

**APPENDIX 1. General Documents (Onshore)**

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PETERHEAD CCS (ONSHORE)
SHELL U.K. LTD
PETERHEAD, SCOTLAND



ENGINEER REFERENCE					Rev.	Page
Project	Unit No	Doc. Type	Code	Serial No	K01	1 of 8
CLIENT REFERENCE						
Project Code		Area/Facility Code	Originator	Discipline	Doc Type	Sequential No
PCCS		00	TC	AA	6627	00001

INTERFACE SCHEDULE

Rev	Date DD/MM/YY	STATUS	WRITTEN BY (name & sign)	CHECKED BY (name & sign)	APPROVED BY (name & sign)
DOCUMENT REVISIONS					

K01																	CLIENT: PROJECT: LOCATION:		SHELL U.K. LTD PETERHEAD CCS (ONSHORE) PETERHEAD, SCOTLAND			DOC. NO.: CLIENT REF.: REV:		PCCS-00-TC-AA-6627-00001 K01		
LINE INFORMATION			INTERCONNECTED LINES						FLOWRATE		LINE SIZE (mm)		OPERATING CONDITIONS		DESIGN CONDITIONS		INTERFACE POINT LOCATION				REFERENCE DWGS/DOCUMENTS	INTERFACE POINT TYPE	TYPE OF CONNECTION	TIE-IN CLASSIFICATION	NOTES	REV
TP NO	BL NO	TIE-IN NO	SERVICE	ORG X	LINE NO	P&ID	ORG Y	LINE NO	P&ID	PHASE	DESIGN FLOW RATE (kg/h)	EXISTING LINE	NEW LINE	PRESS (barg)	TEMP (°C)	PRESS (barg)	TEMP (°C)	Easting	Northing	Elevation						
TP - 1001 - M	TP - 0001 - M		Fuel Gas	SSE	13EKG60 BR010		PS EPC	13EKG64 BR001	PCCS-01-TC-PX-2365-00002-001	V		200	200	30	5 / 15.6	39	250	864000	1254531	9609			3a	BF	5	
TP - 1002 - M	TP - 0002 - M		Fuel Gas	SSE	13EKG60 BR010		PS EPC	13EKG64 BR001	PCCS-01-TC-PX-2365-00002-001	V		200	200	30	5 / 15.6	39	250	865488	1258082	9609			3a	BW	5	
TP - 1003 - M	TP - 0003 - M		Ammonia	SSE	HRSG-13		PS EPC	13QCJ17 BR001	PCCS-01-TC-PX-2365-00003-001	V		-	200		0.1	35	-	896697	1257248	28645			3a	BF	5	Tie-in point to HRSG-13. DP & DT to be confirmed by vendor. No existing line number.
TP - 1004 - M	TP - 0004 - M																									
TP - 1005 - M	TP - 0005 - M		Flue Gas	SSE	13HNE10 BR001		CCP EPC	BL001	PCCS-01-TC-PX-2365-00003-001	V		-	6100	0.0 / 0.04	100	0.05/-0.015	120	907600	1266300	17850			Note 7	Note 7	6	Deleted and replaced by TP-2008-C to cover structural interface between 13RLU10 package (SCR catalyst and ammonia injection units) and HRSG structure.
TP - 1006 - M	TP - 0006 - M																									CCP Flue gas tie-in. Flue gas dust under CCP scope.
TP - 1007 - M	TP - 0007 - M		Flue Gas	SSE	13HNE10 BR001		CCP EPC	FT 1001 A-D	PCCS-01-TC-PX-2365-00003-001	V		6200	N/A	0.0 / 0.04	100	0.05/-0.015	120	NA	NA	NA		By EPC Contractor	Instrument Tie in	Instrument Tie in	6	Instrument Tie-in CCP BL-002
TP - 1008 - M	TP - 0008 - M		Flue Gas	SSE	13HNE10 BR001		CCP EPC	TE 1001	PCCS-01-TC-PX-2365-00003-001	V		6200	N/A	0.0 / 0.04	100	0.05/-0.015	120	NA	NA	NA		By EPC Contractor	Instrument Tie in	Instrument Tie in	6	Instrument Tie-in CCP BL-002
TP - 1009 - M	TP - 0009 - M		Condensate	SSE	CONDENSER 2A		PS EPC	See Remarks	PCCS-01-TC-PX-2365-00005-001	L		-	By ST Vendor	-0.98	46.8	12	265	EPC	EPC	EPC		By ST Vendor	By ST Vendor	By ST Vendor	6	Condensate extract pump min flow to existing main condensers - Turbine Vendor Supply. No existing line number. Turbine Vendor to confirm location of tie-in.
TP - 1010 - M	TP - 0010 - M		Hot Reheat	SSE	See Remarks		PS EPC	See Remarks	PCCS-01-TC-PX-2365-00005-001	V		Note 6	By ST Vendor	-0.98	46.8	0.367	120 (See Notes)	EPC	EPC	EPC		By ST Vendor	By ST Vendor	By ST Vendor	6	IP Bypass Outlet to Condenser 2A. Piping from bypass valve to existing LP steam exhaust ducting is supplied by the Turbine Vendor. Assumed as saturation temperature +10°C margin. No existing line number
TP - 1011 - M	TP - 0011 - M		LP Steam	SSE	See Remarks		PS EPC	See Remarks	PCCS-01-TC-PX-2365-00005-001	V		Note 6	By ST Vendor	-0.98	46.8	0.367	120 (See Notes)	EPC	EPC	EPC		By ST Vendor	By ST Vendor	By ST Vendor	6	LP Bypass Outlet to Condenser 2B. Piping from bypass valve to existing LP steam exhaust ducting is supplied by the Turbine Vendor. Assumed as saturation temperature +10°C margin. No existing line number
TP - 1012 - M	TP - 0012 - M		Condensate	SSE	CONDENSER 2B		PS EPC	See Remarks	PCCS-01-TC-PX-2365-00005-001	L		-	By ST Vendor	-0.98	46.8	12	265	EPC	EPC	EPC		By ST Vendor	3a	BF	6	Condensate extract pump min flow to existing main condensers - Turbine Vendor Supply. No existing line number
TP - 1013 - M	TP - 0013 - M		Condensate	SSE	CONDENSER 2B		PS EPC	20LCA40 BR001	PCCS-01-TC-PX-2365-00005-001	L		-	50	-0.98	Ambient	5	66	EPC	EPC	EPC		By EPC Contractor	3a	BF	6	New line. Tie-in to existing condenser 2B. No existing line number
TP - 1014 - M	TP - 0014 - M		Condensate	SSE	CONDENSER 2A		PS EPC	20LCA30 BR001 (See Remarks)	PCCS-01-TC-PX-2365-00005-001	L		-	250	-0.98	40	11 (+FV)	160	960200	1481972	9636			3b	BW	6	LP condensate from CCP-BL004. No existing line number
TP - 1015 - M	TP - 0015 - M		Condensate	SSE	See Remarks		PS EPC	20LCA31 BR001	PCCS-01-TC-PX-2365-00005-001	L		350	350	-0.7	24	35 (+FV)	66	969150	1483440	7323			3a	BF	6	Downstream of MOV. No existing line number
TP - 1016 - M	TP - 0016 - M		Condensate	SSE	See Remarks		PS EPC	20LCA32 BR001	PCCS-01-TC-PX-2365-00005-001	L		350	350	-0.7	24	35 (+FV)	66	972750	1483440	7323			3a	BF	6	Downstream of MOV. No existing line number
TP - 1017 - M	TP - 0017 - M		Condensate	SSE	See Remarks		PS EPC	20LCA32 BR002	PCCS-01-TC-PX-2365-00005-001	L		50	50	-0.7	24	35 (+FV)	66	EPC	EPC	EPC		By EPC Contractor	By EPC Contractor	By EPC Contractor	6	Pump 20LCB10 AP020 vent line Tie-in. No existing line number
TP - 1018 - M	TP - 0018 - M		Condensate	SSE	See Remarks		PS EPC	20LCA35 BR001	PCCS-01-TC-PX-2365-00005-001	L		250	250	24	24	35 (+FV)	66	961539	1499000	15526			3b	BW	6	Tie-in upstream of branch to valve WC/49. Downstream of FIC 20LCA35 CF001. No existing line number
TP - 1019 - M	TP - 0019 - M		Condensate	SSE	See Remarks		PS EPC	20LCA36 BR001	PCCS-01-TC-PX-2365-00005-001	L		Note 6	By ST Vendor	24	24	35 (+FV)	66	EPC	EPC	EPC		By ST Vendor	By ST Vendor	By ST Vendor	6	Branch upstream of existing RO going to Vent steam condenser. No existing line number
TP - 1020 - M	TP - 0020 - M		Condensate	SSE	See Remarks		PS EPC	20LCA35 BR002	PCCS-01-TC-PX-2365-00005-001	L		250	250	24	24	35 (+FV)	66	956539	1499000	15526			3b	BW	6	Tie-in downstream of existing RO. No existing line number
TP - 1021 - M	TP - 0021 - M		Condensate	SSE	See Remarks		PS EPC	20LCA35 BR002	PCCS-01-TC-PX-2365-00005-001	L		250	250	24	24	35 (+FV)	66	956501	1499000	15526			3b	BW	6	Tie-in upstream of branch to valve WC/12. No existing line number
TP - 1022 - M	TP - 0022 - M		Water	SSE	See Remarks		PS EPC	20LCA40 BR001	PCCS-01-TC-PX-2365-00005-001	L		Note 6	50	Atm	Ambient	5	66	EPC	EPC	EPC		By EPC Contractor	By EPC Contractor	By EPC Contractor	6	Downstream of valve RFV11A. Upstream of branch to RFV11B. No existing line number
TP - 1023 - M	TP - 0023 - M		Condensate	SSE	See Remarks		PS EPC	20LCA38 BR001	PCCS-01-TC-PX-2365-00005-001	L		Note 6	250	24	24	35	66	994781	1460785	13807			3b	BW	6	Tie-in downstream of branch containing valve WC/73. No existing line number
TP - 1024 - M	TP - 0024 - M		Condensate	SSE	See Remarks		PS EPC	20LCA31 BR002	PCCS-01-TC-PX-2365-00005-001	L		50	50	-0.7	24	35	66	EPC	EPC	EPC		By EPC Contractor	3a	By EPC Contractor	6	Pump 20LCB10 APV10 vent line Tie-in. No existing line number
TP - 1025 - M	TP - 0025 - M		Phosphate	SSE	10CCD10.1		PS EPC	20QCA30 BR001	PCCS-01-TC-PX-2365-00006-001	L		15	15	25	Ambient	35	66	EPC	EPC	EPC		By EPC Contractor	3b	By EPC Contractor	6	
TP - 1026 - M	TP - 0026 - M		Phosphate	SSE	10LCA20 BR011		PS EPC	10LCA20 BR011	PCCS-01-TC-PX-2365-00006-001	L		15	15	25	Ambient	35	66	EPC	EPC	EPC		By EPC Contractor	3b	By EPC Contractor	6	
TP - 1027 - M	TP - 0027 - M		Chemical Injection	SSE	10QCA10.1		PS EPC	20QCA30 BR001	PCCS-01-TC-PX-2365-00006-001	L		15	15	25	Ambient	35	66	EPC	EPC	EPC		By EPC Contractor	3b	By EPC Contractor	6	
TP - 1028 - M	TP - 0028 - M		Chemical Injection	SSE	10LCA20 BR001		PS EPC	10LCA20 BR001	PCCS-01-TC-PX-2365-00006-001	L		15	15	25	Ambient	35	66	EPC	EPC	EPC		By EPC Contractor	3b	By EPC Contractor	6	
TP - 1029 - M	TP - 0029 - M		Condensate	SSE	CONDENSER 2B		PS EPC	10LCA20 BR001	PCCS-01-TC-PX-2365-00006-001	L		250	-	25	Ambient	35	66	EPC	EPC	EPC		By EPC Contractor	3b	By EPC Contractor	6	
TP - 1030 - M	TP - 0030 - M		Condensate	SSE	CONDENSER 2B		PS EPC	10LCA20 BR001	PCCS-01-TC-PX-2365-00006-001	L		250	-	25	Ambient	35										

K01										CLIENT: PROJECT: LOCATION:		SHELL U.K. LTD PETERHEAD CCS (ONSHORE) PETERHEAD, SCOTLAND				DOC. NO.: CLIENT REF.: REV:		PCCS-00-TC-AA-6627-00001 K01									
MECHANICAL INTERFACE SCHEDULE																											
LINE INFORMATION				INTERCONNECTED LINES						FLOWRATE		LINE SIZE (mm)		OPERATING CONDITIONS		DESIGN CONDITIONS		INTERFACE POINT LOCATION				REFERENCE DWGS/DOCUMENTS	INTERFACE POINT TYPE	TYPE OF CONNECTION	TIE-IN CLASSIFICATION	NOTES	REV
TP NO	BL NO	TIE-IN NO	SERVICE	ORG X	LINE NO	P&ID	ORG Y	LINE NO	P&ID	PHASE	DESIGN FLOW RATE (kg/h)	EXISTING LINE	NEW LINE	PRESS (barg)	TEMP (°C)	PRESS (barg)	TEMP (°C)	Easting	Northing	Elevation	KEY DWG						
TP - 1200 - M	001		Flue Gas	PS EPC	01	PCCS-01-TC-PX-2365-00003-001	CCP EPC	02	PCCS-02-TC-PX-2365-00001-001	V	2,556,000	6100x6100	6100x6100	0.0	100	0.05/-0.015 (Note 12)	-5 / 120	907600	1266300	17650			4a	BF	6		
TP - 1201 - M	002																									Deleted	
TP - 1202 - M	003		LP Steam	PS EPC	20LBA43 BR001	PCCS-01-TC-PX-2365-00004-001	CCP EPC	02-SLP-4001		V	219,456	900	900	2.2	141	-1 / 5	-5 / 160	960660	1489660	14040			2	BW	6		
TP - 1203 - M	004		LP Condensate	PS EPC	20LCA30 BR001	PCCS-01-TC-PX-2365-00005-001	CCP EPC	02-SCL-4022		L	180,665	200	200	-0.8	40	-1 / 11	-5 / 160	823600	1476980	10450			2	BW	6		
TP - 1204 - M	005		Flue Gas	CCP EPC	01	PCCS-02-TC-PX-2365-00002-001	SSE	02		V	2,356,723	10400x5200	10400x5200	0.0	75	0.085	-5 / 120	832000	1436300	26750			4b	BF	6	Flue gas to main stack	
TP - 1205 - M	006		MP Steam	PS EPC	00LBG55 BR006	PCCS-01-TC-PX-2365-00031-001	CCP EPC	02-SMP-4001		V	4,950	100	100	20.5	237	-1 / 27	270	826250	1345590	9570			2	BW	6		
TP - 1206 - M	007		Demin Water	PS EPC	00GHC87 BR001	PCCS-01-TC-PX-2365-00022-001	CCP EPC	02-WDM-4001		L	50,000	150	150	7.0	10	0 / 9	-5 / 85	827700	1348590	9480			2	BW	6	Continuous consumption	
TP - 1207 - M	008		Towns Water	PS EPC	00GKB86 BR001	PCCS-01-TC-PX-2365-00024-001	CCP EPC	02-WDR-4001		L	25,471	80	80	4.0	10	0 / 7	-5 / 85	751000	1341300	8900			1	BF	6	BL at the underground/above ground transition. Above ground to below ground BL interface. New line 00GKB86 BR001 is an 80mm U/G line which ties into the Towns Water ring main at VP21 (see TP-0054) and feeds into new CCP line 80-02-WDR local to the new towns water break tank (T-4001) 80mm lines have not been modelled.	
TP - 1208 - M	009		MP Condensate	PS EPC	00QLC69 BR001	PCCS-01-TC-PX-2365-00027-001	CCP EPC	02-SCM-4001		L	4,950	150	150	15.0	200	-1 / 27	250	EPC	EPC	EPC	By EPC Contractor		Note 14	BW	6		
TP - 1209 - M	010		Sea Water	PS EPC	00PAB21 BR001	PCCS-01-TC-PX-2365-00025-001	CCP EPC	02-WSS-4001		L	20,272,803	1700	1700	3.3	5 / 15 (Note 11)	0 / 9	-5 / 85	767810	1241260	12460			1	BF	2		
TP - 1210 - M	011		Sea Water	PS EPC	00PAB22 BR001	PCCS-01-TC-PX-2365-00025-001	CCP EPC	02-WSR-4005		L	20,272,803	1700	1700	1.8	17.5 / 27.5 (Note 11)	0 / 9	-5 / 85	889965	1641837	4000			1	BF	2	BL-011 elevation is +10.7m AOD. Stated pressure is the normal pressure, for rated flow the BL-011 pressure is 1 barg.	
TP - 1211 - M	012		Treated water																								
TP - 1212 - M	013		CO2	CCP EPC		PCCS-02-TC-PX-2365-00064-001	PL EPC	02-PRO-3066		V	137,050	250	250	120.0	25	0 / 143	-5 / 100 (Note 10)	767655	1631625	16135			2	N/A	6	Battery Limit to CO2 pipeline contractor. Minimum metal design temperature -79 °C.	
TP - 1212 - M	014		Treated water	CCP EPC	By EPC Contractor	By EPC Contractor	PS EPC	By EPC Contractor	By EPC Contractor	L	754,000 (Note 9)	-	Note 6	EPC	Ambient	EPC	EPC	EPC	EPC	EPC	By EPC Contractor	By EPC Contractor		BF	6	Recycle line for treated water back to Power Station.	

REFERENCE DOCUMENTS: PCCS-00-TC-AA-6627-00002 - INTERFACE RESPONSIBILITY SPECIFICATION									
NOTES: A - GENERAL: EPC CONTRACTOR TO RECONFIRM AND FINALISE FLOWRATES AND LINE SIZES DURING DETAILED DESIGN. B - GENERAL: TIE-IN TYPE AND CLASSIFICATION TO BE CONFIRMED DURING DETAILED ENGINEERING BY COMPANY AND THE EPC CONTRACTOR BASED ON PLANT AVAILABILITY FOR SHUTDOWN DURING PROJECT SCHEDULE. C - EPC CONTRACTOR TO UTILIZE THIS SCHEDULE AND ENHANCE IT FURTHER INTEGRATING ADDITIONAL DETAILS AND TIE-INS AS NECESSARY TO INCLUDE THE FULL EPC SCOPE INCLUDING ANY DEMOLITION AND ISOLATION. 2 - DELETED 3 - DELETED 4 - DELETED 5 - DELETED 6 - AS LISTED: EXISTING LINE SIZE TO BE CONFIRMED DURING EPC PHASE. 7 - AS LISTED: DESIGN CONDITIONS OF EXISTING LINES TO BE CONFIRMED DURING EPC PHASE. 8 - DELETED 9 - DELETED 10 - AS LISTED: TBC BY COMPRESSOR VENDOR IN EPC. 11 - AS LISTED: WINTER/SUMMER CONDITIONS. 12 - AS LISTED: DESIGN CONDITIONS OF DUCTING TO BE CONFIRMED AFTER BOOSTER FAN (CCP) VENDOR INFORMATION RECEIVED. 13 - BATTERY LIMIT DESIGN FLOW RATE: FLOW SHOWN IS MAXIMUM VALUE QUOTED IN H&MB. 14 - DELETED									

LEGEND			
PPS EPC CCP EPC	Power Station EPC Contractor Carbon Capture Plant EPC Contractor	TYPE OF CONNECTION:	
		HT-	HOT TAP
		DB-	DRILLED BRANCH
		CP-	COLD CUT
		BW-	BUTT WELD
		BF-	BOLT TO EXISTING FLANGE
		BB-	BOLT BLIND TO EXISTING FLANGE
		SC-	SCREWED CONNECTION
		FC-	FIT COUPLING
		HC-	HUB CONNECTOR
		SEE NOTE B	
		TIE-IN CLASSIFICATION:	
		1. NO SHUTDOWN NECESSARY TO MAKE TIE-IN	
		2. PRE-ARRANGED SHUTDOWN OF SPECIFIC SYSTEM NECESSARY TO MAKE TIE-IN	
		3. HOT TAP	
		4. DURING PARTIAL SHUTDOWN	
		5. DURING UNIT SHUTDOWN	
		6. DURING MULTI-UNIT SHUTDOWN	
		SEE NOTE B	

				CLIENT: SHELL U.K. LTD PROJECT: PETERHEAD CCS (ONSHORE) LOCATION: PETERHEAD, SCOTLAND		DOC. NO.: CLIENT REF.: REV:		PCCS-00-TC-AA-6627-00001 K01	
ELECTRICAL INTERFACE SCHEDULE									
TP NO	ORGANISATION X	ORGANISATION Y	DESCRIPTION	INTERFACE POINT LOCATION (EQUIPMENT)	INTERFACE POINT TYPE	REFERENCE DWGS/DOCUMENTS	NOTES	REV	
TP - 3001 - E	PS EPC	SSE	Power Station Earthing Tie-Ins	Location of new booster fans Location of Ammonia Storage	GA	PCCS-01-TC-EA-8809-00001 OVERALL EARTHING LAYOUT DRAWING (POWER STATION)	Earthing tie in points for the Power Station are shown on PCCS-01-TC-EA-8809-00001.		
TP - 3002 - E	CCP EPC	SSE	Carbon Capture Plant Earthing Tie-Ins	Perimeter of the Carbon Capture plant shown on the drawing	GA	PCCS-02-TC-EA-8809-00001 OVERALL EARTHING LAYOUT DRAWING (CCCC)	Earthing tie in points for the Carbon Capture Plant are shown on PCCS-02-TC-EA-8809-00001.		
TP - 3003 - E	PS EPC	SSE	Modification of Existing HV Switchgear	Locations shown on the drawing	PB	PCCS-01-TC-EA-2384-00002 UNIT 20 ONE LINE DIAGRAM	Power station contractor is responsible for modification of existing HV Switchgear and connecting new loads as shown on the one line diagram and HV demolition schedule.		
TP - 3004 - E	PS EPC	SSE	Modification of Existing LV Switchgear	Locations shown on the drawing	PB	PCCS-01-TC-EA-2384-00002 UNIT 20 ONE LINE DIAGRAM	Power station contractor is responsible for modification of existing LV Switchgear and connecting new loads as shown LV demolition schedule.		
TP - 3005 - E	CCP EPC	National Grid/SSE	132kV Import Connection	National Grid Substation	PA	PCCS-02-TC-EA-2580-00001 HV AND LV PROTECTION AND METERING DIAGRAM SHEET 22	National grid substation Import cable connection		
TP - 3006 - E	PS EPC	National Grid/SSE	275kV Import Connection	National Grid Substation	PA	PCCS-01-TC-EA-2580-00001 UNIT 20 PROTECTION AND METERING DIAGRAM	National grid substation Import cable connection		
TP - 3007 - E	CCP EPC	SSE	Power Supplies for the Ammonia Storage	GT13 PCC	PB		New equipment in Ammonia storage area to be supplied from existing LV switchgear.		
TP - 3008 - E	CCP EPC	National Grid/SSE	132kV Protection and Metering Cabinets	National Grid Substation	PA	PCCS-02-TC-EA-2580-00001 HV AND LV PROTECTION AND METERING DIAGRAM SHEET 22	National grid substation replacement of existing protection and metering cabinets and cables.		

				CLIENT: SHELL U.K. LTD PROJECT: PETERHEAD CCS (ONSHORE) LOCATION: PETERHEAD, SCOTLAND		DOC. NO.: CLIENT REF.: REV:		PCCS-00-TC-AA-6627-00001 K01	
ELECTRICAL INTERFACE SCHEDULE									
TP NO	ORGANISATION X	ORGANISATION Y	DESCRIPTION	INTERFACE POINT LOCATION (EQUIPMENT)	INTERFACE POINT TYPE	REFERENCE DWGS/DOCUMENTS	NOTES	REV	
TP - 3009 - E	PS EPC	National Grid/SSE	275kV Protection and Metering Cabinets	National Grid Substation	PA	PCCS-01-TC-EA-2580-00001 UNIT 20 PROTECTION AND METERING DIAGRAM	National grid substation replacement of existing protection and metering cabinets and cables.		
TP - 3010 - E	PS EPC	SSE	GT13 Electrical Modification and Upgrade Work	GT13 PCC	PB	Siemens System Study Report	Power supplies required. Siemens are responsible for modifying and updating the existing electrical protecion, metering and control systems on GT13 to allow it to operate independent to GT11 and GT12 with the latest operating software and protection relays.		
TP - 3011 - E	PL EPC	CCP	Electrical equipment in the Piggig Compound installed in Compression area	Compression Area (see the plot plan)	PC	Plot Plan Overall CCCC Project Area Plan PCCS-00-TC-MP-4024-00002	Power supplies required. The Offshore pipeline design includes the installation of equipment on shore in the compression area. The piggig compound which is being designed by JP Kenny during the FEED will be supplied from the substation ESS-300, which is in the scope of the CCP EPC contractor.		
TP - 3012 - E	PL EPC	CCP	Electrical equipment in the Nitrogen Package installed in Compression area	Compression Area (see the plot plan)	PC	Plot Plan Overall CCCC Project Area Plan PCCS-00-TC-MP-4024-00002	Connection to main earth sytem by the OS EPC. The Offshore pipeline design includes the installation of equipment on shore in the compression area. The nitrogen package which is being designed by JP Kenny during the FEED will be supplied from the substation ESS-300, which is in the scope of the CCP EPC contractor.		
TP - 3013 - E	PL EPC	CCP	Electrical equipment in the Piggig Compound installed in Compression area	Compression Area (see the plot plan)	GB	Plot Plan Overall CCCC Project Area Plan PCCS-00-TC-MP-4024-00002	The Offshore pipeline design includes the installation of equipment on shore in the compression area. The piggig compound which is being designed by JP Kenny during the FEED will be supplied from the substation ESS-300, which is in the scope of the CCP EPC contractor.		
TP - 3014 - E	PL EPC	CCP	Electrical equipment in the Nitrogen Package installed in Compression area	Compression Area (see the plot plan)	GB	Plot Plan Overall CCCC Project Area Plan PCCS-00-TC-MP-4024-00002	Connection to main earth sytem by the OS EPC. The Offshore pipeline design includes the installation of equipment on shore in the compression area. The nitrogen package which is being designed by JP Kenny during the FEED will be supplied from the substation ESS-300, which is in the scope of the CCP EPC contractor.		
REFERENCE DOCUMENTS: PCCS-00-TC-AA-6627-00002 - INTERFACE RESPONSIBILITY SPECIFICATION									

LEGEND	
PPS EPC	Power Station EPC Contractor
CCP EPC	Carbon Capture Plant EPC Contractor
PL EPC	Pipe Line EPC Contractor

													CLIENT: PROJECT: LOCATION:	SHELL U.K. LTD PETERHEAD CCS (ONSHORE) PETERHEAD, SCOTLAND	DOC. NO.: CLIENT REF.: REV:	PCCS-00-TC-AA-6627-00001 K01
C&I INTERFACE SCHEDULE																
TP NO	DESCRIPTION	FROM LOCATION					CABLE MARK	TO LOCATION					INTERFACE POINT TYPE	REFERENCE DRAWINGS/DOCUMENTS	NOTES	REV
		ORG X	FIELD	BUILDING	ROOM	CABINET		ORG Y	FIELD	BUILDING	ROOM	CABINET				
TP - 4001 - I	Fibre Optic Cable connection	CCP EPC		CCS Control Building	Equipment Room	FO Patch Panel	00-ICSSFO-0001	PS EPC		PPS Control Building	Control Room	FO Patch Panel	CS	PCCS-00-TC-IN-0901-00001	6-core, single-mode, armoured, fibre-optic cable for exchange of data	
TP - 4002 - I	Hard-wired cable connection	CCP EPC		CCS Control Building	PS Control Room	Safety Console	00-ICSSD-0002	PS EPC		PPS Control Building	Control Room	Safety Console	CS	PCCS-00-TC-IN-0901-00001	20-pair, 1.5 mm ² , armoured cable for shutdown and status signals	
TP - 4003 - I	BT leased line	CCP EPC		CCS Control Building	Equipment Room	Interface Panel	00-ICSSD-0003	Shell		St Fergus Control Building	Control Room	Interface Cabinet	CS	PCCS-00-TC-IN-0901-00001	Modbus serial connection via BT leased line from CCS control room to St Fergus control room.	
TP - 4004 - I	BT leased line	CCP EPC		CCS Control Building	Equipment Room	Interface Panel	00-ICSSD-0004	Shell		Shell Tullos Office Building	Control Room	Interface Cabinet	CS	PCCS-00-TC-IN-0901-00001	Modbus serial connection via BT leased line from CCS control room to Shell Tullos Office.	
TP - 4005 - I	Broadband link	CCP EPC		CCS Control Building	Communication Room	Broad band Interface Cabinet	00-ICSSD-0005	Shell		Goldeney Control Room	Control Room	Broad band Interface Cabinet	CS	PCCS-00-TC-IN-0901-00001	Shell will be providing cabinet incorporating communication modules for broadband interface between CCS control room and Goldeneye free panels.	
TP - 4006 - I	Hard-wired cable connection	CCP EPC		CCS Control Building	Equipment Room	Safety cabinet	00-ICSSD-0006	PL EPC		Pig Launcher Receiver Package	Field	JB : 01-JBED-4010	CS	PCCS-00-TC-IN-0901-00001	10-pair, 1.5 mm2, armoured cable for shutdown and status signals	
TP - 4007 - I	Hard-wired cable connection	CCP EPC		CCS Control Building	Equipment Room	Safety cabinet	00-ICSSD-0007	PL EPC		Pig Launcher Receiver Package	Field	JB : 01-JBEA-4009	CS	PCCS-00-TC-IN-0901-00001	10-pair, 0.75 mm2, armoured cable for shutdown and status signals	
TP - 4008 - I	Hard-wired cable connection	CCP EPC		CCS Control Building	Equipment Room	Control cabinet	00-ICSSD-0008	PL EPC		Pig Launcher Receiver Package	Field	JB : 01-JBPA-4007	CS	PCCS-00-TC-IN-0901-00001	10-pair, 0.75 mm2, armoured cable for control and indication signals.	
TP - 4009 - I	Hard-wired cable connection	CCP EPC		CCS Control Building	Equipment Room	Control cabinet	00-ICSSD-0009	PL EPC		Pig Launcher Receiver Package	Field	JB : 01-JBPD-4008	CS	PCCS-00-TC-IN-0901-00001	10-pair, 0.75 mm2, armoured cable for control and indication signals.	
REFERENCE DOCUMENTS: PCCS-00-TC-AA-6627-00002 - INTERFACE RESPONSIBILITY SPECIFICATION																

LEGEND	
PPS EPC	Power Station EPC Contractor
CCP EPC	Carbon Capture Plant EPC Contractor
PL EPC	Pipe Line EPC Contractor



Peterhead CCS Project

Doc Title: Interface Responsibility Specification

Doc No. **PCCS-00-TC-AA-6627-00002**

Revision: **K01**

KEYWORDS

Goldeneye, CO₂, Carbon Capture and Storage, Interface.



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1. Introduction

The Peterhead CCS Project would be the world's first commercial scale demonstration of CO₂ capture, transport and offshore geological storage from a (post combustion) gas-fired power station. Carbon Capture technology will be fitted to an existing gas-fired power station at Peterhead in North East Scotland, UK, at a site with sufficient space for the construction of the post combustion CO₂ capture plant and the compression and conditioning plant. Approximately one million tonnes of CO₂ will be captured from the flue gas produced by the Peterhead Power Station and stored each year in a depleted Goldeneye reservoir currently operated by Shell. After capture, the CO₂ will be routed to compression, also located at the Peterhead Power Station site, where it will be compressed, cooled and conditioned for water and oxygen removal to meet a suitable transportation and storage specification. Following post-compression cooling the resulting dense phase CO₂ stream will be transported direct offshore via a new offshore pipeline which will tie-in subsea to the existing Goldeneye pipeline. The CO₂ will be permanently stored in an area centered on the depleted Goldeneye gas field.

2. Scope of Document

This document will cover the distribution of responsibilities for the various interfaces and tie-ins for the modifications to the existing SSE Power Generation Plant and the new onshore facilities for carbon capture, compressions and conditioning before it is transported offshore.

3. General

The purpose of this document is to describe the split of works between Packages for each interface point type for piping, control and instrumentations and electrical disciplines. This document clarifies as necessary the split of works during construction, pre-commissioning and commissioning.

4. Mechanical (Piping and Ducting)

The following Interface Point types for aboveground piping are hereby described:

- Type 1
- Type 2
- Type 3a
- Type 3b
- Type 4a
- Type 4b



4.1. Piping – Interface Point Type “1”

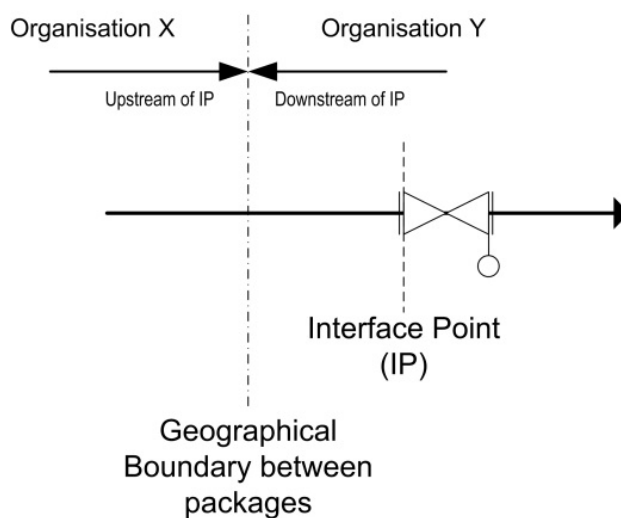


Figure 5-1: Interface Point at nearest flange/valve

Table 5-1: Piping - Interface Point Type "1"

PHASE	ITEM	ORG X	ORG Y	REMARKS
Design	Piping upstream of geographical battery limit	X		ORG-X to coordinate and share stress information with ORG-Y
	Piping and flange from geographical battery limit to first isolation valve (where IP is located)		X	ORG-Y to provide isometric drawings to ORG-X to allow purchasing of material
	Piping, flange and valve downstream of IP		X	
Procurement	Piping upstream of geographical battery limit	X		
	Piping and flange from geographical battery limit to first isolation valve (including final gasket on IP)	X		
	Piping, flange, valve, bolts, nuts, spectacle blind (or spacer and slip blind) downstream of IP		X	
Construction	Erection and hydrotest of piping upstream of IP	X		For utilities, block valve is given by ORG-Y to ORG-X for installation Including supply, removal and disposal of water
	Erection and hydrotest of piping downstream of IP		X	Including supply, removal and disposal of water



PHASE	ITEM	ORG X	ORG Y	REMARKS
Pre-commissioning	Pre-commissioning (air blowing or water flushing, etc.) of piping upstream of IP	X		Including the installation of final gasket on IP and tightening of valve and flange at IP.
	Pre-commissioning (air blowing or water flushing, etc.) of piping downstream of IP		X	
Commissioning	Commissioning (tightness test, nitrogen purging, etc.) of piping upstream of IP	X		
	Commissioning (tightness test, nitrogen purging, etc.) of piping downstream of IP		X	

NOTE 1: In above matrix, ORG-Y is defined as the Contractor with isolation valve in its own scope of work, while ORG-X is the other Contractor.

NOTE 2: In above matrix, the term “upstream” refers to ORG-X, while “downstream” refers to ORG-Y.

NOTE 3: Each Contractor shall be responsible for painting, insulation and heat tracing up to the interface point.

4.2. Piping – Interface Point Type “2”

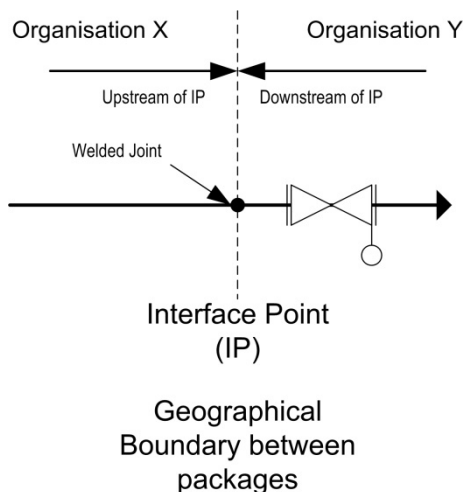


Figure 5-2: Welded Joint



Table 5-2: Piping - Interface Point Type "2"

PHASE	ITEM	ORG X	ORG Y	REMARKS
Design	Piping upstream of geographical battery limit	X		ORG-X to coordinate and share stress information with ORG-Y
	Piping downstream of geographical battery limit		X	
Procurement	Piping upstream of geographical battery limit	X		
	Piping downstream of geographical battery limit		X	
Construction	Erection of piping upstream of geographical battery limit	X		
	Erection and hydrotest downstream of IP up to first valve or flange		X	ORG-Y to test his portion to allow ORG-X to make the overall test including supply, removal and disposal of water
	Welding of piping at geographical battery limit	X		After ORG-Y has hydrotested his piping and removed the test cap (or flange and blind)
	Hydrotest of piping upstream and downstream of IP up to first valve or flange		X	Including supply, removal and disposal of water
Pre-commissioning	Pre-commissioning (Air blowing or water flushing, etc.) of piping upstream and downstream of IP up to first valve or flange	X	X	ORG-Y to carry out the final reinstatement (after pre-commissioning) of its own piping downstream of IP
	Pre-commissioning (Air blowing or water flushing, etc.) of piping downstream of first valve or flange		X	
Commissioning	Commissioning (tightness test, nitrogen purging, etc.) of piping upstream and downstream of IP up to first valve	X	X	ORG-Y to check and fix eventual leaks of its own piping downstream of IP
	Commissioning (tightness test, nitrogen purging, etc.) of piping downstream of first valve		X	

NOTE 1: In above matrix, ORG-Y is defined as the Contractor with closest isolation valve in its own scope of work, while ORG-X is the other Contractor.

NOTE 2: In above matrix, the term “upstream” refers to ORG-X, while “downstream” refers to ORG-Y.

NOTE 3: Each Contractor shall be responsible for painting, insulation and heat tracing up to the interface point.



4.3. Piping – Interface Point Type “3a”

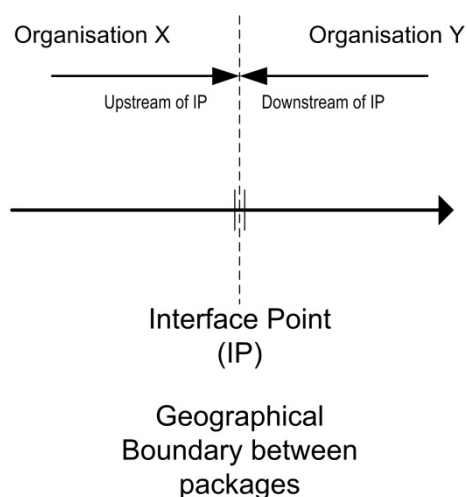


Figure 5-3: Piping - I/P at flange at geographical boundary between Packages

Table 5-3: Piping - Interface Point Type "3a"

PHASE	ITEM	ORG X	ORG Y	REMARKS
Design	Piping and flange upstream of IP	X		ORG-X to coordinate and share stress information with ORG-Y
	Piping and flange downstream of IP		X	
Procurement	Piping and flange (including spectacle blind or spacer and slip blind) upstream of IP	X		
	Piping and flange (including bolts, nuts and final gasket) downstream of IP		X	
Construction	Erection and hydrotest upstream of IP	X		Including supply, removal and disposal of water
	Erection and hydrotest downstream of IP		X	Including supply, removal and disposal of water
Pre-commissioning	Pre-commissioning (air blowing or water flushing, etc.) of piping upstream of IP	X		
	Pre-commissioning (air blowing or water flushing, etc.) of piping downstream of IP		X	Including final reinstatement of flange at IP
Commissioning	Commissioning (tightness test, nitrogen purging, etc.) of piping upstream and downstream of IP up to first valve	X	X	ORG-Y to check and fix eventual leaks of its own piping downstream of IP



PHASE	ITEM	ORG X	ORG Y	REMARKS
	Commissioning (tightness test, nitrogen purging, etc.) of piping downstream of first valve		X	

NOTE 1: In above matrix, ORG-Y is defined as the Contractor with closest isolation valve in its own scope of work, while ORG-X is the other Contractor.

NOTE 2: In above matrix, the term “upstream” refers to ORG-X, while “downstream” refers to ORG-Y.

NOTE 3: Each Contractor shall be responsible for painting, insulation and heat tracing up to the interface point

4.4. Piping – Interface Point Type “3b”

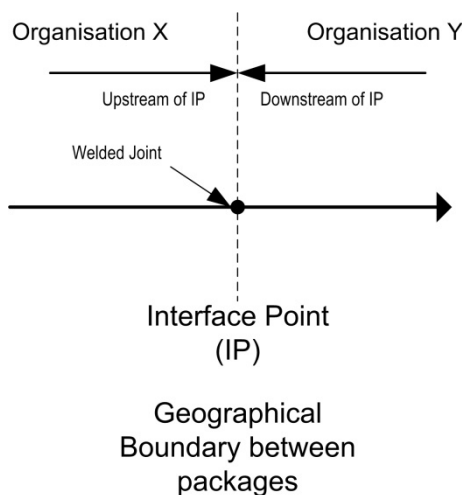


Figure 5-4: Piping - I/P at weld at geographical boundary between Packages

Table 5-4: Piping - Interface Point Type "3b"

PHASE	ITEM	ORG X	ORG Y	REMARKS
Design	Piping upstream of IP	X		ORG-X to coordinate and share stress information with ORG-Y
	Piping downstream of IP		X	
Procurement	Piping upstream of IP	X		
	Piping downstream of IP		X	
Construction	Erection upstream of IP	X		
	Erection and hydrotest downstream of IP up to first valve or flange		X	ORG-Y to test his portion to allow ORG-X to make the overall test, including supply, removal and disposal of water
	Welding of piping at geographical battery limit	X		After ORG-Y has hydrotested his piping and removed the test cap (or flange or



PHASE	ITEM	ORG X	ORG Y	REMARKS
				blind)
	Hydrotest of piping upstream and downstream of IP up to first valve or flange		X	Including supply, removal and disposal of water
Pre-commissioning	Pre-commissioning (air blowing or water flushing, etc.) of piping upstream and downstream of IP up to first valve or flange	X	X	ORG-Y to carry out the final reinstatement (after pre-commissioning) of its own piping downstream of IP
	Pre-commissioning (air blowing or water flushing, etc.) of piping downstream of first valve or flange		X	
Commissioning	Commissioning (tightness test, nitrogen purging, etc.) of piping upstream and downstream of IP up to first valve	X	X	ORG-Y to check and fix eventual leaks of its own piping downstream of IP
	Commissioning (tightness test, nitrogen purging, etc.) of piping downstream of first valve		X	

NOTE 1: In above matrix, ORG-Y is defined as the Contractor with closest isolation valve in its own scope of work, while ORG-X is the other Contractor.

NOTE 2: In above matrix, the term “upstream” refers to ORG-X, while “downstream” refers to ORG-Y.

NOTE 3: Each Contractor shall be responsible for painting, insulation and heat tracing up to the interface point

4.5. Ducting – Interface Point Type “4a”

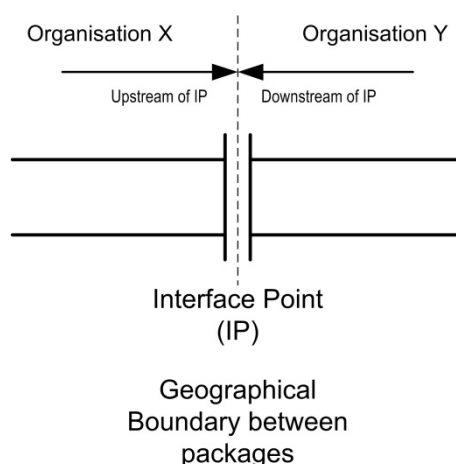


Figure 5-5: Ducting - I/P at flange at geographical boundary between Packages

**Table 5-5: Ducting - Interface Point Type "4a"**

PHASE	ITEM	ORG X	ORG Y	REMARKS
Design	Ducting, flange and expansion joint upstream of IP	X		ORG-X to coordinate and share stress information with ORG-Y
	Ducting and flange downstream of IP		X	
Procurement	Ducting, flange and expansion joint upstream of IP	X		
	Ducting and flange (including bolts, nuts and final gasket) downstream of IP		X	
Construction	Erection and tightness test upstream of IP	X		
	Erection and tightness test downstream of IP		X	
Pre-commissioning	Pre-commissioning (air blowing or water flushing, etc.) of ducting upstream of IP	X		
	Pre-commissioning (air blowing or water flushing, etc.) of ducting downstream of IP		X	Including final reinstatement of flange at IP
Commissioning	Commissioning (tightness test, nitrogen purging, etc.) of ducting upstream and downstream of IP	X	X	ORG-Y to check and fix eventual leaks of its own ducting downstream of IP
	Commissioning (tightness test, nitrogen purging, etc.) of ducting downstream		X	

NOTE 1: In above matrix, the term “upstream” refers to ORG-X, while “downstream” refers to ORG-Y.

NOTE 2: Each Contractor shall be responsible for painting and insulation up to the interface point



4.6. Ducting – Interface Point Type “4b”

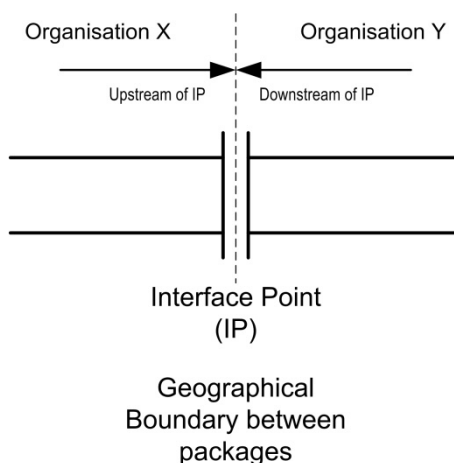


Figure 5-6: Ducting - I/P at flange at geographical boundary between Packages

Table 5-6: Ducting - Interface Point Type "4b"

PHASE	ITEM	ORG X	SSE	REMARKS
Design	Ducting, flange and expansion joint upstream of IP	X		ORG-X to coordinate and share stress information with ORG-Y
	Ducting and flange downstream of IP		X	Existing boiler duct within stack
Procurement	Ducting, flange (including bolts, nuts and final gasket) and expansion joint upstream of IP	X		
	Ducting and flange downstream of IP		X	Existing boiler duct within stack
Construction	Erection and tightness test upstream of IP	X		
	Erection and tightness test downstream of IP	X		
Pre-commissioning	Pre-commissioning (air blowing or water flushing, etc.) of ducting upstream of IP	X		
	Pre-commissioning (air blowing or water flushing, etc.) of ducting downstream of IP	X		Including final reinstatement of flange at IP
Commissioning	Commissioning (tightness test, nitrogen purging, etc.) of ducting upstream and downstream of IP	X		
	Commissioning (tightness test,	X		



PHASE	ITEM	ORG X	SSE	REMARKS
	nitrogen purging, etc.) of ducting downstream of IP			

NOTE 1: In above matrix, ORG-Y is defined as SSE, while ORG-X is the CCP EPC.

NOTE 2: In above matrix, the term “upstream” refers to ORG-X, while “downstream” refers to ORG-Y.

NOTE 3: Org X shall be responsible for painting and insulation.

5. Electrical

The following Interface Point types are hereby described:

- Power Distribution – Type PA, PB
- Grounding System – Type GA
- Telecommunication Systems – Type CA

5.1. Power Distribution

5.1.1. Interface Point Type “PA”

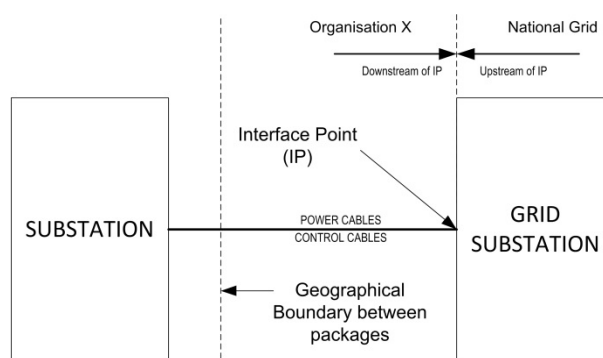


Figure 5-1: Power Distribution - Interface Point Type "PA"

Table 5-1: Power Distribution - Interface Point Type "PA"

PHASE	ITEM	ORG X	NATIONAL GRID	REMARKS
Design	Cable routing up to IP.	X		
	Cables, terminals and accessories up to IP.	X		
Procurement	Cables, terminals and accessories up to IP.	X		Including termination kits.
Construction	Cable trenching and cable rack up to IP.	X		Including trench backfilling after cables laying and testing is completed.
	Cables (both power and control)	X		Including cables continuity test.



PHASE	ITEM	ORG X	NATIONAL GRID	REMARKS
	laying in trenches or on rack up to IP.			
	Cables termination and physical connection to equipment.	X		ORG X shall be responsible for terminating at both ends.
Testing	Equipment (transformers, switchgear, etc.) and cables.	X	X	ORG-X will lead and coordinate the test phase.

5.1.2. Interface Point Type "PB"

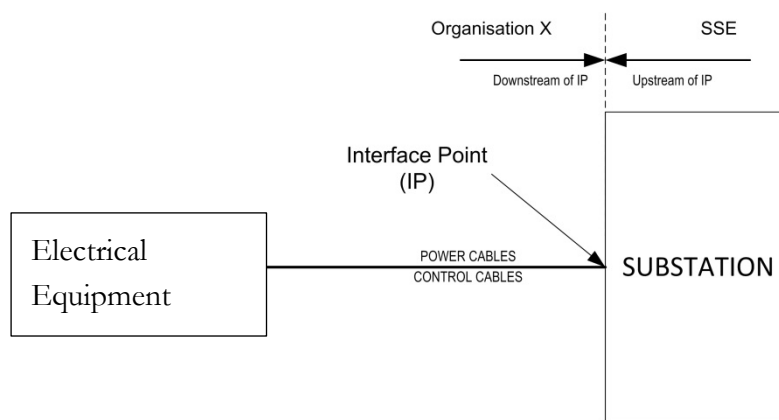


Figure 5-2: Power Distribution - Interface Point Type "PB"

Table 5-2: Power Distribution - Interface Point Type "PB"

PHASE	ITEM	ORG X (PS EPC)	ORG Y (SSE)	REMARKS
Design	Cable routing in its plant area	X		
	Cables, terminals and accessories up to IP.	X		
	Modifications to switchgear	X		
Procurement	Cables, terminals and accessories up to IP.	X		Including termination kits.
	Equipment upstream of IP, i.e. modification to switchgear.	X		
Construction	Cable trenching / racking in its plant area	X		Including backfilling after cable laying is completed.
	Cable laying in trenches / on	X		Including cables continuity test.



PHASE	ITEM	ORG X (PS EPC)	ORG Y (SSE)	REMARKS
	racking up to IP.			
	Cables termination and physical connection to equipment.	X		ORG X shall be responsible for terminating at both ends.
Testing	Equipment (transformers, switchgear, etc.) and cables.	X	X	ORG-X will lead and coordinate the test phase.

NOTE 1: In above matrix, ORG-X is defined as the Power Station EPC Contractor with electrical equipment, while ORG-Y is SSE.

NOTE 2: In above matrix, the term “downstream” refers to ORG-X, while “upstream” refers to ORG-Y.

5.1.3. Interface Point Type “PC”

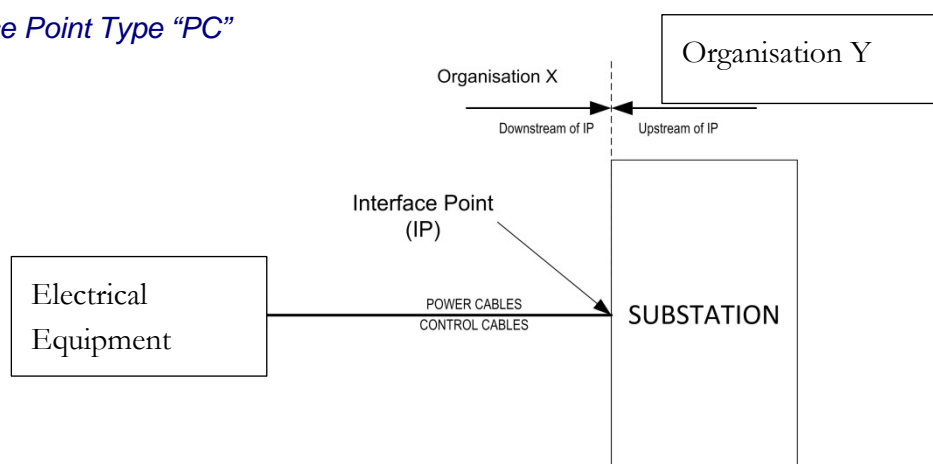


Figure 5-3: Power Distribution - Interface Point Type "PB"

Table 5-3: Power Distribution - Interface Point Type "PB"

PHASE	ITEM	ORG X (OS EPC)	ORG Y (CCP EPC)	REMARKS
Design	Cable routing in its plant area		X	Cable routes to the substation to be designed by ORG Y.
	Cables, terminals and accessories up to IP.	X		
	Design of switchgear		X	Design of all switchgear by ORG Y
Procurement	Cables, terminals and accessories up to IP.	X		
	Equipment upstream of IP, i.e.		X	Supply of switchgear by ORG Y



PHASE	ITEM	ORG X (OS EPC)	ORG Y (CCP EPC)	REMARKS
	modification to switchgear.			
Construction	Cable trenching / racking in its plant area		X	
	Cable laying in trenches / on racking up to IP.	X		Including cables continuity test.
	Cables termination and physical connection to equipment.	X		ORG X shall be responsible for terminating at both ends.
Testing	Equipment (transformers, switchgear, etc.) and cables.	X	X	ORG-X will lead and coordinate the test phase.

NOTE 1: In above matrix, ORG-X is defined as the Offshore EPC Contractor with electrical equipment, while ORG-Y is the on shore Carbon Capture Plant EPC contractor.

NOTE 2: In above matrix, the term “downstream” refers to ORG-X, while “upstream” refers to ORG-Y.

5.2. Grounding System

5.2.1. Interface Point Type “GA”

Table 5-4: Grounding Systems - Interface Point Type "GA"

PHASE	ITEM	ORG-X	ORG-Y (SSE)	REMARKS
Design	Earthing grid	X		Including analysis of overall system to meet appropriate standards.
Procurement	Earthing grid	X		
Construction	Earthing grid	X		Including connection to existing main earthing system.
Testing	Earthing grid	X		

5.2.2. Interface Point Type “GB”

Table 5-5: Grounding Systems - Interface Point Type "GB"

PHASE	ITEM	ORG-X (OS EPC)	ORG-Y (CCP EPC)	REMARKS
Design	Earthing grid	X		For the equipment they will be supplying and



PHASE	ITEM	ORG-X (OS EPC)	ORG-Y (CCP EPC)	REMARKS
				installing only..
Procurement	Earthing grid	X		Materials to the point of interface and to connect on to the main grid designed by ORG Y.
Construction	Earthing grid	X		Including connection to existing main earthing system.
Testing	Earthing grid	X		

5.3. Telecommunication Systems

5.3.1. Interface Point Type "CA"

Table 5-6: Telecommunication Systems - Interface Point Type "CA"

PHASE	ITEM	ORG X	ORG Y	REMARKS
Design	Each Contractor shall provide power supply and the Telecom Power Distribution Panels (PDP) within their Battery Limits.	X		
	Contractor shall be responsible for Design of: - Power cable for the supply of Telecom UPS - Telecom UPS - Power cable from UPS to the Telecom Power Distribution Panels (PDP). - Telecom Power Distribution Panels (PDP).	X		
	Telecom UPS and PDP sizing requirements for design shall be provided by ORG-Y		X	
Procurement	Contractor shall be responsible for procurement of: - Power cable for the supply of Telecom UPS - Telecom UPS - Power cable from UPS to the Telecom Power Distribution	X		



PHASE	ITEM	ORG X	ORG Y	REMARKS
	Panels (PDP). - Telecom Power Distribution Panels (PDP).			
Construction	Contractor shall be responsible for installation of: - Power cable for the supply of Telecom UPS - Telecom UPS - Power cable from UPS to the Telecom Power Distribution Panels (PDP). - Telecom Power Distribution Panels (PDP).	X		

NOTE 1: In above table, ORG-X is either the Power Station or Carbon Capture Plant EPC Contractor, ORG-Y is either SSE, Shell or the Power Station EPC Contractor.



6. Control Systems

6.1. Control Systems

6.1.1. Interface Point Type "CS"

Table 5-1: Control System - Interface Point Type "CS"

PHASE	ITEM	ORG X	ORG Y	REMARKS
Design	Each Contractor shall be responsible for the cable routing within its battery limit.	X	X	
	One Contractor shall be responsible for the interconnecting cabling between battery limits	X		
	Each Contractor shall be responsible for the control system design within its battery limits.	X	X	
Procurement	Each Contractor shall be responsible for the control system and cabling procurement within its battery limits.	X	X	
	One Contractor shall be responsible for the interconnecting cabling procurement between battery limits.	X		
Construction	Each Contractor shall be responsible for the civil works (cable trench or cable racking) within its battery limit.	X	X	
	Each Contractor shall be responsible for the control system installation within its battery limits.	X	X	
	One Contractor is responsible for laying the Data Signals Hard Wired/Fibre Optic/Serial Link from the Carbon Capture Control Room to the Power	X		



PHASE	ITEM	ORG X	ORG Y	REMARKS
Station Control Room.				
Testing	Control System	X	X	ORG-X will lead and coordinate the test phase.

7. Civil, Structural and Architectural

7.1. Underground Gravity Interface Points

7.1.1. Underground Gravity Lines – Interface Point Type “G1”

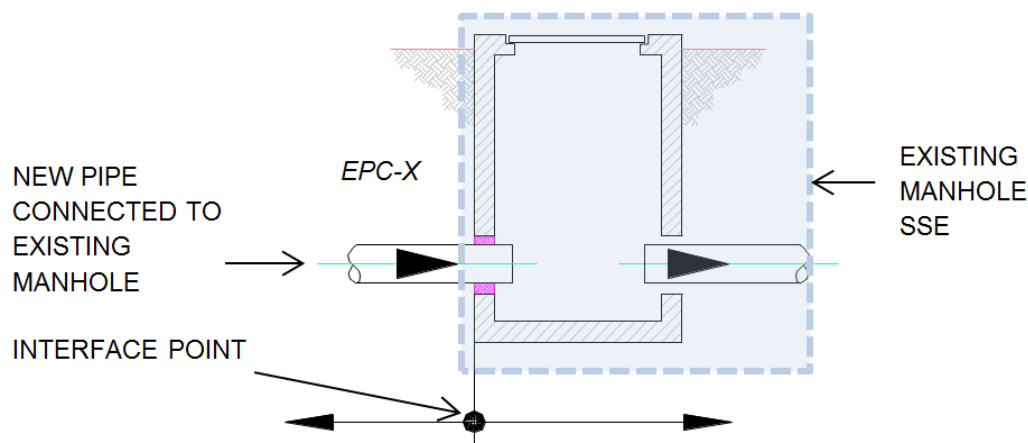


Figure 5-1: Underground Gravity Lines – Interface Point Type “G1”

Table 5-1: Underground Gravity Lines – Interface Point Type “G1”

PHASE	ITEM	EPC-X	REMARKS
Design	Piping up to IP	X	
Procurement	Piping up to IP	X	
Construction	Erection of piping up to IP	X	Including the encasing of pipe in pit Including any required test on piping before pit- to-pit test
	Pit-to-pit test of piping	X	Including supply, removal and disposal of water
Pre-	Manual cleaning of pit at	X	
Commissioning	NA		



7.1.2. Underground Gravity Lines – Interface Point Type “G2”

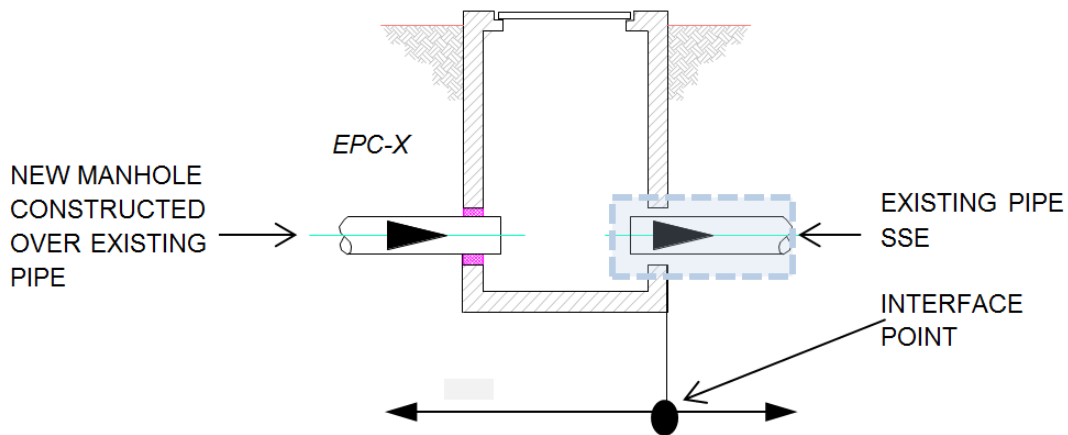


Figure 5-2: Underground Gravity Lines – Interface Point Type “G2”

Table 5-2: Underground Gravity Lines – Interface Point Type “G2”

PHASE	ITEM	EPC-X	REMARKS
Design	Piping up to IP including pit		
Procurement	Piping up to IP	X	Including materials for pit
Construction	Erection of piping up to IP	X	Including construction of pit
	Pit-to-pit test of piping up to IP	X	Including supply, removal and disposal of water
	Erection of piping up to IP including pit		Including the sealing of EPC-A pipe in pit
	Pit-to-pit test of piping up to IP		Including any required
	Pit-to-pit test of piping up to IP		Including supply, removal and disposal of water
Pre-commissioning	Manual cleaning of pit at IP		
Commissioning	NA		



7.1.3. Underground Pressure Lines – Interface Point Type “P1”

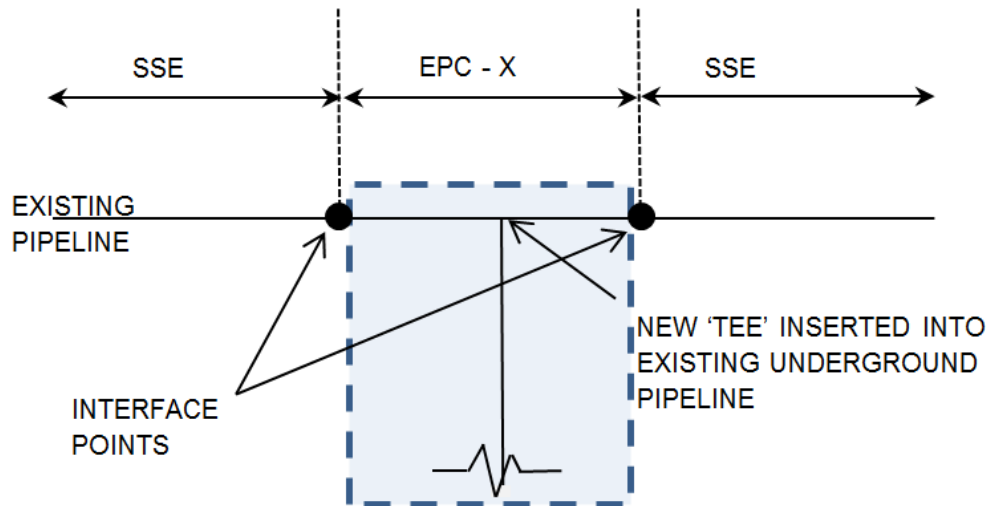


Figure 5-3: Underground Pressure Lines – Interface Point Type “P1” Plan View

Table 5-3: Underground Pressure Lines – Interface Point Type “P1”

PHASE	ITEM	EPC-X	REMARKS
Design	Piping from IP	X	
Procurement	Piping up to IP	X	Including supply of
	Isolated existing pipeline	X	Including temporary by-pass if required
	Erection and hydrotest up to IP	X	Including the supply, removal and disposal of
	Trench backfilling up to IP	X	Including trench
Pre-commissioning	Water flushing of piping upstream and downstream of IP up to first valve or flanged	X	Including the supply, removal and disposal of
Commissioning	Removal of any temporary works, by-passes, etc.	X	



8. References - Bibliography

PCCS-00-TC-AA-6627-00001

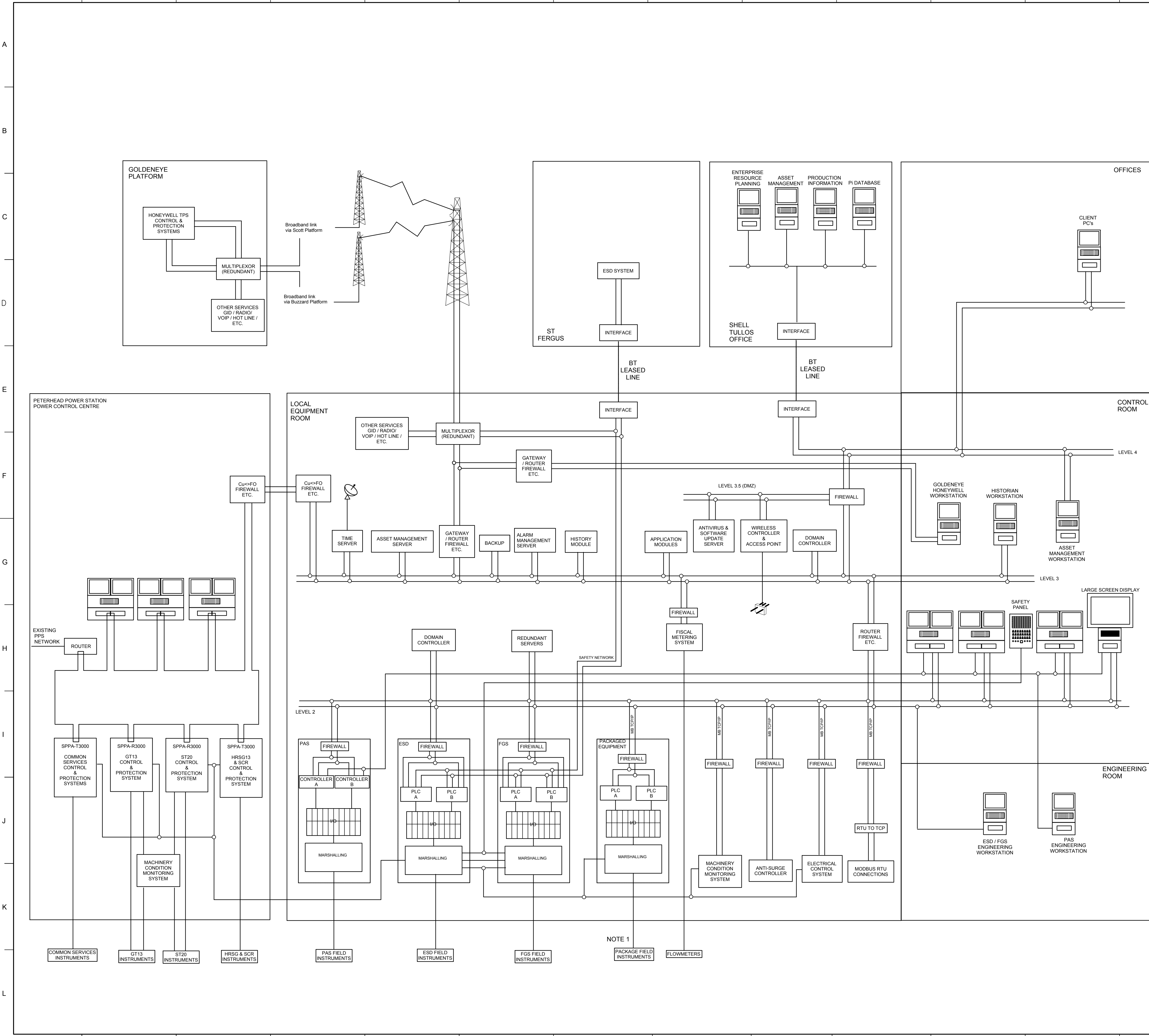
Interface Schedule



9. Glossary of Terms

Term	Definition
CCP	Carbon Capture Plant
CCS	Carbon Capture and Storage
EPC	Engineering, Procurement and Construction
IP	Intermediate Pressure
ORG	Organisation
PDP	Power Distribution Panels
UPS	Uninterruptable Power Supply

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NOTES:

1. CCS PACKAGE SYSTEMS INCLUDE:-

- > ION EXCHANGE UNIT
- > CO2 COMPRESSOR
- > WASTE WATER TREATMENT

2. PPS PACKAGE SYSTEMS INCLUDE:-

- > AQUEOUS AMMONIA PACKAGE

HOLDS:

LEGEND:

- REDUNDANT ETHERNET
- FIBRE OPTIC
- HARDWIRED
- ROOM/BUILDING LIMITS

ABBREVIATIONS:

ESD - EMERGENCY SHUTDOWN SYSTEM

FGS - FIRE & GAS SYSTEM

HRSG - HEAT RECOVERY STEAM GENERATOR

PAS - PROCESS AUTOMATION SYSTEM

PI - PRODUCTION INFORMATION

PPS - PETERHEAD POWER STATION

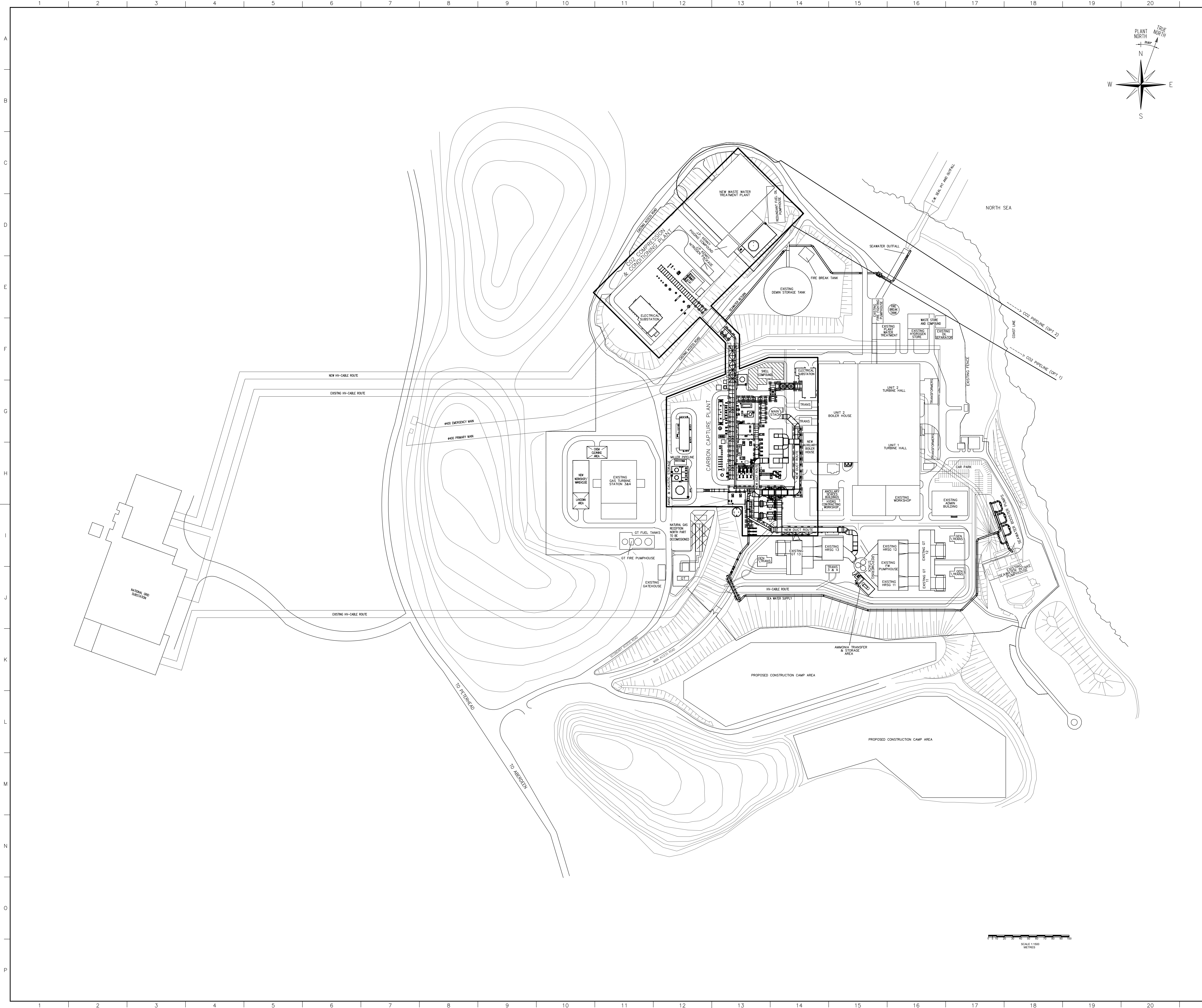
SCR - SELECTIVE CATALYTIC REDUCTION

Rev	Date	Revision Object	Written by	Checked by	Approved by

PETERHEAD
CCS (ONSHORE)

CONTROL SYSTEMS ARCHITECTURE

DOC. CLASS:	SCALE: NTS	SHEET: 1 OF 1
CLIENT Doc. Ref.	PCCS-00-TC-IN-0901-00001	REVISION K01 FORMAT A1



REFERENCE DRAWINGS

PCCS-00-TC-MP-4024-00002OVERALL PLOT PLAN

GENERAL NOTES

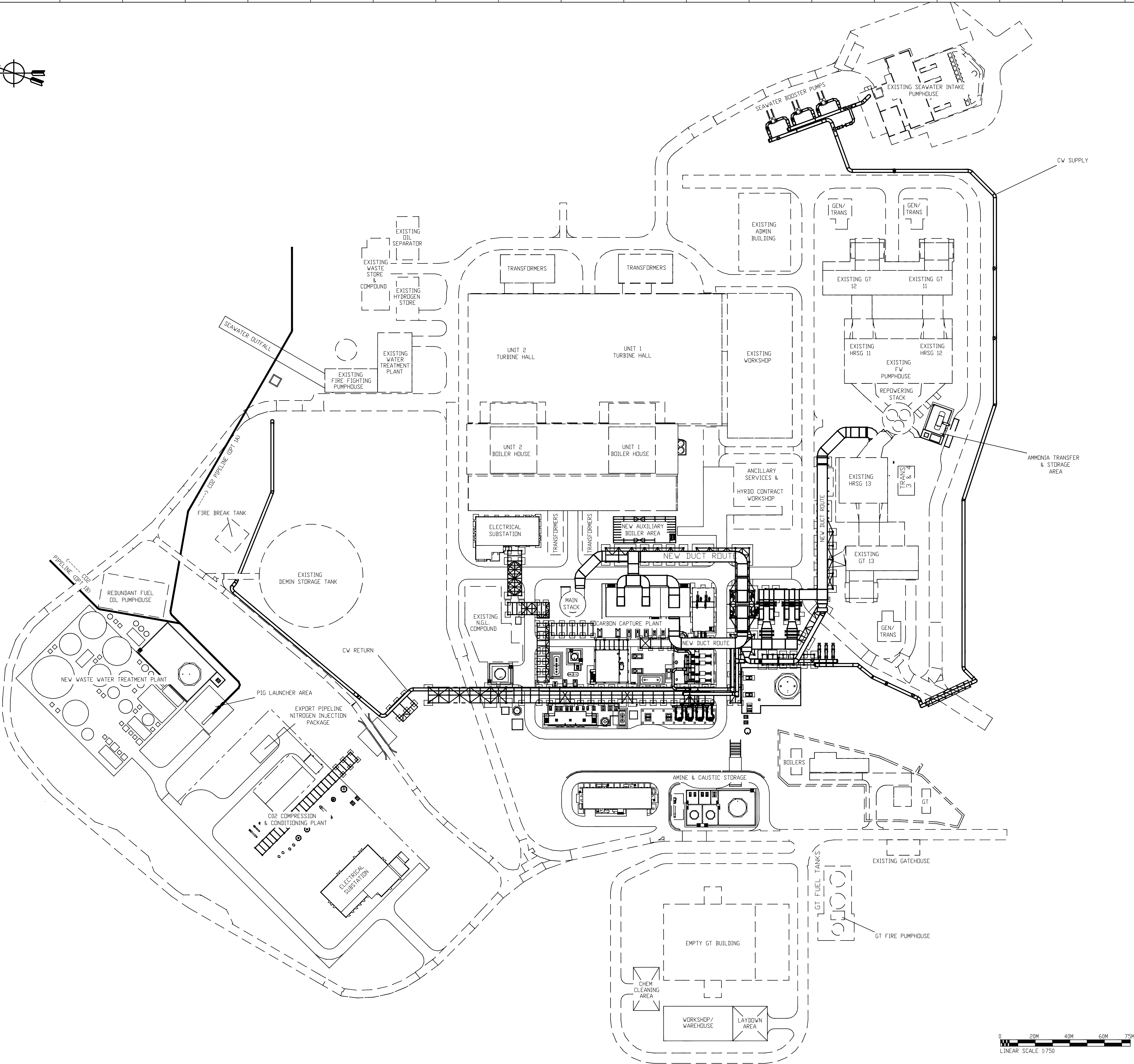
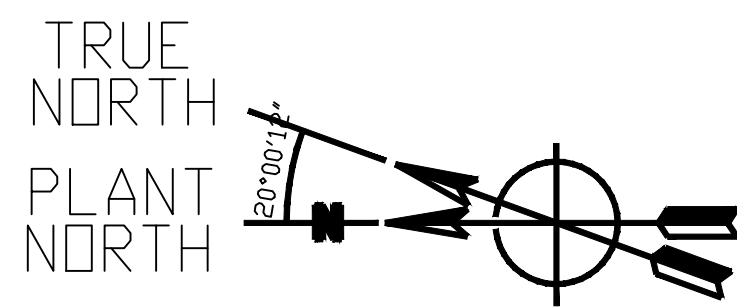
1. CONSTRUCTION SITE DATUM COORDINATES TO BE CONFIRMED
2. DELETED
3. CONSTRUCTION CAMP AND LAYDOWN AREAS TO BE CONFIRMED
4. DELETED
5. DELETED

Rev	Date	Revision Object	Written by	Checked by	Approved by

PETERHEAD
CCS (ONSHORE)

SITE MASTER PLAN (ONSHORE)

DOC CLASS:	SCALE: 1:1500	SHEET: 1 of 1
CLIENT Doc Ref:	PCCS-00-TC-MP-4024-00001	REVISION FORMAT
		K01 A0



GENERAL NOTES:

- EXISTING BUILDINGS, STRUCTURES & INFRASTRUCTURE SHOWN IN DOTTED FOR INDICATIVE PURPOSES ONLY & ARE SUBJECT TO DETAILED SITE SURVEY BY EPC CONTRACTOR.
- NEW DUCT ROUTES, CW SUPPLY/RETURN AND CO₂ PIPELINE SHOWN IN BOLD.
- ALL NEW EQUIPMENT SIZES ARE PRELIMINARY.

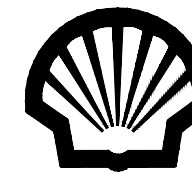
REFERENCE DRAWINGS

CLIENT DDC NO.	TITLE
PCCS-00-TC-MP-4024-00001	SITE MASTER PLAN (ONSHORE)

NOTES:

- ROUTE OF CO₂ PIPELINE TO GOLDEN EYE PLATFORM TO BE FINALISED.

Rev	Date	Revision Object	Written by	Checked by	Approved by

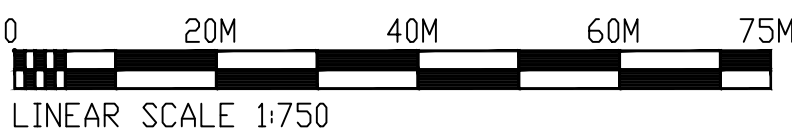


PETERHEAD
CCS (ONSHORE)

PLOT PLAN
OVERALL CCCC PROJECT
AREA PLAN

DDC CLASS	SCALE	SHEET	REVISION	FORMAT
CLIENT DDC Ref	PCCS-00-TC-MP-4024-00002	K01	A0	

LAST REV DATE:



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C																
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EQUIP ID
NAME

AREA/DESIGN DUTY
DESIGN PRESS/TEMP
NUMBER OF BAYS/FANS PER BAY
TRIM LINE NUMBER

(m²/MW)
(Barg/°C)

1

EQUIP ID
NAME

INSIDE DIA/LENGTH (TAN TO TAN)
DESIGN PRESS/TEMP
INSULATION TYPE
TRIM LINE NUMBER

(mm/mm)
(Barg/°C)

EQUIP ID
NAME

LxWxH
DESIGN PRESS/TEMP
INSULATION TYPE
TRIM LINE NUMBER

(mm)
(Barg/°C)

EQUIP ID
NAME

EQUIP ID
NAME

AREA/DESIGN DUTY
HOT SIDE DESIGN PRESS/TEMP
COLD SIDE DESIGN PRESS/TEMP
HOT SIDE INSULATION TYPE
COLD SIDE INSULATION TYPE
TRIM LINE NUMBER

(m²/MW)
(Barg/°C)
(Barg/°C)

1

EQUIP ID
NAME

INSIDE DIA/LENGTH (TAN TO TAN)
DOME DIA/LENGTH
DESIGN PRESS/TEMP
INSULATION TYPE
DOME INSULATION TYPE
TRIM LINE NUMBER

(mm/mm)
(mm/mm)
(Barg/°C)

EQUIP ID
NAME

INSIDE DIA/LENGTH (TAN TO TAN)
BOOT DIA/LENGTH
DESIGN PRESS/TEMP
INSULATION TYPE
BOOT INSULATION TYPE
TRIM LINE NUMBER

(mm/mm)
(mm/mm)
(Barg/°C)

EQUIP ID
NAME

DESIGN PRESS/TEMP
RATED FLOW
RATED DIFF. PRESS
INSULATION SPEC
TRIM LINE NUMBER

(Barg/°C)
(m³/h)
(Bar)

EQUIP ID
NAME

DESIGN PRESS/TEMP
RATED FLOW
INSULATION SPEC
TRIM LINE NUMBER

(Barg/°C)
(m³/h)

EQUIP ID
NAME

DESIGN PRESS/TEMP
RATED FLOW
INSULATION TYPE
TRIM LINE NUMBER

(Barg/°C)
(m³/h)

EQUIP ID
NAME

TEMA TYPE
AREA/DESIGN DUTY
SHELL DESIGN PRESS/TEMP
TUBE DESIGN PRESS/TEMP
INSULATION TYPE
TRIM LINE NUMBER

(m²/MW)
(Barg/°C)
(Barg/°C)

1

EQUIP ID
NAME

INSIDE DIA/HEIGHT
WORKING CAPACITY
DESIGN PRESS/TEMP
INSULATION SPEC
TRIM LINE NUMBER

(mm/mm)
(m³/hr)
(Barg/°C)

EQUIP ID
NAME (e.g. FILTER)

DESIGN PRESS/TEMP
INSULATION SPEC
TRIM LINE NUMBER

(Barg/°C)

EQUIP ID
NAME

SIZE (LxWxH)
WORKING CAPACITY
TRIM LINE NUMBER

(mmxmmxmm)
(m³/hr)

EQUIPMENT IDENTIFICATION

X-YZZZ A

EQUIPMENT CODE

PLANT SECTION NUMBER

REDUNDANCY CODE

EQUIPMENT SEQUENCE NUMBER

EQUIPMENT CODES

A PACKAGE EQUIPMENT

AE AIR-COOLER

C COLUMN/TOWER

DS DESUPERHEATER

D DEAERATORS

E HEAT EXCHANGERS

EG EMERGENCY DIESEL GENERATOR

G GENERATOR

J EDUCTOR/EJECTOR

K FANS/BOOSTERS/COMPRESSORS

M MOTOR

N AGITATOR, MIXER

P PUMP

Q CIVIL STRUCTURE, WATER BASIN, SUMP, DIKE, POND, PIT, API SEPARATOR.

R REACTOR

S FILTER

SIL SILENCER

T STEAM TURBINE, GAS TURBINE, HYDRAULIC TURBINE, TANK

U UNITS OR PACKAGES (WHERE DETAIL IS UNKNOWN)

V VESSEL, DRUM, PIG TRAP

Y PACKING, CATALYST BED

Z MISCELLANEOUS (FIRE WATER MONITOR, FOAM GENERATOR, DELUGE SKID)

PLANT SECTION NUMBER

1. PRE-TREATMENT

2. CO2 CAPTURE

3. CO2 COMPRESSION

4. UTILITIES

Rev	Date	Revision Object	Written by	Checked by	Approved by

PETERHEAD
CCS (ONSHORE)

PETERHEAD CCS PROJECT
PROCESS ENGINEERING FLOW SCHEME
EQUIPMENT TITLE LABELS

DOC. CLASS:SCALE: NTS SHEET: 1/1

CLIENT Doc. Ref. PCCS-00-TC-PX-2365-00004-001

REVISION K01

FORMAT A1

LAST REV DATE:

FILESPEC: 1

[illegible]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
A	KKS IDENTIFICATION SYSTEM FOR POWER STATION												<div>NOTES:</div> <div>1. THIS LEGEND SHEET IS SPECIFIC TO THE KKS SYMBOLOGY/NUMBERING REQUIREMENTS FOR THE PPS GENERATION FACILITIES ONLY. REFER TO P&IDS 1 TO 7 FOR ADDITIONAL SYMBOLS WHICH ARE COMMON TO THE CCP.</div>			
	LINE IDENFICATION NUMBER/FROM DIRECTION									PIPING						
	<div><div>NNAAANN</div> - LINE NUMBER</div> <div><div>BRNNN</div> - BRANCH NUMBER</div> <div>THE DIRECTION OF THE FLAG SHOWS THE DIRECTION OF MEDIUM FLOW. (I.E. FLOW FROM LEFT TO RIGHT)</div>				<div><div>NNAAANN</div> - LINE NUMBER</div> <div><div>BRNNN</div> - BRANCH NUMBER</div> <div>EXTENDED FLAG IDENTIFIES DIRECTION OF MEDIUM FLOW DEPENDING ON OPERATING CONDITIONS. (I.E. BI-DIRECTIONAL FLOW)</div>					<div><div><div><div></div><div></div></div></div></div> <div>SPEC BREAK BETWEEN SYSTEM a AND b.</div>						
B	A - ALPHABETICAL SYMBOL				N - NUMERICAL SYMBOL											
	DRAWING CONTINUATION									INSTRUMENTATION						
	<div><div>AAA</div> - FUNCTION</div> <div><div>NNAAANN</div> - EQUIPMENT NUMBER</div> <div>SYMBOL POINTER BETWEEN CONNECTING SYSTEMS BREAKDOWN LEVEL FUNCTION OF THE CONNECTED SYSTEM AND LINE NUMBER PROVIDED.</div>									<div><div><div><div></div><div></div><div></div></div></div><div>INSTRUMENT IDENTIFICATION</div><div>LINE NUMBER</div><div>PIPING SPEC</div></div> <div>TEMPERATURE TRANSMITTERS (TT AND TIC) ALSO INCLUDE THE TEMPERATURE ELEMENT (TE) AS PART OF THE REPRESENTED SYMBOL.</div>						
C	ABBREVIATED CLIENT REFERENCE NUMBER TO BE INCLUDED IN CONTINUATION FLAG															
	LINE NUMBERING									UNIT CODES						
D					<div><div><div><div></div><div></div></div></div><div><div>N</div><div>N</div></div><div><div>A</div><div>A</div><div>A</div></div><div><div>N</div><div>N</div></div></div>					<div>00 PETERHEAD POWER STATION</div> <div>10 GENERATING BLOCK # 1 STEAM TURBINE</div> <div>11 GENERATING BLOCK # 1 GAS TURBINE/HRSG # 1</div> <div>12 GENERATING BLOCK # 1 GAS TURBINE/HRSG # 2</div> <div>13 GENERATING BLOCK # 2 GAS TURBINE/HRSG # 3</div> <div>20 GENERATING BLOCK # 2 STEAM TURBINE</div>						
	UNIT															
	FUNCTION :				MAIN GROUP											
					SYSTEM GROUP											
E					SYSTEM											
	SUB SYSTEM									FUNCTION CODE						
										<div>EKA RECEIVING SYSTEM (SUPPLY OF GASEOUS FUELS)</div> <div>EKG PIPING SYSTEM (SUPPLY OF GASEOUS FUELS)</div> <div>GHC DISTRIBUTION SYSTEMS AFTER TREATMENT (DEMIN WATER)</div> <div>GKB POTABLE WATER DISTRIBUTION SYSTEM</div> <div>GM PROCESS DRAINAGE SYSTEM</div> <div>HBK STEAM GENERATOR INTERIOR</div> <div>HN FUEL GAS EXHAUST</div> <div>HNE SMOKE STACK EXHAUST</div> <div>LBB HOT REHEAT PIPING SYSTEM</div> <div>LBA MAIN STEAM PIPING SYSTEM</div> <div>LBC COLD REHEAT PIPING SYSTEM</div> <div>LCA MAIN CONDENSATE PIPING SYSTEM</div> <div>LCE CONDENSATE DESUPERHEATING SPRAY SYSTEM</div> <div>LAA STORAGE, DEAERATION (INCLUDING BFW TANK)</div> <div>LAB FEED WATER PIPING SYSTEM (EXCLUDING BFW TANK)</div> <div>LAC FEED WATER PUMP SYSTEM</div> <div>LBG AUXILIARY STEAM PIPING SYSTEM</div> <div>LCM CLEAN DRAINS SYSTEM</div> <div>LCL STEAM GENERATOR DRAINS SYSTEM</div> <div>MAA HP TURBINE</div> <div>MAG CONDENSING SYSTEM</div> <div>MAW SEALING, HEATING AND COOLING SYSTEM</div> <div>MAC LP STEAM TURBINE</div> <div>MAN TURBINE BY-PASS STATION</div> <div>MBR EXHAUST GAS SYSTEM</div> <div>PGA CLOSED COOLING WATER PIPING SYSTEM (FORWARD)</div> <div>PGB CLOSED COOLING WATER PIPING SYSTEM (RETURN)</div> <div>PAB CIRCULATING (MAIN COOLING) WATER PIPING AND CULVERT SYSTEM.</div> <div>QCJ AMMONIA STORAGE AND FEED FOR HRSG</div>						
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Rev	Date	Revision Object	Written by	Checked by	Approved by

