	INSTALLATION AND MECHANICAL/TECHNOLOGICAL COMMISSIONING OF I&C SYSTEMS											
No.	Task Activities	Activities	Done correctly?		The Contractor	Checked by the Contractor	Date	Comments	Approved by PCC	Date	Comments	
			YES	NO	N/A							
1.	Has all the work been completed											
2.		ruction stage at the site of the planned commissioning?										
3.	-	atement of readiness for commissioning?										
4.	Is there documentation available	-										
		Have the cable glands been tightened? Are the wires marked?										
		(from - to + cable number)										
		Does each cable have an adequate spare length margin?										
		Are the wires secured in the conduits?										
		Have insulation resistance and RLC (Ex) measurements been taken for the cables?										
		Have the screens been connected?										
		Is there any headroom for multicore cables?										
5.	Verification of measuring instrum											
		Do the instruments have TAG number plates?										
		Is the unit installed in the correct location according to the P&ID?										
		Are the instruments properly electrically connected? Does the device have a ground connection to the terminal?										
		Is the device properly mounted mechanically (according to the HookUp drawing and										
		OMM)?										
		Does the device have the correct parameter settings (range, etc.)?										
		Has the quality documentation of the device been submitted? (certificates,										
		declarations of conformity, calibration documents, certificate of verification by										
		LabMatic)										
		Is there a correct voltage at the transducers? Have the flange connections been properly made?										
		(bolt lengths, washers/bridges, gaskets, bolt colour (for Ex))										
6.	Verification of flow meters:											
		Are there appropriate straight sections upstream and downstream of the flow meter?										
		Is the device installed according to the direction of flow of the medium?										
		Does the flow meter's installation method ensure its correct operation? (note the										
		measurement location: vertical/horizontal/highest point, lowest point)										
		Has the correct range been set for all outputs?										
		Are the pulse width and magnitude for the pulse output appropriate?										
		Has a simulation been carried out on the device?										
		Has flow reset been performed?										
		Has the elemental function been set for venturi flow meters?										
7	Verification of pressure and diffe	Have the correct density and minimum flow cut-offs been set? (if required)										
7.	vermeation of pressure and diffe	Has the correct range been set for all outputs?										
		Has a simulation been carried out on the device?										
		Has a transducer reset been performed?				1						
		Are there shut-off valves fitted under the transducer?										
		Is the supply valve under the transducer open and the air vent closed?										
		Have measurement cells (LP and HP) been installed correctly for the differential pressure?										
8.	Verification of temperature trans											
		Is the sensor mounted in a technological shield?										
		Has the correct range been set for all outputs?										
9.	Verification of liquid level transd											
		Has the correct range been set for all outputs?				<u> </u>						
		Has transducer mapping been carried out?				 						
		Has tank scaling been carried out?										
		Has a transducer reset been performed?				+	┨					
		Has the correct mounting direction in relation to the tank's side wall been observed?										
10.	Verification of liquid level indicat											
		Have the MIN / MAX settings been verified?										

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		Has the mounting direction been verified? (according to flow/filling direction)					
		Has it been verified that the trip-off state is a low "0" state?					
11.	Verification of pressure gauges a						
		Has the marked scope of work (green) been verified?					
		Is the dial easy to read and correctly mounted?					
		Are shut-off valves fitted for pressure gauges and a technological cover for					
		thermometers?					
		Have the settings for contacts been verified? (if applicable)					
12.	Verification of scales:						
		Has the correct range been set for all outputs?					
		Has a zero calibration been carried out?					
		Has the installation of the cells been validated? Have the transport locks been					
		removed?					
		Is the scale level?					
		Have resistance measurements been taken for tensometric bridges?					
		Is the scale protected against mechanical damage?					
12	Verification of analysers:						
13.	Vermeation of analysers.	Has the correct range been set for all outputs?					
		Is it possible to calibrate the pH meters under load?					
		· ·			 		
		Has the flow direction been verified?					
14.	Verification of ON/OFF and conti	ol valves:					
		Is the medium being supplied to the actuator?					
		Has the closed/open position of the limiters been verified?					
		Has the safe position been verified for electrical and air supply failure?					
		Has the correct control of the control valve been verified at the five operating					
		setpoints: 0, 25, 50, 75, 100%?					
		Has the direction of flow through the valve been verified?					
		Have the deviations from the assembly axis been verified in accordance with the					
		OMM?					
		Have noise dampers been fitted?					
	Verification of measurement cab	· · · · · · · · · · · · · · · · · · ·					
15.	vernication of measurement cab						
		Do the cable glands comply with the design (size and Ex mark)?					
		Are the backup cable glands blanked off?					
		Have the cable glands been tightened?					
		Has adequate spare space been reserved?					
		Have the types and models of devices used been checked, including circuit breakers,					
		disconnectors, power supplies, relays, contactors, lights, sizes of cable connectors					
		used, DCS island configurations and PLCs?					
		Have the façade, apparatus and wire conductors been checked for correct markings?					
		Is the cabinet nameplate fitted?					
		Have the safeties been verified in terms of their rating (amperage)?					
		Have the NC and NO relays been checked for correct installation?	1				
		Has the correct tightening of the clamps been verified?	 				
		Have cooling and heating systems (fans, heaters) been checked?					1
		Has the orientation of the system cable plugs been checked? (e.g. for PROFIBUS plug				1	
		throughs)					
		Is the cabinet fitted with a service socket and lighting?					
		Is there as-built documentation in a dedicated slot in the cabinet?					
		Is the cabinet free from moisture condensation?				+	
		Does the cabinet have the correct IP?					
		Does the cabinet have a security lock?					
		Is there a separate mounting area in the cabinet for components (connectors, trays,					
		barriers) for Ex-ia systems?		 			
		Is the cabinet grounded?			 		
		Have the Ex markings been verified?					
		Has the condition of electric shock, short-circuit and overload protection been					
		checked? Have the relevant reports been drawn up?					
16.	Verification of cable routing:						
		Have the tray types used been verified?					
		Have separate trays or divisions been used for 24VDC and 230VAC cables?					
		Have separate trays or divisions been used for intrinsically safe cables?					
		nave separate rays of divisions been used for intrinsically sale cables:					l

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	Have the electrical bondings been verified?							
	Has cable routing been verified?							
	Has the amount of headroom been verified?							
17. Check of impulse pi	pe assembly and measurement air system, ending with tightness tests							
	Has the correct air tubing material been used?							
	Have the tubes been labelled and their routing in/around the trays verified?							
	Is there unobstructed access to the manifold to operate the valves?							
	Have the manifolds and each manifold outlet been labelled?							
	Does the manifold have reserves?							
	Does the manifold have shut-off and drain valves? The manifold should be purged							
	with air at the start of commissioning.							
Varification of DCC								
18. Vernication of DCS	and control systems:							
	Have the synoptics been checked (e.g. P&ID compliance, lock screens, network and							
	flooding diagnostic screens, colours, symbols, static and dynamic texts, organisation:							
	links, tree, etc.)?							
	Has the effectiveness of the I&C system been checked?							
	Has the indication of the local measurement value been compared with the value in							
	the DCS/BMS/SCADA/PLC system?							
	Have values been simulated on the measuring devices?							
	Have the set ranges been checked?			1				
	Have the measurement points been checked for correct descriptions?			1				
	Has the correctness of pop-up lock messages, warnings etc. been checked?							
	Have the locking functions been verified through a simulation test?	 <u>↓</u>		+				
	Have the connections and operation of on/off automatic valves, control valves and	<u> </u>						
	manual valves with limiters been checked?							
	Has the operation of the electric drives been checked via the control and							
	visualisation system and locally?							
	Has the operation of the heating circuit system been checked via the control and							
	visualisation system?							
	Has the control system been checked, including the computers, monitors, printers							
	and UPS devices?							
	Has the performance of the DCS power and earthing system been checked?							
	Have power, hardware and network redundancies been checked?							
	Has the addressing of the I&C devices been checked in accordance with the network							
	structure?							
	Have the alarm and lock settings been checked?							
	Have the settings and tuning of the PID controllers been checked?							
	Have the uploaded licences been checked for correctness?							
	Has the system load been checked (memory, CPU, controller cycle time, process							
	value refresh time, etc.), including the verification that there is an appropriate							
	headroom for the following, as per the contract/order and the SUT-C standard:							
	computing power, memory, back-up I/O channels and system licences?	 ↓ ↓ ↓ ↓ ↓						
	Have the system communication and network monitoring been checked?	<u> </u>						
	Have wires been checked for short circuits, wire breaks, out-of-ranges and earth							
	faults?							
	Have you checked and performed test runs, control system commissioning, checking							
	the compatibility of I/O inputs with indicators, alarm system indications, warnings,							
	trend tag archiving system, as well as events and refresh on graphics and ignition							
	switches?							
	Has it been verified that the interlocking state is implemented with the no-voltage							
	"0" state?							
	Have the source codes for the PLCs and HMIs been provided, and have all logins and	1 1		1				
	passwords for the systems been provided as well?							
	Has the automatic activation of the DCS after a power failure been checked?							
				+				
19. Has the as-built doo	cumentation been handed over?							
	Has the Red-Pen as-built documentation been submitted?							
	Does the as-built documentation include a list of licences, licence quantities and use							
	levels and the number of Process Objects (POs)? Please also state the number of							
	configured/used controller Power Tags, as well as the number of archiving variables							
	used.							
			-	-	-	-	-	•

	Does the as-built documentation contain data on the control system, i.e.: CPU				
	processing power with confirmation of verification, information on controller				
	memory with confirmation of verification, software version of the control and				
	visualisation system, information on backup channels of I/O modules with				
	confirmation of verification?				
	Does the as-built documentation contain a list of PID controller settings?				
	Has the revised source documentation been submitted in electronic and paper				
	versions?				
	Have the following as-built test and measurement reports been provided:				
	a) reports on tests and commissioning of the industrial network,				
	b) reports on tests and commissioning of the control and visualisation system,				
	including confirmations of functional				
	checks of all locks and control algorithms (including sequences),				
	(c) reports on tests and commissioning of measurement and control circuits,				
	(d) test reports on the initial inspection of electrical protective devices and systems				
	intended for use in potentially explosive atmospheres?				
	Have instructions for use (operation and maintenance) and User training reports				
	been provided?				
	Has an I&C specification list been provided (an Excel file containing such data as:				
	technological symbols, description, location, type, manufacturer, serial No., set				
	(measuring or operating) range, factory range, characteristic data (e.g. probe length,				
	technological connections, accuracy, EX device markings, etc. relevant to the type of				
	device in question), costs)?				
	Has a drawing of the structure of the industrial network and DCS control been				
	provided, with the network addresses in a separate file (company secret)?				
	Have the synoptics graphic files in .jpg and .pdf formats been submitted?				
	Has quality documentation (certificates, OMMs, data sheets) been submitted?				
20. Has a summ	nary of design deviations been provided?				