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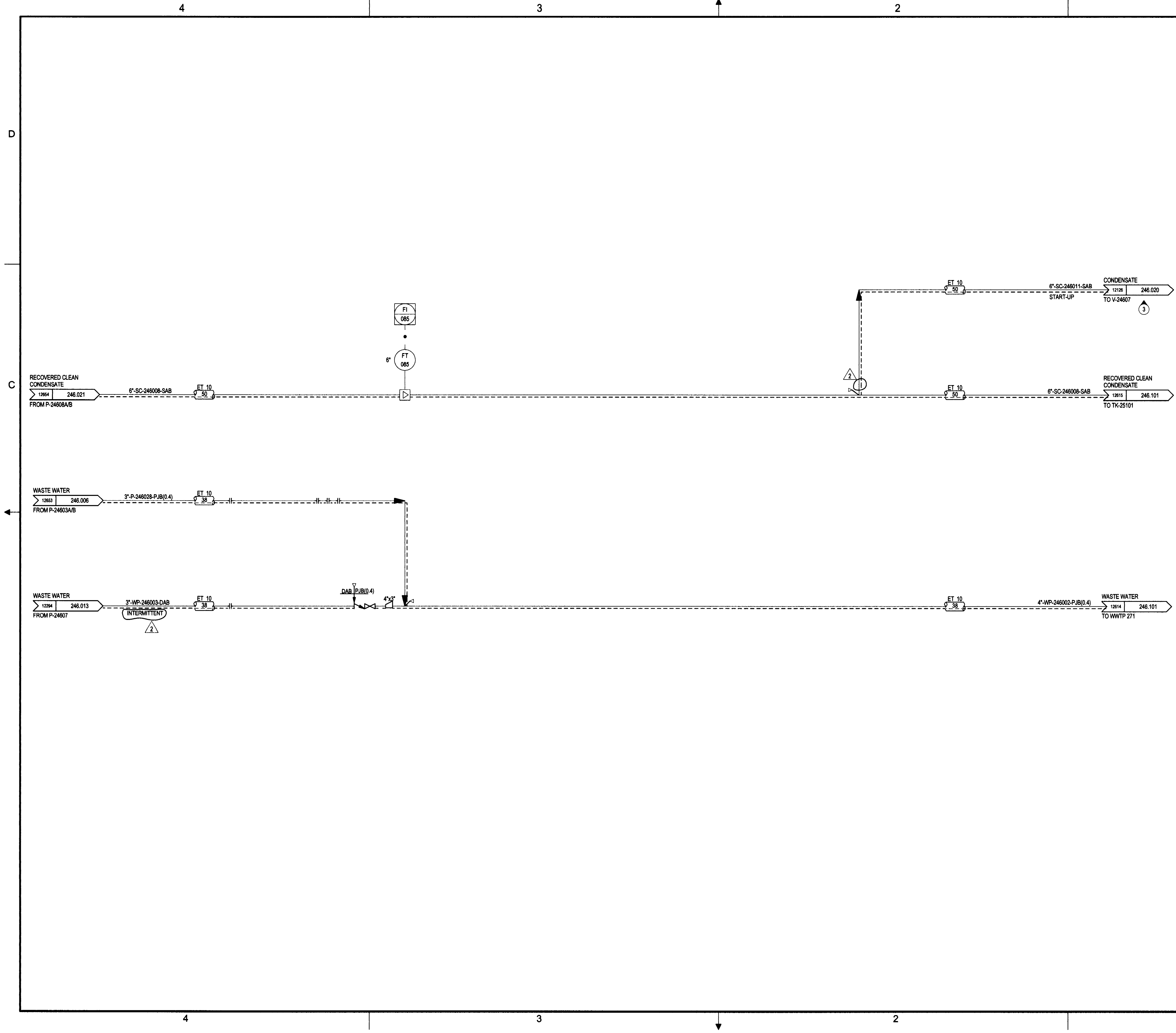
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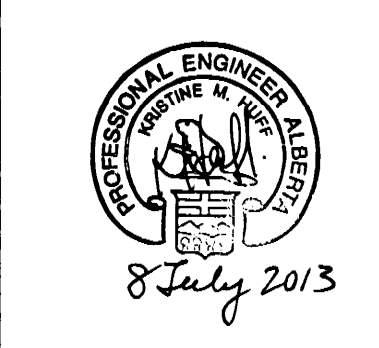
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NOTES:
 1. SEE DRAWINGS 200.0000.000.041.007 THRU 016 FOR SYMBOL IDENTIFICATION GENERAL NOTES & CONNECTION DETAILS.
 2. ALL INSTRUMENT TAG NUMBERS ARE PREFIXED BY "246" UNLESS OTHERWISE STATED.
 3. START-UP PIPING REQUIRED FOR INITIAL AMINE FILL AND DILUTION WITH CONDENSATE.

FLUOR
 IFC – Issued for Construction
 Jul 30, 2013

2	07/08/13	ISSUED FOR CONSTRUCTION														
1	09/28/12	ISSUED FOR CONSTRUCTION	GB	KB	KH	LMF										
0	09/15/11	ISSUED FOR DESIGN	GB	SJ	KH	LMF									EM	MD
G	07/15/11	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	CHKD	PRS	CS	PDP	MC	APE	PEM	CLERK	APP				



PERMIT TO PRACTICE
FLUOR CANADA LTD.
 Signature: *[Signature]*
 Date: 24 July 2013
PERMIT NUMBER: P 0778
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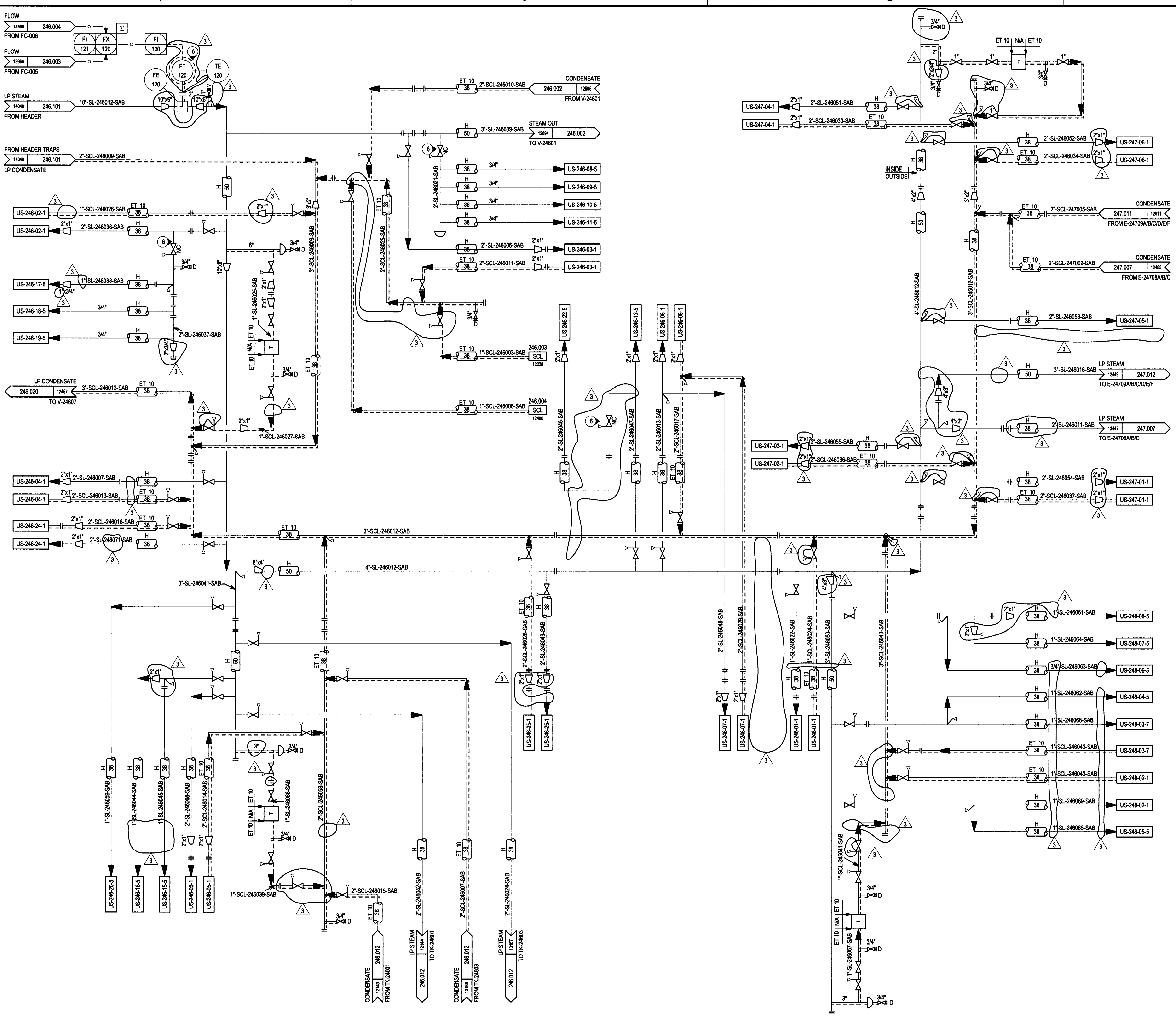
SHELL CANADA
 QUEST CCS PROJECT

FLUOR

PIPING AND INSTRUMENT DIAGRAM
 QUEST CCS PROJECT
 UNIT 246 - REGENERATION/Common
 RECOVERED CLEAN CONDENSATE & WW COLLECTION

SCALE: NONE
 SHELL DWG NO.: 246.0000.000.041.027
 REV. 2

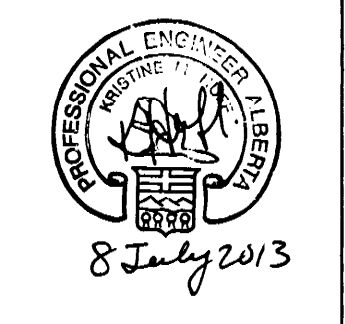
246.027
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- NOTES:**
- SEE DRAWINGS 200.000.000.041.007 THRU 016 FOR SYMBOL IDENTIFICATION GENERAL NOTES & CONNECTION DETAILS.
 - ALL INSTRUMENT TAG NUMBERS ARE PREFIXED BY "246" UNLESS OTHERWISE STATED.
 - REFER TO DEP 31.38.01.11 PIPING DESIGN GENERAL REQUIREMENTS SECTION 5.8 AND FIGURE 18-2 TO 18-5 FOR UTILITY STATION DETAILS.
 - PIPING HEADER BRANCH CONNECTIONS SHALL BE MADE ON TOP OF PIPE AND BE VALVED.
 - ANNUBAR HAS INTEGRAL TEMPERATURE ELEMENT. ELECTRIC HEAT TRACE THE ANNUBAR SENSOR NOZZLE ASSEMBLY.
 - DRY RISER ISOLATION VALVE.

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 Jul 30, 2013

3	07/06/13	ISSUED FOR CONSTRUCTION								
2	01/24/13	ISSUED FOR CONSTRUCTION	GB	KB	KH	SL	-	-	EM	-
1	10/25/12	ISSUED FOR CONSTRUCTION	GB	KB	KH	LMP	-	-	EM	-
0	08/15/11	ISSUED FOR DESIGN	GB	KB	KH	LMP	-	-	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	PDF	MC	APP	CLIENT APP



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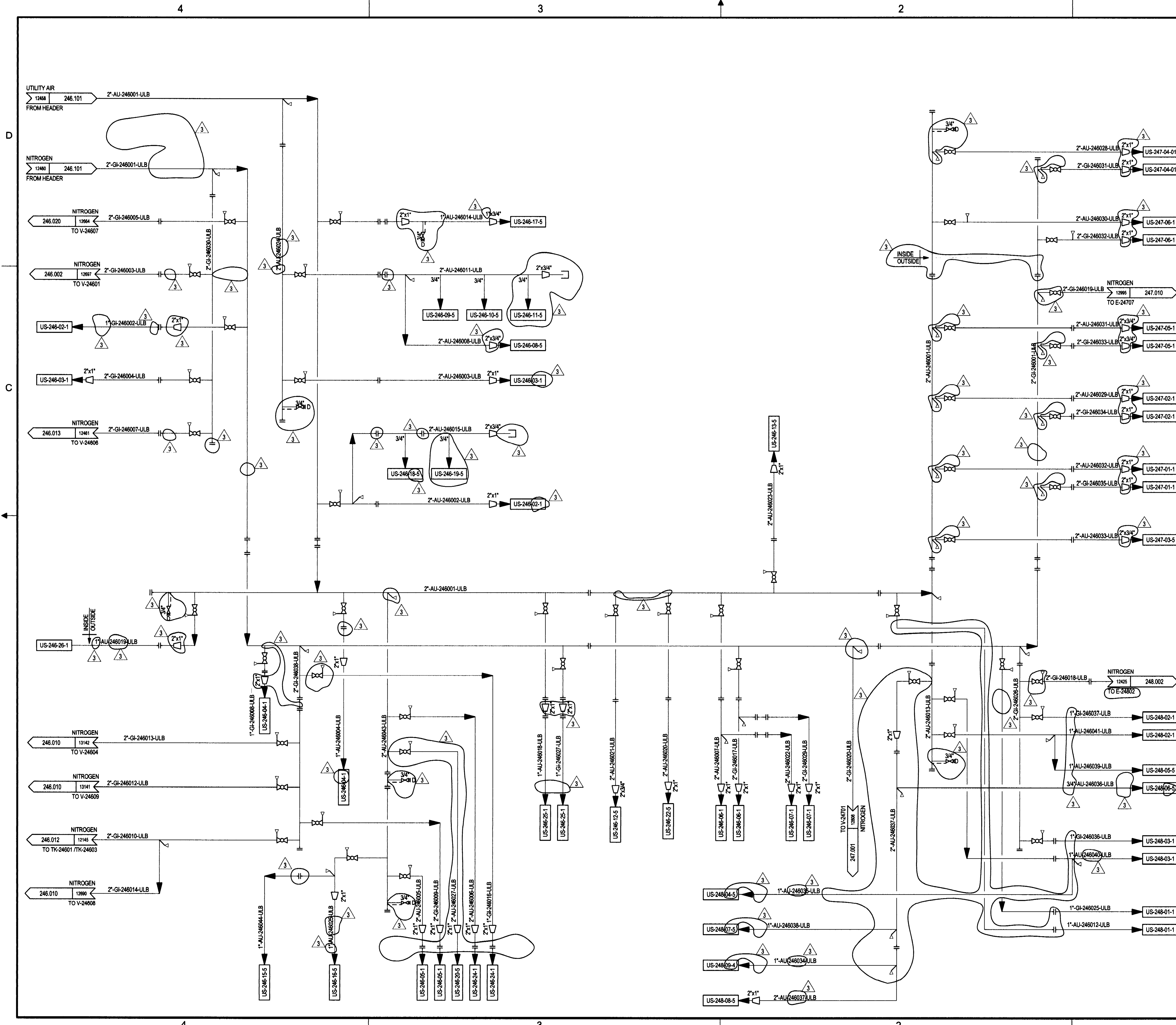
SHELL CANADA
 QUEST CCS PROJECT

FLUOR

PIPING AND INSTRUMENT DIAGRAM
 QUEST CCS PROJECT
 UNIT 246 - REGENERATION/Common
 LP STEAM DISTRIBUTION AND COND. COLLECTION

SCALE: NONE
 SHELL DWG NO.: 246.000.000.041.029
 REV: 3

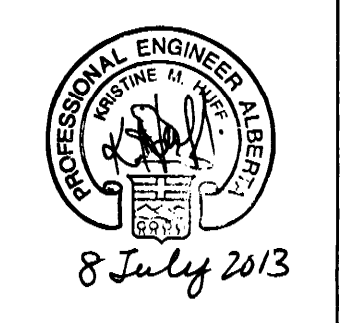
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- NOTES:**
1. SEE DRAWINGS 200.000.000.041.007 THRU 016 FOR SYMBOL IDENTIFICATION GENERAL NOTES & CONNECTION DETAILS.
 2. ALL INSTRUMENT TAG NUMBERS ARE PREFIXED BY "246" UNLESS OTHERWISE STATED.
 3. REFER TO DEP 31.38.01.11 PIPING DESIGN GENERAL REQUIREMENTS SECTION 5.8 AND FIGURE 18-2 TO 18-5 FOR UTILITY STATION DETAILS.
 4. PIPING HEADER BRANCH CONNECTIONS SHALL BE MADE ON TOP OF PIPE AND BE VALVED.

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Jul 30, 2013

REV	ISSUED DATE	DESCRIPTION	BY	CHK	PRS	CS	POP	MC	APR	PEM	CLIENT APP
3	07/08/13	ISSUED FOR CONSTRUCTION									
2	01/24/13	ISSUED FOR CONSTRUCTION	GB	KB	KH	SL				EM	
1	10/12/12	ISSUED FOR CONSTRUCTION	GB	KB	KH	LMF				EM	
0	09/19/11	ISSUED FOR DESIGN	GB	KB	KH	LMF				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									



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SHELL CANADA
QUEST CCS PROJECT

FLUOR
PIPING AND INSTRUMENT DIAGRAM
QUEST CCS PROJECT
UNIT 246 - REGENERATION/COMMON
UTILITY AIR & NITROGEN DISTRIBUTION

SCALE: NONE
SHELL DWG NO.: 246.000.000.041.030
REV. 3

FILE: I:\05DRAWINGS\0502246.030.PID MODEL DATE: 7/29/2013 4:22:52 PM BY: 98639451

4

3

2

1

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 "246" UNLESS OTHERWISE STATED.
- 3. LOW POINTS AND DRAINS REQUIRE ET AND INSULATION.



ISSUED FOR CONSTRUCTION
01 Nov 2012

1	10/12/12	ISSUED FOR CONSTRUCTION	GB	KB	KH	LMF	-	-	-	EM	-
0	09/15/11	ISSUED FOR DESIGN	GB	KB	KH	LMF				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									
C	12/02/10	ISSUED FOR INTERNAL REVIEW									
REV	ISSUED DATE	DESCRIPTION	BY	CKD	PRS	CS	PDP	MC	APE	PEM	CLIENT APP

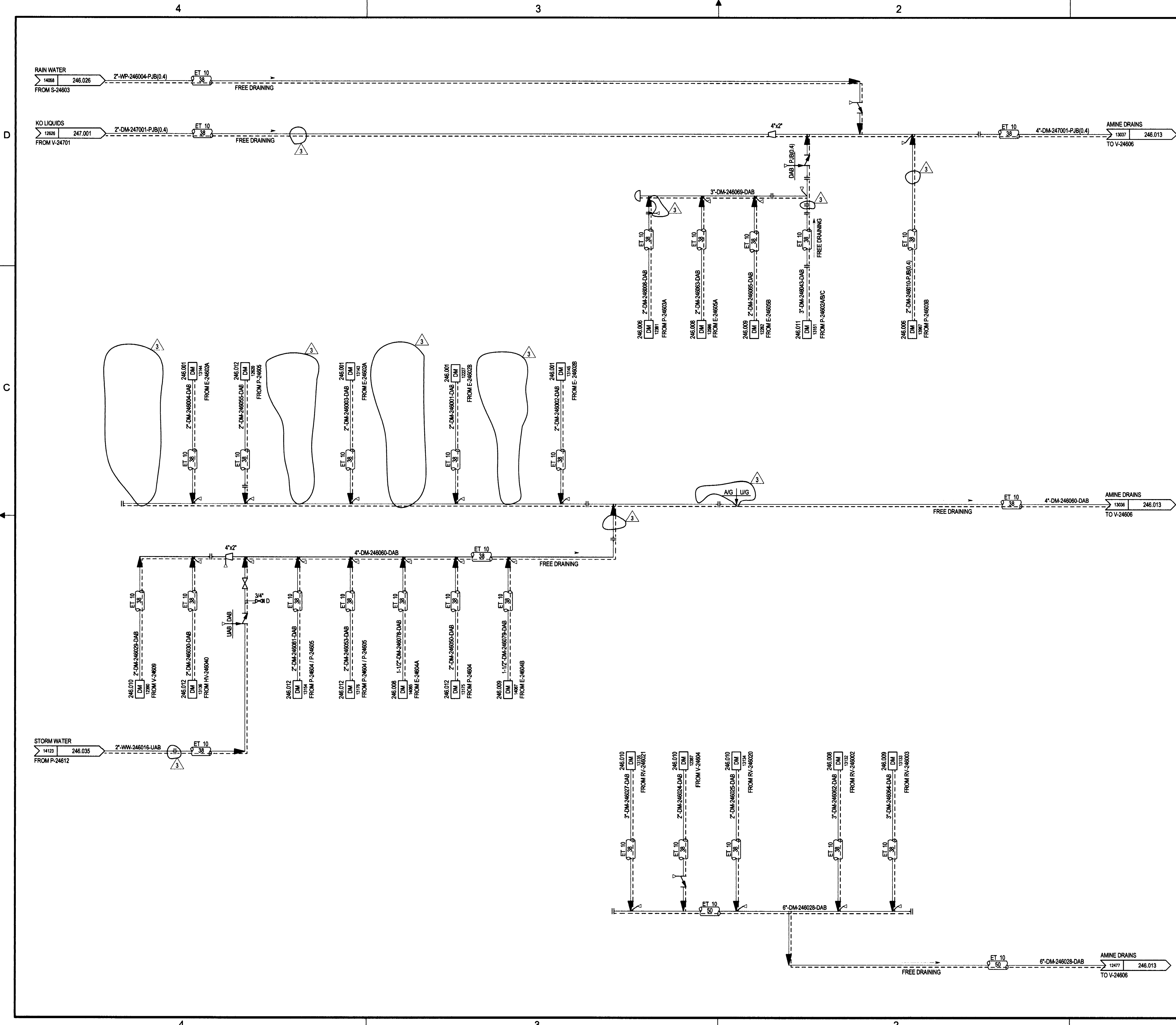


SHELL CANADA
QUEST CCS PROJECT

FLUOR[®]

PIPING AND INSTRUMENT DIAGRAM
QUEST CCS PROJECT
UNIT 246 - REGENERATION/COMMON
VENT GAS COLLECTION

SCALE: NONE
SHELL DWG NO.: 246.0000.000.041.032
REV. 1



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 "246" UNLESS OTHERWISE STATED

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REV	ISSUED DATE	DESCRIPTION	BY	CHKD	PRD	CS	POP	MC	APE	PEM	APP
3	07/06/13	ISSUED FOR CONSTRUCTION									
2	01/24/13	ISSUED FOR CONSTRUCTION	GB	KB	KH	SL	-	-	-	EM	-
1	10/12/12	ISSUED FOR CONSTRUCTION	GB	KB	KH	LMF	-	-	-	EM	-
0	09/15/11	ISSUED FOR DESIGN	GB	SJ	KH	LMF	-	-	-	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									



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FLUOR
 PIPING AND INSTRUMENT DIAGRAM
 QUEST CCS PROJECT
 UNIT 246 - REGENERATION/Common
 AMINE DRAIN SYSTEM

SCALE: NONE
 SHELL DWG NO.: 246.0000.000.041.033
 REV. 3

246.033
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4

3

2

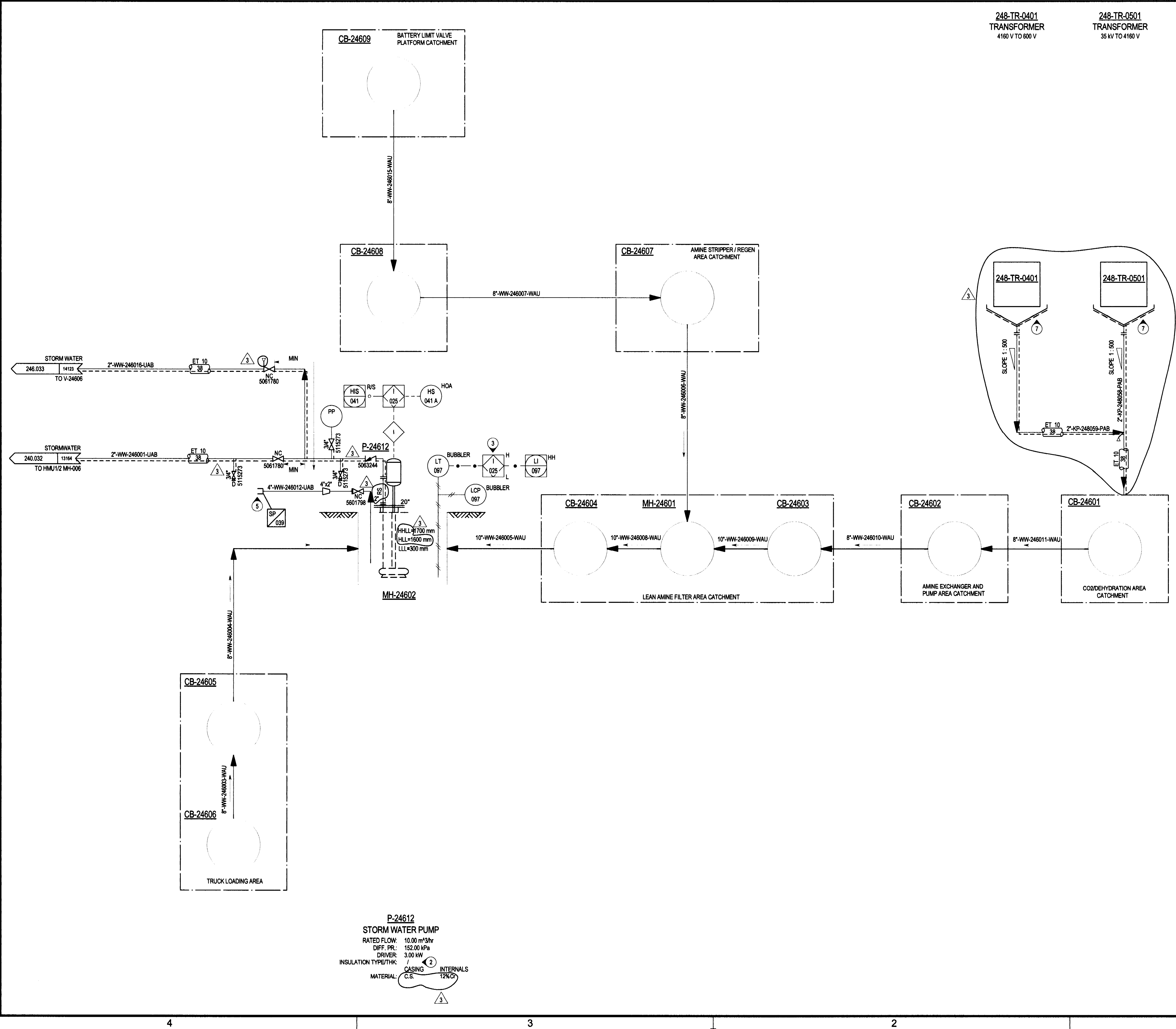
1

D

C

B

A



- NOTES:
1. SEE DRAWINGS 200.0000.000.041.007 THRU 016 FOR SYMBOL IDENTIFICATION GENERAL NOTES & CONNECTION DETAILS.
 2. ELECTRIC TRACE (ET10).
 3. AUTO START PUMP ON LAH AND STOP PUMP ON LAL.
 4. DELETED.
 5. VACUUM TRUCK CONNECTION.
 6. REFER TO DRAWING 246.2315.000.053.001 FOR MANHOLE AND CATCH BASIN DETAILS.
 7. DRAIN PAN. REFER TO DRAWING 246.1317.000.050.001 FOR DRAIN PAN DETAILS.

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Jul 30, 2013

REV	ISSUED DATE	DESCRIPTION	BY	CHK	PRS	CS	POP	MC	APE	PEM	CLIENT APP
3	07/09/13	ISSUED FOR CONSTRUCTION									
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1	05/24/12	ISSUED FOR CONSTRUCTION	GB	KB	KH	-	-	-	-	-	EM SP
0	09/15/11	ISSUED FOR DESIGN	GB	SJ	KH	LWF					EM MD

PROFESSIONAL ENGINEER
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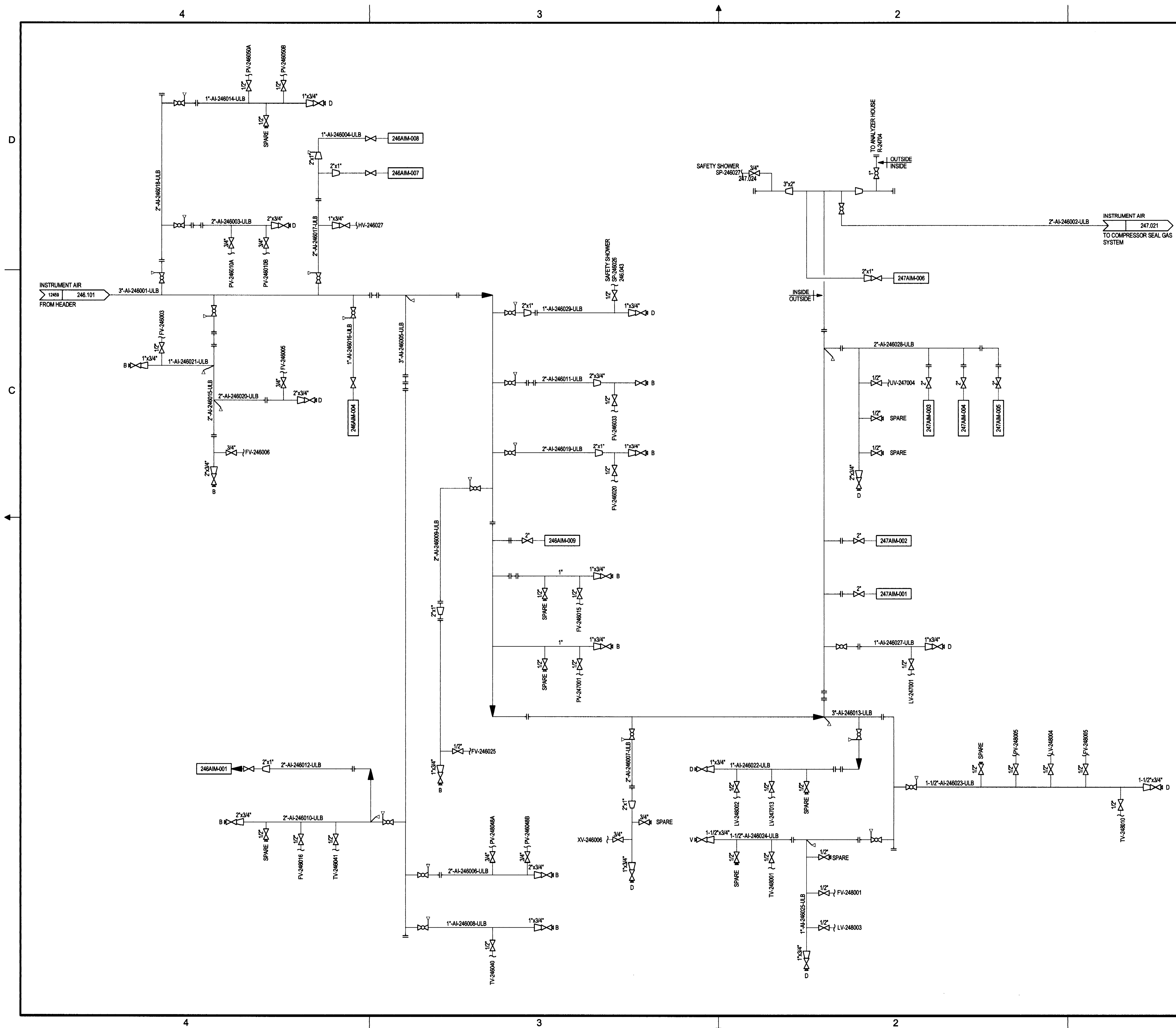
SHELL CANADA
QUEST CCS PROJECT

FLUOR
PIPING AND INSTRUMENT DIAGRAM
QUEST CCS PROJECT
UNIT 246 - REGENERATION/Common
STORMWATER DRAINAGE & POTENTIALLY OILY WWS

SCALE: NONE
SHELL DWG NO.: 246.0000.000.041.035
REV. 3

P-24612
STORM WATER PUMP
RATED FLOW: 10.00 m³/hr
DIFF. PR.: 152.00 kPa
DRIVER: 3.00 kW
INSULATION TYPE/THK: CASING 2 INTERNALS 12%
MATERIAL: C.S.

246.035
FILE:W:\1025\DR\WINGS\CO2\246\246.035.ppt MODEL DATE:7/9/2013 11:16:53 AM BY:bae2451

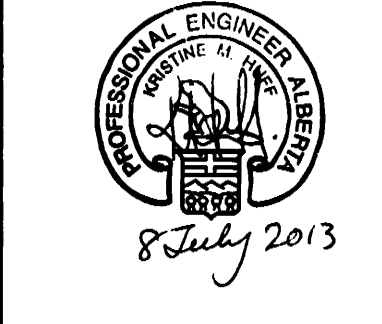


- NOTES:**
1. SEE DRAWINGS 200.0000.000.041.007 THRU 016 FOR SYMBOL IDENTIFICATION GENERAL NOTES & CONNECTION DETAILS.
 2. ALL INSTRUMENT TAG NUMBERS ARE PREFIXED BY "246" UNLESS OTHERWISE STATED.
 3. DELETED.
 4. PIPING HEADER BRANCH CONNECTIONS SHALL BE MADE ON TOP OF PIPE AND BE VALVED.

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* REV. 3, MAJOR REVISION. CLOUDING NOT SHOWN DUE TO THE EXTENT OF CHANGES.

REV	ISSUED DATE	DESCRIPTION	BY	CHKD	PRD	CS	PDF	MC	APE	PEM	CLERT	APP
3	07/30/13	ISSUED FOR CONSTRUCTION	ASB	KB	SL							BR
2	01/24/13	ISSUED FOR CONSTRUCTION	GB	KB	KH	SL						EM
1	10/12/12	ISSUED FOR CONSTRUCTION	GB	KB	KH	LHF						EM



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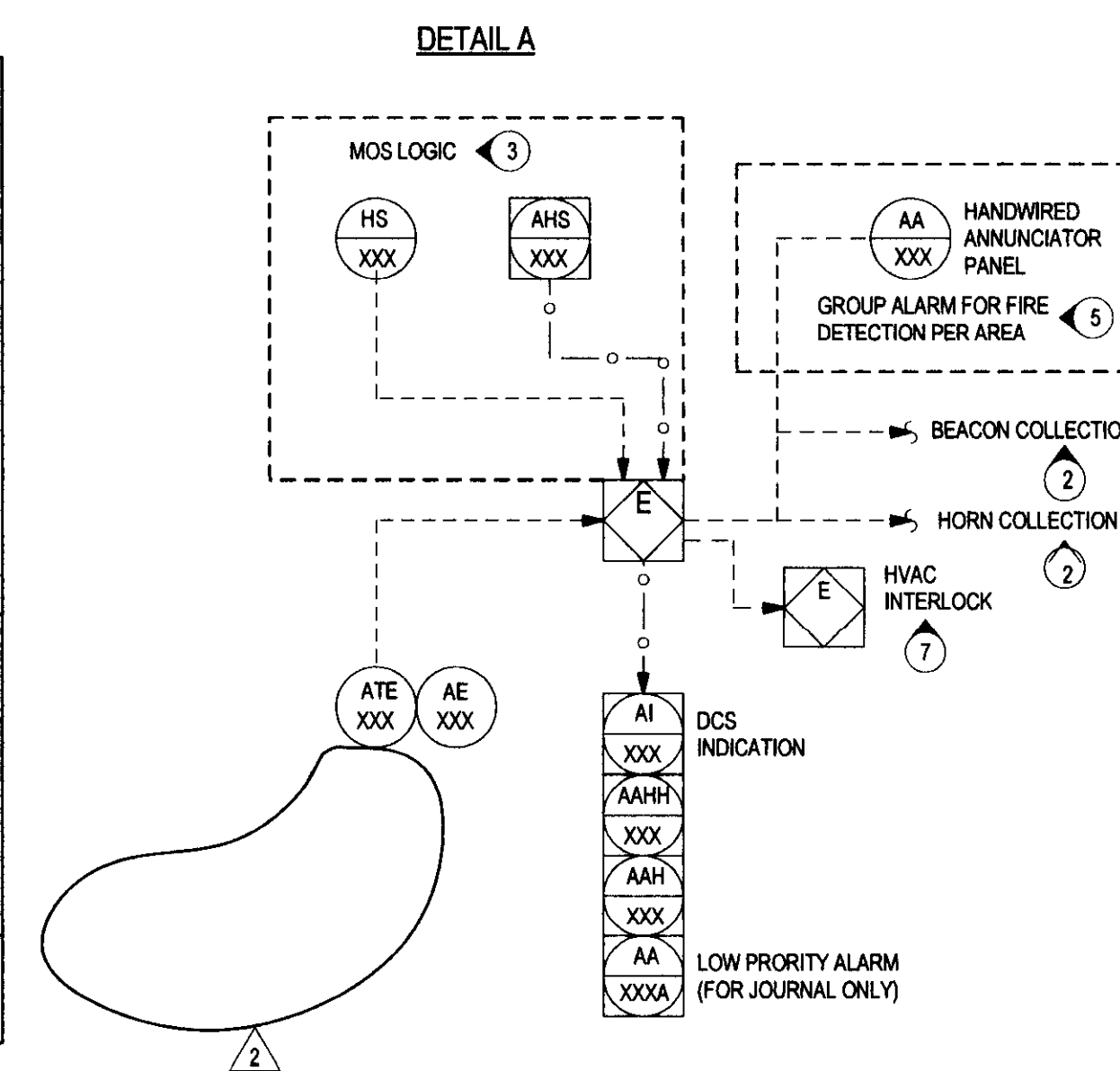
FLUOR
 PIPING AND INSTRUMENT DIAGRAM
 QUEST CCS PROJECT
 UNIT 246 - REGENERATION/Common
 INSTRUMENT AIR DISTRIBUTION

SCALE: NONE
 SHELL DWG NO.: 246.0000.000.041.037
 REV: 3

FILE: P:\11026\DRAWINGS\CCS\246\041.037.dwg MODEL DATE: 7/15/2013 2:24:21 PM BY: srb2451
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TABLE 1: GAS DETECTORS (REFER TO DETAIL A)

DETECTOR TYPE	AREA	LOCATION	SENSOR / TRANSMITTER / INDICATION			ALARMS		COMMON FAULT	MOS	ZONE / MOS GROUP	INTERLOCK #			
CO2 DETECTOR (OPEN PATH)	247	R-24701 COMPRESSOR BLDG INSIDE	AE-247601	ATE-247601	AI-247601	AAH-247601	AAHH-247601	AA-247601A	AHS-247601	B	E-247600			
		R-24701 COMPRESSOR BLDG INSIDE	AE-247602	ATE-247602	AI-247602	AAH-247602	AAHH-247602	AA-247602A	AHS-247602					
		CO2 6TH STAGE COOLER E-24706A/B/C	AE-247605	ATE-247605	AI-247605	AAH-247605	AAHH-247605	AA-247605A	AHS-247605					
		CO2 AFTER COOLERS E-24707A/B/C	AE-247606	ATE-247606	AI-247606	AAH-247606	AAHH-247606	AA-247606A	AHS-247606					
LEL DETECTOR	247	CO2 AFTER COOLERS E-24707D/E/F	AE-247680	ATE-247680	AI-247680	AAH-247680	AAHH-247680	AA-247680A	AHS-247680	B	E-247600			
		R-24704 ANALYZER SHELTER	AE-247609	ATE-247609	AI-247609	AAH-247609	AAHH-247609	AA-247609A	AHS-247609					
CO2 DETECTOR (POINT)	246	R-24601 ANTIFOAM INJECTION BLDG	N/A	ATE-246648	AI-246648	AAH-246648	AAHH-246648	AA-246648A	AHS-246648	A	E-246600			
		R-24602 I/O AND MCC SHELTER	N/A	ATE-246606	AI-246606	AAH-246606	AAHH-246606	AA-246606A	AHS-246606					
	247	R-24602 I/O AND MCC SHELTER	N/A	ATE-246647	AI-246647	AAH-246647	AAHH-246647	AA-246647A	AHS-246647	B	E-247600			
		R-24603 I/O AND MCC SHELTER	N/A	ATE-246607	AI-246607	AAH-246607	AAHH-246607	AA-246607A	AHS-246607					
		R-24702 I/O AND MCC SHELTER	N/A	ATE-247603	AI-247603	AAH-247603	AAHH-247603	AA-247603A	AHS-247603					
		R-24703 I/O AND MCC SHELTER	N/A	ATE-247604	AI-247604	AAH-247604	AAHH-247604	AA-247604A	AHS-247604					
		R-24704 ANALYZER SHELTER	N/A	ATE-247614	AI-247614	AAH-247614	AAHH-247614	AA-247614A	AHS-247614					
		R-24801 I/O AND MCC SHELTER	N/A	ATE-248608	AI-248608	AAH-248608	AAHH-248608	AA-248608A	AHS-248608					
		248	R-24801 I/O AND MCC SHELTER	N/A	ATE-248630	AI-248630	AAH-248630	AAHH-248630	AA-248630A			AHS-248630	A	E-246600
			R-24801 I/O AND MCC SHELTER	N/A	ATE-248630	AI-248630	AAH-248630	AAHH-248630	AA-248630A			AHS-248630		



- NOTES:**
- SEE DRAWINGS 200.0000.000.041.007 THROUGH 016 FOR SYMBOL IDENTIFICATION, GENERAL NOTES AND CONNECTION DETAILS.
 - SEE P&ID 246.0000.000.041.041 FOR TAG ASSOCIATED WITH BEACONS, HORN AND PULL STATIONS.
 - ONE COMMON MOS ENABLE HARDWIRED KEY SWITCH.
 - ON THE HARDWIRED ANNUNCIATOR PANEL, -DEDICATED 'AREA EVACUATION' & 'AREA ACKNOWLEDGE' PUSH BUTTONS SHALL BE PROVIDED FOR THE QUEST AREA. PROCESS AREA EVACUATION AND ACKNOWLEDGE CAN BE INITIATED FROM HMI GRAPHICS OR HARDWIRED ANNUNCIATOR PANEL.
 - SEE P&ID 246.0000.000.041.041 FOR FGS GROUPED ALARMS.
 - REFER TO FIRE & GAS LOCATION PLAN (246.1621.000.044.001) FOR LOCATION OF DEVICES.
 - SEE P&ID 246.0000.000.041.042 FOR TAGS ASSOCIATED WITH THE HVAC SYSTEM.

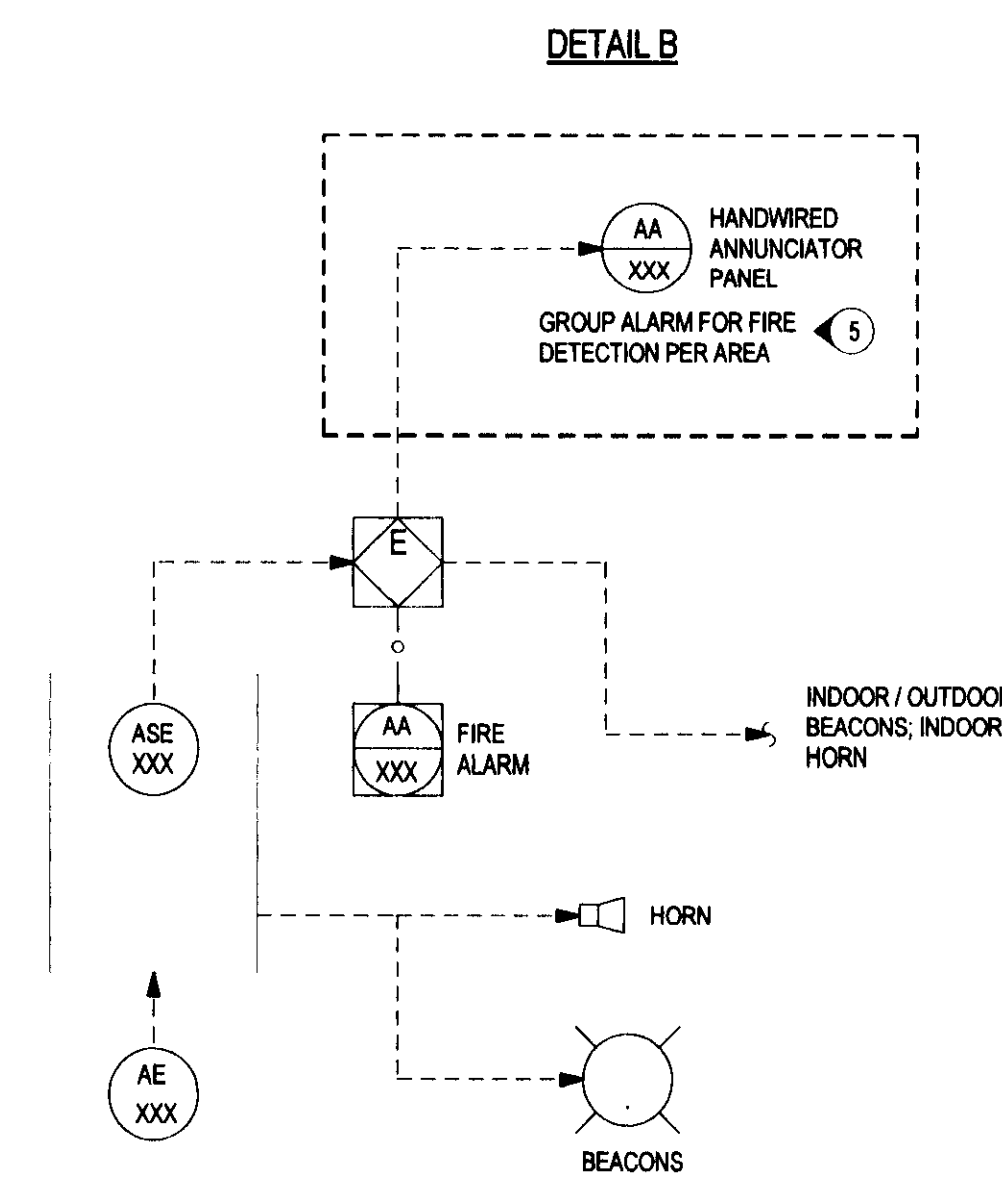


TABLE 2: SMOKE DETECTORS (REFER TO DETAIL B)

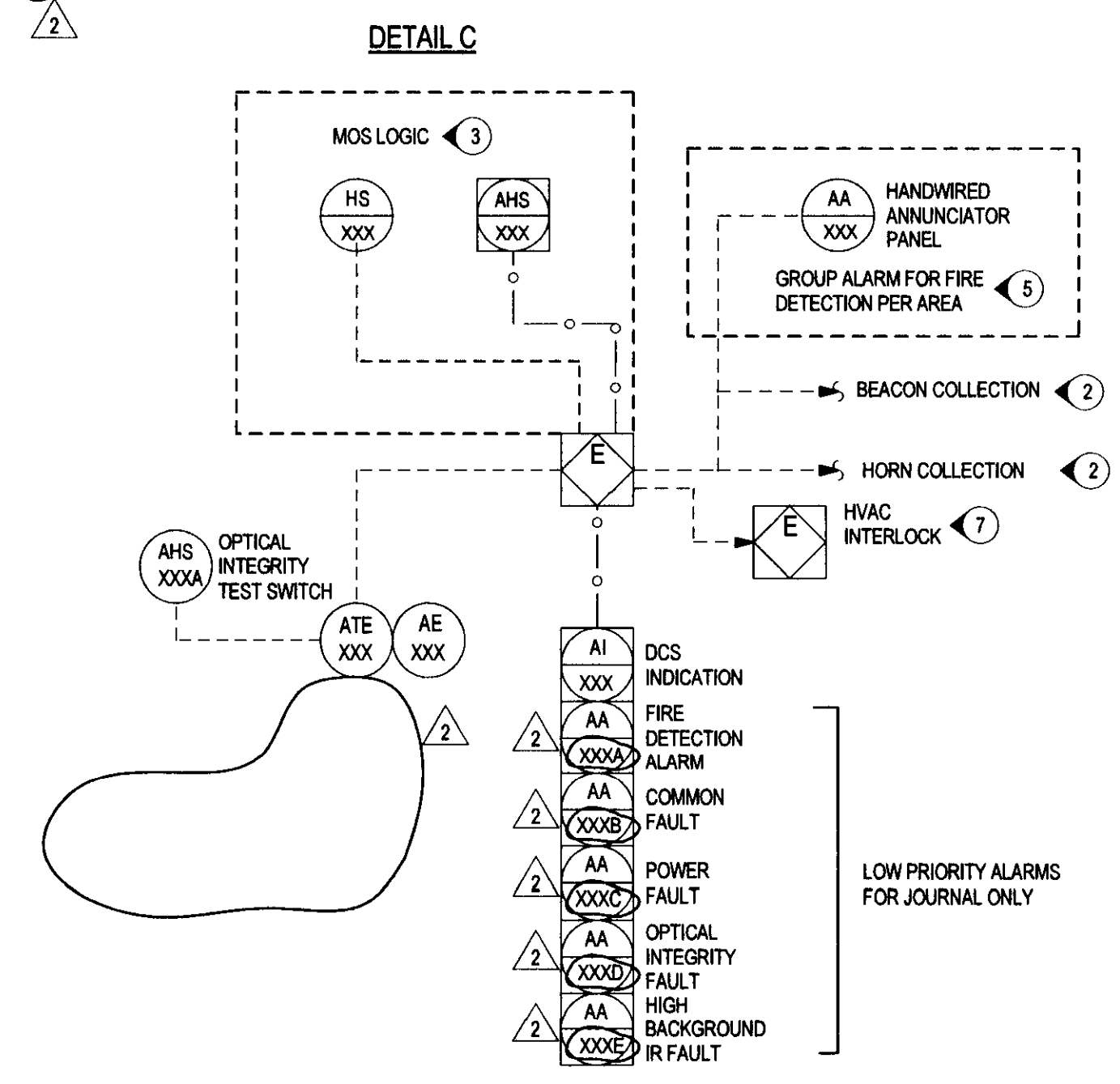
AREA	LOCATION	RELAY OUTPUT CONTACTS	ALARM	ZONE / MOS GROUP	INTERLOCK #
246	R-24602 I/O AND MCC SHELTER	ASE-246602	AA-246602	A	E-246600
	R-24602 I/O AND MCC SHELTER	ASE-246603	AA-246603		
	R-24603 I/O AND MCC SHELTER	ASE-246604	AA-246604		
	R-24603 I/O AND MCC SHELTER	ASE-246605	AA-246605		
247	R-24702 I/O AND MCC SHELTER	ASE-247620	AA-247620	B	E-247600
	R-24702 I/O AND MCC SHELTER	ASE-247621	AA-247621		
	R-24703 I/O AND MCC SHELTER	ASE-247622	AA-247622		
	R-24703 I/O AND MCC SHELTER	ASE-247623	AA-247623		
248	R-24801 I/O AND MCC SHELTER	ASE-248601	AA-248601	A	E-246600
	R-24801 I/O AND MCC SHELTER	ASE-248602	AA-248602		
	R-24801 I/O AND MCC SHELTER	ASE-248609	AA-248609		

ISSUED FOR CONSTRUCTION
09 Sep 2013

2	08/20/13	ISSUED FOR CONSTRUCTION	AS	CC	SL	EM
1	12/03/12	ISSUED FOR CONSTRUCTION	GB	CC	SL	EM

TABLE 3: MULTI-SPECTRUM IR FLAME DETECTORS (REFER TO DETAIL C)

DETECTOR TYPE	AREA	LOCATION	SENSOR/DETECTOR/INDICATION	AHS (OI TEST SWITCH)	FIRE ALARM	FAULT ALARM	MOS	ZONE / MOS GROUP	INTERLOCK #
FLAME	247	COMPRESSOR LUBE OIL SKID	AE-247610	AHS-247610	AA-247610	AA-247610	HS-247650	B	E-247600
			ATE-247610		AA-247610	AA-247610			
			AI-247610		AA-247610	AA-247610			
			AE-247611	AHS-247611	AA-247611	AA-247611	HS-247650		
			ATE-247611		AA-247611	AA-247611			
			AI-247611		AA-247611	AA-247611			



SHELL CANADA
QUEST CCS PROJECT

FLUOR

PIPING AND INSTRUMENT DIAGRAM
QUEST CCS PROJECT
UNIT 246 - REGENERATION/Common
FIRE AND GAS DETECTION SYSTEM SHT 1 OF 2

SCALE: NONE
SHELL DWG NO.: 246.0000.000.041.040
REV: 2

FILE: \\1025DRWIN\SS\CCS\246\346.dwg MODEL DATE: 02/20/13 1:45:04 PM BY: 3462461

NOTES:
 1. FOR GENERAL NOTES AND LEGEND SEE DWGS 200.0000.000.041,007,008,010.
 2. C&E DRAWING NOS.

TABLE 1:HVAC SIS SIGNALS (DETAIL A)

DEVICE	AREA	LOCATION	SIS OUTPUT TAG	DCS SHUTDOWN BUTTON	SERVICE
SIS OUTPUT TO HVAC	246	R- 24602 REGEN. REMOTE # 2 1/0 AND MCC SHELTER	AYE-246701	HS-246700	HVAC SHUTDOWN COMMAND ON GAS/FIRE DETECTION
	246	R- 24603 REGEN. REMOTE # 4 1/0 AND MCC SHELTER	AYE-246703	HS-246702	HVAC SHUTDOWN COMMAND ON GAS/FIRE DETECTION
	247	R-24701 COMPRESSOR BUILDING	AYE-247701	HS-247710	HVAC SHUTDOWN COMMAND ON FIRE DETECTION
	247	R-24701 COMPRESSOR BUILDING	AYE-247702		HVAC SHUTDOWN COMMAND ON HIGH CO2 DETECTION
	247	R-24701 COMPRESSOR BUILDING	AYE-247703		HVAC SHUTDOWN COMMAND ON HIGH HIGH CO2 DETECTION
	247	R- 24702 COMP. REMOTE # 1 1/0 AND MCC SHELTER	AYE-247711	HS-247711	HVAC SHUTDOWN COMMAND ON GAS/FIRE DETECTION
	247	R- 24703 COMP. REMOTE # 2 1/0 AND MCC SHELTER	AYE-247712	HS-247712	HVAC SHUTDOWN COMMAND ON GAS/FIRE DETECTION
	248	R- 24801 DEHY./CW REMOTE # 1 1/0 AND MCC SHELTER	AYE-248701	HS-248700	HVAC SHUTDOWN COMMAND ON GAS/FIRE DETECTION
	247	R- 24701 HVAC EXHAUST FAN, FN-24703A	AYE-247720		HVAC SHUTDOWN COMMAND
	247	R- 24701 HVAC EXHAUST FAN, FN-24703B	AYE-247721		HVAC SHUTDOWN COMMAND
	247	R- 24701 HVAC EXHAUST FAN, FN-24703C	AYE-247722		HVAC SHUTDOWN COMMAND
	247	R- 24701 HVAC EXHAUST FAN, FN-24704A	AYE-247723		HVAC SHUTDOWN COMMAND
	247	R- 24701 HVAC EXHAUST FAN, FN-24704B	AYE-247724		HVAC SHUTDOWN COMMAND
	247	R- 24701 HVAC EXHAUST FAN, FN-24702A	AYE-247725		HVAC SHUTDOWN COMMAND
	247	R- 24701 HVAC EXHAUST FAN, FN-24702B	AYE-247726		HVAC SHUTDOWN COMMAND
	247	R- 24701 HVAC EXHAUST FAN, FN-24702C	AYE-247720		HVAC SHUTDOWN COMMAND
	247	R- 24704 ANALYZER BUILDING	AYE-247750		HVAC SHUTDOWN COMMAND

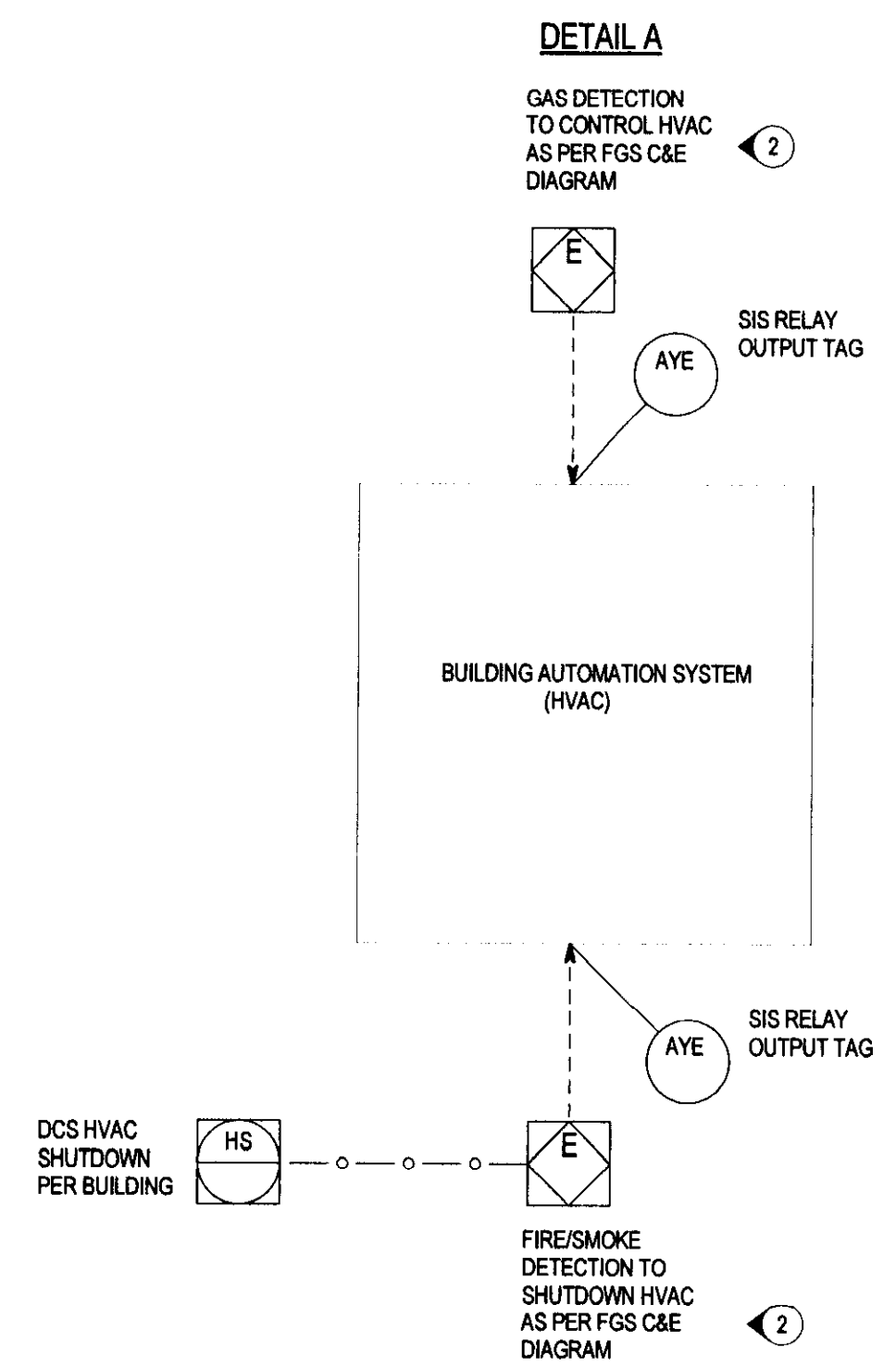
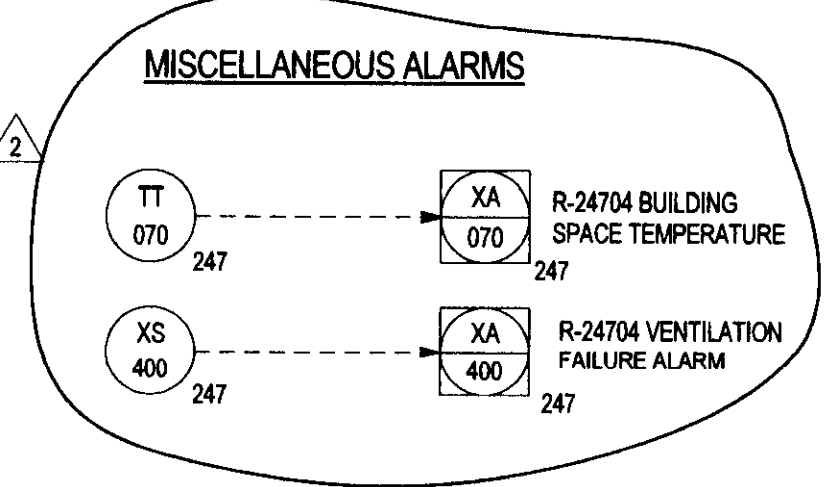
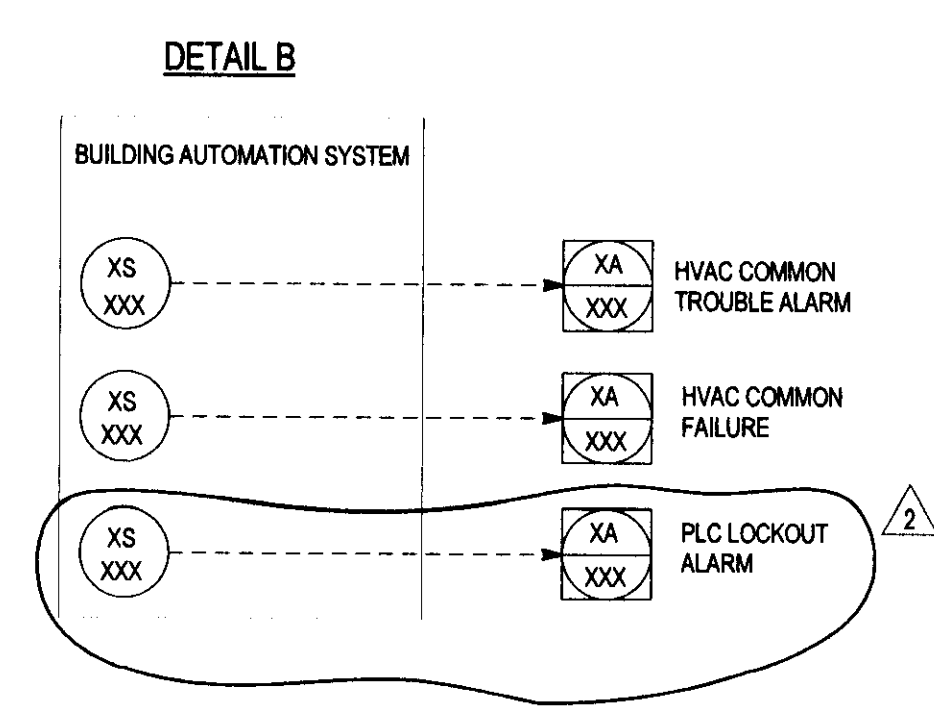


TABLE 2: HVAC SYSTEM ALARMS (DETAIL B)

BUILDING	HVAC COMMON TROUBLE	HVAC COMMON FAILURE ALARM	HVAC ALTERNATING PLC LOCKOUT ALARM
R-24602	XS-246701	XS-246702	N/A
R-24602	XS-246703	XS-246704	XS-246707
R-24603	XS-247705	XS-246706	N/A
R-24701	XS-247702	XS-247701	N/A
R-24702	XS-247707	XS-247708	N/A
R-24703	XS-247709	XS-247710	N/A
R-24704	N/A	XS-247401	N/A
R-24801	XS-248701	XS-248702	XS-248705
R-24801	XS-248703	XS-248704	N/A



ISSUED FOR CONSTRUCTION
 09 Sep 2013

REV	ISSUED DATE	DESCRIPTION	BY	CHKD	PRS	CS	PDP	MC	APE	PEM	CLIENT APPR
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1	01/24/13	ISSUED FOR CONSTRUCTION	GB	CC	SL						EM

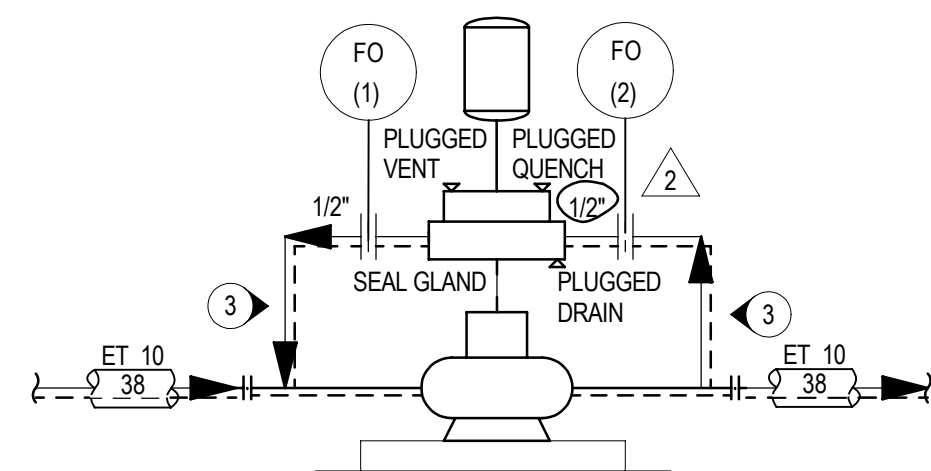
SHELL CANADA
 QUEST CCS PROJECT

FLUOR

PIPING AND INSTRUMENT DIAGRAM
 QUEST CCS PROJECT
 UNIT 246 - REGENERATION/COMMON
 HVAC SYSTEM

SCALE: NONE
 SHELL DWG NO.: 246.0000.000.041.042
 REV. 2

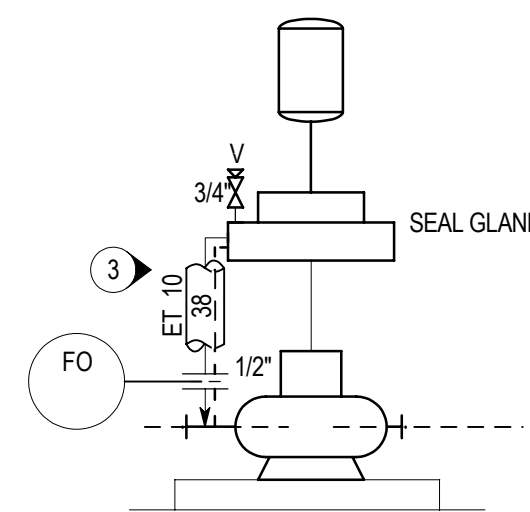
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SEAL PLAN: 14

RECIRCULATION FROM PUMP DISCHARGE THROUGH PUMP SEAL CHAMBER THROUGH A FLOW CONTROL ORIFICE AND BACK TO THE PUMP SUCTION

EQUIPMENT #	SERVICE	PROCESS P&ID #	INSTRUMENTS		PUMP TRIM #	PROCESS LINE #
			FO (1)	FO (2)		
P-24604	AMINE RE-INVENTORY PUMP	246.012	FO-246281	FO-246282 / 2	PT-246009-DAB	P-246086-DAB
P-24605	AMINE MAKE-UP PUMP	246.012	FO-246291	FO-246292 / 2	PT-246010-DAB	P-246087-DAB



SEAL PLAN: 13

RECIRCULATION THROUGH PUMP SEAL CHAMBER THROUGH A FLOW CONTROL ORIFICE AND BACK TO THE PUMP SUCTION

EQUIPMENT #	SERVICE	PROCESS P&ID #	INSTRUMENTS	PUMP TRIM #	PROCESS LINE #
			FO		
P-24609A	WATER MAKE-UP PUMP	246.022	FO-246150	PT-246014-SAG	SC-246018-SAG
P-24609B	WATER MAKE-UP PUMP	246.022	FO-246151	PT-246015-SAG	SC-246019-SAG

NOTES:

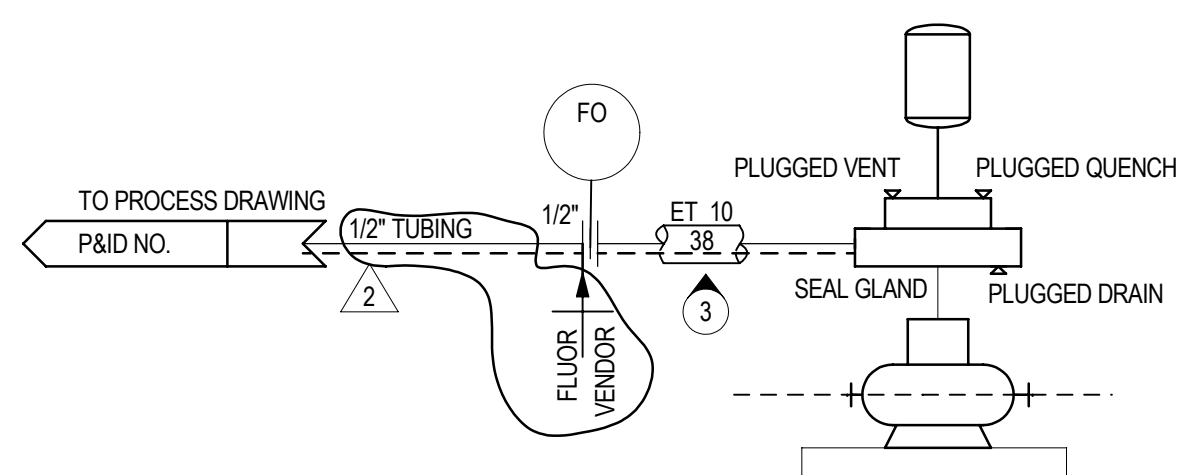
- SEE DRAWING 200.000.000.041.007 THROUGH 016 FOR SYMBOL IDENTIFICATION, GENERAL NOTES & CONNECTION DETAILS.
- SEAL FLUSH TAKE-OFF POINTS TO BE AT A HIGHER ELEVATION THAN THE PUMP SEAL GLAND TO ENSURE ADEQUATE SELF-VENTING OF MECHANICAL SEALS.
- INSULATION AND TRACING IN FLUOR SCOPE

D

D

C

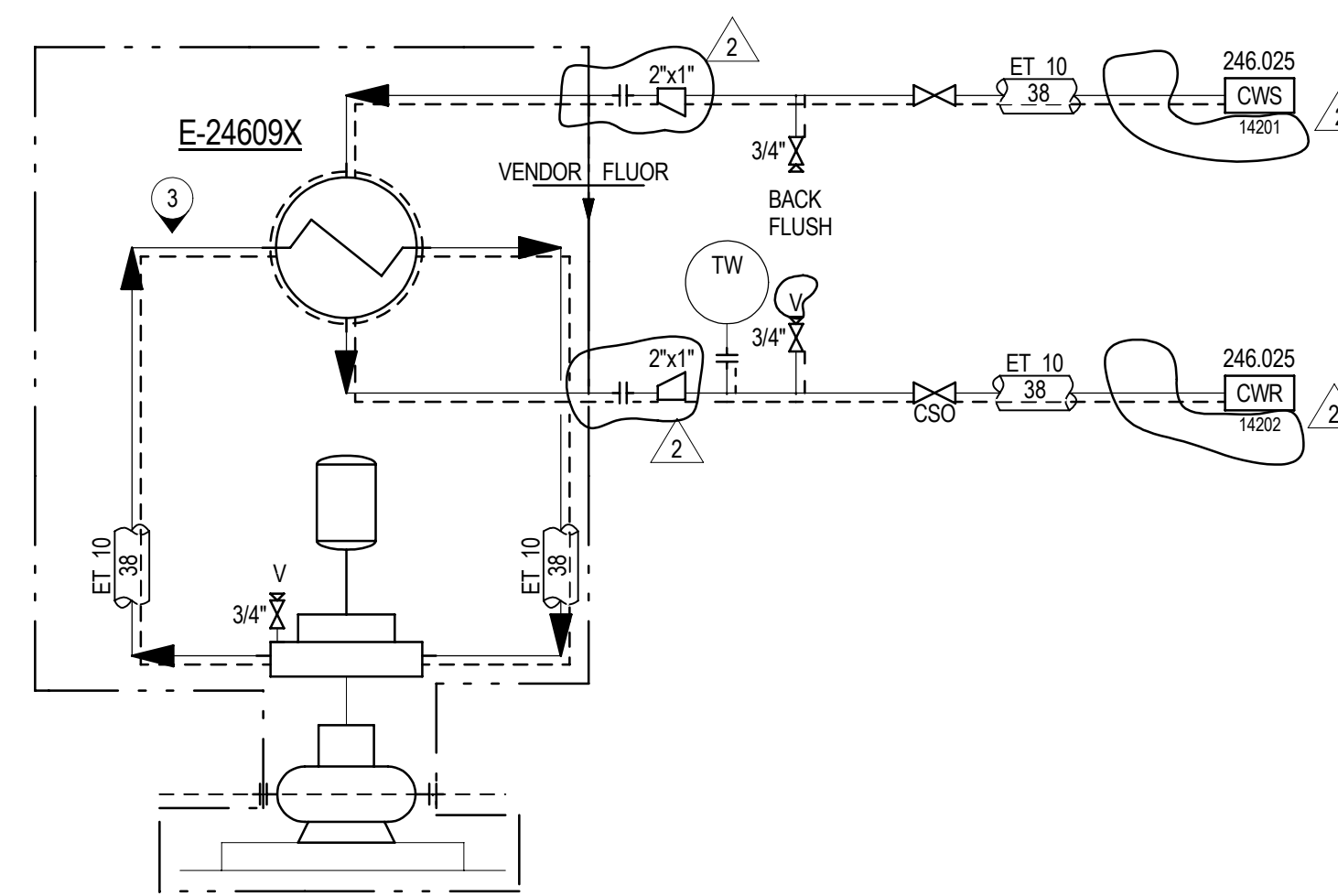
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SEAL PLAN: 13/61

RECIRCULATION THROUGH PUMP SEAL CHAMBER THROUGH A FLOW CONTROL ORIFICE AND BACK TO THE PUMP SUCTION

EQUIPMENT #	SERVICE	PROCESS P&ID #	INSTRUMENTS	PUMP TRIM #	PROCESS LINE #
			FO		
P-24603A	STRIPPER REFLUX PUMP	246.006	FO-246261	PT-246001-PJB(0.4)	P-246022-PJB(0.4)
P-24603B	STRIPPER REFLUX PUMP	246.006	FO-246271	PT-246002-PJB(0.4)	P-246023-PJB(0.4)
P-24608A	RECOVERED CLEAN CONDENSATE PUMP	246.021	FO-246171	PT-246012-SAB	SC-246003-SAB
P-24608B	RECOVERED CLEAN CONDENSATE PUMP	246.021	FO-246181	PT-246013-SAB	SC-246004-SAB
P-24610A	DEMIN WATER SUPPLY PUMP	246.023	FO-246301	PT-246016-UJB(0.4)	WI-246002-UJB(0.4)
P-24610B	DEMIN WATER SUPPLY PUMP	246.023	FO-246311	PT-246017-UJB(0.4)	WI-246003-UJB(0.4)



PUMP GEARBOX OIL COOLING

EQUIPMENT #	SERVICE	PROCESS P&ID #	INSTRUMENTS	LINE NUMBERS		OIL COOLER
			TW	CWS	CWR	TAG #
P-24609A	WATER MAKE-UP PUMP	246.022	TW-246150	2"-CWS-246042-UAB	2"-CWR-246025-UAB	E-24609A
P-24609B	WATER MAKE-UP PUMP	246.022	TW-246151	2"-CWS-246043-UAB	2"-CWR-246026-UAB	E-24609B

FLUOR
IFC – Issued for Construction
Jul 30, 2013

2	07/08/13	ISSUED FOR CONSTRUCTION	GB	KB	KH	SL	-	-	-	BB	-
1	02/05/13	ISSUED FOR CONSTRUCTION	GB	KB	KH	SL	-	-	-	EM	-

REV	ISSUED DATE	DESCRIPTION	BY	CHKD	PRS	CS	PDP	MC	APE	PEM	CLIENT APP

SHELL CANADA
QUEST CCS PROJECT

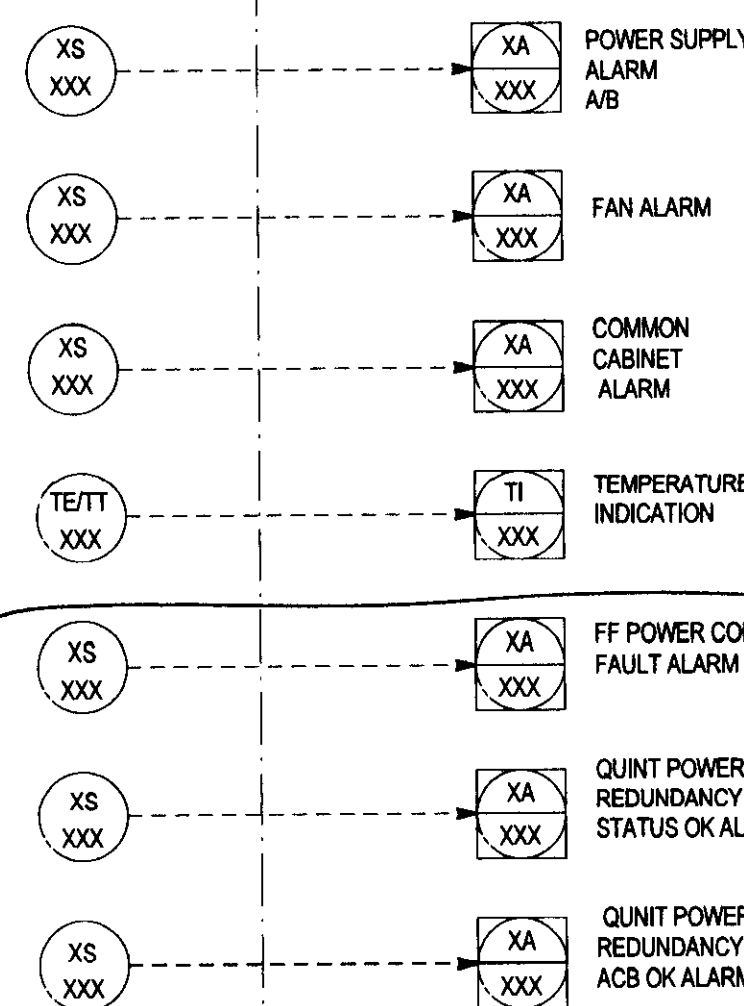
FLUOR

PIPING AND INSTRUMENT DIAGRAM
QUEST CCS PROJECT
UNIT 246 - REGENERATION/COMMON
OH3 PUMPS SEAL PLAN & OIL COOLING DETAILS

SCALE: NONE
SHELL DWG NO.: 246.0000.000.041.049
REV. 2

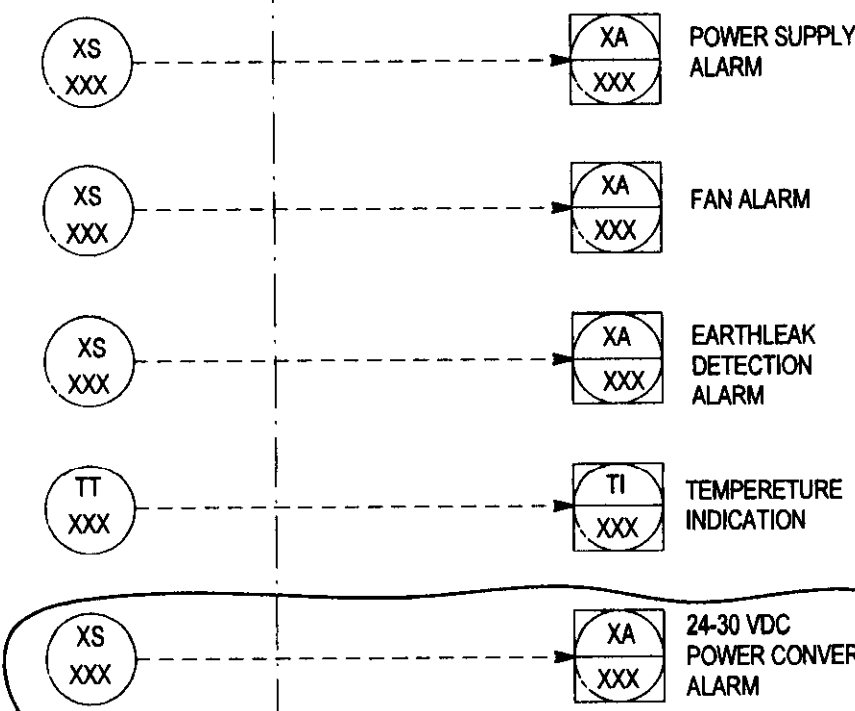
DETAIL A

FAR BUILDING CABINETS/PANELS (DCS)



DETAIL B

FAR BUILDING CABINETS/PANELS (SIS)



NOTES:

- 1. FOR GENERAL NOTES AND LEGEND SEE DWGS 200.0000.000.041.007.008.010.
- 2. SIGNALS SHALL BE WIRED TO CO2 COMPRESSOR ANTI-SURGE PLC SIGNAL TO DCS SHALL BE DONE VIA MODBUS.
- 3. TRIP SIGNAL SENT TO SIS FROM PLC
- 4. SIGNAL SENT TO PLC FROM DCS/SIS.

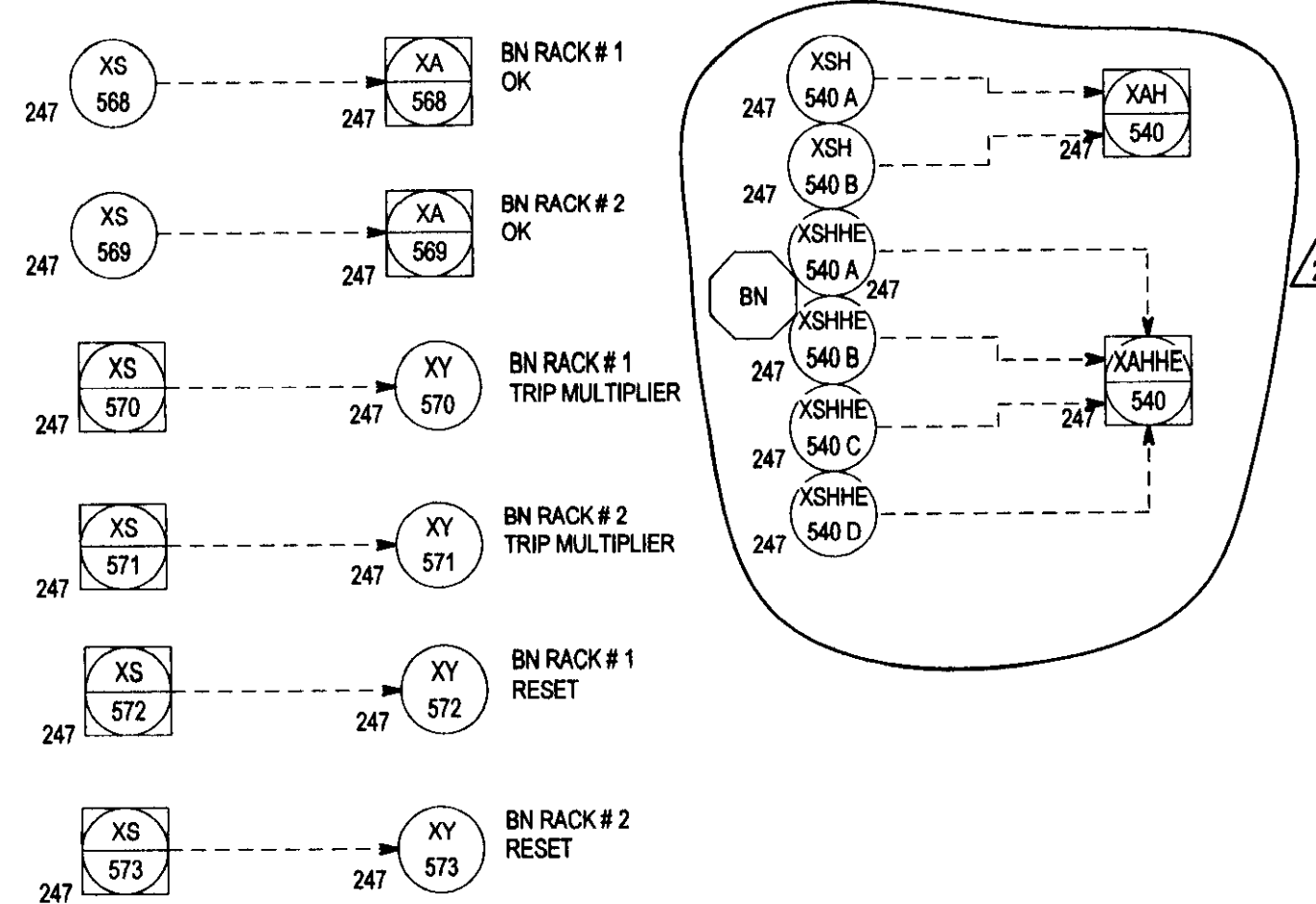
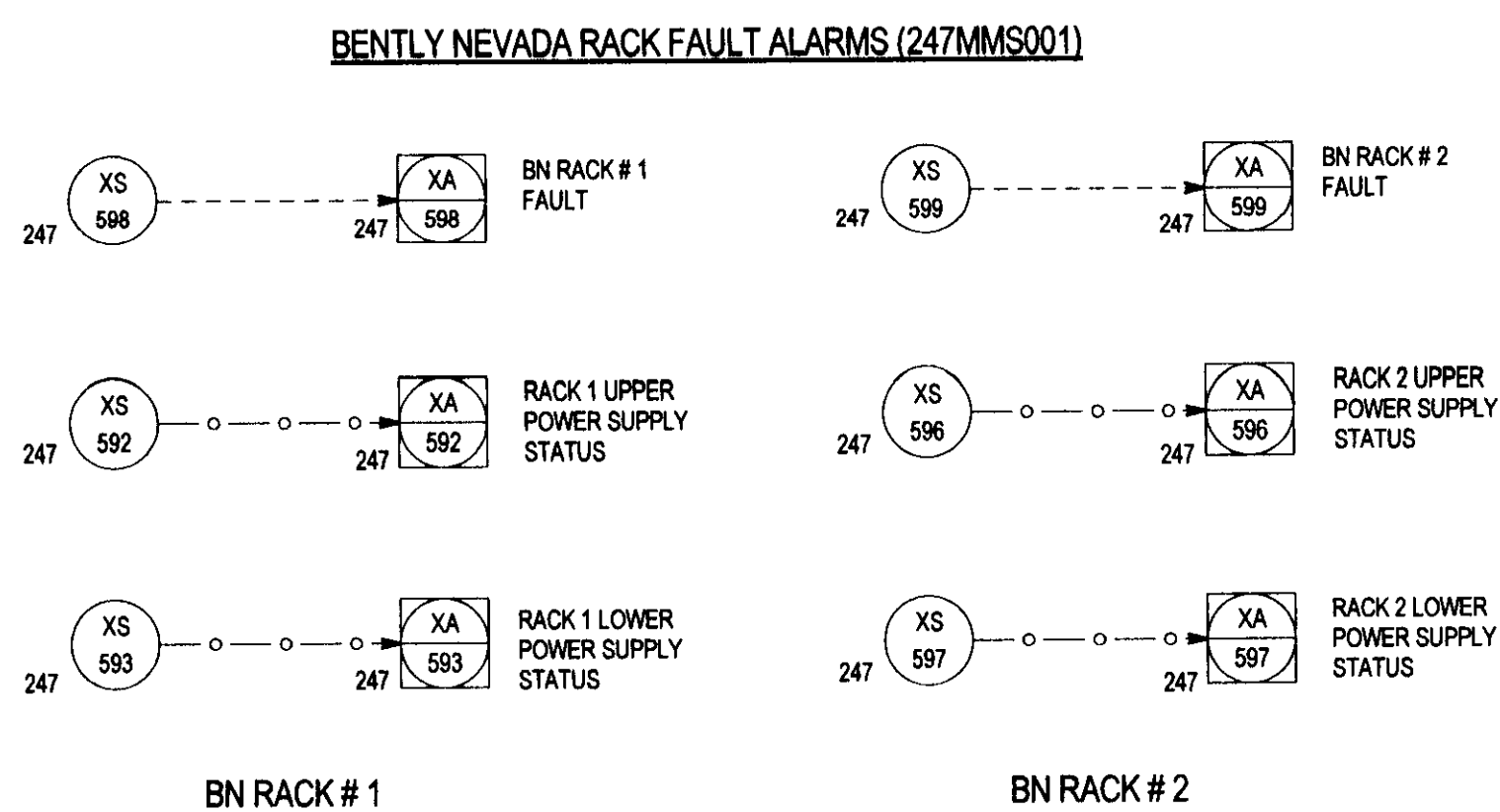
TABLE 1: CABINET ALARMS (DETAIL A AND B)

LOCATION	CABINET #	CABINET SERVICE	HW TO SYSTEM	DETAIL #	POWER SUPPLY ALARM	FAN ALARM	EARTHLEAK DETECTION ALARM	TEMPERATURE INDICATION- HARDWIRED TO DCS	FF POWER CONDITIONER FAULT ALARM	QUINT POWER DIODE REDUNDANCY MODULE STATUS OK	QUINT POWER DIODE REDUNDANCY MODULE ACB OK	24-30 VDC POWER CONVERTER ALARM
R-24602	246PC5001	DCS SYSTEM CABINET	DCS	A	XS-246750 XA-246750	XS-246748 XA-246748	N/A	TT-246750	N/A	XS-246761 XA-246761	XS-246762 XA-246762	N/A
	246MP001	DCS MARSHALLING PANEL	DCS	A	N/A	XS-246752 XA-246752	N/A	N/A	XS-246760 XA-246760	N/A	N/A	N/A
	246CAB101	CO2 PIPELINE SCADA CABINET	DCS	A	N/A	N/A	N/A	TT-246752	N/A	N/A	N/A	N/A
R-24603	246PCS101	DCS SYSTEM CABINET	DCS	A	XS-246753 XA-246753	XS-246755 XA-246755	N/A	TT-246753	N/A	XS-246764 XA-246764	XS-246765 XA-246765	N/A
	246MP101	DCS MARSHALLING PANEL	DCS	A	N/A	XS-246756 XA-246756	N/A	N/A	XS-246763 XA-246763	N/A	N/A	N/A
	247CAB501	PERFORMANCE/SURGE CONTROLLER (V)	DCS	A	N/A	XS-247749 XA-247749	N/A	TE-247750	N/A	N/A	N/A	N/A
R-24702	247MMS001	MACHINE MONITORING SYSTEM (V)	DCS	A	N/A	N/A	N/A	TE-247751	N/A	N/A	N/A	N/A
	247MMS001	MACHINE MONITORING SYSTEM	DCS	A	N/A	XS-247595 XA-247595	N/A	TE-247752	N/A	N/A	N/A	N/A
	247SMP001	SIS MARSHALLING PANEL	DCS	B	N/A	N/A	N/A	N/A	N/A	N/A	N/A	XS-247761 XA-247761
	247SMP003	SIS MARSHALLING PANEL	DCS	A	XS-247760 XA-247760	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	247SIS001	SIS SYSTEM CABINET	SIS	B	XS-247753A/B/C/D XA-247753A/B/C/D	XS-247770 XA-247770	XS-247771 XA-247771	TE-247753	N/A	N/A	N/A	N/A
	247PCS001	DCS SYSTEM CABINET	DCS	A	XS-247754 XA-247754	XS-247772 XA-247772	N/A	TE-247754	XS-247790 XA-247790	XS-247791 XA-247791	XS-247792 XA-247792	N/A
	247COM001	COMMUNICATION CABINET	DCS	A	N/A	N/A	N/A	TE-247755	N/A	N/A	N/A	N/A
R-24703	247PCS101	DCS SYSTEM CABINET	DCS	A	XS-247757 XA-247757	XS-247758 XA-247758	N/A	TT-247757	N/A	XS-247794 XA-247794	XS-247795 XA-247795	N/A
	247MP101	DCS MARSHALLING PANEL	DCS	A	N/A	XS-247774 XA-247774	N/A	N/A	XS-247793 XA-247793	N/A	N/A	N/A
R-24801	248PCS001	DCS SYSTEM CABINET	DCS	A	XS-248751 XA-248751	XS-248752 XA-248752	N/A	TT-248750	N/A	XS-248771 XA-248771	XS-248772 XA-248772	N/A
	248MP001	DCS MARSHALLING PANEL	DCS	A	N/A	XS-248754 XA-248754	N/A	N/A	XS-248770 XA-248770	N/A	N/A	N/A

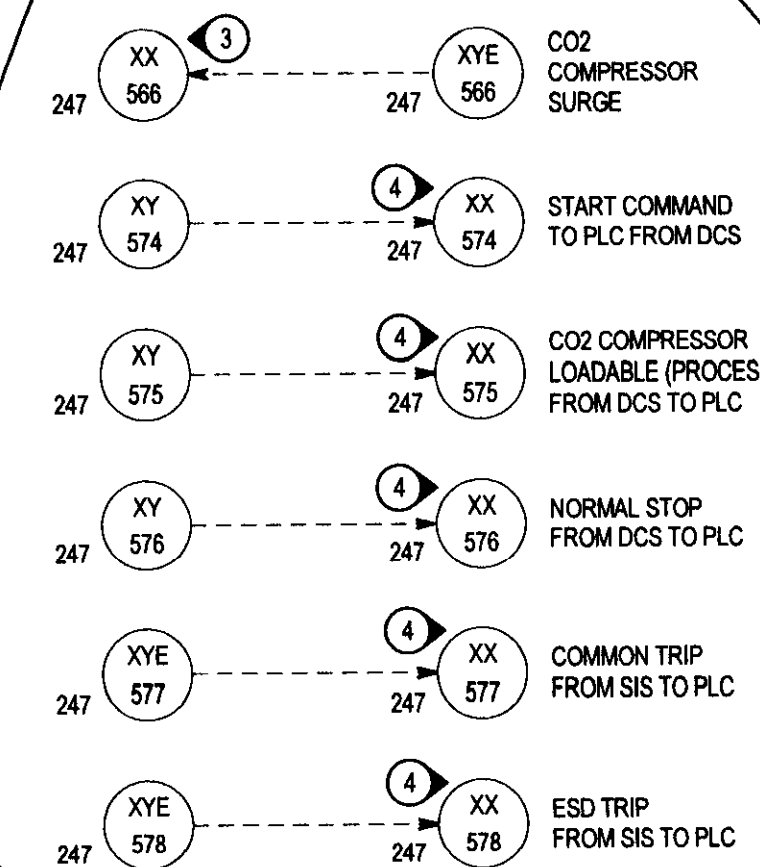
ISSUED FOR CONSTRUCTION
09 Sep 2013

REV	ISSUED DATE	DESCRIPTION	BY	CHK	PRS	CS	PDP	MC	APL	PEM	CLIENT APPR
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1	01/24/13	ISSUED FOR CONSTRUCTION									

BENTLY NEVADA SIGNALS AND ALARMS (247MMS001)



CO2 COMPRESSOR SIGNALS



SHELL CANADA
QUEST CCS PROJECT

FLUOR

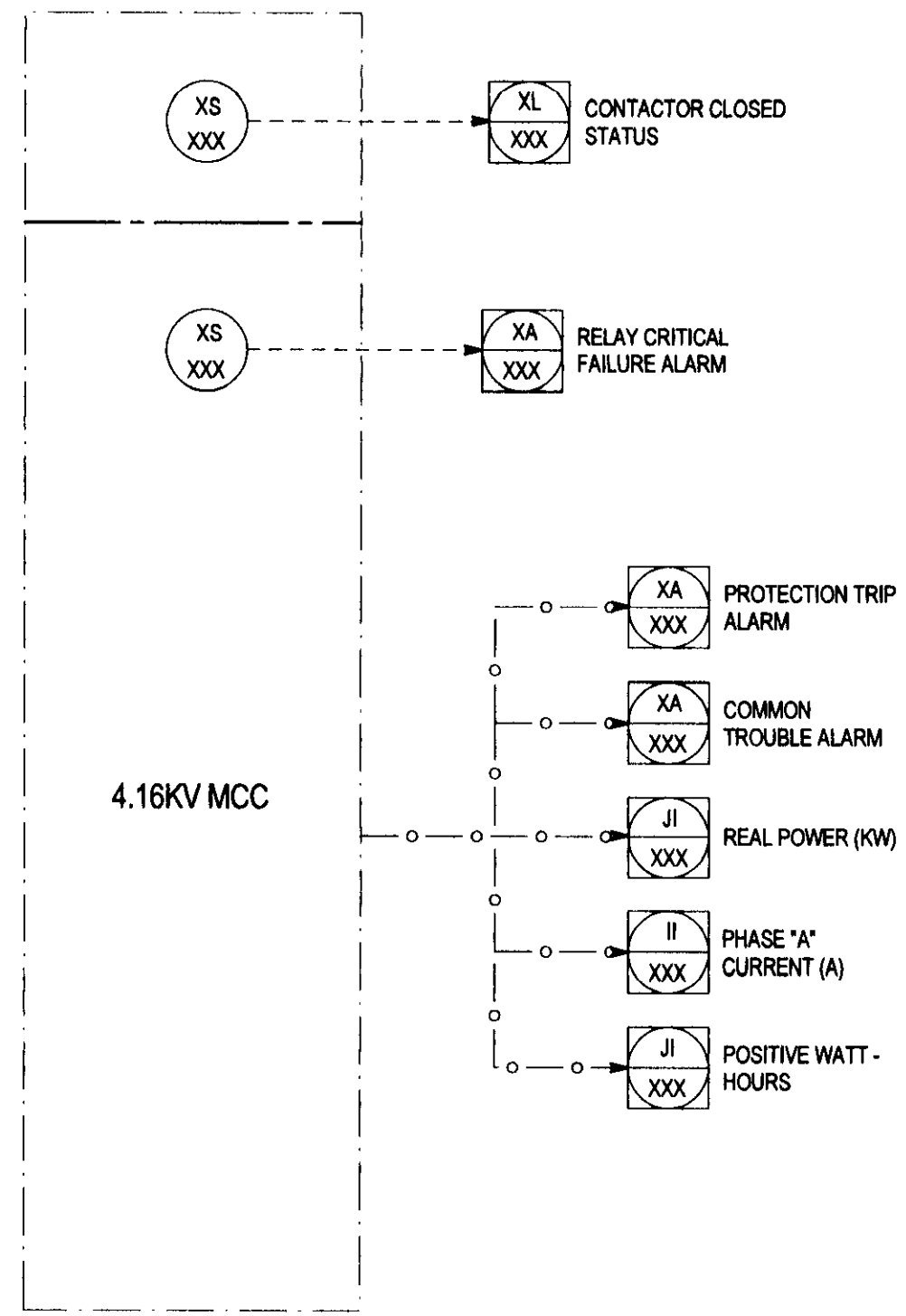
PIPING AND INSTRUMENT DIAGRAM
QUEST CCS PROJECT
UNIT 246 - REGENERATION/COMMON
MISCELLANEOUS ALARMS

SCALE: NONE
SHELL DWG NO: 246.0000.000.041.050

REV: 2

246-050
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DETAIL A



DETAIL B

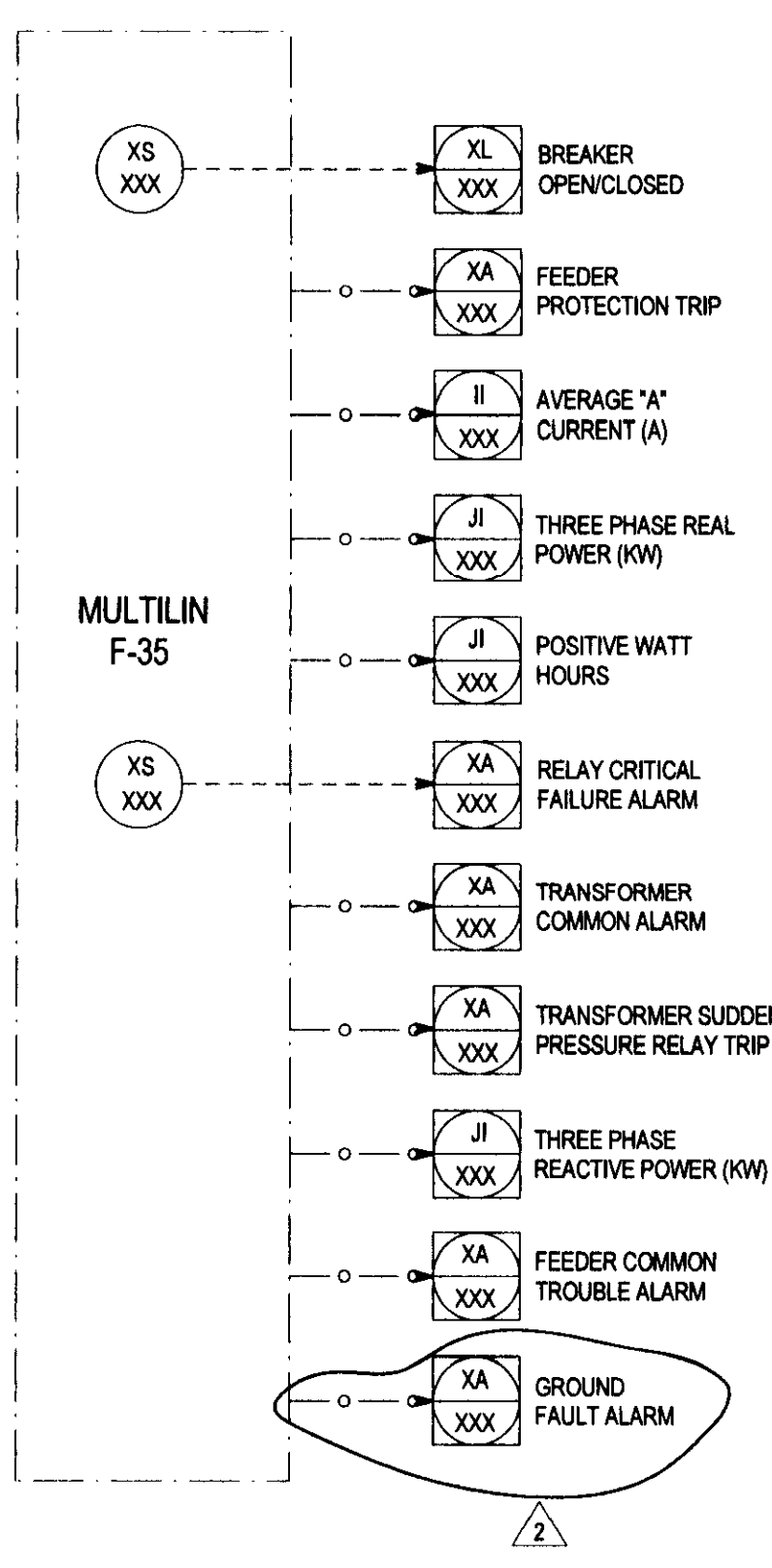


TABLE 1: 246-MCC-401-AND 248-MCC-501 MULTILIN SIGNAL (DETAIL A)

4.16 KV MCC	SERVICE	MULTILIN MODEL	VIA MODBUS TO DCS								
			CONTACTOR CLOSED STATUS	RELAY CRITICAL FAILURE ALARM	PROTECTION TRIP ALARM	COMMON TROUBLE ALARM	REAL POWER (KW)	PHASE 'A' CURRENT (A)	POSITIVE WATT-HOURS		
248-MCC-501	246-TR-401 1.725MVA 4160-600V TRANSFORMER	F-35	XS-246800	XL-246800	XS-246801	XA-246801	XA-246802	XA-246803	JL-246804	II-246805	JL-246806
248-MCC-501	248-TR-401 1.725MVA 4160-600V TRANSFORMER	F-35	XS-248801	XL-248801	XS-248802	XA-248802	XA-248803	XA-248804	JL-248805	II-248806	JL-248807

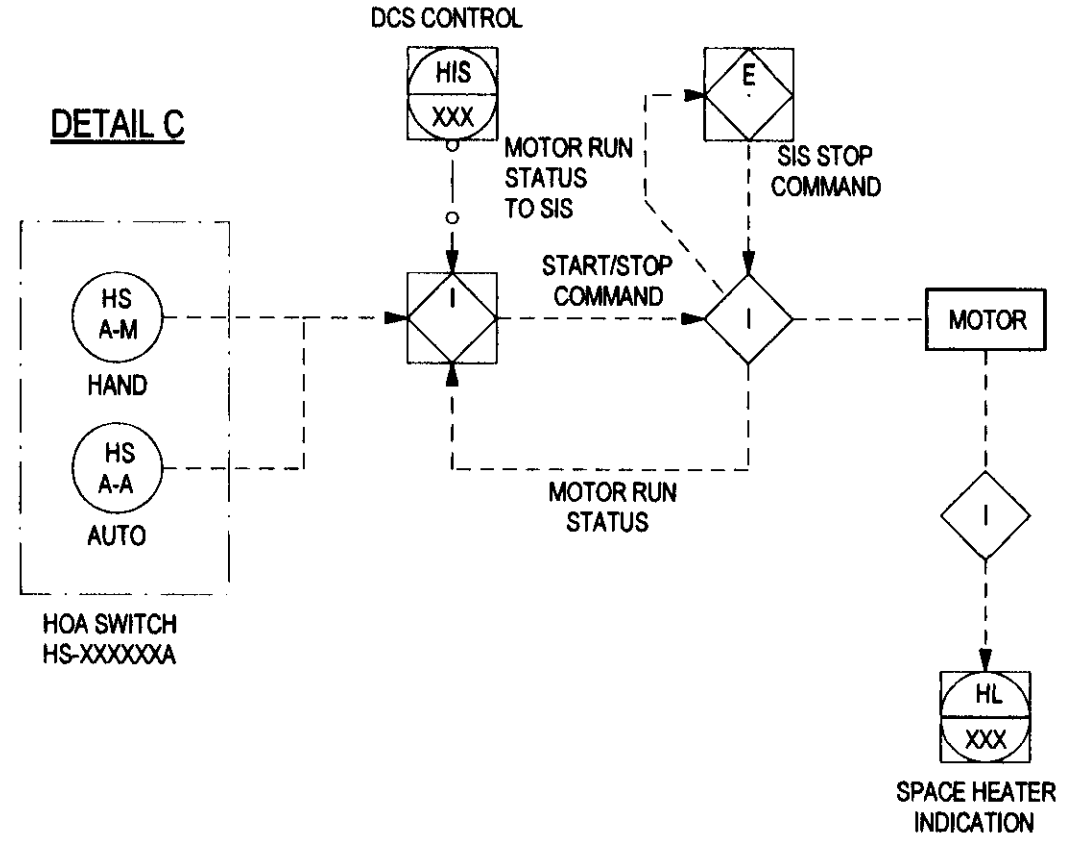
TABLE 2: 248-SG-501 MULTILIN F-35 SIGNALS (DETAIL "B")

DESCRIPTION	BREAKER OPEN/CLOSED STATUS	FEEDER PROTECTION TRIP	PHASE 'A' CURRENT (A)	THREE PHASE REAL POWER	POSITIVE WATT HOURS	RELAY CRITICAL FAILURE ALARM	TRANSFORMER COMMON ALARM	TRANSFORMER SUDDEN PRESSURE RELAY TRIP	THREE PHASE REACTIVE POWER (KVAR)	FEEDER COMMON TROUBLE ALARM	248-NGR-501 GROUND FAULT ALARM		
248-SG-501 RCDU FEEDER BREAKER	XS-248760	XL-248760	XA-248762	II-248760	JL-248760	JL-248761	XA-248761	XS-248761	XA-248763	XA-248764	JL-248762	XA-248765	XA-248852

TABLE 3: INSTRUMENT TAG FOR 600V / 4.16 KV MOTOR / HEATER CONTROL (DETAIL C)

SERVICE	P&ID	MOTOR / HEATER TAG	HOA SWITCH	HOA SWITCH IN 'AUTO'	HOA SWITCH IN 'HAND'	DCS CONTROL	MOTOR RUN STATUS	START / STOP COMMAND	SIS STOP COMMAND	MOTOR RUN STATUS TO SIS	SPACE HEATER INDICATION
LEAN AMINE PUMP A	246.007	PM-24601A	HS-246001A	HS-246001A-A	HS-246001A-M	HIS-246001	H-246001-H	HS-246001-R	HE-246001-S	HE-246001-H	NA
LEAN AMINE PUMP B	246.007	PM-24601B	HS-246002A	HS-246002A-A	HS-246002A-M	HIS-246002	H-246002-H	HS-246002-R	HE-246002-S	HE-246002-H	NA
LEAN AMINE PUMP C	246.007	PM-24601C	HS-246003A	HS-246003A-A	HS-246003A-M	HIS-246003	H-246003-H	HS-246003-R	HE-246003-S	HE-246003-H	NA
LEAN AMINE CHARGE PUMP A	246.011	PM-24602A	HS-246004A	HS-246004A-A	HS-246004A-M	HIS-246004	H-246004-H	HS-246004-R	HE-246004-S	HE-246004-H	HL-246042
LEAN AMINE CHARGE PUMP B	246.011	PM-24602B	HS-246005A	HS-246005A-A	HS-246005A-M	HIS-246005	H-246005-H	HS-246005-R	HE-246005-S	HE-246005-H	HL-246043
LEAN AMINE CHARGE PUMP C	246.011	PM-24602C	HS-246006A	HS-246006A-A	HS-246006A-M	HIS-246006	H-246006-H	HS-246006-R	HE-246006-S	HE-246006-H	HL-246044
STRIPPER REFLUX PUMP A	246.006	PM-24603A	HS-246007A	HS-246007A-A	HS-246007A-M	HIS-246007	H-246007-H	HS-246007-R	NA	NA	NA
STRIPPER REFLUX PUMP B	246.006	PM-24603B	HS-246008A	HS-246008A-A	HS-246008A-M	HIS-246008	H-246008-H	HS-246008-R	NA	NA	NA
AMINE RE-INVENTORY PUMP	246.012	PM-24604	HS-246009A	HS-246009A-A	HS-246009A-M	HIS-246009	H-246009-H	HS-246009-R	NA	NA	NA
AMINE MAKE-UP PUMP	246.012	PM-24605	HS-246010A	HS-246010A-A	HS-246010A-M	HIS-246010	H-246010-H	HS-246010-R	NA	NA	NA
AMINE DRAIN PUMP	246.013	PM-24607	HS-246011A	HS-246011A-A	HS-246011A-M	HIS-246011	H-246011-H	HS-246011-R	NA	NA	NA
ANTI-FOAM INJECTION PUMP	246.014	PM-24606	HS-246015A	HS-246015A-A	HS-246015A-M	HIS-246015	H-246015-H	HS-246015-R	NA	NA	NA
RECOVERED CLEAN CONDENSATE PUMP A	246.021	PM-24608A	HS-246017A	HS-246017A-A	HS-246017A-M	HIS-246017	H-246017-H	HS-246017-R	NA	NA	NA
RECOVERED CLEAN CONDENSATE PUMP B	246.021	PM-24608B	HS-246018A	HS-246018A-A	HS-246018A-M	HIS-246018	H-246018-H	HS-246018-R	NA	NA	NA
WATER MAKE-UP PUMP A	246.022	PM-24609A	HS-246020A	HS-246020A-A	HS-246020A-M	HIS-246020	H-246020-H	HS-246020-R	NA	NA	NA
WATER MAKE-UP PUMP B	246.022	PM-24609B	HS-246021A	HS-246021A-A	HS-246021A-M	HIS-246021	H-246021-H	HS-246021-R	NA	NA	NA
DEMIN WATER SUPPLY PUMP A	246.023	PM-24610A	HS-246025A	HS-246025A-A	HS-246025A-M	HIS-246025	H-246025-H	HS-246025-R	NA	NA	NA
DEMIN WATER SUPPLY PUMP B	246.023	PM-24610B	HS-246026A	HS-246026A-A	HS-246026A-M	HIS-246026	H-246026-H	HS-246026-R	NA	NA	NA
COOLING WATER BOOSTER PUMP A	246.024	PM-24611A	HS-246030A	HS-246030A-A	HS-246030A-M	HIS-246030	H-246030-H	HS-246030-R	NA	NA	HL-246045
COOLING WATER BOOSTER PUMP B	246.024	PM-24611B	HS-246031A	HS-246031A-A	HS-246031A-M	HIS-246031	H-246031-H	HS-247031-R	NA	NA	HL-246046
STORM WATER PUMP	246.035	PM-24612	HS-246041A	HS-246041A-A	HS-246041A-M	HIS-246041	H-246041-H	HS-247041-R	NA	NA	NA
CO2 COMPRESSOR 6TH STAGE COOLER FAN MOTOR	247.007	FM-24706A	HS-247002A	HS-247002A-A	HS-247002A-M	HIS-247002	H-247002-H	HS-247002-R	NA	NA	NA
CO2 COMPRESSOR 6TH STAGE COOLER FAN MOTOR	247.007	FM-24706B	HS-247003A	HS-247003A-A	HS-247003A-M	HIS-247003	H-247003-H	HS-247003-R	NA	NA	NA
CO2 COMPRESSOR 6TH STAGE COOLER FAN MOTOR	247.007	FM-24706C	HS-247026A	HS-247026A-A	HS-247026A-M	HIS-247026	H-247026-H	HS-247026-R	NA	NA	NA
CO2 COMPRESSOR AFTER COOLER FAN MOTOR	247.011	FM-24707A	HS-247010A	HS-247010A-A	HS-247010A-M	HIS-247010	H-247010-H	HS-247010-R	NA	NA	NA
CO2 COMPRESSOR AFTER COOLER FAN MOTOR	247.011	FM-24707B	HS-247011A	HS-247011A-A	HS-247011A-M	HIS-247011	H-247011-H	HS-247011-R	NA	NA	NA
CO2 COMPRESSOR AFTER COOLER FAN MOTOR	247.011	FM-24707C	HS-247029A	HS-247029A-A	HS-247029A-M	HIS-247029	H-247029-H	HS-246029-R	NA	NA	NA
CO2 COMPRESSOR AFTER COOLER FAN MOTOR	247.012	FM-24707D	HS-247014A	HS-247014A-A	HS-247014A-M	HIS-247014	H-247014-H	HS-247014-R	NA	NA	NA
CO2 COMPRESSOR AFTER COOLER FAN MOTOR	247.012	FM-24707E	HS-247015A	HS-247015A-A	HS-247015A-M	HIS-247015	H-247015-H	HS-247015-R	NA	NA	NA
CO2 COMPRESSOR AFTER COOLER FAN MOTOR	247.012	FM-24707F	HS-247030A	HS-247030A-A	HS-247030A-M	HIS-247030	H-247030-H	HS-247030-R	NA	NA	NA
CO2 COMPRESSOR LUBE OIL HEATER MOTOR	247.022	EH-24701A	HS-247501A	HS-247501A-A	HS-247501A-M	HIS-247501	H-247501-H	HS-247501-R	NA	NA	NA
CO2 COMPRESSOR LUBE OIL HEATER MOTOR	247.022	EH-24701B	HS-247502A	HS-247502A-A	HS-247502A-M	HIS-247502	H-247502-H	HS-247502-R	NA	NA	NA
CO2 COMPRESSOR LUBE OIL PUMP	247.022	PM-24702	HS-247503A	HS-247503A-A	HS-247503A-M	HIS-247503	H-247503-H	HS-247503-R	NA	NA	NA
CO2 COMPRESSOR LUBE OIL PUMP	247.022	PM-24701	HS-247504A	HS-247504A-A	HS-247504A-M	HIS-247504	H-247504-H	HS-247504-R	NA	NA	NA
LEAN TAG PUMP A	248.004	PM-24801A	HS-248005A	HS-248005A-A	HS-248005A-M	HIS-248005	H-248005-H	HS-248005-R	NA	NA	NA
LEAN TAG PUMP B	248.004	PM-24801B	HS-248006A	HS-248006A-A	HS-248006A-M	HIS-248006	H-248006-H	HS-248006-R	NA	NA	NA
LEAN MAKE-UP PUMP	248.005	PM-24802	HS-248008A	HS-248008A-A	HS-248008A-M	HIS-248008	H-248008-H	HS-248008-R	NA	NA	NA

DETAIL C



NOTES:
 1. FOR GENERAL NOTES AND LEGEND SEE DWGS 200.0000.000.041.007, 008 AND 010.
 2. REFER TO 247.0000.000.041.023 FOR CO2 COMPRESSOR MOTOR CONTROL DETAILS.

ISSUED FOR CONSTRUCTION
 09 Sep 2013

REV	ISSUED DATE	DESCRIPTION	BY	CHKD	PRD	CS	PDP	MC	AFE	PEM	CLIENT APP
2	08/21/13	ISSUED FOR CONSTRUCTION									
1	01/24/13	ISSUED FOR CONSTRUCTION	GB	CC	SL					EM	

SHS

SHELL CANADA
QUEST CCS PROJECT

FLUOR

PIPING AND INSTRUMENT DIAGRAM
QUEST CCS PROJECT
UNIT 246 - REGENERATION/Common
ELECTRICAL AUXILIARIES SHT 1 OF 2

SCALE: NONE
SHELL DWG NO.: 246.0000.000.041.051
REV. 2

246.051 FILE:V:\11025\DRAWINGS\CCS\246.051.dwg MODEL DATE:09/21/2013 2:43:37 PM BY:39629451

NOTES:
 1. FOR GENERAL NOTES AND LEGEND SEE DWGS 200.0000.000.041.007, 008, 010.
 2. REFER TO PROCESS P&ID OF CORRESPONDING MOTOR FOR THESE TAGS AND OTHER HARDWIRED SIGNALS TO DCS.

TABLE 1: 246-MCC-401 MOTOR E3+ SIGNALS (DETAIL A)

EQUIPMENT TAG NO.	P&ID	DESCRIPTION	THROUGH DEVICENET		
			"I" AVG	WARNING	TRIP
			II (1)	XA (2)	XA (3)
PM-24607	246.0000.000.041.013	AMINE DRAIN PUMP MOTOR	II-246880	XA-246880	XA-246881
PM-24608A	246.0000.000.041.021	RECOVERED CLEAN CONDENSATE PUMP MOTOR	II-246881	XA-246883	XA-246884
PM-24608B	246.0000.000.041.021	RECOVERED CLEAN CONDENSATE PUMP MOTOR	II-246882	XA-246885	XA-246886

TABLE 2: 246-MCC-402 MOTOR E3+ SIGNALS (DETAIL A)

EQUIPMENT TAG NO.	P&ID	DESCRIPTION	THROUGH DEVICENET		
			"I" AVG	WARNING	TRIP
			II (1)	XA (2)	XA (3)
PM-24604	246.0000.000.041.012	AMINE RE-INVENTORY PUMP MOTOR	II-246883	XA-246887	XA-246888
PM-24605	246.0000.000.041.012	AMINE MAKE-UP PUMP MOTOR	II-246884	XA-246889	XA-246890
PM-24606	246.0000.000.041.014	ANTI-FOAM INJECTION PUMP MOTOR	II-246885	XA-246891	XA-246892
PM-24609A	246.0000.000.041.022	WATER MAKE-UP PUMP MOTOR	II-246886	XA-246893	XA-246894
PM-24609B	246.0000.000.041.022	WATER MAKE-UP PUMP MOTOR	II-246887	XA-246895	XA-246896
PM-24612	246.0000.000.041.035	STORM WATER PUMP MOTOR	II-246888	XA-246897	XA-246898

TABLE 3: 247-MCC-401 MOTOR E3+ SIGNALS (DETAIL A)

EQUIPMENT TAG NO.	P&ID	DESCRIPTION	THROUGH DEVICENET		
			"I" AVG	WARNING	TRIP
			II (1)	XA (2)	XA (3)
FN-24703A	247.0050.000.062.001	EXHAUST FAN FOR BLDG R-24701	II-247882	XA-247885	XA-247886
FN-24703B	247.0050.000.062.001	EXHAUST FAN FOR BLDG R-24701	II-247883	XA-247887	XA-247888
FN-24703C	247.0050.000.062.001	EXHAUST FAN FOR BLDG R-24701	II-247884	XA-247889	XA-246890
FN-24704A	247.0050.000.062.001	EXHAUST FAN FOR BLDG R-24701	II-247885	XA-247891	XA-247892
FN-24704B	247.0050.000.062.001	EXHAUST FAN FOR BLDG R-24701	II-247886	XA-247893	XA-247894
FN-24702A	247.0050.000.062.001	SUPPLY FAN FOR BLDG R-24701	II-247889	XA-247895	XA-247896
FN-24702B	247.0050.000.062.001	SUPPLY FAN FOR BLDG R-24701	II-247890	XA-247897	XA-247898
FN-24702C	247.0050.000.062.001	SUPPLY FAN FOR BLDG R-24701	II-247891	XA-247899	XA-247900
PM-24702	247.0000.000.041.022	LUBE OIL PUMP MOTOR	II-247892	XA-247901	XA-247902
PM-24802	248.0000.000.041.005	TEG MAKE-UP TANK PUMP MOTOR	II-248893	XA-248902	XA-248903
FN-24701	247.0000.000.041.022	LUBE OIL MIST PUMP MOTOR	II-247894	XA-247904	XA-247905

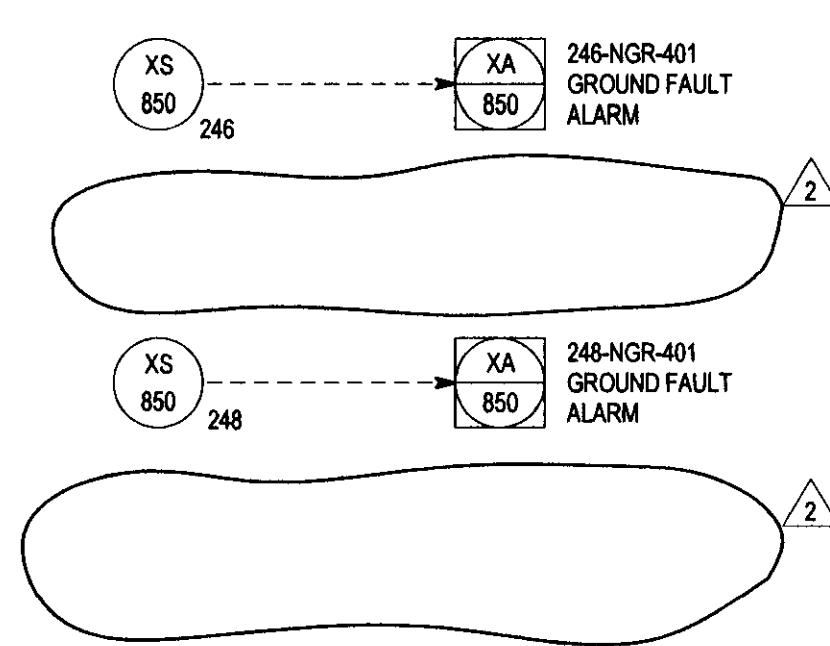
TABLE 4: 248-MCC-401 MOTOR E3+ SIGNALS (DETAIL A)

EQUIPMENT TAG NO.	P&ID	DESCRIPTION	THROUGH DEVICENET		
			"I" AVG	WARNING	TRIP
			II (1)	XA (2)	XA (3)
PM-24603A	246.0000.000.041.006	STRIPPER REFLUX PUMP MOTOR	II-246890	XA-247904	XA-246901
PM-24603B	246.0000.000.041.006	STRIPPER REFLUX PUMP MOTOR	II-246891	XA-246902	XA-246903

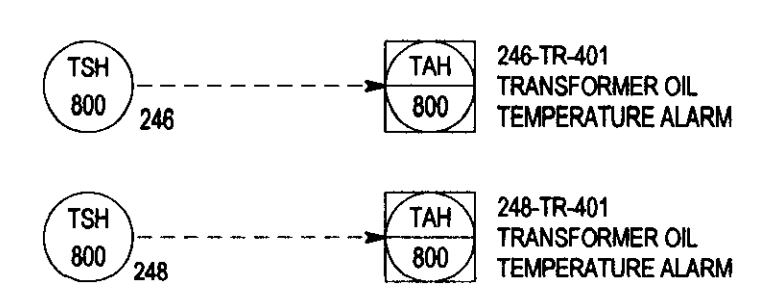
TABLE 5: VARIABLE FREQUENCY DRIVE SIGNALS (DETAIL B)

EQUIPMENT TAG NO.	EQUIPMENT DESCRIPTION	MCC NO.	P&ID	SPEED SET POINT	AVERAGE MOTOR CURRENT IAVG %	LOCAL/REMOTE STATUS	VFD TRIP ALARM	MOTOR SPEED	VFD FAILURE ALARM
PM-24601A	LEAN AMINE PUMP MOTOR	246-MCC-0401	246.0000.000.041.007	PY-246041A	II-246860		XA-246860		
PM-24601B	LEAN AMINE PUMP MOTOR	246-MCC-0401	246.0000.000.041.007	PY-246041B	II-246861		XA-246861		
PM-24601C	LEAN AMINE PUMP MOTOR	246-MCC-0401	246.0000.000.041.007	PY-246041C	II-246862		XA-246862		
FM-24706A	COMPRESSOR 6TH STAGE COOLER FAN MOTOR	247-MCC-0402	247.0000.000.041.007	TY-247019A	II-247860		XA-247860		
FM-24706B	COMPRESSOR 6TH STAGE COOLER FAN MOTOR	247-MCC-0402	247.0000.000.041.007	TY-247019B	II-247861		XA-247861		
FM-24706C	COMPRESSOR 6TH STAGE COOLER FAN MOTOR	247-MCC-0402	247.0000.000.041.007	TY-247019C	II-247862		XA-247862		
FM-24707A	COMPRESSOR AFTER COOLER FAN MOTOR	247-MCC-0402	247.0000.000.041.011	TY-247030A	II-247863	2	XA-247863	2	2
FM-24707B	COMPRESSOR AFTER COOLER FAN MOTOR	247-MCC-0402	247.0000.000.041.011	TY-247030B	II-247864		XA-247864		
FM-24707C	COMPRESSOR AFTER COOLER FAN MOTOR	247-MCC-0402	247.0000.000.041.011	TY-247030C	II-247865		XA-247865		
FM-24707D	COMPRESSOR AFTER COOLER FAN MOTOR	247-MCC-0402	247.0000.000.041.012	TY-247033A	II-247866		XA-247866		
FM-24707E	COMPRESSOR AFTER COOLER FAN MOTOR	247-MCC-0402	247.0000.000.041.012	TY-247033B	II-247867		XA-247867		
FM-24707F	COMPRESSOR AFTER COOLER FAN MOTOR	247-MCC-0402	247.0000.000.041.012	TY-247033C	II-247868		XA-247868		
PM-24610A	DENIM WATER SUPPLY PUMP MOTOR	246-MCC-0401	246.0000.000.041.023	FY-246035A	II-246863		XA-246863		
PM-24610B	DENIM WATER SUPPLY PUMP MOTOR	246-MCC-0401	246.0000.000.041.023	FY-246035B	II-246862		XA-246864		
PM-24801A	LEAN TEG PUMP MOTOR	248-MCC-0401	248.0000.000.041.004	HY-248012A	II-248860		XA-248861		
PM-24801B	LEAN TEG PUMP MOTOR	248-MCC-0401	248.0000.000.041.004	HY-248012B	II-248861		XA-248862		

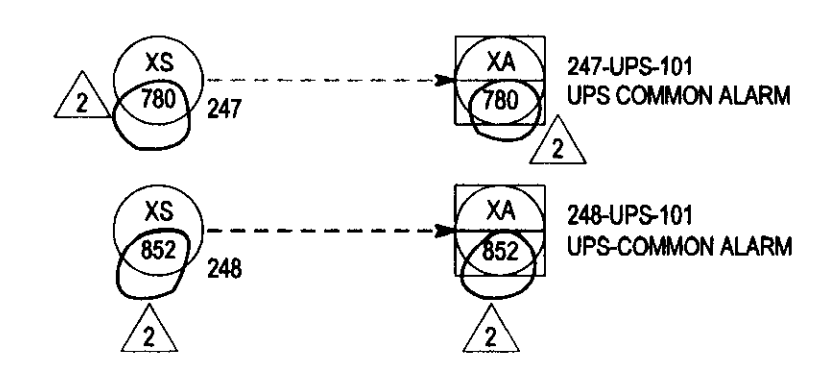
NEUTRAL GROUNDING RESISTOR
GROUND FAULT ALARM



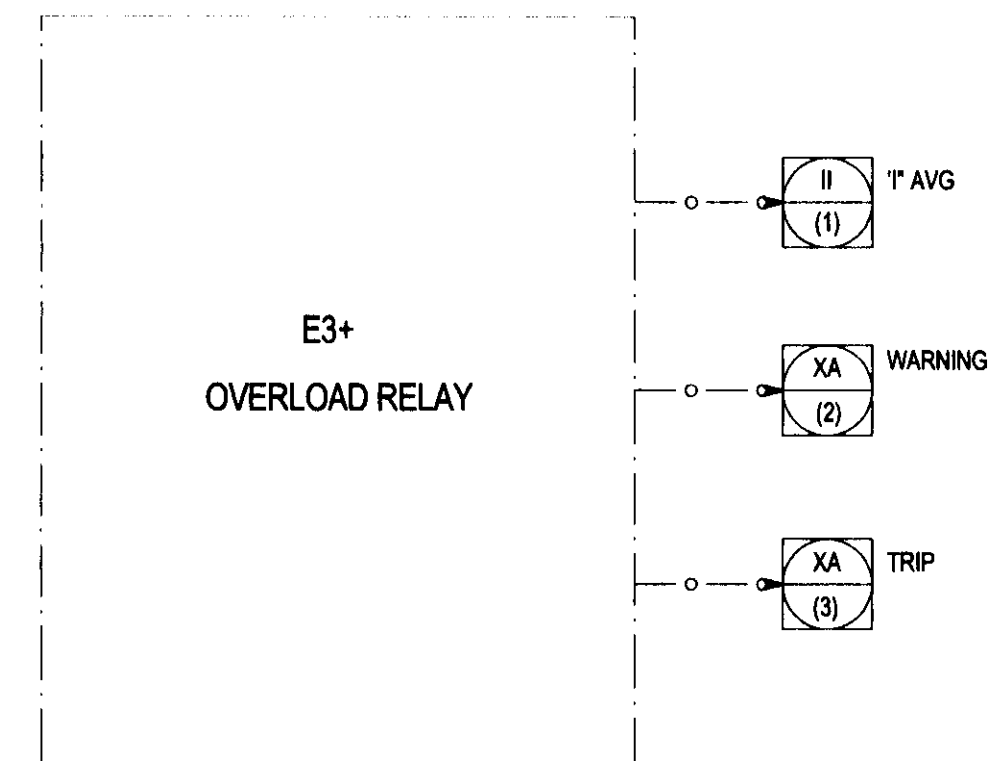
4.16 KV - 600V XFMR
OIL TEMPERATURE ALARM



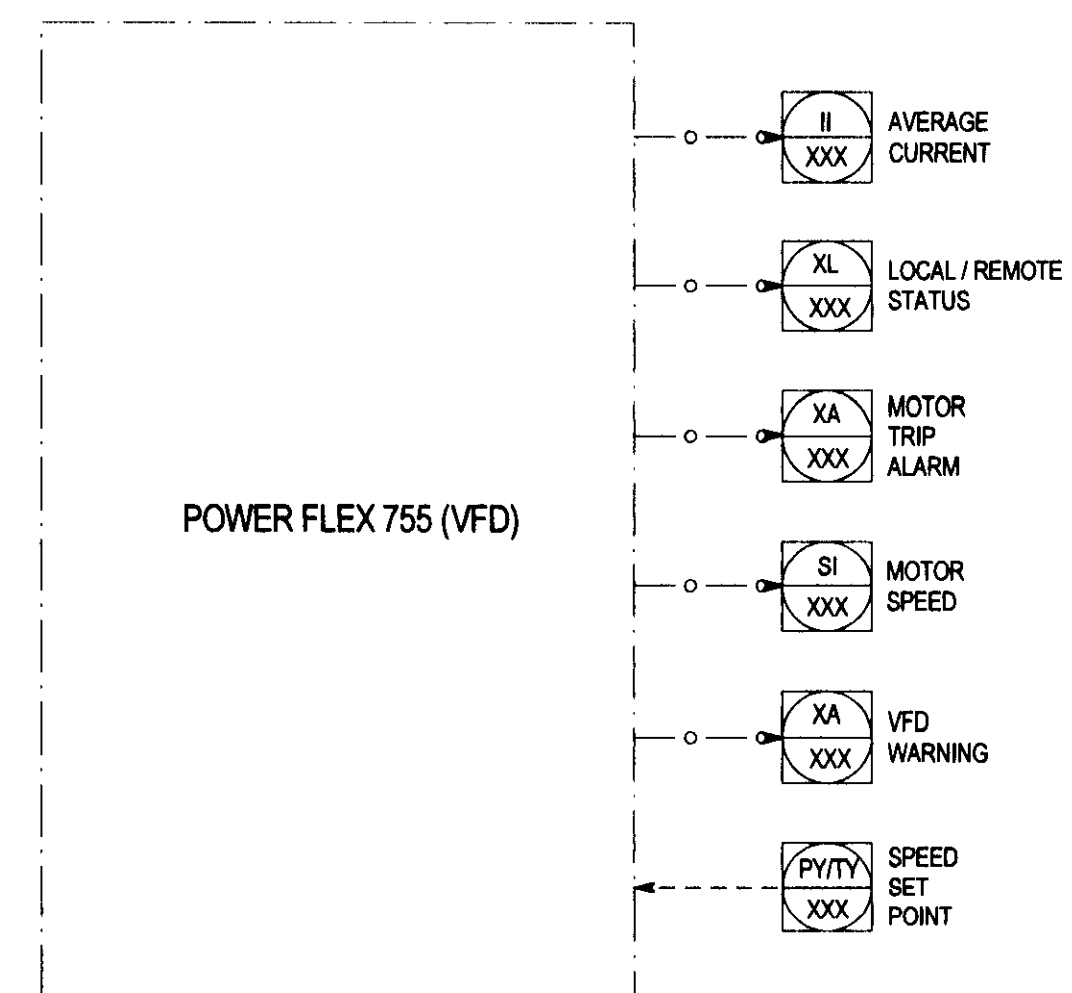
UPS COMMON ALARMS



DETAIL A



DETAIL B



ISSUED FOR CONSTRUCTION
09 Sep 2013

2	09/21/13	ISSUED FOR CONSTRUCTION	OB	CC	SL	EM
1	01/24/13	ISSUED FOR CONSTRUCTION	OB	CC	SL	EM

REV	ISSUED DATE	DESCRIPTION	BY	CHKD	PRSD	CS	PDP	MC	APE	PEM	CLIENT APP

SHELL CANADA
 QUEST CCS PROJECT
FLUOR
 PIPING AND INSTRUMENT DIAGRAM
 QUEST CCS PROJECT
 UNIT 246 - REGENERATION/Common
 ELECTRICAL AUXILIARIES SHT 2 OF 2

SCALE: NONE
 SHELL DWG NO.: 246.0000.000.041.052
 REV. 2

246.052 FILE:V:\1025\DRAWINGS\CO2\246.052.dwg MODEL DATE: 8/25/2013 1:19:40 PM BY: mms2451

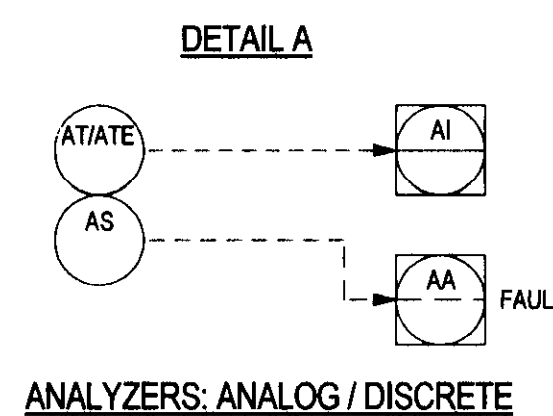


TABLE 1: ANALYZER ALARMS (DETAIL A)

ANALYZER		SHELTER / FIELD PANEL LOCATION	INDICATION (A)	COMPONENTS (VOL %)	ANALYZER ALARMS / STATUS			DETAIL
TAG	TYPE				AS	AA	TYPE	
AT-247001	MOISTURE	R-24704	AI-247001	0 TO 200 ppmv	AS-247001	AA-247001	FAULT	A
AT-247002	GC		AI-247002	90 TO 100% CO2, 0 TO 10% H2, 0 TO 10% CH4	AS-247002	AA-247002	FAULT	A
ATE-247003	MOISTURE		AI-247003	0 TO 200 ppmv	AS-247003	AA-247003	FAULT	A

TABLE 2: ANALYZER SERIAL COMMUNICATION (DETAIL D)

ANALYZER TAG	TYPE	SHELTER	INDICATION	COMPONENTS	ANALYZER ALARMS / STATUS			
					AA	XA	ONLINE	
AT-247002	GC	R-24704	AI-247002A	90 TO 100% CO2	AA-247002A	COMMUNICATION FAULT	XA-247002A	ONLINE
			AI-247002B	0 TO 10% H2	AA-247002B	SOFTWARE ERROR	XA-247002B	IN CALIBRATION / BENCHMARK
			AI-247002C	0 TO 10% CH4	AA-247002C	HARDWARE FAIL		

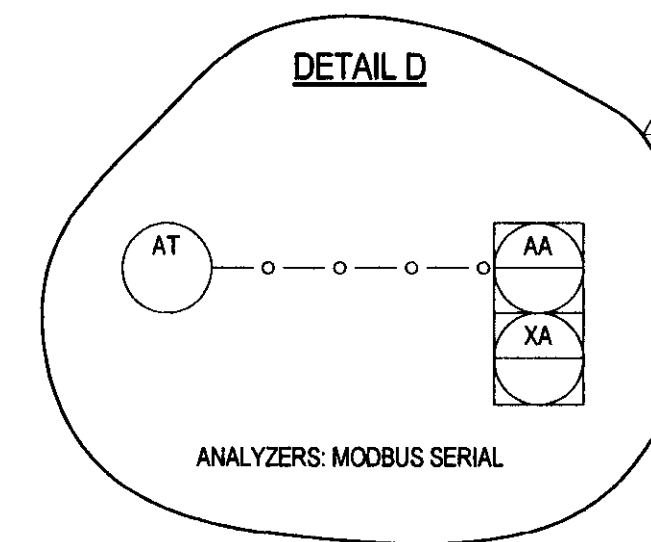
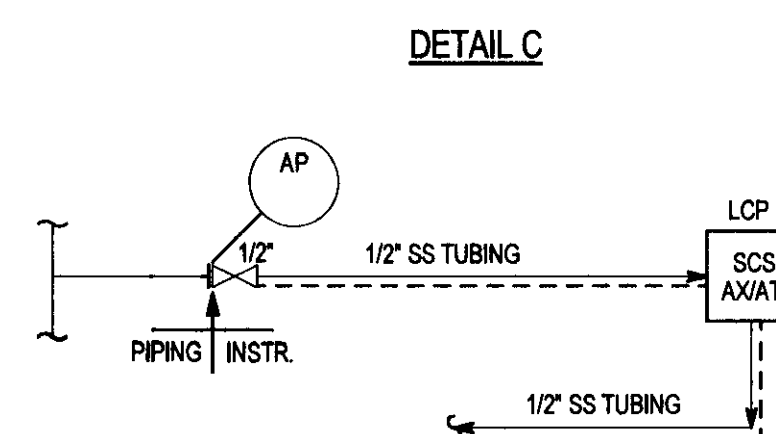
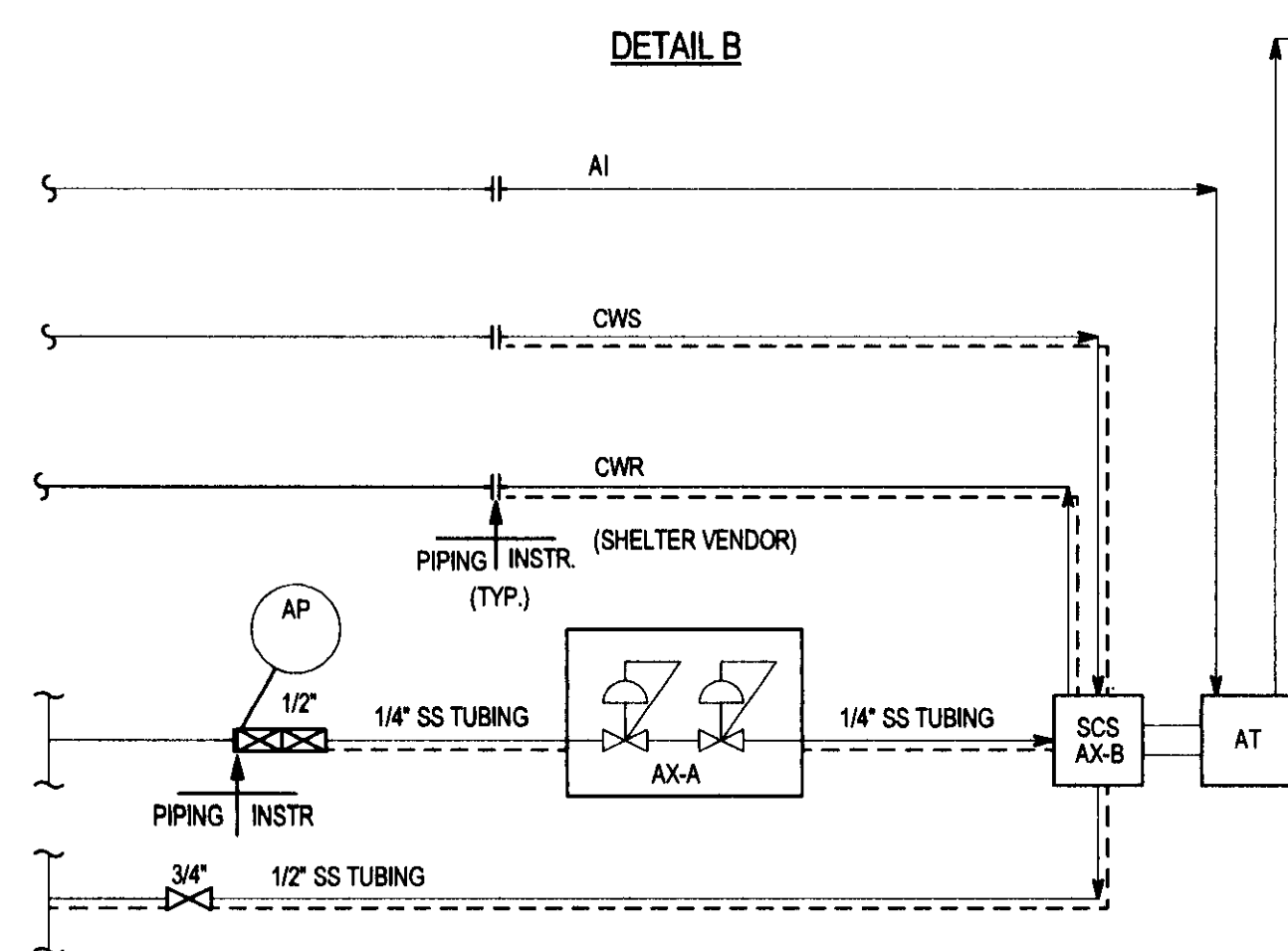


TABLE 3: ANALYZER SYSTEM CONFIGURATION (DETAIL B AND C)

ANALYZER		P&ID	SAMPLE QUILL	SAMPLE SUPPLY LINE	SAMPLE RETURN	SHELTER / FIELD PANEL TAG	UTILITY				SAMPLE CONDITIONING SYSTEM (SCS)				DETAIL NO.
TAG	TYPE						AI	CWS / IR	DO	AV	AX-TAG	SENSOR	RELIEF VALVE	SCS DETAIL DWG	
AT-246001	PH	246.025	AP-246001	16"-CWR-246017-UAB	2"-DM-247072-FJB(0.4)	LCP-246001	-	-	YES	-	AX-246001	AE-246001	RV-246170	BY VENDOR	C 2
AT-246002	PH	246.021	AP-246002	4"-SC-246007-SAB	10"-SC-246002-SAB	LCP-246002	-	YES	YES	-	AX-246002	AE-246002	RV-246171		
AT-246003	CONDUCTIVITY	246.021					-	YES	YES	-	AX-246003	AE-246003			
AT-247001	MOISTURE	247.009	AP-247001	12"-GC-247040-PJG(0.4)	36"-GC-246004-PJE(0.4)	R-24704	-	-	-	-	AX-247001	AE-247001	RV-247030	BY VENDOR	B 2
AT-247002	GC	247.009	AP-247002				YES	-	-	YES	AX-247002	AE-247002			
ATE-247003	MOISTURE	247.009	AP-247003				-	-	-	-	AX-247003	AE-247003	RV-247031		

NOTES:
1. FOR LEGEND, SYSTEM AND GENERAL NOTES SEE DRAWING: 200.0000.000.041.007 TO 016.

ISSUED FOR CONSTRUCTION
09 Sep 2013

REV	ISSUED DATE	DESCRIPTION	BY	CHKD	PRS	CS	PDP	MC	APE	PEM	CLIENT APP
2	06/25/13	ISSUED FOR CONSTRUCTION	AS	CC							BS
1	12/03/12	ISSUED FOR CONSTRUCTION	GB	CC	SL						EM

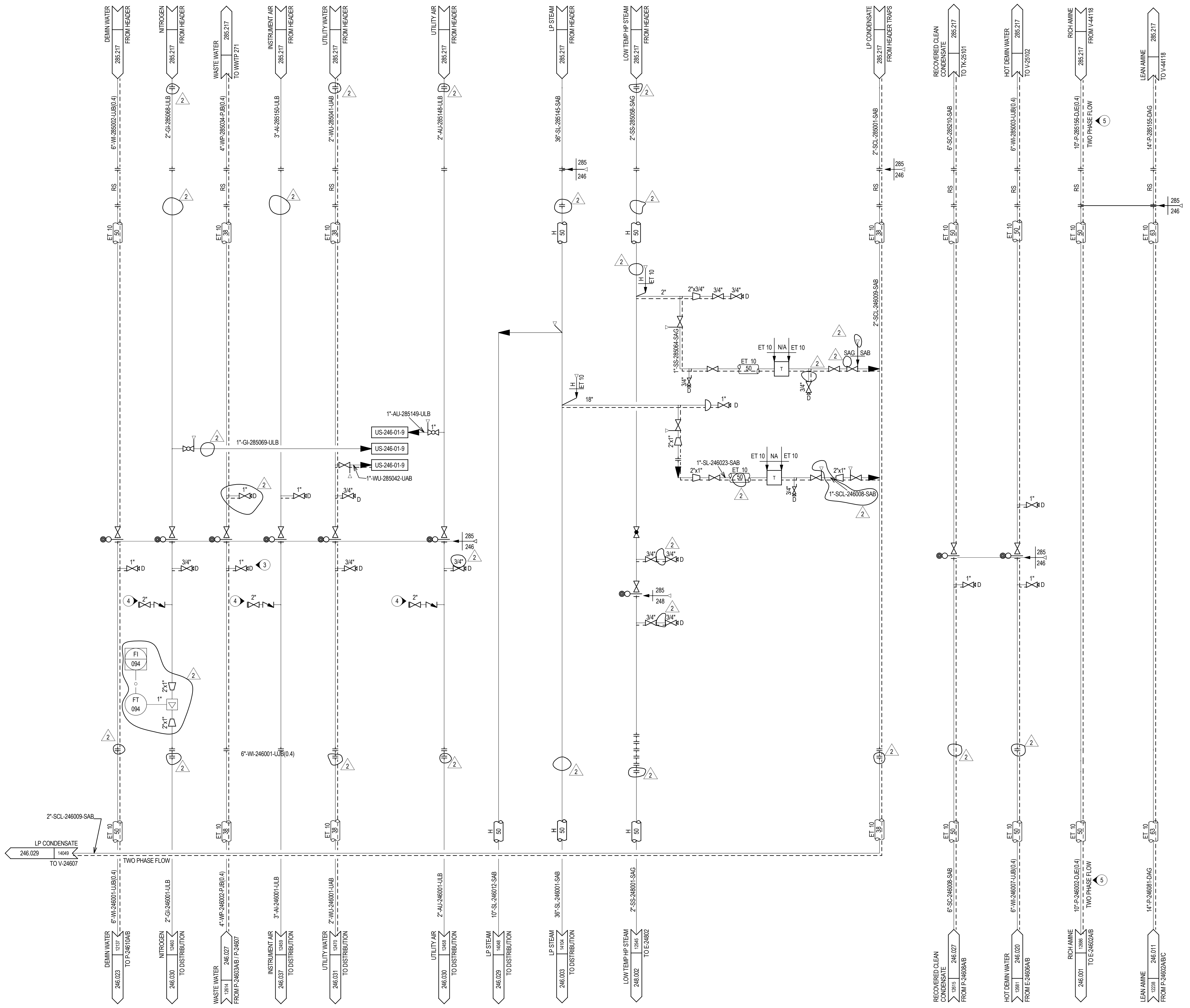
SHELL CANADA
QUEST CCS PROJECT

FLUOR

PIPING AND INSTRUMENT DIAGRAM
QUEST CCS PROJECT
UNIT 246 - REGENERATION/Common
ANALYZER SYSTEM CONFIGURATION

SCALE: NONE
SHELL DWG NO.: 246.0000.000.041.053
REV: 2

246.053 FILE:11025DRAWINGS\SCS\246046.053.dwg MODEL DATE: 09/26/2013 9:07:47 AM BY: huc2451



- 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 "246" UNLESS OTHERWISE NOTED.
 3. CONNECTION FOR UTILITY WATER TO QUENCH POC IF REQUIRED BY WWTU.
 4. CONNECTION FOR TEMPORARY SUPPLY.
 5. LOCALIZED DEGASSING OF CO2 MAY OCCUR AT RESTRICTIONS, BENDS, TEES, ETC. RESULTING IN LOCALIZED TWO-PHASE FLOW AND VIBRATION.

FLUOR
IFC – Issued for Construction
Jul 30, 2013

2	07/08/13	ISSUED FOR CONSTRUCTION	GB	KB	KH	SL	-	-	-	BB	-
1	09/28/12	ISSUED FOR CONSTRUCTION	GB	KB	KH	LMF	-	-	-	EM	-
0	09/15/11	ISSUED FOR DESIGN	GB	KB	KH	LMF	-	-	-	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	CKD	PRS	CS	PDP	MC	APE	PEM	CLIENT APP

 **SHELL CANADA**
QUEST CCS PROJECT

FLUOR[®]

PIPING AND INSTRUMENT DIAGRAM
QUEST CCS PROJECT
UNIT 246 - REGENERATION/Common
NORTH BATTERY LIMITS

SCALE: NONE
SHELL DWG NO.: 246.0000.000.041.101
REV. 2