNNING AUTOMATICALLY CLOSE THE XV.
D. PUMP(S) RUNNING & IN FIXED TIME IF XV OPEN FEED BACK IS NOT RECEIVED, STOP THE PUMP.
18. DELETED.
19. VENT TO SAFE LOCATION ARE AS PER KOC-G-002.
20. TG-0623 IS LOCATED BELOW LLL.
21. AIR UNIT IS KEPT AT PLATFORM OUTSIDE THE PIT.
22. STRAIGHT LENGTH REQUIREMENT FOR ORIFICE FLOW METER ARE 20D UPSTREAM & 5D DOWNSTREAM.
23. ADEQUATE PIPING SUPPORT ARE PROVIDED TO AVOID OR MINIMIZE VIBRATION.
24. INLET PIPE GROUND DISTRIBUTOR WITH IMPINGEMENT PLATE.
25. FOR AUTO ELASING UNIT REFER, 50489-530-020-PIID-1108.004.
26. PIT WATER SHALL BE REMOVED BY VACUUM TRUCK USING SLOUGH/BACK FLUSHING LINE (3"-DD-1501-015B).

Z2	ISSUED FOR AS-BUILT	BAK/SSI	AKG	SRA	RAK	28.11.18
Z1	ISSUED FOR AS-BUILT	BAK/SSI	AKG	SRA	RAK	08.10.18
Z0	ISSUED FOR AS-BUILT	BAK/SSI	AKG	SRA	RAK	26.08.18
01	ISSUED FOR CONSTRUCTION	BAK/SSI	AKG	SRA	RAK	08.12.16
0	ISSUED FOR CONSTRUCTION	HSJ/VSA	AKG	SRA	RAK	29.03.16
D	ISSUED INCORPORATED CLIENT COMMENTS	JSJ/CHS	AKG	SRA	RAK	23.12.15
C	ISSUED INCORPORATED CLIENT COMMENTS	BAK/ABY	AKG	SRA	RAK	16.10.15
0C	ISSUED INCORPORATED CLIENT COMMENTS	JSJ/VSA	AKG	SRA	RAK	01.06.15
B	ISSUED INCORPORATED CLIENT COMMENTS	JSJ/ABY	AKG	SRA	RAK	21.02.15
A	ISSUED FOR APPROVAL	JSJ/ABY	AKG	SRA	RAK	11.12.14
REV.	DESCRIPTION	DRAWN	CHECKED	HOD	PEM APPRD.	DATE

CONTRACTOR REVISION

KUWAIT OIL
K. S. C.



شركة نفط الكويت
ش.م.ك.

CONTRACTOR DETAILS:-

LARSEN & TOUBRO LIMITED
FARIDABAD

PROJECT TITLE:—

NEW GATHERING CENTRE GC-30
IN NORTH KUWAIT

DOCUMENT TITLE:

PIPING & INSTRUMENTATION DIAGRAM
PROCESS AREA DRAIN VESSEL (V-091) & PUMPS (G-091A/B)

PROJECT NO.		DRAWING NO.		
EF1902	CONTRACTOR DRG. NO. 50489-530-020-PID-1205.004	REV. Z2	KOC DRG. NO.	REV.
	SHEET NO. 4 OF 12		SHEET NO.	
	COMPANY DRG. NO. EF1902-530-DCO-PID-0205.004	REV. A3		
	SHEET NO.			