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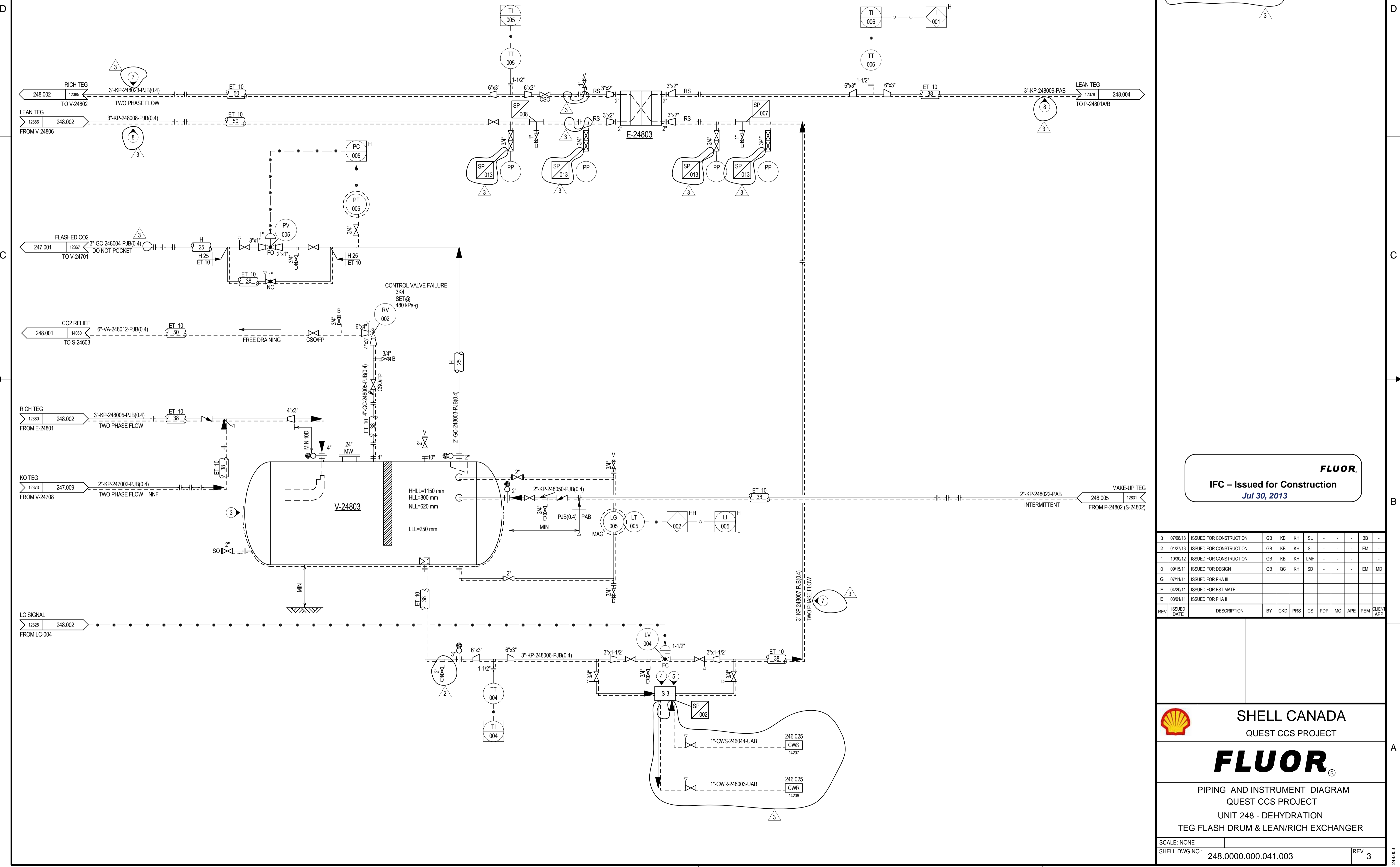
2

1

V-24803
TEG FLASH DRUM
 SIZE: 2000 mm ID x 5000 mm T/T
 DESIGN PR. & TEMP: 480 kPa-g @ 105 °C / FV @ 105 °C
 MATERIAL (VESSEL/INTERNAL): CS +3 mm 304L SS CLAD/ 316L SS
 INSULATION TYPE/THK: H / 50 mm
 TRIM: VT-248005-PJB(0.4) (3)

E-24803
LEAN/RICH TEG EXCHANGER
 RATED DUTY: 0.6 MW
 SURFACE AREA: 21.4 m²
 TYPE: PLATE & FRAME
 HOT: 400 kPa-g / FV
 COLD: 520 kPa-g / FV
 DESIGN TEMP: 230 °C / 150 °C
 DESIGN PRESS: 400 kPa-g / FV
 MATERIAL: PLATES: 316L SS / GRAPHITE
 FRAME: CS / 316L SS LINER
 INSULATION TYPE/THK: / /
 TRIM: ET-248006-PJB(0.4) (6)

- NOTES:**
- SEE DRAWINGS 200.0000.000.041.007 THRU 016 FOR SYMBOL IDENTIFICATION GENERAL NOTES & CONNECTION DETAILS.
 - ALL INSTRUMENT TAG NUMBERS ARE PREFIXED BY "248" UNLESS OTHERWISE STATED.
 - ELECTRIC TRACE (ET 10) WITH 50 mm INSULATION THICKNESS TO HLL.
 - SAMPLE TAKE-OFF POINTS TO BE ACCESSIBLE.
 - FOR PIPING DETAILS OF SAMPLE STATION, SEE DRAWING 200.0000.000.041.012.
 - TO BE INSULATED WITH REMOVABLE INSULATING COVER WITH 50 mm THICKNESS.
 - POTENTIAL FOR SLUG FLOW TO DEVELOP.
 - VIBRATING SERVICE.



FLUOR
 IFC – Issued for Construction
 Jul 30, 2013

3	07/08/13	ISSUED FOR CONSTRUCTION	GB	KB	KH	SL	-	-	-	BB	-
2	01/27/13	ISSUED FOR CONSTRUCTION	GB	KB	KH	SL	-	-	-	EM	-
1	10/30/12	ISSUED FOR CONSTRUCTION	GB	KB	KH	LMF	-	-	-	-	-
0	09/15/11	ISSUED FOR DESIGN	GB	OC	KH	SD	-	-	-	EM	MD
G	07/11/11	ISSUED FOR PHA III									
F	04/20/11	ISSUED FOR ESTIMATE									
E	03/01/11	ISSUED FOR PHA II									
REV	ISSUED DATE	DESCRIPTION	BY	CHK	PRS	CS	PDP	MC	APE	PEM	CLIENT APP

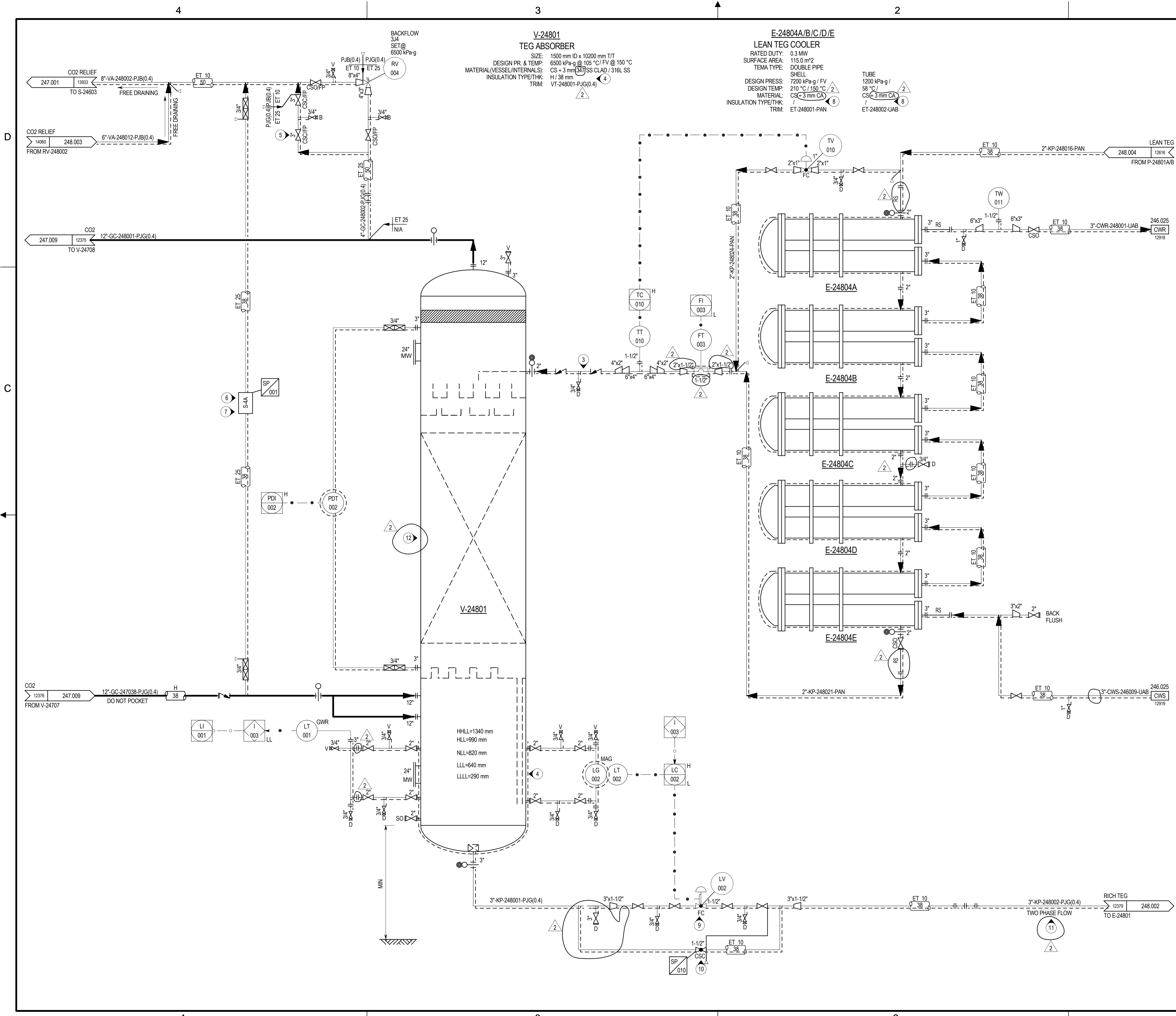
SHELL CANADA
 QUEST CCS PROJECT

FLUOR

PIPING AND INSTRUMENT DIAGRAM
 QUEST CCS PROJECT
 UNIT 248 - DEHYDRATION
 TEG FLASH DRUM & LEAN/RICH EXCHANGER

SCALE: NONE
 SHELL DWG NO.: 248.0000.000.041.003
 REV. 3

FILE: \\F:\025DRAWINGS\CO2\248\003.pid MODEL DATE: 7/16/2013 8:11:31 AM BY: bas2451



V-24801
TEG ABSORBER
 SIZE: 1500 mm ID x 10200 mm T/T
 DESIGN PR. & TEMP: 6500 kPa-g @ 105 °C / FV @ 150 °C
 MATERIAL (VESSEL/INTERNAL): CS + 3 mm 316L SS CLAD / 316L SS
 INSULATION TYPE/THK: /
 TRIM: VT-248001-PJG(0.4)

E-24804A/B/C/D/E
LEAN TEG COOLER
 RATED DUTY: 0.3 MW
 SURFACE AREA: 115.0 m²
 TEMA TYPE: DOUBLE PIPE
 SHELL: /
 TUBE: 1200 kPa-g / 58 °C / CS(C-3 mm CA)
 DESIGN PRESS: 7200 kPa-g / FV
 DESIGN TEMP: 210 °C / 150 °C
 MATERIAL: /
 INSULATION TYPE/THK: /
 TRIM: ET-248001-PAN

- NOTES:**
- SEE DRAWINGS 200.0000.000.041.007 THRU 016 FOR SYMBOL IDENTIFICATION GENERAL NOTES & CONNECTION DETAILS.
 - ALL INSTRUMENT TAG NUMBERS ARE PREFIXED BY "248" UNLESS OTHERWISE STATED.
 - TWO CHECK VALVES IN SERIES, ONE IN THE HORIZONTAL AND ONE IN THE VERTICAL POSITION, SEPARATED BY AT LEAST 500 mm.
 - ELECTRIC TRACE (ET 10) WITH 50 mm INSULATION THICKNESS TO HLL.
 - RV BYPASS PROVIDED TO ALLOW FOR SAFE DEPRESSURING OF TEG ABSORBER ON SHUTDOWN.
 - SAMPLE TAKE-OFF POINT TO BE ACCESSIBLE.
 - FOR PIPING DETAILS OF SAMPLE STATION, SEE DRAWING 200.0000.000.041.012.
 - ELECTRIC TRACE (ET 10) WITH 50 mm INSULATION THICKNESS.
 - THE CV OF LV-002 AFFECTS THE SIZING OF RV-002 FOR THE VAPOUR BLOW THROUGH CASE.
 - BYPASS VALVE IS A GLOBE VALVE THAT IS THE SAME MAKE AND MODEL AS LV-248002 WITH THE SAME CV.
 - POTENTIAL FOR SLUG FLOW TO DEVELOP.
 - STRUCTURED PACKING MELLAPAK PLUS M252Y.

FLUOR.
 IFC – Issued for Construction
 Jul 30, 2013

2	07/08/13	ISSUED FOR CONSTRUCTION	GB	KB	KH	SL	-	-	-	BB	-
1	10/30/12	ISSUED FOR CONSTRUCTION	GB	KB	KH	LMF	-	-	-	EM	-
0	09/15/11	ISSUED FOR DESIGN	GB	KB	KH	SD	-	-	-	EM	MD
G	07/11/11	ISSUED FOR PHA III									
F	04/20/11	ISSUED FOR ESTIMATE									
E	03/01/11	ISSUED FOR PHA II									
D	01/10/11	ISSUED FOR CLIENT REVIEW									
REV	ISSUED DATE	DESCRIPTION	BY	CHK	PRS	CS	PDP	MC	APE	PEM	CLIENT APP

SHELL CANADA
 QUEST CCS PROJECT

FLUOR

PIPING AND INSTRUMENT DIAGRAM
 QUEST CCS PROJECT
 UNIT 248 - DEHYDRATION
 TEG ABSORBER

SCALE: NONE
 SHELL DWG NO.: 248.0000.000.041.001
 REV. 2

FILE:V:\025DRAWINGS\CO2\248\248.001.dwg MODEL DATE: 7/16/2013 5:49:31 AM BY: bas2451

V-24805
TEG STRIPPER REBOILER CONDENSATE POT

SIZE: 600 mm ID x 1800 mm T/T
DESIGN PR. & TEMP: 5170 kPa-g @ 415 °C / FV @ 415°C
MATERIAL/VESSEL/INTERNAL: CS + 3 mm CA
INSULATION TYPE/THK: H / 100 mm
TRIM: VT-248002-SAG

V-24802
TEG STRIPPER

SIZE: 560 mm ID x 4050 mm F/F
DESIGN PRESS. & TEMP: 800 kPa-g @ 230 °C / FV @ 150 °C
MATERIAL (COLUMN / INTERNAL): CS + 316L SS CLAD / 316L SS
MATERIAL (STRIPPER): 316L SS + 3 mm CA
INSULATION TYPE/THK: H / 75 mm
TRIM: VT-248003-PJB(0.4)

V-24806
TEG SURGE DRUM

SIZE: 1500 mm ID x 4000 mm T/T
DESIGN PR. & TEMP: 800 kPa-g @ 230 °C / FV @ 150 °C
MATERIAL/VESSEL/INTERNAL: CS + 3 mm 316L SS CLAD
INSULATION TYPE/THK: H / 75 mm
TRIM: VT-248004-PJB(0.4)

S-24801
TEG REGNERATION PACKAGE

E-24801
TEG STRIPPER CONDENSER

RATED DUTY: 0.1 MW
SURFACE AREA: 23.3 m²
TEMA TYPE: LEM
SHELL
DESIGN PRESS: 1400 kPa-g / FV
DESIGN TEMP: 230 °C / 150 °C
MATERIAL: DUPLEX 1803
INSULATION TYPE/THK: H / 75 mm
TRIM: ET-248003-PJB(0.4)

TUBE
800 kPa-g / FV
230 °C / 150 °C
DUPLEX 1803

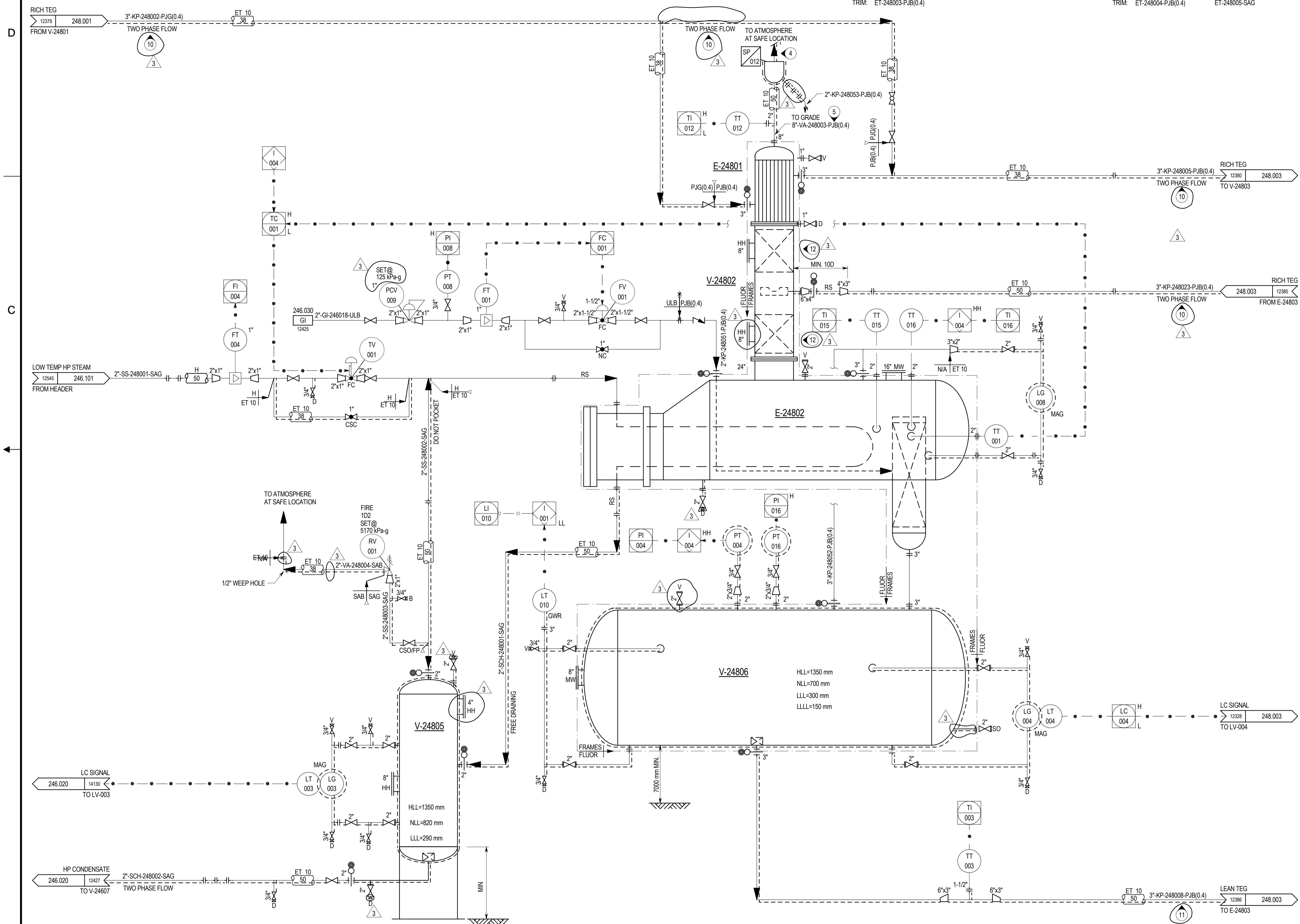
E-24802
TEG STRIPPER REBOILER

RATED DUTY: 0.4 MW
SURFACE AREA: 84.1 m²
TEMA TYPE: SHELL
DESIGN PRESS: 800 kPa-g / FV
DESIGN TEMP: 230 °C / 150 °C
MATERIAL: CS + 3 mm 316L SS CLAD
INSULATION TYPE/THK: H / 75 mm
TRIM: ET-248004-PJB(0.4)

TUBE
5170 kPa-g / FV
415 °C / 415 °C
316 SS
ET-248005-SAG

NOTES:

- SEE DRAWINGS 200.0000.000.041.007 THRU 016 FOR SYMBOL IDENTIFICATION GENERAL NOTES & CONNECTION DETAILS.
- ALL INSTRUMENT TAG NUMBERS ARE PREFIXED BY "248" UNLESS OTHERWISE STATED.
- ELECTRIC TRACE (ET 10).
- EXHAUST HEAD.
- 316/316L STAINLESS STEEL PIPING COMPONENTS ARE REQUIRED FOR THIS LINE.
- THE CV OF LV-003 AFFECTS THE SIZING OF RV-246033 FOR THE VAPOUR BLOWTHROUGH CASE.
- SAMPLE TAKE OFF POINTS TO BE ACCESSIBLE.
- FOR PIPING DETAILS OF SAMPLE STATION, SEE DRAWING 200.0000.000.041.012.
- ELECTRIC TRACING AND INSULATION IN FLUOR SCOPE.
- POTENTIAL FOR SLUG FLOW TO DEVELOP.
- VIBRATING SERVICE.
- RANDOM PACKING 1.5" SS FALL RINGS.



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REV	ISSUED DATE	DESCRIPTION	BY	CHKD	PRS	CS	PDP	MC	APR	PEM	CLIENT APP
3	07/11/13	ISSUED FOR CONSTRUCTION	KH	KB	GB	SL	-	-	-	BB	-
2	01/27/13	ISSUED FOR CONSTRUCTION	GB	KB	KH	SL	-	-	-	EM	-
1	10/30/12	ISSUED FOR CONSTRUCTION	GB	KB	KH	SL	-	-	-	EM	-
0	09/15/11	ISSUED FOR DESIGN	GB	OC	KH	SD	-	-	-	EM	SP
G	07/11/11	ISSUED FOR PHA III									
F	04/20/11	ISSUED FOR ESTIMATE									
E	03/01/11	ISSUED FOR PHA II									

SHELL CANADA
QUEST CCS PROJECT

FLUOR

PIPING AND INSTRUMENT DIAGRAM
QUEST CCS PROJECT
UNIT 248 - DEHYDRATION
TEG STRIPPER, REBOILER & CONDENSATE POT

SCALE: NONE
SHELL DWG NO.: 248.0000.000.041.002
REV. 3

D

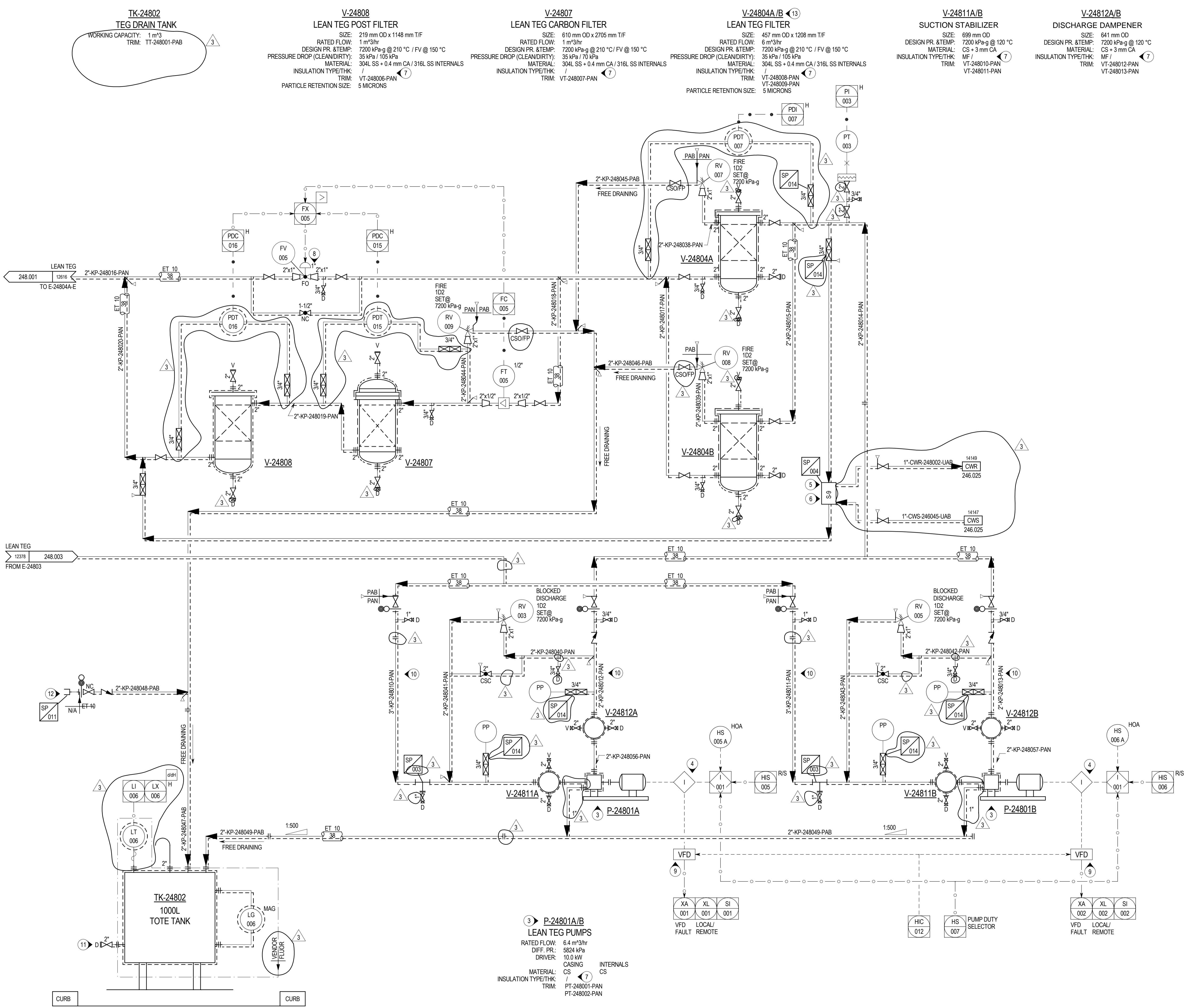
C

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B

A



- NOTES:**
- SEE DRAWINGS 200.0000.000.041.007 THRU 016 FOR SYMBOL IDENTIFICATION GENERAL NOTES & CONNECTION DETAILS.
 - ALL INSTRUMENT TAG NUMBERS ARE PREFIXED BY "248" UNLESS OTHERWISE STATED.
 - POSITIVE DISPLACEMENT PUMP.
 - STANDBY PUMP WILL START AUTOMATICALLY ON MAIN PUMP FAILURE.
 - SAMPLE TAKE-OFF POINTS TO BE ACCESSIBLE.
 - FOR PIPING DETAILS OF SAMPLE STATION, SEE DRAWING 200.0000.000.041.012.
 - ELECTRIC TRACE (ET 10) WITH 50 mm INSULATION THICKNESS.
 - MECHANICAL MINIMUM FLOW STOP TO BE PROVIDED.
 - MINIMUM CLAMP REQUIRED ON VFD TO ENSURE PUMP OPERATING SPEED IS GREATER THAN 50 RPM. THE CORRESPONDING MINIMUM MOTOR SPEED IS 316 RPM.
 - VIBRATING SERVICE.
 - TOTE TANK TO BE EMPTIED VIA VACUUM TRUCK THROUGH DRAIN CONNECTION.
 - HOSE CONNECTION PROVIDED FOR DRAINING FILTERS AND PUMP STABILIZERS AND DAMPENERS. HOSE CONNECTION SHALL NOT BE USED WHEN FLUID TEMPERATURE IS GREATER THAN 100 C.
 - V-24804A/B ARE 2x100% FILTERS.

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 IFC – Issued for Construction
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3	07/03/13	ISSUED FOR CONSTRUCTION	GB	KB	KH	SL	-	-	-	BB	-
2	01/27/13	ISSUED FOR CONSTRUCTION	GB	KB	KH	SL	-	-	-	EM	-
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0	09/15/11	ISSUED FOR DESIGN	GB	KB	KH	SD	-	-	-	EM	MD
G	07/11/11	ISSUED FOR PHA III									
F	04/20/11	ISSUED FOR ESTIMATE									
E	03/01/11	ISSUED FOR PHA II									
REV	ISSUED DATE	DESCRIPTION	BY	CHKD	PRD	CS	PDP	MC	APE	PEM	CLIENT APP

SHELL CANADA
 QUEST CCS PROJECT

FLUOR

PIPING AND INSTRUMENT DIAGRAM
 QUEST CCS PROJECT
 UNIT 248 - DEHYDRATION
 LEAN TEG PUMPS & FILTERS

SCALE: NONE
 SHELL DWG NO.: 248.0000.000.041.004
 REV. 3

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3

2

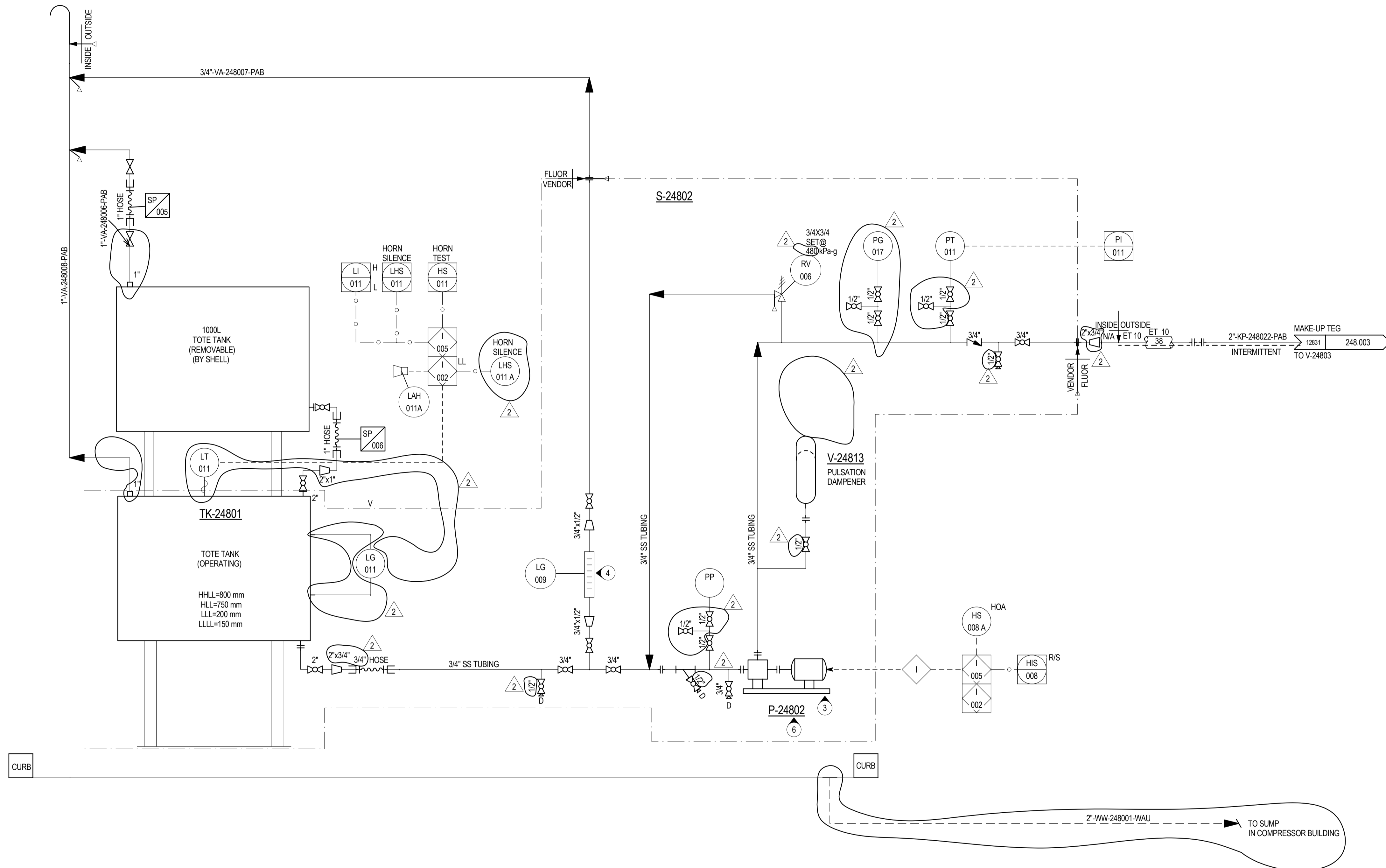
1

TK-24801
TEG MAKE-UP TANK
CAPACITY: 2 m³

S-24802
TEG MAKE-UP PACKAGE

NOTES:

1. SEE DRAWINGS 200.0000.000.041.007 THRU 016 FOR SYMBOL IDENTIFICATION GENERAL NOTES & CONNECTION DETAILS.
2. ALL INSTRUMENT TAG NUMBERS ARE PREFIXED BY "248" UNLESS OTHERWISE STATED.
3. POSITIVE DISPLACEMENT DUPLEX PUMP WITH ADJUSTABLE STROKE.
4. GRADUATED GLASS COLUMN FOR INJECTION PUMP CALIBRATION.
5. DELETED.
6. WAREHOUSE SPARE PUMP TO BE PROVIDED.



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Jul 30, 2013

2	07/08/13	ISSUED FOR CONSTRUCTION	GB	KB	KH	SL	-	-	-	BB	-
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F	04/20/11	ISSUED FOR ESTIMATE									
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D	01/10/11	ISSUED FOR CLIENT REVIEW									
REV	ISSUED DATE	DESCRIPTION	BY	CHKD	PRS	CS	PDP	MC	APE	PEM	CLIENT APP

SHELL CANADA
QUEST CCS PROJECT

FLUOR
PIPING AND INSTRUMENT DIAGRAM
QUEST CCS PROJECT
UNIT 248 - DEHYDRATION
TEG MAKE-UP TANK & PUMP

SCALE: NONE	REV: 2
SHELL DWG NO.: 248.0000.000.041.005	

③ ⑥
P-24802
TEG MAKE-UP PUMP
RATED FLOW: 640 L/hr
DIFF. PR.: 350 kPa
DRIVER: 1.00 kW
CASING: INTERNALS
MATERIAL: CS
INSULATION TYPE/THK: /
TRIM:

FILE: \\F:\1025DRAWINGS\CO2\248\041\005.dwg MODEL DATE: 7/18/2013 2:05:27 PM BY: b6625451