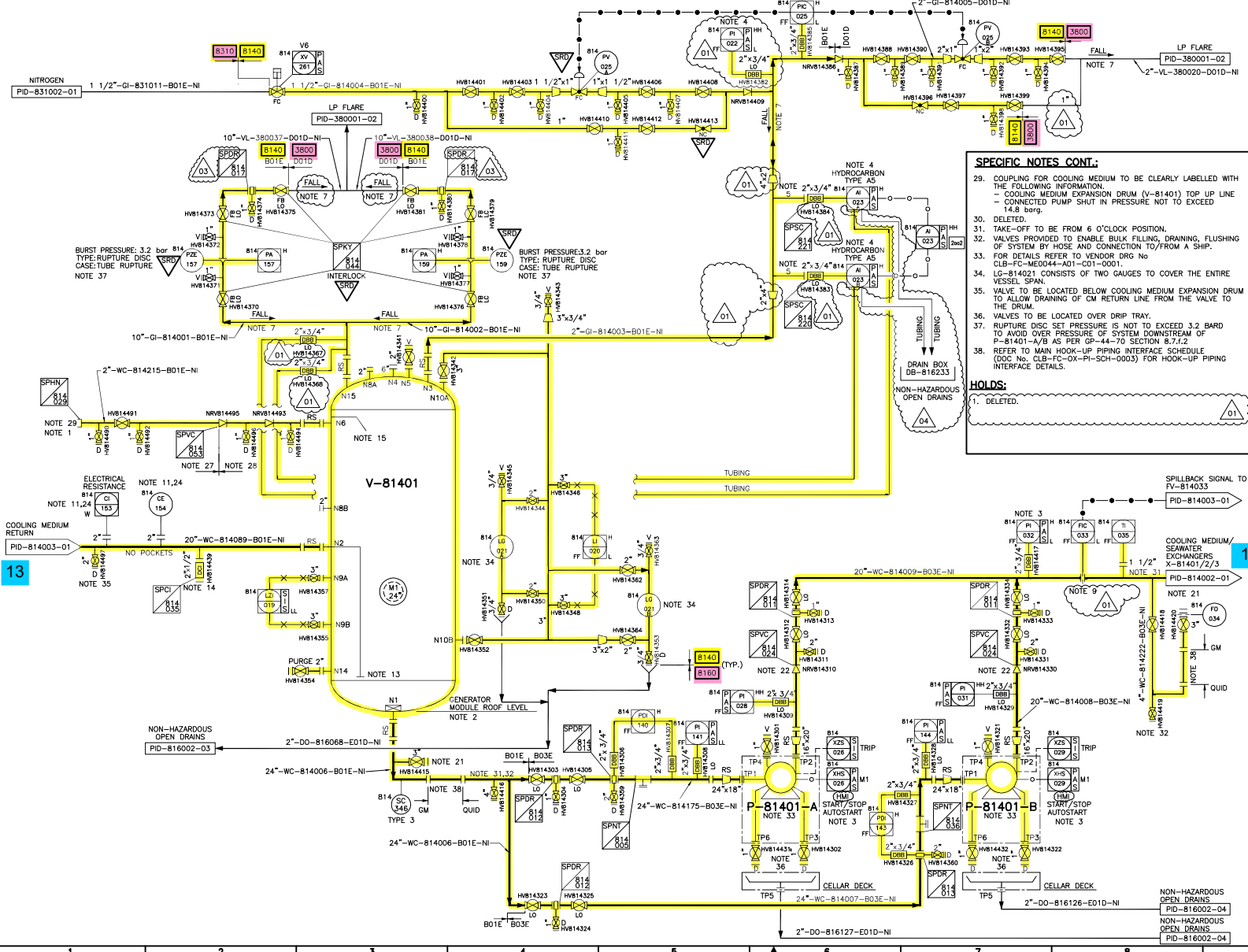


V-81401 COOLING MEDIUM EXPANSION DRUM			
SIZE	mm	2400 ID x 6500 T/T	
DESIGN PRESSURE	barg	5.0/FV	
DESIGN TEMPERATURE	°C	80/-10	
OPERATING PRESSURE	barg	1.0	
OPERATING TEMPERATURE	°C	49	
TRIM NUMBER: VT-814001-B01E-NI			

P-81401-A COOLING MEDIUM CIRCULATION PUMP			
RATED CAPACITY	m <sup>3</sup> /hr	2604	
DIFFERENTIAL HEAD	m	125	
INSTALLED POWER	kW	1280	
DESIGN PRESSURE	barg	24	
DESIGN TEMPERATURE	°C	80/-10	
OPERATING PRESSURE IN/OUT	barg	5.0/17.6	
OPERATING TEMPERATURE	°C	20/49	
TRIM NUMBER: VT-814002-B03E-NI			

P-81401-B COOLING MEDIUM CIRCULATION PUMP			
RATED CAPACITY	m <sup>3</sup> /hr	2604	
DIFFERENTIAL HEAD	m	125	
INSTALLED POWER	kW	1280	
DESIGN PRESSURE	barg	24	
DESIGN TEMPERATURE	°C	80/-10	
OPERATING PRESSURE IN/OUT	barg	5.0/17.6	
OPERATING TEMPERATURE	°C	20/49	
TRIM NUMBER: VT-814003-B03E-NI			



- GENERAL NOTES:**
- REFER TO LEGEND SHEETS CLB-FC-0X-PR-PID-000001-01 TO 000014-10 FOR SYMBOLS, ABBREVIATIONS, SYSTEM CODES, INSTRUMENTATION DETAILS, ACTUATED VALVE CONFIGURATIONS, EQUIPMENT STANDARD HOOK-UPS, SAMPLING AND HOSE STATION DETAILS.
  - ALL PAID NUMBERS SHOWN IN CONTINUATION FLAGS ARE PREFIXED WITH 'CLB-FC-0X-PR-' UNLESS STATED OTHERWISE.
  - ALL EQUIPMENT TAG NUMBERS ARE PREFIXED WITH 'CLB-' AS SITE IDENTIFIER FOR CLAIR RIDGE. FOR MAXIMO ONLY BUT NOT USED FOR PHYSICAL IDENTIFICATION OR ON PAID'S.
  - REFER TO ALARM RESPONSE MANUAL - TOPSIDES (DOC No. CLB-FC-0X-PR-SCH-0003) FOR PRE-ALARMS AND TRIPS SETTING.
  - ALL NON-SIS AND NON-WIRELESS INSTRUMENTS SHALL BE FOUNDATION FIELDBUS (FF) UNLESS SPECIFIED OTHERWISE.

- SPECIFIC NOTES:**
- COOLING MEDIUM IS 35WTR GLYCOL (TEG) AND 65WTR FRESH WATER.
  - THE COOLING MEDIUM EXPANSION DRUM V-81401 IS TO BE LOCATED AT THE HIGHEST POINT OF THE COOLING MEDIUM SYSTEM.
  - AUTO START OF STANDBY PUMP ON TRIP OF DUTY PUMP OR VIA PI-814032 WITH PRE-ALARM AT LOW PRESSURE (15.5 BARG) AND STANDBY PUMP START AT LOW LOW PRESSURE (14.5 BARG). START UP OVER-RIDE TO BE PROVIDED AT PI-814032. FUNCTIONALITY TO BE PROVIDED TO ENSURE BOTH PUMPS CANNOT BE RUN SIMULTANEOUSLY FOR MORE THAN 20 SECONDS AND DUTY PUMP IS SHUTDOWN WHEN STANDBY PUMP IS STARTED.
  - HYDROCARBON DETECTION TO ACT ON PROCESS GAS LEAKAGE IN TO THE COOLING MEDIUM SYSTEM. 2002 PROTECTION WITH PRE-ALARM. HH HYDROCARBON WILL CAUSE A TRIP (AS DETAILED IN THE CASE AND EFFECTS) ONLY WHEN IT OCCURS AT THE SAME TIME AS HH PRESSURE FROM PAHH-814022.
  - LOCATE MINIMUM DISTANCE FROM NOZZLE N3.
  - DELETED.
  - MINIMUM SLOPE 1:400, FREE DRAINING WITH NO POCKETS.
  - DELETED.
  - STRAIGHT RUN 15 DIA UPSTREAM AND 5 DIA DOWNSTREAM.
  - DELETED.
  - TO BE LOCATED A MINIMUM OF SEVEN PIPE DIAMETERS DOWNSTREAM AND A MINIMUM OF THREE PIPE DIAMETERS UPSTREAM OF FLOW DISTURBANCES. IF COUPONS/PROBES ARE INSTALLED IN FAIRS, A MINIMUM DISTANCE OF 1m TO BE PROVIDED BETWEEN EACH FITTING.
  - DELETED.
  - DIP PIPE TO END WITH DIFFUSER BELOW THE LOW LEVEL.
  - COOLING MEDIUM CHEMICAL TREATMENT INJECTION POINT. TO BE LOCATED AT 12 O'CLOCK POSITION. CHEMICAL TREATMENT IS NITRITE INJECTION AS THE INHIBITOR AND pH CONTROL TO >9.5 TO ALLOW NITRITE INHIBITOR TO WORK AT OPTIMUM pH.
  - NOZZLE TO BE FITTED WITH INTERNAL DEFLECTOR HOOD.
  - DELETED.
  - 20-20. DELETED.
  - SPARE CONNECTIONS TO ALLOW FOR HOOK-UP OF TEMPORARY CLEANING SKID/SIDE STREAM FILLER. PIPE CONNECTIONS IN 6 O'CLOCK POSITION. SPACE FOR TEMPORARY HOSES AND SKID WITH DIMENSION 3m x 3m x 3m TO BE AVAILABLE. VALVES TO BE USED FOR BULK FILLING/DRAINAGE OPERATIONS. VALVES TO BE CLOSE TOGETHER. CONNECTION CAN ALSO BE USED AS A DRAIN FOR THE CM EXPANSION DRUM.
  - CHECK VALVE TO BE NON-SLAM TYPE.
  - DELETED.
  - TO BE PREFERABLY LOCATED ON HORIZONTAL LINES AND IN EITHER 5 O'CLOCK OR 7 O'CLOCK POSITION WITH ACCESS LENGTH OF 2M.
  - 25-26. DELETED.
  - LOCATE LOCAL TO TOTE TANK LAYDOWN AREA WITH SPACE TO ALLOW CONNECTION OF TOTE TANK AND AIR-DRIVEN PUMP.
  - LOCATE LOCAL TO EXPANSION DRUM.

- SPECIFIC NOTES CONT.:**
- COUPLING FOR COOLING MEDIUM TO BE CLEARLY LABELED WITH THE FOLLOWING INFORMATION:  
- COOLING MEDIUM EXPANSION DRUM (V-81401) TOP UP LINE - CONNECTED PUMP SHUT IN PRESSURE NOT TO EXCEED 14.8 barg.
  - DELETED.
  - TAKE-OFF TO BE FROM 6 O'CLOCK POSITION.
  - VALVES PROVIDED TO ENABLE BULK FILLING, DRAINING, FLUSHING OF SYSTEM BY HOSE AND CONNECTION TO/FROM A SHIP.
  - FOR DETAILS REFER TO VENDOR DRG No. CLB-FC-MOD044-X01-C01-0001.
  - LG-814021 CONSISTS OF TWO GAUGES TO COVER THE ENTIRE VESSEL SPAN.
  - VALVE TO BE LOCATED BELOW COOLING MEDIUM EXPANSION DRUM TO ALLOW DRAINING OF CM RETURN LINE FROM THE VALVE TO THE DRUM.
  - VALVES TO BE LOCATED OVER DRIP TRAY.
  - RUPTURE DISC SET PRESSURE IS NOT TO EXCEED 3.2 BARD TO AVOID OVER PRESSURE OF SYSTEM DOWNSTREAM OF P-81401-A/B AS PER GP-44-70 SECTION 8.7.1.2
  - REFER TO MAIN HOOK-UP PIPING INTERFACE SCHEDULE (DOC No. CLB-FC-0X-PR-SCH-0003) FOR HOOK-UP PIPING INTERFACE DETAILS.
- HOLDS:**
- DELETED.

For use with:  
**PRO-0046**  
Appendices 8.2

Rev	Description	Drawn by	Checked by	Appr. by	Class	Date
C3	APPROVED FOR CONSTRUCTION	CR	DT	EC	DJC	17 OCT 13
C2	APPROVED FOR CONSTRUCTION	GH	AH	DT	BM	10 DEC 12
C1	APPROVED FOR CONSTRUCTION	GH	DT	CG	BM	10 DEC 12
B3	APPROVED FOR USE - HAZOP REVIEW	GH	DT	CG	BM	11 JAN 11
B2	APPROVED FOR USE	GH	NK	CG	BM	11 JAN 11
B1	APPROVED FOR DESIGN	NCK	SR	CG	BM	24 SEP 10

Please check scale bar before scaling this drawing

Contract	BP CLAIR RIDGE 20254	Unit	QU PLATFORM
Title	PIPING AND INSTRUMENT DIAGRAM COOLING MEDIUM EXP. DRUM & CIRCULATION PUMPS		
Doc No.	CLB-FC-0X-PR-PID-814001-01	Sheet	C3